

TRIAD 1973-74 CATALOG

Transformers, Inductors,
Power Supplies, Circuit
Cards for Industry

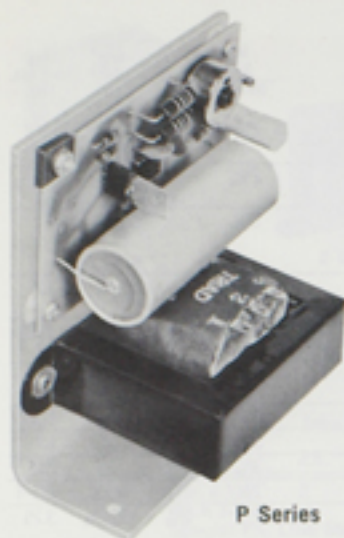


Litton

TRIAD-UTRAD

Distributor Services

305 North Briant Street, Huntington, Indiana 46750



P Series

Reliable, low cost general purpose supplies

Features

- Open Frame Construction
- Glass Epoxy Printed Circuit Board
- High Performance IC Regulator
- Computer Grade Filter Capacitor
- All Silicon Semiconductors
- Small Size 2½" x 4" x 4½"
- Foldback Current Limiting and Short Circuit Protection
- Adjustable Output

Specifications

Input: 115V ± 10% 60hz ± 5%

Regulation: Line: ± 0.5%
Load: ± 0.5%

Ripple: 5 MV RMS or 15 MV pk to pk max.

Temp Coefficient: 0.02% / °C

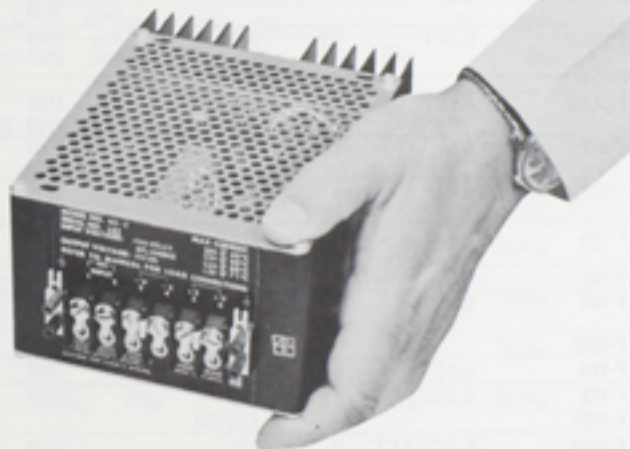
Grounding: Floating output either positive or negative max. may be grounded

Output Adjustment: ± 5%

Cat. No.	Output Voltage	Output 40°C	Current 65°C
☛ P-543	5V	3.0A	1.5A
☛ P-546	12V	1.5A	.8A
☛ P-547	15V	1.5A	.8A
☛ P-548	24V	1.0A	.5A

Standardized DC power modules in B package for OEM systems

The NCB series of power modules are extremely high quality, tightly regulated supplies suitable for the most exacting applications. Recommended where long life, extreme reliability and minimum down time are important considerations, or where temperature extremes are encountered. They use an extruded integral heat sink housing which provides over 260 square inches of cooling area. All units have built-in overvoltage protection; 10-year life computer grade capacitors; all silicon semiconductors; electrostatically shielded transformer designed to meet requirements of MIL-T-27; FR glass epoxy printed circuit boards. Guaranteed 5 years. Designed to meet UL/CSA requirements.



NCB Series

Triad Cat. No.	Voltage Range	45°C	Current Rating 50°C	60°C	71°C	Trip Point O.V.P.
☛ NCB-5	5V ±10%	5.1A	4.8A	4.0A	3.0A	6.4V ±9%
☛ NCB-12	12V ±10%	3.0A	2.5A	2.2A	1.5A	14.9V ±7%
☛ NCB-15	15V ±10%	3.0A	2.5A	2.2A	1.5A	17.25V ±4%
☛ NCB-24	24V ±10%	1.5A	1.4A	1.3A	1.2A	29.0V ±5%
☛ NCB-28	28V ±10%	1.5A	1.4A	1.3A	1.2A	33.0V ±5%

Wide range, adjustable regulated 40-watt power supplies for OEM's

Input: 115V ± 10%, 47-440Hz

Regulation: Line: ±0.1%
Load: ±0.2% 50% load change

Ripple: 2MV RMS, 6MV pk to pk

Temperature Range (Operating): 0°C to +40°C to +65°C derated

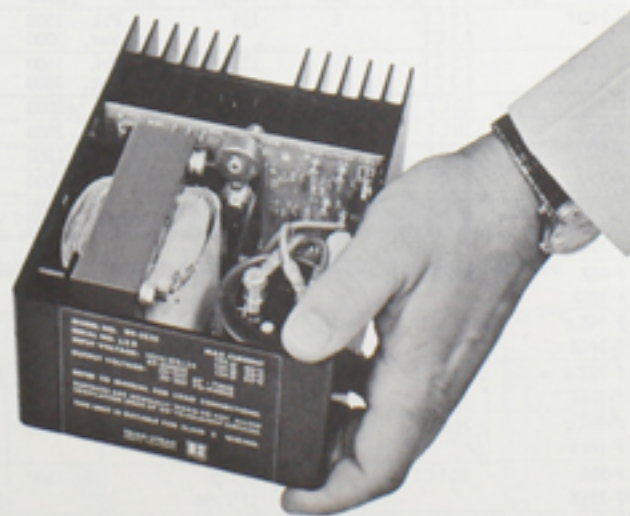
Temperature coefficient: 0.03%/°C typical

Transient response: 100 microseconds max. 50 microseconds typical

Grounding: Floating output either positive or negative may be grounded

Size: 4" x 4½" x 6½"

Catalog No.	Voltage Range 47-70Hz	70-440Hz	40°C	Current 50°C	65°C
☛ WR-48	4-8V	4-7V	5.0	4.0	3.0
☛ WR-1116	11-16V	11-15V	2.5	2.2	1.5
☛ WR-2126	21-26V	21-25V	1.5	1.4	1.3
☛ WR-2630	26-30V	26-30V	1.4	1.3	1.2



WR Series



FILAMENT / single secondary / 50-60 Hz

Type No.	Secondary		Primary Volts	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mfg. Hole Size	Max. Unit Wt. Lbs.
	Volts	Amps					H	W	D	MW	MD		
F-1X #	2.5 CT	3	115	1500	X	Leads	1 1/4	2 1/4	1 1/4	2 1/4		3/8	.68
☛ F-301X			115/230										
F-72Z #	2.5 CT	5	115	Pri. 1500 Sec. 7500	Z	Pri. Leads Sec. -Lugs	2 1/4	3 1/4	2 1/4	2 1/4		3/8	1.7
F-6X #	2.5 CT	6	115	Pri. 1500 Sec. 2500	X	Leads	1 1/4	3 1/4	1 1/4	2 1/4		3/8	1
☛ F-306X			115/230										
F-3X #	2.5 CT	10	115	Pri. 1500 Sec. 3000	X	Leads	2 1/4	3 1/4	2 1/4	3 1/4		3/8	1.7
F-5U	2.5 CT	10	115	Pri. 1500 Sec. 7500	U	Leads	3 1/4	2 1/2	2 1/4	2	1 1/4	3/8x3/8	2.2
F-71U #	2.5 CT	10	115	Pri. 1500 Sec. 10,000	U	Pri. Leads Sec. Leads	3 1/4	2 1/4	2 1/4	2 1/4	2 1/4	3/8x3/8	2.6
F-7X	5 CT	3	115	1500	X	Leads	1 1/4	3 1/4	2	2 1/4		3/8	1.3
F-8X	5 CT	6	115	1500	X	Leads	2 1/4	3 1/4	2 1/4	3 1/4		3/8	1.7
F-12X	5 CT	8	115	2500	X	Leads	2 1/4	4	2 1/4	3 1/4		3/8	2.5
F-9U	5.2 CT	13	115	1500	U	Leads	3 1/4	2 1/4	3 1/4	2 1/4	2 1/4	3/8x3/8	4
F-15U #	5 CT	15	115	Pri. 1500 Sec. 3000	U	Leads Lugs	3 1/2	2 1/4	2 1/4	2 1/4	2 1/4	3/8x3/8	3.25
F-10U #	5 CT	14	115	Pri. 1500 Sec. 10,000	U	Leads	3 1/4	3 1/4	3 1/4	2 1/2	2 1/4	3/8x3/8	4.75
F-11U	5.2 CT	24	115	1500	U	Leads	3 1/4	3 1/4	3 1/4	2 1/2	3 1/4	3/8x3/8	6.75
F-13X	6.3	.6	115	1500	X	Leads	1 1/4	2 1/4	1 1/4	2		3/8	.37
☛ F-313X			115/230										
R-84K	6.3†	.6	115	Pri. 1500 Sec. 3500	K	2-Leads	2 1/4	2 1/4	2 1/4	1 1/2	2 1/4	3/8	1.5
F-14X #	6.3 CT	1.2	115	Pri. 1500 Sec. 2500	X	Leads	1 1/4	2 1/4	1 1/4	2 1/4		3/8	.7
☛ F-314X			115/230										
F-14Z #	6.3 CT	1.2	115	Pri. 1500 Sec. 2500	Z	Leads	1 1/4	2 1/4	1 1/4	2		3/8	.7
F-52X	6.3†	1.2	115	Pri. 1500 Sec. 5000	X	Leads	1 1/4	3 1/4	1 1/4	2 1/4		3/8	1
F-51X #	6.3-5†	2	115	Pri. 1500 Sec. 5000	X	Leads	1 1/4	3 1/4	2	2 1/4		3/8	1.25
F-53X	6.3	4	115	Pri. 1500 Sec. 5000	X	Leads	2 1/4	4	2 1/4	3 1/4		3/8	2.1
F-43X #	6.3	4	115	1500	X	Leads	1 1/4	3 1/4	2	2 1/4		3/8	1.25
F-16X	6.3 CT	3	115	Pri. 1500 Sec. 2500	X	Leads	1 1/4	3 1/4	2	2 1/4		3/8	1.3
☛ F-316X			115/230										
F-18A	6.3 CT	6	115	1500	A	1-Leads	3 1/4	2 1/4	2 1/4	2	1 1/4	3/8x3/8	2.5
F-18X	6.3 CT	6	115	1500	X	Leads	2 1/4	4	2 1/4	3 1/4		3/8	2.3
☛ F-318X			115/230										
F-19X†	6.3 CT-6 CT	6	115	2000	X	Leads	2 1/4	4	2 1/4	3 1/4		3/8	2.3
F-21A	6.3 CT	10	115	1500	A	1-Leads	3 1/4	2 1/4	3 1/4	2 1/4	2	3/8x3/8	3.8
F-20U†	6.3 CT-6 CT	11	115	Pri. 1500 Sec. 3000	U	Leads	3 1/2	2 1/4	3	2 1/4	2 1/4	3/8x3/8	4
F-17U #	6.3 CT Lo-Cap.	15	115	Pri. 1500 Sec. 10,000	U	Pri. Leads Sec. Leads	4 1/4	3 1/2	3 1/4	2 1/4	2 1/4	3/8x3/8	7.5
F-22A	6.3 CT	20	115	2000	A	2-Leads	3 1/4	3 1/4	4 1/4	2 1/2	3	3/8x3/8	7
F-24U†	7.5 CT- 6.3 CT	8	115	Pri. 1500 Sec. 3000	U	Leads	3 1/2	2 1/4	2 1/4	2 1/4	2 1/4	3/8x3/8	3.65
F-28U†	7.5 CT- 6.3 CT	25	115	Pri. 1500 Sec. 3000	U	Leads & Lugs	4 1/4	3 1/4	3 1/4	3	3 1/4	3/8x3/8	7.5
☛ F-31X	10 CT	3	115	2000	X	Leads	2 1/4	3 1/4	2 1/4	3 1/4		3/8	1.7
☛ F-33U	10 CT	5	115	2000	U	Leads	3	2 1/2	2 1/4	2	2 1/4	3/8x3/8	2.5
F-23U	10 CT	7	115	1500	U	Leads	3 1/2	2 1/4	2 1/4	2 1/4	2 1/4	3/8x3/8	3.9
☛ F-35U	10 CT	10	115	2000	U	Leads	4 1/4	4 1/2	3 1/4	2 1/4	2 1/4	3/8x3/8	9.1
F-29U†	12 CT-11 CT 10 CT	11	115	Pri. 1500 Sec. 3000	U	Leads	4 1/4	3 1/2	3 1/4	2 1/4	2 1/4	3/8x3/8	6.5
☛ F-70X	12.6 CT	1.0	115	1500	X	Leads	1 1/4	3 1/4	1 1/4	2 1/4		3/8	1.3
F-25X	12.6 CT	1.5	115	1500	X	Leads	1 1/4	3 1/4	2	2 1/4		3/8	1.3
☛ F-325X			115/230										
F-44X #	12.6 CT	2	115	1500	X	Leads	1 1/4	3 1/4	2	2 1/4		3/8	1.25
☛ F-344X			115/230										
F-26X #	12.6 CT	2.5	115	1500	X	Leads	2 1/4	3 1/4	2	3 1/4		3/8	1.55
☛ F-326X			115/230										
F-40X #	26.8 CT	1	115	1500	X	Leads	1 1/4	3 1/4	2	2 1/4		3/8	1.3
☛ F-340X			115/230										
F-55X	26.8 CT	1.7	115	1500	X	Leads	2 1/4	4	2 1/4	3 1/4		3/8	2.3
☛ F-355X			115/230										
F-57X	25.2 CT	1	115	1500	X	Leads	1 1/4	3 1/4	2	2 1/4		3/8	1.5
F-41X #	25.2 CT	2	115	1500	X	Leads	2 1/4	4	2 1/4	3 1/4		3/8	2.2
☛ F-341X			115/230										



A Case



Z Case



X Case



U Case



K Case



AL Case

FILAMENT / single secondary / 50-60 Hz (Continued)

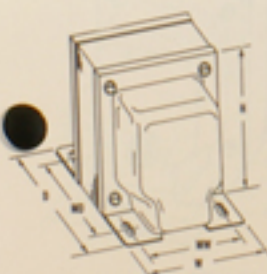
Type No.	Secondary		Primary Volts	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
	Volts	Amps					H	W	D	MW	MD		
F-56X	25.2 CT	2.8	115	1500	X	Leads	2 $\frac{1}{2}$	4	2 $\frac{1}{4}$	3 $\frac{1}{4}$	$\frac{3}{8}$	2.5	
F-50X #	Sec. 6.3-5 Pri. 6.3-5 Special Fil. Line Matching Transformer	2		Pri. 500 Sec. 5000	X	Leads	1 $\frac{1}{4}$	3 $\frac{1}{4}$	2	2 $\frac{1}{4}$	$\frac{3}{8}$	1.2	
F-45X #	24 CT	1	115	1500	X	Leads	1 $\frac{1}{4}$	3 $\frac{1}{4}$	2	2 $\frac{1}{4}$	$\frac{3}{8}$	1.3	
☐ F-345X			115/230										
F-46X #	24	1	115	1500	X	Leads	1 $\frac{1}{4}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	$\frac{3}{8}$	1.4	
F-54X	35 CT	1.5	115	1500	X	Leads	2 $\frac{1}{2}$	4	2 $\frac{1}{4}$	3 $\frac{1}{4}$	$\frac{3}{8}$	2.2	
☐ F-354X			115/230										
F-58A	50 CT	5	115	1500	A	Leads	4 $\frac{1}{2}$	3 $\frac{3}{4}$	4 $\frac{1}{2}$	3	3 $\frac{1}{2}$	$\frac{3}{8}$ x $\frac{3}{8}$	10.0
F-59X	60 CT	.4	115	1500	X	Leads	1 $\frac{1}{4}$	3 $\frac{1}{4}$	2	2 $\frac{1}{4}$	$\frac{3}{8}$	1.3	

FILAMENT / multiple secondary / primary 115 volt, 50-60 Hz

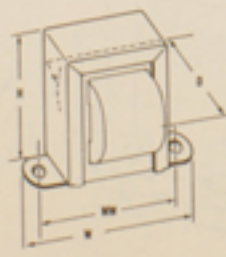
Type No.	Secondary		RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
	Volts	Amps				H	W	D	MW	MD		
F-27U	10 CT 2.5 CT	10 10	1500 7500	U	Leads	4 $\frac{1}{2}$	3 $\frac{1}{2}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	$\frac{3}{8}$ x $\frac{3}{8}$	6.2
▲ F-30A	6.3 CT 5 CT	8 3	1500	A	2-Leads	3 $\frac{1}{2}$	2 $\frac{1}{2}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	$\frac{3}{8}$ x $\frac{3}{8}$	4
F-32A	6.3 CT* 6.3 CT*	3 3	1500	A	1-Leads	3 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{4}$	2	1 $\frac{1}{4}$	$\frac{3}{8}$ x $\frac{3}{8}$	2.5
F-34A	6.3 CT* 6.3* 6.3* 6.3*	1.75 1.75 1.75 1.75	1500	A	2-Leads	3 $\frac{1}{4}$	2 $\frac{1}{2}$	3	2	2 $\frac{1}{4}$	$\frac{3}{8}$ x $\frac{3}{8}$	3.3
F-36A	6.3 CT* 6.3* 6.3* 6.3*	3.5 3.5 3.5 3.5	1500	A	1-Leads	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	$\frac{3}{8}$ x $\frac{3}{8}$	5
F-38A	6.3 CT* 6.3* 6.3 5 CT 5	5 5 1 2 4	1500	A	2-Leads	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	$\frac{3}{8}$ x $\frac{3}{8}$	6
F-42A	12.6 CT* 12.6*	2.5 2.5	1500	A	1-Leads	3 $\frac{1}{2}$	2 $\frac{1}{2}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2	$\frac{3}{8}$ x $\frac{3}{8}$	3.7
F-83A† #	12.6 CT* 12.6 CT*	5 5	Pri. 1500 Sec. 2500	A	2-Leads	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	$\frac{3}{8}$ x $\frac{3}{8}$	6

* Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding. Example: Two 6.3V. windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain combined current. Example: Two 6.3V. windings @ 2A. in parallel would be 6.3V. @ 4A.

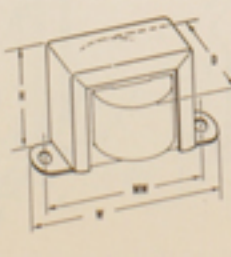
CT for Center Tap. † Tapped primary 105-115-125. # 60 cycle operation. ☐ New item. ▲ Discontinued item, available until stock depleted.



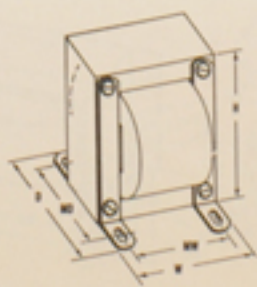
A Case



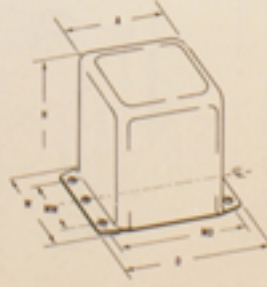
Z Case



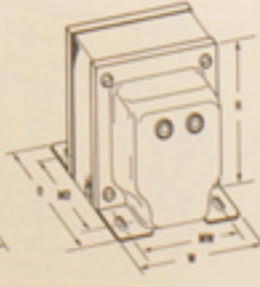
X Case



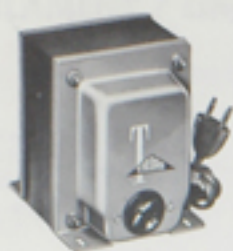
U Case



K Case



AL Case



M Case



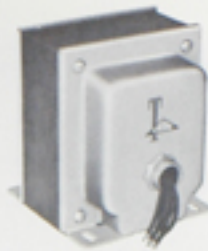
MM Case



X Case



A Case



AC Case

ISOLATION / 50-60 Hz

All units on this page have static shields

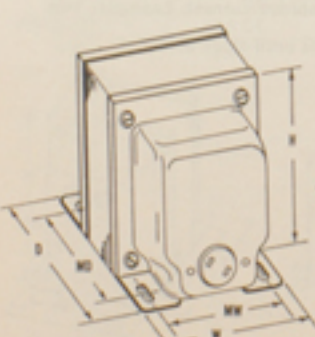
Type No.	Output Watts (VA)	Primary Volts	Secondary AC		RMS Test Voltage	Case Type	Connections	Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
			Volts ± 5%	Amps					H	W	D	MW	MD		
N-48X	15	115	115	.13	1500	X	Leads	-	1 1/8	3 3/8	2	2 3/8	-	3/8	1.35
N-49X	35	115	57.5-115§	.3	1500	X	Leads	-	2 1/2	3 1/4	2 1/2	3 3/8	-	3/8	1.9
N-51X#	35	115	115	.3	1500	X	Leads	-	2 1/2	3 1/4	2 1/2	3 3/8	-	3/8	1.7
N-68X	50	115-230§	115	.435	1500	X	Leads	-	2 1/2	3 1/4	2 1/2	3 3/8	-	3/8	1.7
N-53M	85	115	115	.74	1500	M	6' Cord, Plug & Socket	-	3 1/2	2 3/4	3 3/8	2 1/2	2 3/8	3/8 x 3/8	4.7
N-54M	150	115	115	1.3	1500	M	6' Cord, Plug & Socket	-	3 3/4	3 3/8	4 1/4	2 1/2	3	3/8 x 3/8	7
N-73A	150	115	115-230§	.65	1500	A	Leads	1	3 3/8	3 3/8	3 3/8	2 1/2	2 3/4	3/8 x 3/8	7
N-74A	150	115	57.5-115§	1.3	1500	A	Leads	1	3 3/8	3 3/8	3 3/8	2 1/2	2 3/4	3/8 x 3/8	7
N-67A	150	115-230§	115	1.3	1500	A	Leads	2	3 3/8	3 3/8	4 1/8	2 1/2	3	3/8 x 3/8	7
N-55M	250	115	115	2.17	1500	M	6' Cord, Plug & Socket	-	4 1/8	3 3/8	5	3	3 3/8	3/8 x 3/8	11
N-55MG*		115													
N-255MG*		230													
N-66A	250	115-230§	115	2.17	1500	A	Leads	2	4 1/8	3 3/8	4 1/8	3	3 3/8	3/8 x 3/8	11
N-57M	500	115	115	4.35	1500	M	6' Cord, Plug & Socket	-	5 3/8	4 1/2	6 1/4	3 1/2	5 3/8	1/2 x 1/4	23.75
N-57MG*		115													
N-257MG*		230													
N-59M	1000	115	115	8.7	1500	M	6' Cord, Plug & Socket	-	5 3/8	4 1/2	8	3 1/2	6 3/8	1/2 x 1/4	34
N-59MG*		115													
N-259MG*		230													
N-56M#	150	95-130 5V Steps	115	1.3	250	MM	Detachable 6' Cord, Plug, Switch, Socket & Meter	-	4 1/8	3 3/8	5 3/8	3	4 1/4	3/8 x 3/8	7
N-52M	350	95-130 5V Steps	115	3.04	250	MM	Detachable 6' Cord, Plug, Switch, Socket & Meter	-	4 1/8	3 3/8	7 3/4	3	6 3/8	3/8 x 3/8	17
N-469A#	50	220-440§	115	.435	1500	A	Leads	1	3 3/8	2 3/4	2 1/2	2	1 3/8	3/8 x 3/8	2.3
N-470A#	150	220-440§	115	1.3	2000	A	Leads	1	3 3/8	3 3/8	3 3/8	2 1/2	2 3/4	3/8 x 3/8	5.5
N-471A#	300	220-440§	115	2.6	2000	A	Leads	1	4 1/8	3 3/8	4 3/8	3	3 3/8	3/8 x 3/8	10.25

UNIVERSAL ISOLATION / AUTOFORMER / VOLTAGE CONTROL / 50-60 Hz

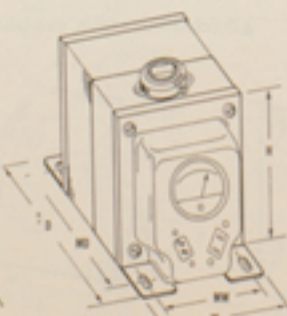
Have four 115-volt windings. Both primary and secondary may be connected for 115 or 230 volts.

Type No.	Output Watts (VA)		RMS Test Voltage	Case Type	Connections	Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
	Isolation	Autoformer					H	W	D	MW	MD		
N-64AC	500	1000	1500	AC	Leads	1 Conduit	5 1/8	4 1/2	5 1/2	3 1/2	3 3/8	1/2 x 1/4	15
N-62AC	1000	2000	1500	AC	Leads	1 Conduit	6 1/2	5 1/2	6 3/8	4 1/4	4	3/8 x 3/8	29.5
N-60SC	2000	4000	2500	SC	Leads	Knockouts	4 3/8	8 1/2	13 1/2	7 3/8	7 3/8	3/8	56

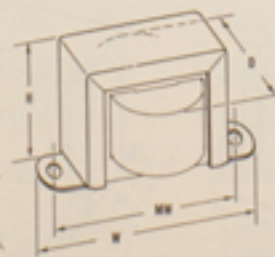
* Has 3-wire plug, cord and socket. § Split winding. # 60 cycle operation. **N** New item.



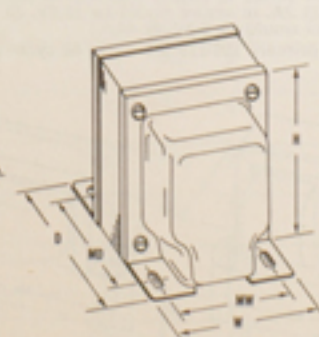
M Case



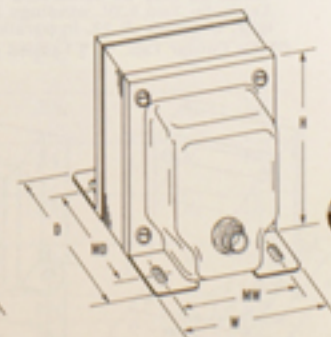
MM Case



X Case



A Case



AC Case

TRANSISTOR POWER SUPPLY TRANSFORMERS



COMMERCIAL & MIL GRADE



Type EE



Type A



Type L



Type X



Type TZ



Type S

These quality transformers are produced in either (1) commercial open-frame, double varnish and vertical-shielded types, or (2) epoxy molded toroidal types exceeding the Grade 5, Class R

requirements of Specification MIL-T-27B TF5RX40ZZ. Complete information on these units will be found in the Triad Engineering Bulletin on Transistor Power Supply Transformers.

EPOXY MOLDED TOROIDAL TYPE / dc to dc

Type No.	D.C. Source Volts	D.C. Volts out of Rectifier		D.C. Milliamps. Maximum	Case Type	Dimensions—Inches				Weight Lbs.
		F.W. Bridge	F.W. C.T.			T	D	H	M	
TY-78	12.6	250	125	100	EE	1/4	1 1/4	1 1/4	1/4	.35
TY-79	12.6	300	150	200	EE	3/8	1 1/4	1	1/4	.35
TY-80	12.6	325	162.5	150	EE	3/8	1 1/4	1	1/4	.35
TY-81	12.6	375	187.5	200	EE	3/8	2	1	1/4	.50
TY-82	12.6	450	225	150	EE	3/8	2	1	1/4	.50
TY-83	12.6	500	250	250	EE	1/2	2 1/4	1 1/4	3/8	.85
TY-84	12.6	600	300	200	EE	1/2	2 1/4	1 1/4	3/8	1.00
TY-85	12.6	600	300	350	EE	1/2	2 1/4	1 1/4	3/8	2.00
TY-86	12.6	425	212.5	350	EE	1/2	2 1/4	1 1/4	3/8	1.00
TY-88	28	250	125	80	EE	1/2	1 1/4	1	1/4	.25
TY-89	28	300	150	100	EE	1/2	1 1/4	1	1/4	.35
TY-90	28	325	162.5	200	EE	1/2	1 1/4	1	1/4	.35
TY-91	28	375	187.5	200	EE	1/2	2	1	1/4	.50
TY-92	28	450	225	200	EE	1/2	2	1	1/4	.50
TY-93	28	500	250	250	EE	1/2	2 1/4	1 1/4	3/8	.85
TY-94	28	600	300	200	EE	1/2	2 1/4	1 1/4	3/8	1.00
TY-99	6	300	150	100	EE	3/8	1 1/4	1	1/4	.35
TY-100	6	325	162.5	150	EE	3/8	2	1	1/4	.50
TY-101	6	375	187.5	200	EE	1/2	2 1/4	1 1/4	3/8	1.00
TY-102	6	450	225	150	EE	1/2	2 1/4	1 1/4	3/8	1.00

OPEN AND VERTICAL SHIELDED TYPES / dc to ac

Type No.	Primary D.C.	Secondary	Case Type	Dimensions—Inches			Mounting MW	Dimensions MD	Weight Lbs.
				H	W	D			
TY-468	28	110-115-125v 400cps 60 watts	L	1 1/4	2 1/4	2	1 1/4	1 1/4	1/2
TY-462	12	110-115-125v 400cps 60 watts	L	1 1/4	2 1/4	2	1 1/4	1 1/4	1/2
TY-75A	12	110-115-125v 60cps 115 watts	A	3 1/4	3 1/4	3 1/4	2 1/2	2 1/4	5
TY-76A	12	110-115-125v 60cps 60 watts	A	3 1/4	2 1/4	2 1/4	2	1 1/4	3

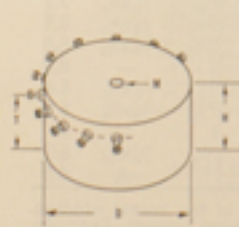
OPEN TYPE / 12 volt dc to dc

Type No.	D.C. Volts out of Rectifier		D.C. Milliampers Maximum	Dimensions—Inches			MW	Weight Lbs.
	F.W. Bridge	F.W. C.T.		H	W	D		
TY-68S	250	125	65	1 1/4	1 1/4	1 1/4	1 1/4	.2
TY-68S	300	150	100	1 1/4	2 1/4	1 1/4	1 1/4	.5
TY-70S	325	162.5	150	2	2 1/4	2 1/4	1 1/4	.6
TY-71S	375	187.5	200	2	2 1/4	2 1/4	1 1/4	.65
TY-74S	600	300	200	2	4 1/4	3	3 1/4	1.07

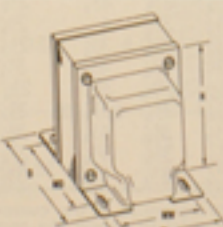
OPEN TYPE / dc to dc converter

Type No.	Input	*Typical operation Output	Case Type	Dimensions—Inches			MW	Weight Lbs.
				H	W	D		
TY-200X	3 v.DC @ 20 ma.	1050 v.DC @ 25 μa.	X	1 1/4	1 1/4	1/4	1 1/4	.08
TY-201TZ	4 v.DC @ 15 ma.	500 v.DC @ 50 μa.	TZ	3/4	1/2	3/4	—	.015
TY-202X	4 v.DC @ 45 ma.	550 v.DC @ 80 μa.	X	1 1/4	1 1/4	1/4	1 1/4	.08

* May vary with circuit components, load requirements, etc. † Has additional winding for bias in SSB transmitters. Provides 100-125 VDC (half-wave rectifier) @ 5-10 ma. max. ▲ Discontinued item, available until stock depleted.



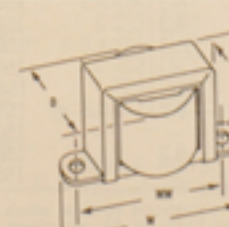
Type EE



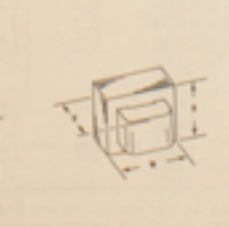
Type A



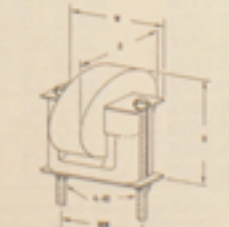
Type L



Type X



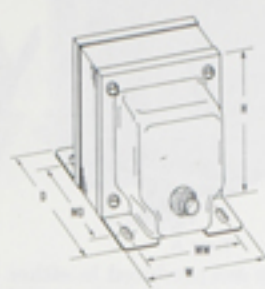
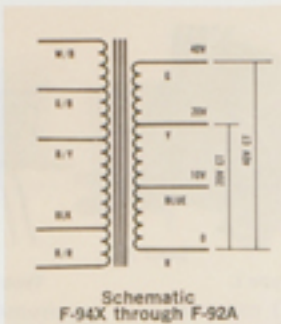
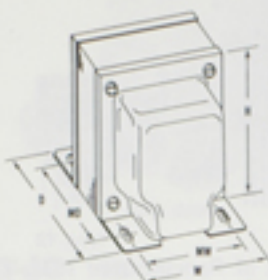
Type TZ



Type S



A Case



AC Case

Triad Universal Rectifier Power Transformers are designed for solid-state rectifier supplies. The DC voltage shown is for circuits A and B. Higher voltage can be obtained through the use

of capacitor input filters; in that case, however, rated DC current must be reduced approximately by 2. If a voltage doubler circuit (D) is used, current must be reduced approximately by 4.

UNIVERSAL RECTIFIER POWER / primary 50-60 Hz

Type No.	Primary Volts	Secondary AC		DC Volts		RMS Test Voltage	Case Type	Connections	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
		Volts	Amps	Half Wave	Bridge				H	W	D	MW	MD		
F-47U	115	0-17-18	3	6-7	13-14	1500	U	Leads	3	2½	2½	1½	2½	¼x¼	3.2
F-347U	115/230														
F-48U	115	0-17-18	6	6-7	13-14	1500	U	Leads	3½	3½	3½	2½	2½	¾x¾	5.5
F-49U	115	36*	3	13	26	1500	U	Leads	4½	3¾	3¾	3	3¾	¾x¾	9.75
F-60U	115	0-6.5-13-19.5-26	3	9	18	1500	U	Leads	3¾	2¾	2¾	2½	2¾	¾x¾	3.5
F-360U	115/230														
F-61U	115	0-24-27-30-33-36	3	13	26	1500	U	Leads	3¾	3¾	3¾	2½	2¾	¾x¾	5.65
F-361U	115/230														
F-67U#	110-120	0-24-27-30-33-36	8	13	26	1500	U	Leads	4½	3¾	4½	3	3¾	¾x¾	10.75
F-63U	115	0-8-9*	2	-	6-7	1500	U	Leads	3¾	2¾	2¾	2	2¾	¾x¾	2.3
F-64U	115	0-8-9*	2	-	6-7	1500	U	Leads	3¾	2¾	2¾	2	2¾	¾x¾	3.5
F-364U	115/230														
F-62U#	105-115-125	9*	10	-	7	1500	U	Leads	4½	3¾	5½	3	4¾	¾x¾	16
F-68U#	115	9 CT*	3.5	-	7	1500	U	Leads	3¾	3¾	3¾	2½	2¾	¾x¾	5
F-65U	110-120	0-140-150-160	.75	60	115	1500	U	Leads	3¾	3¾	3¾	2½	2¾	¾x¾	5.8
F-66U	110-120	0-140-150-160	2.5	60	115	1500	U	Leads	5½	4½	5½	3½	4	¾x¾	19
F-74U	117	28 CT*	2	-	-	1500	U	Lugs	3¾	3¾	3¾	2½	2¾	¾x¾	5.7
F-75U	117	28 CT*	4	-	-	1500	U	Lugs	4½	3¾	4½	2¾	3½	¾x¾	10
F-79U#	115	0-24-26-28-30	15	11.4	22.8	1500	U	Leads, Lugs	3¾	4½	5½	3¾	4¾	¾x¾	18.5
F-80U#	115†	0-12-13.5-15-16.5-18*	20	-	13	1500	U	Leads	5½	4½	5½	2¾	4½	¾ Dia.	25
F-86U	115	12 CT	10	-	-	1500	U	Leads	3¾	3¾	3¾	2½	2¾	¾x¾	6.2
F-84AC#	115 or 230‡	12 CT*	10	-	8.5	2000	AC	Leads (2 Holes)	4½	3¾	5½	3	3¾	¾x¾	12.7
F-85U	115†	5-7.5	20	-	8-12.5	1500	U	Leads	4½	3¾	4½	3	3¾	¾x¾	12
R-94H#	115	180† 117V. Bias 6.3V. 6.3V.	5 DC .005 DC 5.5 5.5	-	Doubler 470	1500	H	Leads (2 Holes)	3¾	4½	5½	3¾	4¾	¾x¾	17

SOLID STATE RECTIFIER POWER / primary 117 volts, 50-60 Hz

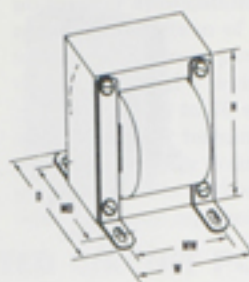
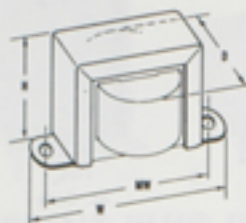
Type No.	Secondary No. 1		Secondary No. 2		Secondary No. 3		RMS Test Volts	Case Type	Connections	Case Dimensions			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
	Volts	DC ma.	Volts	Amps.	Volts	Amps.				H	W	D	MW	MD		
R-200A	200-0-200	400	6.3	3	6.3	3	1500	A	Leads	4½	3¾	4½	2¾	3¾	¾x¾	7.1
R-201A	150-0-150	600	6.3	2.5	6.3	2.5	1500	A	Leads	4½	3¾	4½	2¾	3¾	¾x¾	7.1
R-202A	100-0-100	800	6.3	2	6.3	2	1500	A	Leads	4½	3¾	4	2¾	2¾	¾x¾	6.9
R-203A	50-0-50	1600	6.3	1.5	6.3	1.5	1500	A	Leads	4½	3¾	3¾	2¾	2¾	¾x¾	6.0
R-82B	35-0-35	3500	-	-	-	-	1500	B	Leads	2¾	3¾	4½	3¾	3	-	8.3
R-208A	40-0-40	1200	-	-	-	-	1500	A	Leads	3½	2¾	3¾	2¾	2¾	¾x¾	4.4
R-204A	40-0-40	2000	6.3	1.5	6.3	1.5	1500	A	Leads	4½	3¾	3¾	2¾	2¾	¾x¾	6.5
R-209B	30-0-30	2000	-	-	-	-	1500	B	Leads	4½	3¾	4½	3¾	3	-	10
R-205A	30-0-30	2500	6.3	1.5	6.3	1.5	1500	A	Leads	4½	3¾	3¾	2¾	2¾	¾x¾	6.0
R-206B	27-0-27	1250	-	-	-	-	1500	B	Leads	2¾	3¾	3¾	3¾	2¾	-	4.8

* Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding. Example: Two 6.3V. windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain the combined current. Example: Two 6.3V. windings @ 2A. in parallel would be 6.3V. @ 4A.

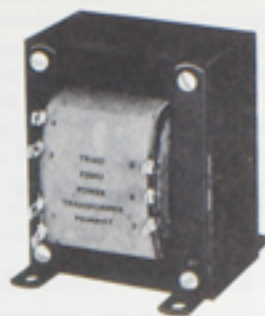
† Static Shield. # 60 cycle operation. † Tapped primary to produce lower voltages. § Split winding. CT for Center Tap. ■ New item.



X Case



U Case



LOW VOLTAGE RECTIFIER / transistor drive voltage, 50-60 Hz

Type No.	Primary Volts	Secondary AC		DC Volts		RMS Test Voltage	Case Type	Connections	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
		Volts	Amps	Half Wave	Bridge				H	W	D	MW	MD		
F-84X	115†	10-20 CT-40 CT	.035	15	30	1500	X	Leads	1 1/2	2 1/2	1 1/2	2	2 1/2	3/8	.5
F-80X	115†	10-20 CT-40 CT	.1	15	30	1500	X	Leads	1 1/2	2 1/2	1 1/2	2	2 1/2	3/8	.7
F-81X	115†	10-20 CT-40 CT	.3	15	30	1500	X	Leads	2 1/2	3 1/4	2	3 1/2	3/8	1.5	
F-83X	115†	10-20 CT-40 CT	.75	15	30	1500	X	Leads	2 1/2	4	2 1/2	3 1/2	3/8	2.4	
F-92A	115†	10-20 CT-40 CT	1	15	30	1500	A	Leads (2 Holes)	3 1/2	2 1/2	3	2	2 1/2	3/8 x 3/8	3.25

LOW VOLTAGE LOW CURRENT / primary 117 volts, 50-60 Hz

Type No.	Secondary		RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting		Mtg. Hole Size	Max. Unit Wt. Lbs.
	Volts	Amps				H	W	D	MW	MD		
F-112X	14 CT	0.25	1500	X	Leads	1 1/2	2 3/8	1 1/2	2	2 1/2	3/8	.4
F-113X	12	0.15	1500	X	Leads	1 1/2	2 3/8	1 1/2	2	2 1/2	3/8	.4
F-114X	12	0.7	1500	X	Leads	1 1/2	2 1/4	1 1/2	2 1/2	2 1/2	3/8	.8
F-115X	24 CT	0.085	1500	X	Leads	1 1/2	2 1/4	1 1/2	1 1/2	1 1/2	3/8	.3
F-116X	24 CT	0.2	1500	X	Leads	1 1/2	2 3/8	1 1/2	2	2 1/2	3/8	.45
F-3116X #												
F-117X	24 CT	0.4	1500	X	Leads	1 1/2	2 1/4	1 1/2	2 1/2	2 1/2	3/8	.8
F-118X	24 CT	0.7	1500	X	Leads	1 1/2	3 1/2	2	2 1/4	2 1/4	3/8	1.30
F-119X	26.8 CT	0.15	1500	X	Leads	1 1/2	2 3/8	1 1/2	2	2 1/2	3/8	.45
F-120X	26.8 CT	0.5	1500	X	Leads	1 1/2	3 1/2	2	2 1/4	2 1/4	3/8	1.3

Same as F-116X but with 115-230 volt primary.

UNIVERSAL RECTIFIER POWER / primary 117 volts, 50-60 Hz

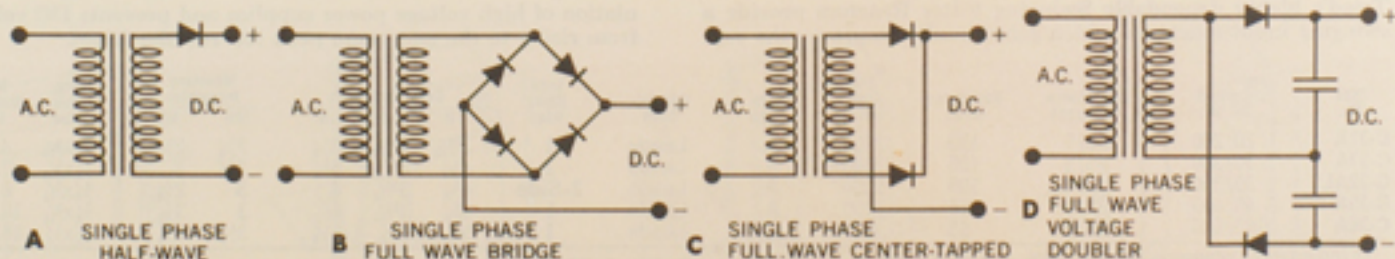
These Triad units give maximum flexibility when integrated into full-wave CT or bridge type circuits with silicon or selenium rectifiers.

No. F-200A has two identical secondary windings, each supplying 13 or 18 AC volts at 900 DC ma. Secondary voltages are selected by primary taps. The other 6 units have primaries connected to terminals 1, 2, 3 and 4. A separate winding connected to terminals 5, 6 and 7 is used in series with the primary to in-

crease or decrease the secondary voltage output. The secondaries of these 6 transformers consist of two identical windings which may be connected to give a wide variety of output voltages. Instructions packed with each unit indicate specific terminal connections and voltage combinations which may be obtained by using the taps on both primary and secondary windings, plus the "bucking" action of the additional primary winding.

Type No.	Secondary No. 1 AC Volts	Secondary DC Amps		Secondary No. 2 AC Volts DC Amps		RMS Test Volts	Case Type	Connections	Case Dimensions			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
		Full Wave	CT	Bridge	AC Volts				DC Amps	H	W	D	MW			MD
F-200A	13 or 18 @ .9 ADC	-	-	13 or 18 @ .9 ADC	-	1000	A	Leads	3 1/2	2 1/2	2 1/2	2	2	3/8 x 3/8	2.7
F-202U	11.0 to 29.5	2.0	1.25	-	-	1000	U	Lugs	3	2 1/2	3	2	2 1/2	3/8 x 3/8	2.5
F-203U	12.0 to 30.0	4.0	2.0	-	-	1000	U	Lugs	3 1/2	2 1/4	3 1/4	2 1/2	2 1/2	3/8 x 3/8	3.8
F-204U	11.5 to 29.0	8.0	4.0	-	-	1000	U	Lugs	3 1/2	3 1/4	4 1/4	2 1/2	2 1/2	3/8 x 3/8	6.1
F-205U	12.0 to 29.5	12.0	6.0	-	-	1000	U	Lugs	4 1/2	3 1/4	5 1/2	2 1/2	3 1/2	3/8 x 3/8	9.1
F-206U	12.1 to 29.2	15.0	8.0	-	-	1000	U	Lugs	4 1/2	3 1/2	5	2 1/2	3 1/2	3/8 x 3/8	12.6
F-207U	12.2 to 29.0	22.5	12.0	-	-	1000	U	Lugs	5 1/2	4 1/2	5 1/2	3 1/2	4 1/2	3/8 x 3/8	20.5

RECTIFIER CIRCUITS





X Case



A Case



AL Case



U Case

SMOOTHING FILTER REACTORS

Type No.	Current DC MA.	Inductance†† Henries	Resistance Ohms	RMS Test Voltage	Case Type	Connections	Lead Holes Used	Case Dimension			Mounting Dimensions		Mtg. Hole Size	Max. Unit Wt. Lbs.
								H	W	D	MW	MD		
C-2X	15	2	70	1500	X	Leads	-	1 3/4	2 1/4	1 1/4	1 1/4		3/8	.21
C-30X	15	50	3500	1500	X	Leads	-	1 1/2	2 1/4	1 1/2	2		3/8	.42
C-1X	20	15	1000	1000	X	Leads	-	1 3/4	2 1/4	1 1/4	1 1/4		3/8	.21
C-3X	50	10	500	1500	X	Leads	-	1 1/2	2 1/4	1 1/2	2 1/4		3/8	.6
C-4X	50	4	360	1500	X	Leads	-	1 1/2	2 1/4	1 1/2	2		3/8	.35
C-6X	65	5	330	1500	X	Leads	-	1 1/2	2 1/4	1 1/2	2 1/4		3/8	.6
C-5X	75	12	390	1000	X	Leads	-	1 1/4	3 1/4	1 1/4	2 1/4		3/8	1
C-8X	75	7	240	1500	X	Leads	-	1 1/4	3 1/4	1 1/4	2 1/4		3/8	1
C-7X	90	10	270	1000	X	Leads	-	1 1/4	3 1/4	2	2 1/4		3/8	1.3
C-8X	90	4	100	1500	X	Leads	-	1 1/4	3 1/4	1 1/4	2 1/4		3/8	1
C-11X	110	6	160	1500	X	Leads	-	2 1/2	3 1/4	2	3 1/4		3/8	1.5
C-10X	125	9	250	1000	X	Leads	-	2 1/2	3 1/4	2	3 1/4		3/8	1.6
C-12A	160	6	165	1500	A	Leads	1	2 1/2	2 1/2	2 1/2	1 1/4	1 3/4	3/8 x 3/8	2
C-12X	160	6	165	1500	X	Leads	-	2 1/2	3 1/4	2 1/2	3 1/4		3/8	1.75
C-13X	160	3	75	1500	X	Leads	-	2 1/2	3 1/4	2 1/2	3 1/4		3/8	1.75
C-14A	200	6	150	1500	A	Leads	1	3 1/4	2 1/2	2 1/2	2	1 1/4	3/8 x 3/8	2.5
C-14X	200	6	150	1500	X	Leads	-	2 1/2	4	2 1/2	3 1/4		3/8	2.3
C-16A	200	10	150	2500	A	Leads	1	3 1/2	2 1/2	3 1/2	2 1/2	2 1/2	3/8 x 3/8	4.5
C-21X	225	1.5	65	1500	X	Leads	-	1 1/4	3 1/4	1 1/4	2 1/4		3/8	1.1
C-24X	240	1	50	1500	X	Leads	-	1 1/4	2 1/4	1 1/2	2 1/4		3/8	.75
C-15A	250	4	100	1500	A	Leads	1	3 1/4	2 1/2	2 1/2	2	1 1/4	3/8 x 3/8	2.65
C-15X	250	4	100	1500	X	Leads	-	2 1/2	4	2 1/2	3 1/4		3/8	2.3
C-23X	260	1.2	45	1500	X	Leads	-	1 1/4	3 1/4	2	2 1/4		3/8	1.35
C-27X	290	.7	30	1500	X	Leads	-	1 1/4	2 1/4	1 1/2	2 1/4		3/8	.75
C-36X	300	.5	30	1500	X	Leads	-	1 1/4	2 1/4	1 1/2	2		3/8	5
C-17X	300	1.5	40	1500	X	Leads	-	2 1/2	3 1/4	2	3 1/4		3/8	1.6
C-18A	300	8	90	2500	A	Leads	1	3 1/4	3 1/4	3 1/4	2 1/2	2 1/2	3/8 x 3/8	6.3
C-19A	300	10	105	3000	A	Leads	1	4 1/4	3 1/2	4 1/4	2 1/4	3	3/8 x 3/8	7.75
C-25A	310	2.6	44	1500	A	Leads	1	3 1/4	2 1/2	3 1/4	2	2 1/4	3/8 x 3/8	3.6
▲C-42AL	350	8	105	5000	AL	Leads	2-Side	4 1/4	3 1/4	4 1/4	3	2 1/4	3/8 x 3/8	8
C-34X	350	.6	35	1500	X	Leads	-	1 1/4	2 1/4	1 1/2	2 1/4		3/8	.6
C-28X	350	1	35	1500	X	Leads	-	1 1/4	3 1/4	2	2 1/4		3/8	1.35
C-29X	375	1.5	50	1500	X	Leads	-	2 1/2	3 1/4	2	3 1/4		3/8	1.6
C-50X	400	2	40	2500	X	Leads	-	2 1/2	4	2 1/4	3 1/4		3/8	2.3
C-20A	400	6	60	3000	A	Leads	1	4 1/4	3 1/4	4 1/4	3	3 1/4	3/8 x 3/8	10.5
C-22A	500	10	65	3000	A	Leads	1	5 1/4	4 1/2	5 1/4	3 1/2	4 1/4	1/2 x 1/2	16.5
C-45AL	500	10	65	5000	AL	Leads	2-Side	5 1/4	4 1/2	5 1/4	3 1/2	4 1/4	1/2 x 1/2	17.75
C-40X	600	.32	10	1500	X	Leads	-	1 1/4	3 1/4	2	2 1/4		3/8	1.3
C-47U	1A/2A	.3/.075	3/.75	1500	U	Leads	-	3 1/2	2 1/2	3 1/2	2 1/4	2 1/4	3/8 x 3/8	4.6
C-56U	2.0	.035	.75	1500	U	Lugs	-	2 1/4	2 1/2	2	2 1/4	1 1/4	3/8 x 3/8	2
C-48U	2.5A/5A	.08/.025	.61/.155	1500	U	Leads	-	3 1/4	3 1/4	3 1/4	2 1/2	3 1/4	3/8 x 3/8	6.75
C-57U	4.0	.025	.55	1500	U	Lugs	-	3 1/4	3 1/4	2 1/4	2 1/4	2 1/4	3/8 x 3/8	3.5
C-49U	5A/10A	.032/.008	.19/.05	1500	U	Leads	-	4 1/4	3 1/2	3 1/4	2 1/4	3 1/4	3/8 x 3/8	8
C-58U	8.0	.01	.15	1500	U	Lugs	-	3 1/4	3 1/4	3	3 1/4	2 1/2	3/8 x 3/8	5.5
C-59U	12.5	.01	.10	1500	U	Lugs	-	3 1/2	4 1/4	3	3 1/4	2 1/4	3/8 x 3/8	6.25
C-80U	20A/40A	.024/.006	.1/.025	1500	U	Lugs	-	5 1/4	4 1/4	5 1/4	2 1/4	4 1/4	3/8 x 3/8	21.25
C-60U	22.5	.005	.06	1500	U	Lugs	-	3 1/4	4 1/2	4 1/4	3 1/4	3 1/2	3/8 x 3/8	12.75
C-26X	100	.2 to 1.5 Tapped	95	2500	X	Lugs	-	1 1/4	3 1/4	2	2 1/4		3/8	1.25

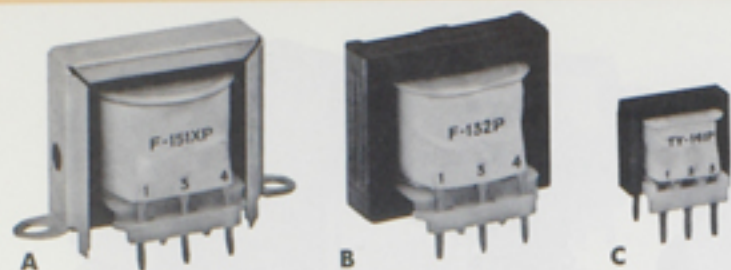
SWINGING FILTER REACTORS

Triad's highly dependable Swinging Filter Reactors provide a swinging input reactance which substantially improves the reg-

ulation of high voltage power supplies and prevents DC voltage from rising to the maximum peak AC rectifier input.

Type No.	Current DC MA.	Inductance Henries††	Resistance Ohms	RMS Test Voltage	Case Type	Connections	Lead Holes Used	Case Dimension			Mounting Dimensions		Mtg. Hole Size	Max. Unit Wt. Lbs.
								H	W	D	MW	MD		
C-31A	20/200	25/5	150	2500	A	Leads	1	3 1/2	2 1/2	3 1/2	2 1/4	2 1/4	3/8 x 3/8	4.6
C-33A	30/300	25/5	105	3000	A	Leads	1	4 1/4	3 1/2	4 1/4	2 1/4	3	3/8 x 3/8	7.6
C-32AL	35/350	20/4	105	5000	AL	Leads	2-Side	4 1/4	3 1/4	4	3	2 1/4	3/8 x 3/8	8
C-35A	40/400	20/4	65	3000	A	Leads	1	4 1/4	3 1/4	4 1/2	3	3 1/4	3/8 x 3/8	10.5
C-39A	50/500	25/5	65	3000	A	Leads	1	5 1/4	4 1/2	5 1/4	3 1/2	4 1/4	1/2 x 1/2	16.75

†† Inductance tolerance—20% + 50%. ‡ Split winding. ▲ Discontinued item, available until stock depleted.



This series of transformers includes units for both audio and power applications in transistorized control and instrumentation. Fifteen of the units provide a voltage stepdown and isolation from power line at relatively low power levels of 1½, 4½ and 7 watts at 4 to 38 volts when connected in parallel, and 8 to 76 volts when series connected. Precision spaced plug-in terminals provide fixed mounting centers—the kind usually found only in costly molded units. You get the benefits without the high cost plus maximum power with optimum equipment miniaturization.

LOW-VOLTAGE, LOW-CURRENT PLUG-IN PRINTED CIRCUIT POWER TRANSFORMERS 115 volts, 50/60 Hz Primary

Cat. No.	Fig.	Output Watts	SECONDARY		H.	Dimensions			Pin Dim.	Mtg. Dim.	Wt. Oz.
			Series Conn.	Parallel Conn.		W.	D.				
F-131P	B	1½	8V CT @ .188A	4V @ .376A	1¼	1¾	1½	¾	.041		3.5
F-132P	B	1½	15V CT @ .100A	7.5V @ .200A	1¼	1¾	1½	¾	.041		3.5
F-133P	B	1½	30V CT @ .050A	15V @ .100A	1¼	1¾	1½	¾	.041		3.5
F-134P	B	1½	54V CT @ .028A	27V @ .056A	1¼	1¾	1½	¾	.041		3.5
F-135P	B	1½	76V CT @ .020A	38V @ .040A	1¼	1¾	1½	¾	.041		3.5
F-136P	B	1½	116V CT @ .013A	58V @ .026A	1¼	1¾	1½	¾	.041		3.5
F-137P	B	1½	40V CT @ .038A	20V @ .076A	1¼	1¾	1½	¾	.041		3.5
F-141XP	A	4½	8V CT @ .562A	4.0V @ 1.124A	1¾	2¾	1¼	¾	.041	2	7.5
F-142XP	A	4½	15V CT @ .300A	7.5V @ .600A	1¾	2¾	1¼	¾	.041	2	7.5
F-143XP	A	4½	30V CT @ .150A	15V @ .300A	1¾	2¾	1¼	¾	.041	2	7.5
F-144XP	A	4½	54V CT @ .084A	27V @ .168A	1¾	2¾	1¼	¾	.041	2	7.5
F-145XP	A	4½	76V CT @ .060A	38V @ .120A	1¾	2¾	1¼	¾	.041	2	7.5
F-146XP	A	4½	116V CT @ .033A	58V @ .066A	1¾	2¾	1¼	¾	.041	2	7.5
F-147XP	A	4½	40V CT @ .112A	20V @ .224A	1¾	2¾	1¼	¾	.041	2	7.5
F-151XP	A	7½	8V CT @ .940A	4.0V @ 1.880A	1¾	2¾	1½	¾	.041	2¾	10.5
F-152XP	A	7½	15V CT @ .940A	7.5V @ 1.000A	1¾	2¾	1½	¾	.041	2¾	10.5
F-153XP	A	7½	30V CT @ .250A	15V @ .500A	1¾	2¾	1½	¾	.041	2¾	10.5
F-154XP	A	7½	54V CT @ .140A	27V @ .280A	1¾	2¾	1½	¾	.041	2¾	10.5
F-155XP	A	7½	76V CT @ 1.00A	38V @ .200A	1¾	2¾	1½	¾	.041	2¾	10.5
F-156XP	A	7½	116V CT @ .065A	58V @ .130A	1¾	2¾	1½	¾	.041	2¾	10.5
F-157XP	A	7½	40V CT @ .188A	20V @ .376A	1¾	2¾	1½	¾	.041	2¾	10.5

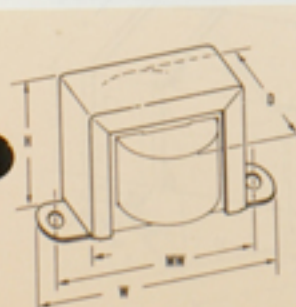
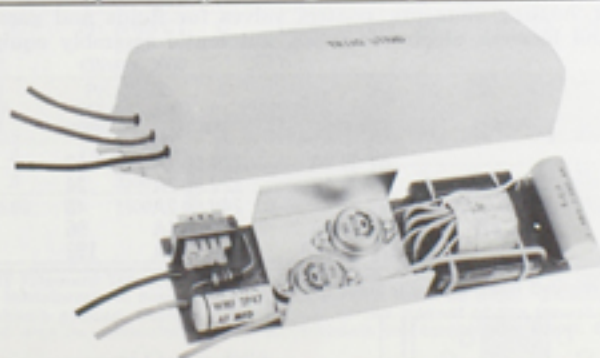
PLUG-IN PRINTED CIRCUIT AUDIO TRANSFORMERS

Cat. No.	Fig.	Output MW.	Primary Impedance	Secondary Impedance	Pri. D.C. Unbalance	Dimensions			Pin Dim.	Wt. Oz.	
						H.	W.	D.			
TY-141P	C	100	10,000 CT	10,000 CT	4 ma.	¾	¾	1½	¾	0.42	1
TY-142P	C	100	10,000 CT	2,000 CT	4 ma.	¾	¾	1½	¾	0.42	1
TY-143P	C	100	10,000 CT	1,500 CT	4 ma.	¾	¾	1½	¾	0.42	1
TY-144P	C	100	15,000 CT	15,000 CT	4 ma.	¾	¾	1½	¾	0.42	1
TY-145P	C	100	600 CT	600 CT	15 ma.	¾	¾	1½	¾	0.42	1

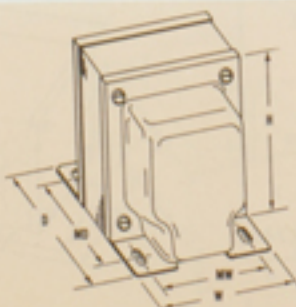
TRANSISTORIZED INVERTER-BALLAST for operating fluorescent lamps from 13.2 volts DC input (Cat. No. PS-12)

The No. PS-12 is designed specifically for operating fluorescent lamps from a 13.2 volt DC battery source in commercial transit buses, trailer trucks, inner-city buses, taxicabs, boats and most types of recreational vehicles. Identical Triad-Utrad inverter-ballasts are currently being used by major motor coach manufacturers because of the greater efficiency of fluorescent lamps over incandescent light sources. Used with fluorescent lamps Nos. F-48T12 and F-72T12, both with .250 amps current.

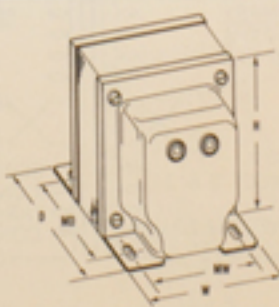
☛ New item.



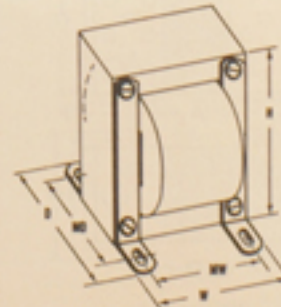
X Case



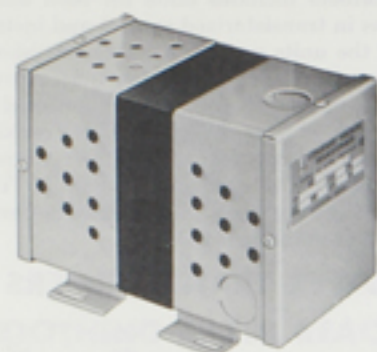
A Case



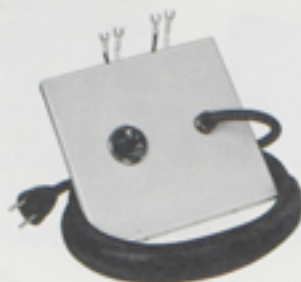
AL Case



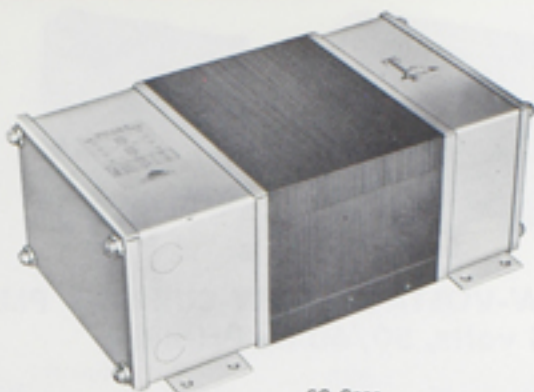
U Case



VS Case



KA Adapter



SC Case

VOLTAGE STABILIZERS

If you're designing new voltage-sensitive devices—or looking for ways to improve present ones—you can cut out pounds of dead weight, assure utmost accuracy, by using Triad's new compact Voltage Stabilizers instead of larger, heavier units. Triad takes advantage of new materials and techniques to effectively solve the problems of over and under voltage in these small light-weight units of extreme reliability.

Output Voltage is constant within 1% of nominal voltage even when input is varied as much as 15% from nominal. Output can be completely short-circuited with no damage to transformer

even over extended periods. Mounting is the same as competitive units of same rating, for complete interchangeability.

Primary and secondary windings of all units are completely isolated from each other, greatly reducing shock hazard. Connections are made to screw type terminals on a terminal board inside the cover. Knockouts are provided for lead exits on top, bottom and sides. The K-48U is a low-voltage unit for use in transistor or control circuits. Capacitor for external mounting is supplied with each transformer. By varying connections and rectifier configurations, the user may obtain 12, 24, 36 and 48 volts at 50 va.—or combinations of these.

Triad No.	Rating Va.	Input volts	Output volts	Case Style	Dimensions							WT. lbs.
					A	B	C	D	E	F	G	
K-48	50	95-130	24 CT @ 1 amp. 24 CT @ 1 amp.	U	3 3/4	2 3/4	3 3/8	2 3/8	2 3/4	-	2 3/4	3
▲K-100	30	95-130	118	VS	5 3/8	3 3/8	3 3/8	3	3 1/2	3 3/8	4	4.8
K-101	60	95-130	118	VS	6	3 3/8	3 3/8	3	3 1/2	3 3/8	4	6.2
K-102	120	95-130	118	VS	6 1/2	3 3/8	5 1/8	3	3 1/2	3 3/8	4	10.5
K-103	250	95-130	118	VS	7 7/8	5 3/8	6 1/8	4 1/8	6 1/8	1 1/2	6 7/8	21
K-104	500	95-130	120	VS	10 3/8	5 3/8	6 1/8	4 1/8	6 1/8	1 1/2	6 7/8	33
K-105	750	95-130	120	VS	14	5 3/8	6 1/8	4 1/8	6 1/8	1 1/2	6 7/8	46
K-106	1000	95-130	120	VS	15 3/4	5 3/8	6 1/8	4 1/8	6 1/8	1 1/2	6 7/8	60

ADAPTER KITS

- KA-1 Used with K-100, K-101
- KA-2 Used with K-102
- KA-3 Used with K-103, K-104, K-105

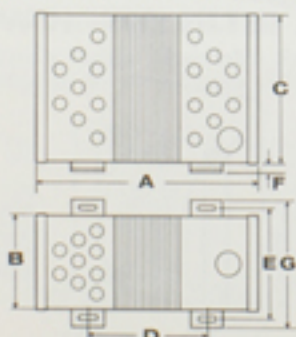
CONTROL TRANSFORMERS / 6, 12, 24 volt secondaries

For use with relays, solenoids, small motors, speed changers, pumps, heating elements, control valves for fluids and gases, fans and blowers, electronic tubes, automatic assembly equip-

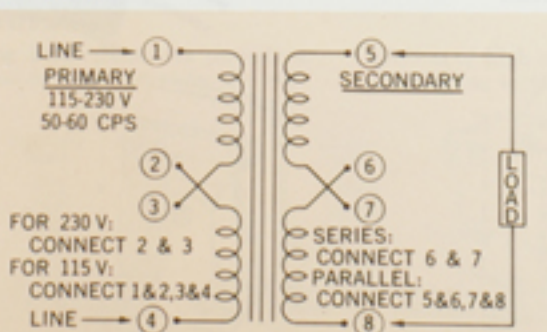
ment, recording devices, elevators, door openers, low voltage lamps and similar applications.

Type No.	Primary	Secondary		VA Rating	Case Type	Connections	Weight Overall	Base Area	Mtg. Dim.	Mtg. Hole Size	Shpg. WT. in Lbs.
		Parallel	Series								
F-105Z		6V @ 2A	12V @ 1A	12	Z	Lugs	2 3/8	2 3/8 x 1 3/4	2 3/8	3/8	1
F-106Z	115V/230V	6V @ 4A	12V @ 2A	24	Z	Lugs	2 3/4	3 1/8 x 2	2 3/8	3/8	1 1/2
F-107Z	50/60 CPS	12V @ 4A	24V @ 2A	48	Z	Lugs	3 3/8	3 3/8 x 2 3/8	3 3/8	3/8	2 1/2
F-108U	on all	12V @ 8A	24V @ 4A	96	U	Lugs	3 1/2	2 3/8 x 3	2 3/4 x 2 3/4	3/8 x 3/8	4 1/4
F-109U		12V @ 16A	24V @ 8A	192	U	Lugs	4 1/8	3 3/8 x 3 1/2	3 x 2 3/4	3/8 x 3/8	8

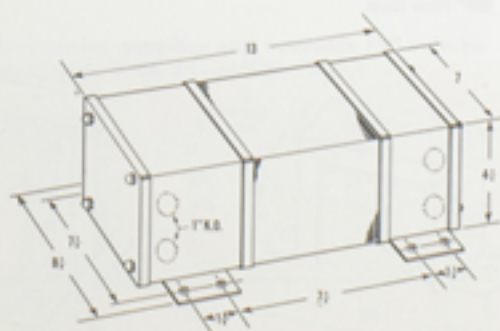
▲ Discontinued item, available until stock depleted.



VS Case



Control Transformer Connections



SC Case



K Case



C Case



M Case



MM Case

STEPDOWN AUTOFORMERS / 50-60 Hz

Type No.	Output Watts (VA)	Primary Volts	Secondary		RMS Test Voltage	Case Type	Connections	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
			Volts $\pm 9\%$	RMS Amps				H	W	D	MW	MD		
N-1X	50	230	115	.435	1500	X	Leads	2 $\frac{1}{2}$	3 $\frac{3}{4}$	2	3 $\frac{1}{4}$	-	$\frac{3}{8}$	1.5
N-3M	85	230	115	.74	1500	M	6' Cord & Plug & Socket	3 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	2 $\frac{1}{4}$	1 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{8}$	3
N-4M	150	230	115	1.3	1500	M	"	3 $\frac{1}{2}$	2 $\frac{1}{2}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{8}$	4.7
N-5M	250	230	115	2.17	1500	M	"	3 $\frac{1}{2}$	3 $\frac{1}{2}$	4 $\frac{1}{4}$	2 $\frac{1}{2}$	3	$\frac{3}{8} \times \frac{3}{8}$	7
N-7M	600	230	115	5.22	1500	M	"	4 $\frac{1}{2}$	3 $\frac{3}{4}$	5	3	3 $\frac{3}{4}$	$\frac{3}{8} \times \frac{3}{8}$	12
N-7MG†														
N-9M	1250	230	115	10.85	1500	M	"	5 $\frac{1}{2}$	4 $\frac{1}{2}$	6 $\frac{1}{4}$	3 $\frac{1}{2}$	5 $\frac{1}{4}$	$\frac{1}{2} \times \frac{3}{4}$	24
N-9MG†														
N-11M	2000	230	115	17.4	1500	M	"	5 $\frac{1}{2}$	4 $\frac{1}{2}$	8	3 $\frac{1}{2}$	6 $\frac{1}{4}$	$\frac{1}{2} \times \frac{3}{4}$	33.25
N-11MG†														
N-34X	150	0-95-105-115-125-135	115	1.3	250	X	Lugs	2 $\frac{1}{2}$	4	2 $\frac{1}{4}$	3 $\frac{1}{4}$	-	$\frac{3}{8}$	2.2
N-35M	250	95-130 (5V Steps)	115	2.17	1500	M	Detachable 6' Cord, Plug, Switch & Socket	4 $\frac{1}{4}$	3 $\frac{1}{2}$	5	2 $\frac{1}{4}$	3 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{8}$	4.2
N-50M	500	95-130 (5V Steps)	115	4.35	250	MM	Detachable 6' Cord, Plug, Switch, Socket & Meter	4 $\frac{1}{4}$	3 $\frac{3}{4}$	5 $\frac{1}{4}$	3	4 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{8}$	7.25

† Has 3-wire cord, plug and socket.

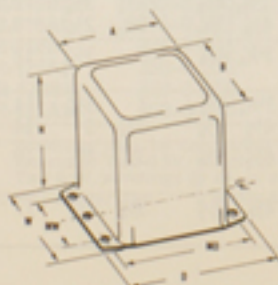
SIGNALING / 60 Hz

Type No.	Primary Volts	Secondary AC Volts	Amps	RMS Test Voltage	Case Type	Connections	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
							H	W	D	MW	MD		
F-102X	115	4-8-12-16-20-24	2	2500	X	Leads	2 $\frac{1}{2}$	3 $\frac{3}{4}$	2 $\frac{1}{2}$	3 $\frac{1}{4}$	-	$\frac{3}{8}$	1.75
F-104U	115	4-8-12-16-20-24	4	2500	U	Leads	3 $\frac{1}{2}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	$\frac{3}{8} \times \frac{3}{8}$	3.13

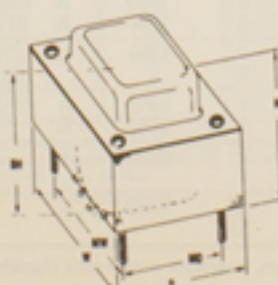
CATHODE RAY TUBE / primary 115 volt, 50-60 Hz

Type No.	Secondary AC Volts $\pm 9\%$	DC Ma.		Rectifier Filament		Other Filaments		RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Dimension Mounting		Max. Unit Wt. Lbs.
		Cond. Input	Choke Input	Volts $\pm 9\%$	Amps	Volts $\pm 9\%$	Amps				H	W	D	MW	MD	
R-41C	440-0-440-1250	125 5	158 -	5 2.5* 2.5*	3 1.75 1.75	6.3	.6	(2.5V & 6.3V)-3500 Others-1500	C	Lugs	3 $\frac{1}{4}$	4 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	7.5
R-45C	400-0-400-800	30 5	38 -	5* 5*	2 2	6.3 6.3 CT 6.3	.6 3 1	Pri. & 6.3 CT 1500 Others-3000	C	Lugs	2 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{4}$	3 $\frac{1}{4}$	2 $\frac{1}{2}$	4.5
R-43C	1600	3	-	-	-	0-2.5-5-6.3 0-2.5-5-6.3	1 3	Pri.-1500 Others-4200	C	Lugs	2 $\frac{1}{4}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{2}$	2	3.5
R-83A* #	400-0-400-650	70 3	-	1.25† -	.3	6.3 CT 6.3	3.5 .6	6.3V.6A-3000 Others-1500	A	2-Sides	3 $\frac{1}{2}$	2 $\frac{1}{2}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	5
R-84K**	-	-	-	-	-	6.3	.6	3500	K	2-Sides	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	1 $\frac{1}{2}$	1.5
AR-85A***	1825 180 117	3 475 Rms 200 Rms	- - -	1.25 -	.2	6.3 CT	5.65	1500	A	2-Sides	3 $\frac{1}{4}$	3 $\frac{1}{4}$	4 $\frac{1}{4}$	2 $\frac{1}{2}$	3 $\frac{1}{4}$	7.5

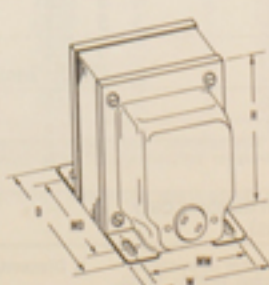
* Direct Replacement for Power Transformer in Model 0-12 Heathkit Scope. ** CRT Filament Transformer for Heathkit Model OP-1 Scope. # 60 cycle operation. *** CRT Transformer for Heathkit Model OP-1 Scope. If complete power transformer is needed, both R-84K & R-85A must be used. † Static shield. * Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding. Example: Two 6.3V. windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain the combined current. Example: Two 6.3V. windings @ 2A. in parallel would be 6.3V. @ 4A.
 † 2 ohm 2W resistor in series with filament when IV2 is used. ▲ Discontinued item, available until stock depleted.



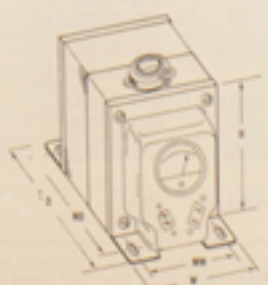
K Case



C Case



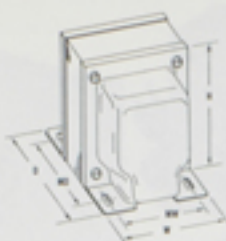
M Case



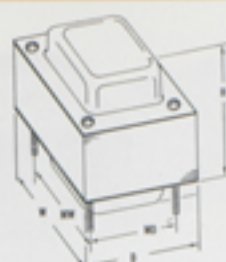
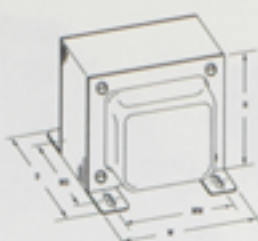
MM Case



A Case



H Case



B Case

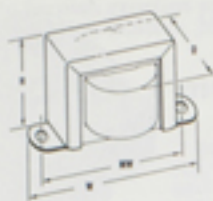
Triad power components incorporate features not available before in comparable plate and filament units, and their quality is substantially higher than that of other commercial grades. Features: UL-approved lead materials . . . varnish impregnated, insuring greatest protection against moisture as well as pre-

vention of lamination chatter . . . Copper foil shielding . . . temperature rise well within commercial limits . . . permanent, legible circuit diagram marked on every smooth, baked gray enamel case.

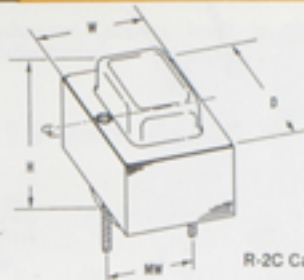
COMBINED PLATE AND FILAMENT / primary 115 volt / 50-60 Hz

Type No.	Secondary		Rectifier Filament		Other Filaments		RMS Test Volts	Case Type	Lead Holes Used	Case Dimension			Mounting* Dimension		Max. Unit Wt. Lbs.	
	AC Volts ± 5%	DC Ma. Cond. Input	Choke Input	Volts ± 5%	Amps	Volts ± 5%				Amps	H	W	D	MW		MD
R-4A	250-0-250†	40	51	-	-	6.3 CT	2	1500	A	1	2 3/8	2 1/8	2 3/8	1 3/4	1 3/4	1.75
▲ R-4B	250-0-250†	40	51	-	-	6.3 CT	2	1500	B	1	1 7/8	2 3/8	2 3/8	2 3/8	1 3/4	1.75
R-5A	300-0-300†	65	82	-	-	6.3 CT	2.7	1500	A	1	3 1/8	2 3/8	2 3/8	2	1 1/8	2.75
R-5B	300-0-300†	65	82	-	-	6.3 CT	2.7	1500	B	1	1 3/4	3	2 1/2	2 1/2	2	2.75
R-6A	240-0-240†	50	63.5	5	2	6.3 CT	2	1500	A	1	3 3/8	2 3/8	2 3/8	2	1 1/8	2.75
R-6B	240-0-240†	50	63.5	5	2	6.3 CT	2	1500	B	1	1 3/4	3	2 1/2	2 1/2	2	2.75
R-7A #	300-0-300†	50	63.5	5	2	6.3 CT	2	1500	A	1	3 3/8	2 3/8	2 3/8	2	1 1/8	2.75
R-7B #	300-0-300†	50	63.5	5	2	6.3 CT	2	1500	B	1	1 3/4	3	2 1/2	2 1/2	2	2.75
R-22A #	190-160-0-160-190†	70	89	-	-	6.3	.6	1500	A	1	3 3/8	2 3/8	2 3/8	2	1 1/8	2.75
				-	-	6.3 CT	3									
R-22B #	190-160-0-160-190†	70	89	-	-	6.3	.6	1500	B	1	1 3/4	3	2 1/2	2 1/2	2	2.75
				-	-	6.3 CT	3									
R-8A	250-0-250†	75	95	5	2	6.3 CT	2.5	1500	A	1	3 3/8	2 3/8	3 1/4	2	2 3/8	3
R-8B	250-0-250†	75	95	5	2	6.3 CT	2.5	1500	B	1	2 1/4	3	2 1/2	2 1/2	2	3
R-9A	300-0-300†	75	95	5	2	6.3 CT	3	1500	A	1	3 1/2	2 3/8	3 1/4	2 1/4	2 3/8	3.5
▲ R-9B	300-0-300†	75	95	5	2	6.3 CT	3	1500	B	1	2	3 3/8	2 3/8	2 3/8	2 3/8	3.5
R-10A	262.5-0-262.5†	90	115	5	2	6.3 CT	5	1500	A	1	3 1/2	2 3/8	3 3/8	2 1/4	2 3/8	4.5
R-10B	262.5-0-262.5†	90	115	5	2	6.3 CT	5	1500	B	1	2 3/8	3 3/8	2 3/8	2 3/8	2 3/8	4.5
R-11A	350-0-350†	90	115	5	3	6.3 CT	3.5	1500	A	1	3 1/2	2 3/8	3 3/4	2 1/4	2 3/8	4.25
R-11B	350-0-350†	90	115	5	3	6.3 CT	3.5	1500	B	1	2 1/2	3 3/8	2 3/8	2 3/8	2 3/8	4.25
▲ R-98B	325-40-0-325†	100	127	5	3	6.3 CT	3	1500	B	1	2 1/8	3 3/8	2 3/8	2 3/8	2 3/8	4.5
R-12A	275-0-275†	110	140	5	2	6.3 CT	5	1500	A	1	3 3/8	3 3/8	3 3/8	2 1/2	2 3/8	4.5
R-12B	275-0-275†	110	140	5	2	6.3 CT	5	1500	B	1	2 1/4	3 3/8	3 3/8	3 3/8	2 3/8	4.5
R-14A	350-0-350†	125	160	5	3	6.3 CT	4.5	1500	A	1	3 3/8	3 3/8	3 3/8	2 1/2	2 3/8	6
R-14B	350-0-350†	125	160	5	3	6.3 CT	4.5	1500	B	1	2 3/8	3 3/8	3 3/8	3 3/8	2 3/8	6
R-72A #	400-0-400†	140	178	5	3	6.3 CT	4	1500	A	2	4 1/4	3 1/8	3 3/8	2 3/4	2 3/8	5.75
R-16A	350-0-350†	160	200	5	3	6.3 CT	5	1500	A	1	3 3/8	3 3/8	4 3/8	2 1/2	3 3/8	7
▲ R-16B	350-0-350†	160	200	5	3	6.3 CT	5	1500	B	1	3 1/4	3 3/8	3 3/8	3 3/8	2 1/2	7
R-17A	375-0-80-375†	160	200	5	3	6.3 CT	5	1500	A	2	4 1/4	3 1/8	4 1/4	2 3/4	3 3/8	7.25
						2.5 CT	5									
R-18A	375-0-375†	175	220	5	3	6.3 CT	8	1500	A	1	4 1/4	3 1/8	4 3/8	2 3/4	3 3/8	8.5
R-18B	375-0-375†	175	220	5	3	6.3 CT	8	1500	B	1	3 3/8	4 1/8	3 3/8	3 3/8	2 3/4	8.5
R-58A	437.5-0-437.5† (2000V Test)	185	235	5	3	6.3	3	1500	A	2	4 3/8	3 1/8	4 3/8	3	3 3/8	9.5
						(2000V Test)	6.3									
▲ R-99B	300-40-0-300†	200	255	-	-	6.3 CT	4	1500	B	1	2 3/8	3 3/4	3 3/8	3 3/8	2 1/2	6
R-19A	375-80-0-375†	200	254	5	3	6.3 CT	6	1500	A	2	4 3/8	3 1/8	4 3/8	3	3 3/8	9.5
						2.5 CT	10									
R-20A	350-0-350†	200	255	5	3	6.3 CT	8	1500	A	1	4 1/4	3 1/8	4 1/4	2 3/4	3 3/8	9.25
R-20B	350-0-350†	200	255	5	3	6.3 CT	8	1500	B	1	3 1/8	4 1/8	3 3/8	3 3/8	2 3/4	9.25
R-21A	400-0-400†	200	255	5	3	6.3 CT	6	1500	A	2	4 1/4	3 1/8	4 3/8	2 3/4	3 3/8	9.25
R-21B	400-0-400†	200	255	5	3	6.3 CT	6	1500	B	1	3 3/8	4 1/8	3 3/8	3 3/8	2 3/4	9.25
R-71A #	450-0-450† (2000V Test)	250	317	5	4	6.3	4	1500	A	2	4 3/8	3 1/8	4 3/8	3	3 3/8	12
						(2000V Test)	6.3 CT									
R-24A #	400-0-400†	300	380	5	6	6.3 CT	6	1500	A	1	4 3/8	3 1/8	4 3/8	3	3 3/8	14
R-24B #	400-0-400†	300	380	5	6	6.3 CT	6	1500	B	1	3 3/8	4 1/2	3 3/8	3 3/8	3	14
R-25A	400-0-400†	500	635	5	6	6.3	3	2000	A	2	5 3/8	4 1/2	5 3/8	3 1/2	4 3/8	19
						6.3 CT	7									
R-94H #	180† 177		(500 MA in doubler ckt) 5 MA (Bias)	-	-	6.3	5.5	1500	H	2	3 3/8	4 3/8	5 1/2	3 3/4	4 3/8	17
				-	-	6.3	5.5									

CT for Center Tap. † Static shield. # 60 cycle operation. ▲ Discontinued item, available until stock depleted.
* Mtg. Hole Size For "A" case types, 3/8x3/8, except R-25A; 1/2x1/2.



X Case



R-2C Case

Triad Instrument Power Transformers have become the field leaders in critical instrumentation applications. Combined Plate and Filament Power Transformers, at realistic and reasonable prices, embody all the performance capabilities and construction

features typical of Triad products, such as: shielding . . . impregnation . . . freedom from chatter . . . all in conformance with most rigid quality control standards.

FOR PREAMPLIFIERS, VTVM, ETC. / primary 115 volt—50-60 Hz

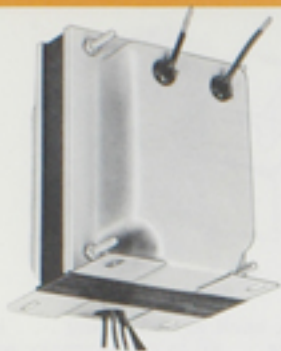
Type No.	Secondary			Rectifier Filament		Other Filaments		RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
	AC Volts ± 5%	DC Cond. Input	Ma. Choke Input	Volts ± 5%	Amps	Volts ± 5%	Amps				H	W	D	MW	MD		
R-68A‡	400-0-400	30	38	5	2	6.3* 6.3*	1.2 1.2	2000	A	1	3 1/2	2 1/2	3 1/4	2	2 1/4	3/8 x 3/8	3
R-2C‡	135	15	19	-	-	6.3	.9	1500	C	Leads	1 1/4	1 1/4	1 1/4	-	1 1/4	-	1
R-23B‡	125-0-125	22	28	-	-	6.3 15.5-12.6	.8 .6	1500	B	1	1 1/8	2 1/8	2 1/8	2 1/8	1 1/4	-	1.75
R-3A‡	250-0-250	20	25.5	-	-	6.3 CT	2	1500	A	1	2 1/2	2 1/2	2 1/2	1 1/4	1 1/4	3/8 x 3/8	1.75
R-53Z	250-0-115	25	32	-	-	6.3	1.0	1500	Z	-	2 1/4	2 1/4	2	2 1/4	-	3/8	1.0
R-29A‡	115-0-115	40	51	-	-	6.3 CT	1.5	1500	A	1	2 1/2	2 1/2	2 1/2	1 1/4	1 1/4	3/8 x 3/8	1.75
R-30X‡	135	50	64	-	-	6.3	1.5	1500	X	Leads	2 1/2	3 1/4	2 1/2	3 1/4	-	3/8	1.5
R-54X‡	115	15	19	-	-	6.3	.6	1500	X	Leads	1 1/2	2 1/8	1 1/2	2 1/8	-	3/8	1
R-56A‡	130	20	25	-	-	0-15-22.5-30	.6	1500	A	2	2 1/2	2 1/2	2 1/2	1 1/4	2	3/8 x 3/8	2
R-73B‡#	135	200	282	-	-	6.3 CT	5.5	1500	B	1	1 1/8	3 1/8	2 1/8	2 1/8	2 1/4	-	2.75

COMBINED PLATE AND FILAMENT / primary 115 volt, 60 Hz

Type No.	Secondary			Rectifier Filament		Other Filaments		RMS Test Volts	Case Type	Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
	AC Volts ± 5%	DC Cond. Input	Ma. Choke Input	Volts ± 5%	Amps	Volts ± 5%	Amps				H	W	D	MW	MD		
R-104A‡	250-0-250	40	51	-	-	6.3 CT	2	1500	A	1	2 1/2	2 1/2	2 1/4	1 1/4	1 1/2	3/8 x 3/8	1.55
R-104B‡	250-0-250	40	51	-	-	6.3 CT	2	1500	B	1	1 1/2	2 1/2	2 1/4	2 1/4	1 1/4	-	1.55
R-105A‡	300-0-300	65	82	-	-	6.3 CT	2.7	1500	A	1	3 1/8	2 1/2	2 1/2	2	1 1/4	3/8 x 3/8	2
R-105B‡	300-0-300	65	82	-	-	6.3 CT	2.7	1500	B	1	1 1/8	3	2 1/2	2 1/2	2	-	2
R-106A‡	240-0-240	50	63.5	5	2	6.3 CT	2	1500	A	1	3 1/8	2 1/2	2 1/2	2	1 1/4	3/8 x 3/8	2.1
R-106B‡	240-0-240	50	63.5	5	2	6.3 CT	2	1500	B	1	1 1/2	3	2 1/2	2 1/2	2	-	2.1
▲R-107B‡	300-0-300	50	63.5	5	2	6.3 CT	2	1500	B	1	1 1/8	3	2 1/2	2 1/2	2	-	2.35
R-108A‡	250-0-250	75	95	5	2	6.3 CT	2.5	1500	A	1	3 1/8	2 1/2	2 1/2	2	1 1/4	3/8 x 3/8	2.4
R-108B‡	250-0-250	75	95	5	2	6.3 CT	2.5	1500	B	1	1 1/4	3	2 1/2	2 1/2	2	-	2.4
R-109A‡	300-0-300	75	95	5	2	6.3 CT	3	1500	A	1	3 1/2	2 1/2	2 1/2	2 1/4	1 1/4	3/8 x 3/8	2.9
R-109B‡	300-0-300	75	95	5	2	6.3 CT	3	1500	B	1	1 1/8	3 1/8	2 1/2	2 1/4	2 1/4	-	2.9
R-110A‡	262.5-0-262.5	90	115	5	2	6.3 CT	5	1500	A	1	3 1/2	2 1/2	3 1/2	2 1/4	2	3/8 x 3/8	3.25
R-110B‡	262.5-0-262.5	90	115	5	2	6.3 CT	5	1500	B	1	1 1/8	3 1/8	2 1/2	2 1/4	2 1/4	-	3.25
R-111A‡	350-0-350	90	115	5	3	6.3 CT	3.5	1500	A	1	3 1/2	2 1/2	3 1/2	2 1/4	2	3/8 x 3/8	3.25
R-111B‡	350-0-350	90	115	5	3	6.3 CT	3.5	1500	B	1	1 1/8	3 1/8	2 1/2	2 1/4	2 1/4	-	3.25
R-112A‡	275-0-275	110	140	5	2	6.3 CT	5	1500	A	1	3 1/2	2 1/2	3 1/4	2 1/4	2 1/4	3/8 x 3/8	3.7
R-112B‡	275-0-275	110	140	5	2	6.3 CT	5	1500	B	1	2	3 1/8	2 1/2	2 1/4	2 1/4	-	3.7
▲R-113A‡	325-0-325	40	51	5	2	6.3 CT	2	1500	A	2	3 1/8	2 1/2	2 1/2	2	1 1/4	3/8 x 3/8	2.3
▲R-113B‡	325-0-325	40	51	5	2	6.3 CT	2	1500	B	1	1 1/4	3	2 1/2	2 1/2	2	-	2.3
R-114A‡	350-0-350	125	160	5	3	6.3 CT	4.5	1500	A	1	3 1/2	3 1/2	3 1/4	2 1/2	2 1/2	3/8 x 3/8	4.7
▲R-114B‡	350-0-350	125	160	5	3	6.3 CT	4.5	1500	B	1	2 1/8	3 1/2	3 1/2	3 1/8	2 1/2	-	4.7
R-115A‡	340-0-340	70	89	5	2	6.3 CT	2.5	1500	A	2	3 1/8	2 1/2	3	2	1 1/4	3/8 x 3/8	3.5
R-115B‡	340-0-340	70	89	5	2	6.3 CT	2.5	1500	B	1	2	3	2 1/2	2 1/2	2	-	3.5
R-116A‡	350-0-350	160	200	5	3	6.3 CT	5	1500	A	1	3 1/4	3 1/2	3 1/4	2 1/2	2 1/2	3/8 x 3/8	5.65
R-116B‡	350-0-350	160	200	5	3	6.3 CT	5	1500	B	1	2 1/8	3 1/2	3 1/4	3 1/4	2 1/2	-	5.65
R-118A‡	375-0-375	175	220	5	3	6.3 CT	8	1500	A	1	4 1/4	3 1/2	4	2 1/2	2 1/2	3/8 x 3/8	7.45
R-118B‡	375-0-375	175	220	5	3	6.3 CT	8	1500	B	1	2 1/4	4 1/4	3 1/4	3 1/4	2 1/4	-	7.45
R-120A‡	350-0-350	200	255	5	3	6.3 CT	8	1500	A	1	4 1/4	3 1/2	4 1/2	2 1/2	3	3/8 x 3/8	8.25
▲R-120B‡	350-0-350	200	255	5	3	6.3 CT	8	1500	B	1	2 1/4	4 1/4	3 1/4	3 1/4	2 1/4	-	8.25
R-121A‡	400-0-400	200	255	5	3	6.3 CT	6	1500	A	1	4 1/4	3 1/2	4 1/2	2 1/2	3 1/4	3/8 x 3/8	8.25

* Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding. Example: Two 6.3V. windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain the combined current. Example: Two 6.3V. windings @ 2A. in parallel would be 6.3V. @ 4A.

CT for Center Tap. ‡ Static shield. # 60 cycle operation. ▲ Discontinued item, available until stock depleted.



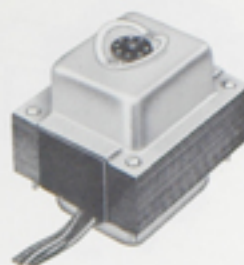
AL Case



A Case



BC Case



BS Case

REGULATED POWER SUPPLY / primary 115 volt, 50-60 Hz

Type No.	Secondary†† AC Volts ± 5%	DC Ma.		Rectifier Filament		Other Filaments		RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
		Cond. Input	Choke Input	Volts ± 5%	Amps	Volts ± 5%	Amps				H	W	D	MW	MD	
R-70A†	440-0-440	59	75	6.3 6.3	.6 .3	6.3 6.3	.9 3	2000	A	1	3 3/4	3 3/4	3 3/4	2 1/2	2 1/2	4.5
R-26A†	440-360-0-360-440	157	200	5	3	6.3 CT 6.3 6.3	8 3 1	2000	A	1	4 1/2	3 3/4	4 1/2	3	3 3/4	12
R-59A	600-0-600	200	254	5.0	3	6.3 6.3	3 3	2200	A	2	4 1/2	3 3/4	4 1/2	3	3 3/4	10
R-28A†	625-0-625	236	300	5	6	6.3 CT 6.3* 6.3*	8 3 3	2500	A	2	5 1/4	4 1/2	5 1/4	3 1/2	4 1/2	20
R-46A†	625-0-625 130	278 50	350 -	5	4	6.3 6.3* 6.3*	4 1 1	2500	A	2	5 1/4	4 1/2	5 1/4	3 1/2	4 1/2	20
R-27A†	750-0-750	315	400	5	6	6.3 6.3	8 3	3000	A	2	5 1/4	4 1/2	7 1/4	3 1/2	6 1/2	30

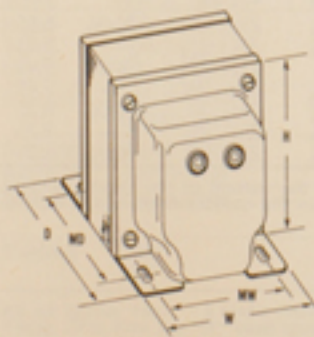
PLATE POWER / primary 115 volt, 50-60 Hz

Type No.	Primary AC Volts	Secondary		Rectifier Filament		RMS Test Voltage	Case Type	Lead Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.	
		AC Volts†† ± 5%	DC MA CCS	Choke Input ICAS	Volts ± 5%				Amps	H	W	D	MW		MD
P-1A†	115	220-110-0-110-220	160	192	5	3	1500	A	1	3 3/4	2 3/4	3 1/4	2 1/4	2 1/4	4
P-3A†	115	300-150-0-150-300	300	360	5	4	1500	A	1	3 3/4	3 3/4	3 3/4	2 1/2	2 1/2	6.25
P-5A† #	115	550-0-550	250	300	5	4	2500	A	1	4 1/2	3 3/4	3 3/4	3	2 1/2	8
P-7A† #	115	617.5-0-617.5	250	300	5	4	2500	A	1	4 1/2	3 3/4	4 1/2	3	3 1/2	9
P-30A†	117	600 CT 105	500**	80	6.3* 6.3*	4.0 4.0	3000	A	1	6 1/2	5 1/2	5 1/2	4 1/4	3 3/4	25
P-8A†	115	617.5-0-617.5	500	600	5	6	2500	A	1	5 1/4	4 1/2	5 1/4	3 1/2	4 1/2	18
P-11A† #	115	727.5-0-727.5	250	300	-	-	2500	A	1	4 1/2	3 3/4	3 3/4	3	2 1/2	8.5
P-213AL†	115-230	890-0-890	250	300	-	-	3000	AL	1 + 2 □	5 1/4	4 1/2	3 1/2	3 1/2	2 1/2	9.5
P-14A† #	115	890-712.5-0-712.5-890	250	300	-	-	3000	A	2	5 1/4	4 1/2	4 1/2	3 1/2	3 1/2	13.5
P-15AL†	115	1170-0-1170	250	300	-	-	3500	AL	1 + 2 □	5 1/4	4 1/2	5 1/4	3 1/2	4 1/4	16.5
P-215AL†	115-230	1170-0-1170	250	300	-	-	3500	AL	1 + 2 □	5 1/4	4 1/2	4 1/2	3 1/2	3 1/2	13.5
P-16AL†	115	1215-0-1215	500	600	-	-	4000	AL	1 + 2 □	6 1/2	5 1/2	6 1/4	4 1/4	4 1/4	30
P-216AL†	115-230	1215-0-1215	500	600	-	-	3500	AL	1 + 2 □	6 1/2	5 1/2	5 1/2	4 1/4	3 3/4	25
▲ P-17AL	115	1440-0-1440	250	300	-	-	4000	AL	1 + 2 □	5 1/4	4 1/2	5 1/4	3 1/2	4 1/4	19.75
P-217AL†	115-230	1440-0-1440	250	300	-	-	4000	AL	1 + 2 □	5 1/4	4 1/2	4 1/2	3 1/2	3 1/2	14.75
P-18AL†	115	1440-0-1440	500	600	-	-	4000	AL	1 + 2 □	5 1/4	4 1/2	4 1/2	3 1/2	3 1/2	32
P-218AL†	115-230	1440-0-1440	500	600	-	-	4000	AL	1 + 2 □	6 1/2	5 1/2	6 1/4	4 1/4	4 1/4	27.5
▲ P-20AL†	115	1650-0-1650	350	420	-	-	4500	AL	1 + 2 □	6 1/2	5 1/2	6 1/4	4 1/4	4 1/4	33.3
P-220AL†	115-230	1650-0-1650	350	420	-	-	4500	AL	1 + 2 □	6 1/2	5 1/2	5 1/2	4 1/4	3 1/2	24.5
PR-21AL† #	115-230	1650-0-1650	500	600	-	-	4500	AL	1 + 2 □	6 1/2	5 1/2	6 1/4	4 1/4	4 1/4	29

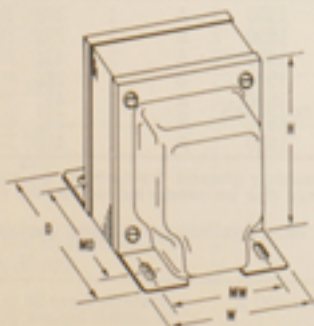
*Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding. Example: Two 6.3V. windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in series to obtain the combined current. Example: two 6.3V. windings @ 2A. in parallel would be 6.3V. @ 4A.

CT for Center Tap. □ Plate leads out side of case for rectifiers. † Static shield. †† 60 cycle operation. † Tapped primary to produce lower voltages. †† Secondary CT must be grounded. ** Full wave bridge capacitor input. Secondary CT need not be grounded.

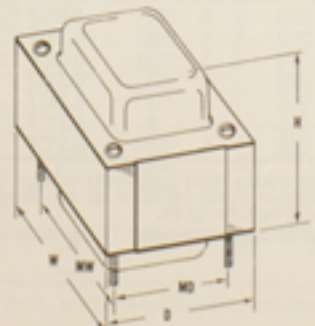
▲ Discontinued item, available until stock depleted.



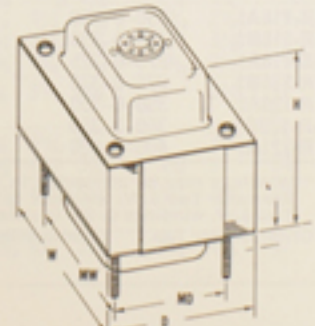
AL Case



A Case



BC Case



BS Case

POWER TRANSFORMERS



COMMERCIAL GRADE

Triad Special Power Transformers are Climatite treated, both coil and core, to furnish greatest protection against moisture and to eliminate lamination chatter. Maximum utility and minimum

temperature rise are inherent factors, built in through top-quality design and manufacturing procedures.

SPECIAL POWER / multiple filament industrial, primary 115 volt, 50-60 Hz

Type No.	Secondary AC Volts ± 5%	DC Ma.		Rectifier Filaments		Other Filaments		RMS Test Volts	Case Type	Lead Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
		Cond. Input	Choke Input	Volts ± 5%	Amps	Volts ± 5%	Amps				H	W	D	MW	MD	
R-38BC‡	375-0-375	225	285	5	3	6.3 6.3 6.3	10 2.5 1.2(d)	1500 1500 4000(d)	BC	1	3 3/4	4 1/2	3 3/4	3 3/4	3	12
R-39BC‡	320-0-320	225	285	5	3	6.3 6.3	10 1.2(d)	1500 4000(d)	BC	1	3 3/4	4 1/2	3 3/4	3 3/4	3	12
R-40BC‡	390-0-390 or 220-0-220	300	380	5 5 5	3 3 2	6.3 6.3	8.5 3.5	2000	BC	1	3 3/4	4 1/2	3 3/4	3 3/4	3	14
R-42BC‡	337.5-0-337.5	185	235	5	3	6.3 6.3	7 2(d)	1500 4000(d)	BC	1	2 1/2	4 1/2	3 3/4	3 3/4	3	8
▲R-49BC‡	325-0-325	240	305	5	3	6.3 6.3 6.3	9 9 1.2(d)	1500 1500 4000(d)	BC	1	3 3/4	4 1/2	3 3/4	3 3/4	3	15
R-50BC‡	395-0-395 or 325-0-325	310	395	5 5 5	3 2 3	6.3* 6.3* 6.3	5 5 2.6	2000	BC	1	4 1/2	4 1/2	3 3/4	3 3/4	3	15
R-50A‡	395-0-395 or 325-0-325	310	395	5 5 5	3 2 3	6.3* 6.3* 6.3	5 5 2.6	2000	A	1	4 1/2	3 3/4	5 1/2	3	4 1/2	15
R-49BS‡	325-0-325	240	305	5	3	6.3 6.3 6.3	9 9 1.2(d)	1500 1500 4000(d)	BS	1	3 3/4	4 1/2	3 3/4	3 3/4	3	13
R-51BC‡	252.5-0-252.5	320	405	5	6	6.3* 6.3* 6.3	5 5 1.2(d)	1500 1500 4000(d)	BC	1	3 3/4	4 1/2	3 3/4	3 3/4	3	13
R-52BC‡	300-0-300	270	340	5	3	6.3* 6.3* 6.3	5 5 1.2(d)	1500 1500 4000(d)	BC	1	3 3/4	4 1/2	3 3/4	3 3/4	3	13
R-60BC‡	230-0-230	300	380	5	6	6.3 6.3 6.3	10 2.5 1.2(d)	1500 1500 4000(d)	BC	1	3 3/4	4 1/2	3 3/4	3 3/4	3	12
▲R-61BC‡	280-0-280	300	380	5	6	6.3* 6.3* 6.3	6 6 1.2(d)	1500 1500 4000(d)	BC	1	3 3/4	4 1/2	3 3/4	3 3/4	3	14
R-62BC‡	340-0-340	290	368	5	6	6.3 6.3 6.3	10 2.5 1.2(d)	1500 1500 4000(d)	BC	1	4 1/2	4 1/2	3 3/4	3 3/4	3	16
R-63BC‡	131	980	1.25A.	-	-	6.3 6.3 6.3	9 .6 1.2(d)	1500 1500 4000(d)	BC	1	3 3/4	4 1/2	3 3/4	3 3/4	3	11
R-64BC‡	260-0-260	270	340	5	3	6.3	10	1500	BC	1	2 1/2	4 1/2	3 3/4	3 3/4	3	8.75
▲R-66BC‡#	290-0-290	270	340	5	3	6.3	10	1500	BC	1	2 1/2	4 1/2	3 3/4	3 3/4	3	9
R-67BC‡#	300-0-300	250	318	5	3	6.3	9	1500	BC	1	3 3/4	4 1/2	3 3/4	3 3/4	2 1/2	9
R-69BC‡#	275-0-275	270	340	5	3	6.3	10	1500	BC	1	3 3/4	4 1/2	3 3/4	3 3/4	2 1/2	9
R-74BC‡#	340-0-340	190	240	5	3	6.3 6.3	7.8 1.2(d)	1500 7500(d)	BC	1	3 3/4	4 1/2	3 3/4	4 1/2	3 3/4	11 (Special Mounting)
R-76BC‡#	325-0-325	350	445	5	6	6.3* 6.3* 6.3	8 5 2(d)	1500 1500 4000(d)	BC	1	3 3/4	4 1/2	3 3/4	3 3/4	3	13
▲R-77BC‡#	275-0-275	350	445	5 CT	6	6.3 6.3 6.3	8 6 2(d)	1500 1500 4000(d)	BC	1	3 3/4	4 1/2	3 3/4	3 3/4	3	12
R-77BS‡#	275-0-275	350	445	5 CT	6	6.3 6.3 6.3	8 6 2(d)	1500 1500 4000(d)	BSS	1	3 3/4	4 1/2	3 3/4	3 3/4	3	12
R-78BC‡#	350-0-350	200	254	5	3	6.3 6.3 6.3	6 4 2(d)	1500 1500 5000(d)	BC	1	2 1/2	4 1/2	3 3/4	3 3/4	3	9
R-81BC‡#	295-0-295	350	445	5	6	6.3 6.3 6.3	8 5 2(d)	1500 1500 4000(d)	BC	1	3 3/4	4 1/2	3 3/4	3 3/4	3	12
R-81BS‡#	295-0-295	350	445	5	6	6.3 6.3 6.3	8 5 2(d)	1500 1500 4000(d)	BSS	1	3 3/4	4 1/2	3 3/4	3 3/4	3	12
R-675A‡#	330-0-330	270	340	5	6	6.3 6.3	9.35 1.2(d)	1500 4000(d)	A	1	4 1/2	3 3/4	4 1/2	3	3 3/4	10

‡ Static shield. (d) Damper winding. CT for Center Tap. ± 60 cycle operation. ▲ Discontinued item, available until stock depleted.
* Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding.
Example: Two 6.3V. windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain the combined current. Example:
Two 6.3V. windings @ 2A. in parallel would be 6.3V. @ 4A.

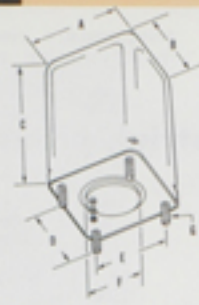


Designed and Constructed to meet MIL-T-27B



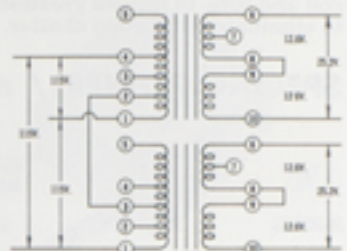
HS
HSM

HS & HSM Case
See case chart, page 21



Schematic for Scott Connection using two HS-442's

Primary 115V, 400 C.P.S. 3 Phase
to
2 Phase 25.2V. or 2 Phase 12.6V.
Secondaries on each Transformer
can be used in Series,
Parallel or Separately



COMBINED PLATE AND FILAMENT / primary 115 volt / 50-60 Hz

Type No.	Mil Type Number	Secondary Plate Supply		Filaments		RMS Test Voltage	F. Dim inches	Mil Case Type	Max. Unit Wt. Lbs.	
		A.C. Volts	D.C. Ma. Cond. In	D.C. Ma. Choke In	Volts					Amps
HSM-200 [#]	TF4RX03FA	120†	100	127	6.3 CT	1.6	1500	7/8	FA	2
HSM-202	TF4RX03EA	120†	20	25.4	6.3 CT	.6	1500	7/8	EA	1.125
HSM-203	TF4RX03JB	300-0-300†	50	63.5	6.3 CT	2.5	1500	1 1/8	JB	4.85
					5	2				
HSM-205	TF4RX03JA	350-0-350†	70	89	6.3 CT	3	1500	1 1/8	JA	6.1
					5	3	2000			
HSM-207	TF1RX03KA	350-0-350†	120	153	6.3 CT	5	1500	1 1/8	KA	8.75
					5	3				
HSM-208	TF1RX03KA	313-0-313†	200	254	6.3/5.0	3	1500	1 1/8	KA	9.2
					6.3 CT	5				
HSM-241	TF1RX03LA	350-70-0-350†	150	190	6.3 CT	6	1500	1 1/8	LA	10.75
					5	2				
					5	3				
HSM-212	TF1RX03LA	500-400-0-400-500†	117	150	6.3 CT*	4	2000	1 1/8	LA	11
					6.3*	4	1500			
					6.3/5†	4				
HSM-245	TF1RX03MA	400-350-0-70-350-400†	200	254	6.3 CT	6	1500	1 1/8	MA	15
					6.3	4				
					5	6				
HSM-216	TF1RX03MA	500-400-0-400-500†	157	200	6.3 CT*	5	2000	1 1/8	MA	14.5
					6.3*	5				
					6.3/5†	4				
HS-247	TF1RX03YY	400-350-0-70-350-400†	300	380	6.3 CT	8	1500	1 1/8	GP-15*	21.75
					6.3	4				
					5	6				
HSM-218	TF1RX03YY	500-400-0-400-500†	235	300	6.3 CT*	6	2000	1 1/8	GP-15*	24.5
					6.3*	6				
					6.3/5†	6				
HSM-219 115/230V. Pri	TF1RX02YY	800-380-0-380-800†	(800)31.5 (1600)180	40 230			2800	Special	GP-15*	22.5

FILAMENT / 50-60 Hz

Type No.	Mil Type No.	Primary Volts	Filaments		RMS Test Voltage	F. Dim inches	Mil Case Type	Max. Unit Wt. Lbs.
			Volts	Amps				
HSM-223	TF4RX01YY	115	6.3	.6	1500	7/8	AJ-2 ■■	.75
HSM-225 [#]	TF4RX01EA	0-105-115-125	6.3 CT	2	1500	7/8	EA	1.25
HSM-226 [#]	TF4RX01FA	0-105-115-125	6.3 CT	3.6	1500	7/8	FA	2
HSM-224	TF4RX01HB	0-105-115-125	6.3 CT	5.5	2500	7/8	HB	4.5
HSM-234	TF4RX01KA	0-105-115-125	6.3 CT*	10	Pri. 1500 Sec. 2500	1 1/8	KA	9.15
			6.3*	10				
HSM-227	TF4RX01GA	0-105-115-125	6.3 CT*	3	Pri. 1500 Sec. 2500	1 1/8	GA	3.25
			6.3*	3				
HSM-229	TF4RX01JB	0-105-115-125	6.3 CT	8	2500	1 1/8	JB	5
HSM-233	TF4RX01EA	0-105-115-125	12.6 CT	.8	1500	7/8	EA	1.25
HSM-230	TF4RX01FA	0-105-115-125	24 CT	.8	1500	7/8	FA	2
HSM-239	TF4RX01GA	0-105-115-125	24 CT	1.5	2500	7/8	GA	3.25
HSM-240	TF4RX01GA	0-115-230	12.6 CT*	1.5	2500	1 1/8	GA	3.25
			12.6*	1.5				
HSM-236	TF4RX01JB	0-105-115-125	12.6 CT*	2	2500	1 1/8	JB	6.5
			12.6*	2				
HSM-228	TF4RX01JA	0-105-115-125	6.3 CT*	6	Pri. 1500 Sec. 2500	1 1/8	JA	6.3
			6.3*	6				
HSM-231	TF4RX01JB	0-105-115-125	6.3 CT	5	2500	1 1/8	JB	4.9
			5 CT	3				
HSM-232	TF4RX01HA	0-105-115-125	2.5 CT	10	Pri. 1500 Sec. 7500	Special Hi-Voltage	HA	4
HSM-235 [#]	TF1RX01MA	0-105-115-125	10 CT	10	2500	Special	MA	13
			2.5 CT	10	7500			
HSM-238 [#]	TF4RX01JA	0-105-115-125	26 CT*	2	2500	1 1/8	JA	7
			26*	2				

[#] Discontinued item, available until stock depleted.
^{*} Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding.
 Example: Two 6.3V. windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain the combined current. Example:
 Two 6.3V. windings @ 2A. in parallel would be 6.3V. @ 4A. ■■ See case chart, page 54. CT for Center Tap. † Tapped for 5-Volt rectifier use. ‡ Static shield.
[#] 60 cycle operation. * GP-15 dimensions 4 3/4" x 5 3/4" x 6 1/2" high. Mounting centers 3 3/4" x 4 1/4".

POWER TRANSFORMERS

Designed and Constructed to meet MIL-T-27B

380-1500
CYCLE



MILITARY GRADE

	AH	AJ	EA	EB	FA	FB	GA
A	1 1/4	1 1/4	1 1/4	1 1/4	2 1/4	2 1/4	2 1/4
B	1 1/4	1 1/4	1 1/4	1 1/4	2 1/4	2 1/4	2 1/4
C	1 1/4	2 1/4	2 1/4	2 1/4	3 1/4	2 1/4	3 1/4
D	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	2 1/4
E	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
G	3/4	3/4	3/4	3/4	3/4	3/4	3/4
I	6-32	6-32	6-32	6-32	6-32	6-32	6-32
Wt. (ave.) lbs.	4oz.	9oz.	1	15oz.	1 1/4	1 1/4	2

	GB	HA	HB	JA	JB	KA	KB
A	2 1/4	2 1/4	2 1/4	3 1/4	3 1/4	3 1/4	3 1/4
B	2 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4	3 1/4
C	2 1/4	4 1/4	3 1/4	4 1/4	3 1/4	5 1/4	4 1/4
D	2 1/4	2 1/4	2 1/4	2 1/4	2 1/4	3	3
E	1 1/4	1 1/4	1 1/4	2 1/4	2 1/4	2 1/4	2 1/4
G	3/4	3/4	3/4	3/4	3/4	3/4	3/4
I	6-32	8-32	8-32	8-32	8-32	10-32	10-32
Wt. (ave.) lbs.	1 1/4	2 1/4	2 1/4	4 1/4	4	7 1/4	7

	LA	LB	MA	MB	NA	NB	OA
A	3 1/4	3 1/4	4	4	4 1/4	4 1/4	5 1/4
B	4 1/4	4 1/4	4 1/4	4 1/4	5 1/4	5 1/4	4 1/4
C	5 1/4	4 1/4	6	4 1/4	6 1/4	5 1/4	6 1/4
D	3 1/4	3 1/4	3 1/4	3 1/4	4 1/4	4 1/4	3 1/4
E	2 1/4	2 1/4	3	3	3 1/4	3 1/4	3
G	3/4	3/4	3/4	3/4	3/4	3/4	3/4
I	10-32	10-32	1/4-20	1/4-20	1/4-20	1/4-20	1/4-20
Wt. (ave.) lbs.	9 1/4	8 1/4	13 1/4	12 1/4	18	16	21

COMBINED PLATE AND FILAMENT / primary 115 volt / 380-1500 Hz

Type No.	Mil Type Number	Secondary Plate Supply		Filaments		RMS Test Voltage	F. Dim inches	Mil Case Type	Max. Unit Wt. Lbs.	
		A.C. Volts	D.C. Ma. Cond. In	D.C. Ma. Choke In	Volts					Amps
HS-402	TF4RX03AJ	238-0-238†	20	25.5	6.3 CT	1.5	1500	3/16	AJ	.75
HS-401	TF4RX03EB	250-0-250†	40	51	6.3 CT* 6.3*	1 1	1500	3/16	EB	1.2
HS-400	TF4RX03AH	125†	25	31.7	6.3 CT	.8	1500	3/16	AH	.344
HS-405	TF4RX03GA	300-0-300†	70	89	6.3 CT* 6.3* 6.3/5†	2 2 2	1500	1/4	GA	2.7
HS-407	TF4RX03JB	300-0-300†	120	152	6.3 CT* 6.3* 6.3/5†	3.5 3.5 3	1500	1/4	JB	4.65
HS-409	TF4RX03HA	350-0-350†	150	190	6.3 CT 6.3/5†	4 3	1500	1/4	HA	3.75
HS-413	TF4RX03JA	225-0-225†	200	254	6.3 CT* 6.3* 6.3/5†	6 6 4	1500	1/4	JA	5.5
HS-415	TF1RX03KB	400-300-0-300-400†	200	254	6.3 CT* 6.3* 6.3/5†	6 6 6	2500	1/4	KB	7.5
HS-417	TF1RX03LA	400-300-0-300-400†	300	380	6.3 CT* 6.3* 6.3/5†	6 6 6	1500 1500 2500	1/4	LA	10

ISOLATION / primary 115 volt / 380-1500 Hz

Type No.	Mil Type No.	Secondary			RMS Test Voltage	F. Dim inches	Mil Case Type	Max. Unit Wt. Lbs.
		Volts	Current	VA				
HS-470†	TF4RX01EA	115	.35A.	40	1500	3/16	EA	1.5
HS-471†	TF4RX01FA	115	.7A.	80	1500	3/16	FA	2
HS-472†	TF4RX01GA	115	1.39A.	160	1500	3/16	GA	3.1
HS-474†	TF4RX01JA	115	2.6A.	300	1500	3/16	JA	6.25
HS-475†	TF1RX01KA	115	4.4A.	500	1500	3/16	KA	8.75

FILAMENT / 380-1500 Hz

Type No.	Mil Type No.	Volts Primary	Filaments		RMS Test Voltage	F. Dim inches	Mil Case Type	Max. Unit Wt. Lbs.
			Volts	Amps				
HS-436	TF4RX01AH	115	6.3 CT	1	1500	3/16	AH	.3
HS-425	TF4RX01YY	0-105-115-125	6.3 CT	2	1500	3/16	AJ-2***	.65
HS-427	TF4RX01EA	0-105-115-125	6.3 CT	5	Pri. 500 Sec. 2500	3/16	EA	1.12
HS-445	TF4SX01EA	0-105-115-125	12.6 CT	3	2500	1	EA	1.2
HS-438	TF4RX01EA	0-105-115-125	24 CT	1.5	1500	3/16	EA	1.2
HS-433	TF4RX01FA	0-105-115-125	6.3 CT* 6.3*	5 5	Pri. 1500 Sec. 2500	1/4	FA	2
▲ HS-435	TF4RX01FA	0-105-115-125	6.3 CT* 6.3* 6.3/5†	3.5 3.5 3	2000	1/4	FA	1.85
HS-441	TF4RX01HA	0-105-115-125	5 CT* 5* 2.5 CT	10 10 10	2000 7500	Special	HA	4
HS-443	TF4RX01YY	0-105-115-125	12.6 CT* 12.6*	.8 .8	1500	3/16	AJ-2***	.75
HS-442	TF4RX01EA	0-57.5-99.7-115-120	12.6 CT* 12.6*	2 2	1500	3/16	EA	1.25
☞ F-439U		115	26	3.85	2000	3 1/2H 2 1/2W 2 1/4D	Spl (Non-Mil)	2.25
HS-444	TF4SX01FA	0-57.5-99.7-115-120	26 CT* 26 CT*	2 2	2000	.9	FA	1.9
☞ HS-440	TF1RX01EA	0-105-115-125	3.2	1.50	1500	3/16	EA	1.25

▲ Discontinued item, available until stock depleted.

* Windings may be connected in series to obtain their combined voltage when properly phased. Current will be equal to the current of the lowest winding. Example: Two 6.3V. windings @ 2A. in series would be 12.6V. @ 2A. Windings may also be connected in parallel to obtain the combined current. Example: Two 6.3V. windings @ 2A. in parallel would be 6.3V. @ 4A. *** See case chart, page 54 † Tapped for 5-Volt rectifier use. CT for Center Tap. ‡ Static shield.

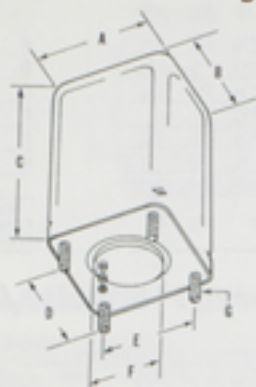
☞ New item.



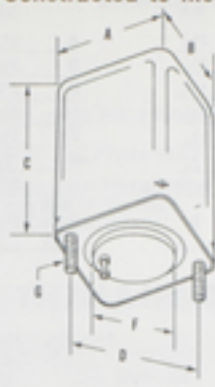
Designed and Constructed to meet MIL-T-27B



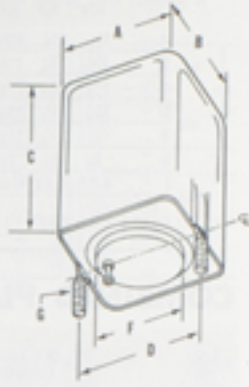
HC, HS and HSM Case
(See Chart Page 21)



AJ-2 Case



AH-2 Case



ISOLATION / 50-60 Hz

Type No.	Mil Type No.	Primary Volts	Secondary		RMS Test Voltage	F. Dim. inches	Mil ¹ Case Type	Max. Unit Wt. Lbs.
			Volts	Current				
▲HSM-270	TF4RX01JB	115/230	0-105-115-125	.4A, 50	1500	3/4	JB	4.7
HSM-271	TF4RX01KA	115/230	0-105-115-125	1A, 125	1500	3/4	KA	9.25
HSM-272	TF4RX01NB	115/230	0-105-115-125	2A, 250	1500	1 1/4	NB	17.25

BOX SHIELDED ISOLATION / 50-60 Hz / epoxy potted with leads

Super shielded isolation transformers with less than .03 mmfd capacity between primary and secondary. Specifically engineered for circuitry where isolation from power line noise is critical.

Type No.	Secondary		Primary Volts	VA	RMS Test Volts	Chassis Cut-Out For Leads	Mil ¹ Case Type	Max. Unit Wt. Lbs.
	Volts	Current						
HC-115	115	1A	115	115	1000	3/4	KA	20
▲HC-300	115	2.6A	115	300	1000	3/4	NB	3

LOW VOLTAGE / 50-60 Hz / for solid state applications

Type No.	Mil Type No.	Primary Volts	Secondary		RMS Test Volts	DC Volts		Mil ¹ Case Type	Max. Unit Wt. Lbs.
			AC Volts*	RMS Amps.		CT FW	FW Bridge		
HSM-249	TF4SX02AH	115	8.25-40.5	.02-.065 DC	1500	6.6-24	6-53	AH	5 oz.
HSM-250	TF4SX02AJ	115	8.25-40.5	.07-.22 DC	1500	6.6-24	6-53	AJ	13 oz.
HSM-251	TF4SX02FA	115	8.25-40.5	.4-1.2 DC	1500	6.6-24	6-53	FA	2
HSM-252	TF4SX02HA	115	8.25-40.5	1.0-3.0 DC	1500	6.6-24	6-53	HA	4.5
▲HSM-253	TF4SX02KA	115	8.25-40.5	2.5-7.5 DC	1500	6.6-24	6-53	KA	9.25
▲HSM-254	TF4SX02OA	115	8.25-40.5	6.0-18.0 DC	1500	6.6-24	6-53	OA	23.25

*Primary taps can modify nominal AC voltages by -6%, +6% and +12% on types HSM-249 through HSM-254

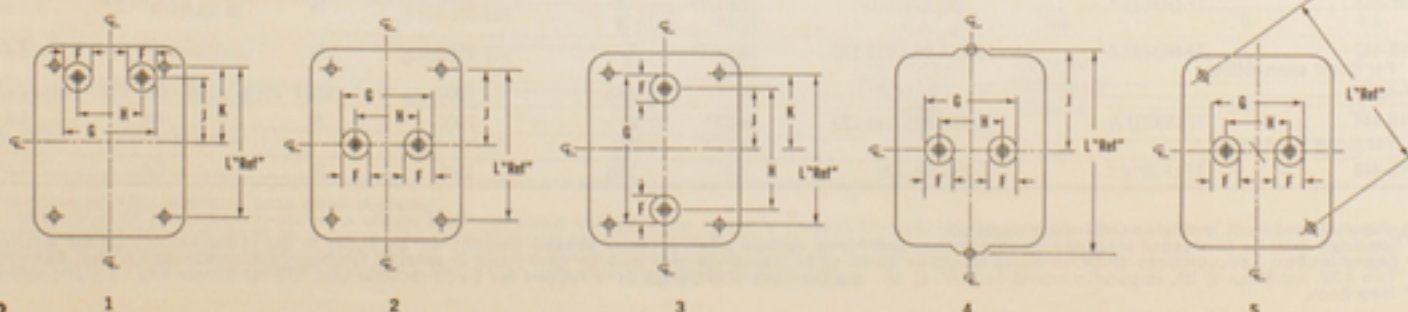
FILTER REACTORS / inductance tolerance +50%, -20%

Type No.	Mil Type Number	DC MA	Inductance Henries	DC Resistance	RMS Test Voltage	Terminal Dwg No.	Drawing Dimensions						Mil ¹ Case Type	Max. Unit Wt. Lbs.
							F	G Max	H	J	K	L ± 1/4		
HSM-301	TF4RX04EB	20	30	1000	1500	1	1/4	3/16	3/8	1/2	1 1/4	1 3/4	EB	1.2
HSM-302	TF4RX04AJ	20	14	560	1500	-	1/4	3/16	3/8	1/2	1 1/4	1 3/4	AJ	.75
HS-331	TF4RX04YY	40	4	375	1500	4	1/4	3/16	3/8	1/2	1 1/4	1 3/4	AH-2 ■■	.35
HS-303	TF4RX04EB	50	12	385	1500	2	1/4	3/16	3/8	1/2	1 1/4	1 3/4	EB	1.25
HS-333	TF1RX04YY	70	3	225	1500	5	1/4	3/16	3/8	1/2	1 1/4	1 3/4	AJ-2 ■■	.75
HSM-305	TF4RX04GB	70	15	300	2500	3	1/4	2 1/16	1 3/8	3/4	1 1/4	2 1/4	GB	2.4
HS-335	TF4RX04EB	120	3	150	1500	1	1/4	3/16	3/8	1/2	1 1/4	1 3/4	EB	1.12
HSM-307	TF1RX04JB	120	15	185	2500	1	1/4	1 1/16	1 1/8	1 1/4	1 3/4	2 1/4	JB	5.25
HS-339	TF4RX04FB	200	3	105	2000	1	1/4	3/16	3/8	1/2	1 1/4	1 3/4	FB	1.75
HSM-315	TF4RX04JA	200	10	100	2500	1	1/4	1 1/16	1 1/8	1 1/4	1 3/4	2 1/4	JA	6.6
HS-341	TF4RX04GB	300	2	48	2000	1	1/4	3/16	3/8	1/2	1 1/4	1 3/4	GB	2.5
HSM-319	TF1RX04LA	300	10	85	2500	1	1/4	1 1/16	1 1/8	1 1/4	1 3/4	3 1/4	LA	12.2

1 See case charts, page 19.

■■ See case chart, page 48.

▲ Discontinued item, available until stock depleted.



AUDIO TRANSFORMERS

Designed and Constructed to meet MIL-T-27B



MILITARY GRADE



JO Case



	JOA	JOB
A	1/4 dia.	1/4 dia.
B	Round	Round
C	1 1/2	1 1/2
D	3/4	3/4
E	3/4	3/4
Unit Wt.	2 oz.	2 1/2 oz.



TZ Core & Coil only



XT Case

JO SERIES

Type No.	Mil. Type Number	Power Output	Application	Matching Impedance		D.C. Resistance		Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Magnetic Shielding	F. Dim. Inches Min.	Case	Max. Unit Wt. Lbs.
				Primary	Secondary	Primary	Secondary							
JO-1‡	TF1QX10YY	1MW.	Line or Mike to Grid	600/250/50	50,000	100	3180	1:9.16	60-15,000	500	45 DB	3/4	JOA	.17
JO-2‡	TF1QX10YY	1MW.	Line or Mike to Grid	600/250/50	250,000	48	3600	1:20.6	100-8,000	500	45 DB	3/4	JOA	.17
JO-3	TF1QX10YY	1MW.	Line or Mike to Single or P.P. Grids	600/250/50	60,000 CT	125	3600	1:10	60-15,000	500	45 DB	3/4	JOA	.17
JO-5‡	TF1QX10YY	1MW.	Mike or Voice Coil to Grid	30/12/4	50,000	6	3500	1:39.7	50-12,000	500	45 DB	3/4	JOA	.17
JO-11	TF1QX10YY	10MW.	Plate to Grid	15,000 0 MA D.C.	60,000	1100	2860	1:2	50-15,000	500	45 DB	3/4	JOB	.17
JO-12	TF1QX10YY	10MW.	Plate to Single or Push-Pull Grids	15,000 0 MA D.C.	60,000 CT	1350	2700	1:2	50-15,000	500	45 DB	3/4	JOB	.17
JO-13	TF1QX15YY	10MW.	Plate to Single or P.P. Grids	15,000 3 MA D.C.	95,000 CT	1330	3330	1:2.3	300-7,000	500	45 DB	3/4	JOB	.17
JO-21	TF1QX16YY	10MW.	Plate to Line	15,000 0 MA D.C.	600/250/50	1330	58	4.98:1	50-15,000	500	45 DB	3/4	JOB	.17
JO-22	TF1QX13YY	10MW.	Plate to Line	15,000 3 MA D.C.	600/250/50	1330	58	5:1	300-7,000	500	45 DB	3/4	JOB	.17
JO-23	TF1QX13YY	10MW.	Single or P.P. Plates to Line	20,000 CT 0 MA D.C.	600/250/50	2000	70	5.76:1	50-15,000	500	45 DB	3/4	JOB	.17
JO-31‡	TF1QX16YY	10MW.	Line to Line	600/250/50	600/250/50	55	80	1:1	50-15,000	500	45 DB	3/4	JOB	.17
JO-101	TF1QX20YY	-	Coupling Reactor	50 HY	-	3400	-	-	-	500	45 DB	3/4	JOB	.17

SUB-MINIATURE AUDIO / open frame

Type No.	Power Output	Application	Matching Impedance		D.C. Resistance		Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Volts	Case Type	Connections	Case Dimension			Mounting Dimension MW	Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary						H	W	D		
TZ-1	1MW.	Input-Line or Mike to Grid	600/250/50	60,000	350	4100	1:10	70-20,000	500	TZ	Leads	3/4	1/2	3/4	.015	
TZ-2XT	1MW.	Line or Mike to Grid	200 CT	200,000	35	5000	1:31.6	100-20,000	500	XT	Leads	3/4	1/2	3/4	.015	
TZ-5	1MW.	Input-Mike or V.C. to Grid	30/12/4	50,000	6	3500	1:40.5	70-20,000	500	TZ	Leads	3/4	1/2	3/4	.015	
TZ-7	1MW.	Input-Mike or V.C. to Transistor	30/12/4	1000	5	480	1:5.73	40-20,000	500	TZ	Leads	3/4	1/2	3/4	.015	
TZ-13	1MW.	Interstage-Plate to Single or P.P. Grids	15,000 1 MA. D.C.	135,000 CT	985	4400	1:3	70-15,000	500	TZ	Leads	3/4	1/2	3/4	.015	
TZ-15	1MW.	Transistor Interstage	20,000 5 MA. D.C.	1200/600/100	2700	350	4.08:1	70-15,000	500	TZ	Leads	3/4	1/2	3/4	.015	
TZ-24XT	1MW.	Plate or Transistor to Line or Transistor	25,000 CT 5 MA. D.C.	500 CT	2000	60	7.1:1	100-15,000	500	XT	Leads	3/4	1/2	3/4	.015	
TZ-17XT	1MW.	Plate or Transistor to Transistor	10,000 CT	2000 CT	1000	250	2.24:1	70-15,000	500	XT	Leads	3/4	1/2	3/4	.015	
▲ TZ-29XT	1MW.	Transistor Isolation High Impedance	10,000 CT 1 MA. D.C.	10,000 CT	1100	1400	1:1	100-20,000	500	XT	Leads	3/4	1/2	3/4	.015	
TZ-25	1MW.	Output-Plate to Line	10,000 1 MA. D.C.	200	1500	120	7.05:1	70-20,000	500	TZ	Leads	3/4	1/2	3/4	.015	
TZ-32XT	10MW.	Transistor to Line or Transistor	1500 CT 2.5 MA. D.C.	600 CT/150‡	160	65	1.58:1	70-20,000	500	XT	Leads	3/4	1/2	3/4	.015	
TY-27XT	10MW.	Output-Single or P.P. to Line	500 CT 2 MA. D.C.	500 CT	37.5	51.5	1:1	300-15,000	500	XT	Leads	1/2	3/4	1/2	3/4	.025
TY-28XT	10MW.	Output-Single or P.P. to Line	500 CT 2 MA. D.C.	200 CT	38.2	25	1.58:1	300-15,000	500	XT	Leads	1/2	3/4	1/2	3/4	.025
TZ-26	1MW.	Transistor Output	1000 5 MA. D.C.	50	355	20	4.5:1	100-10,000	500	TZ	Leads	3/4	1/2	3/4	.015	
TZ-28	1MW.	Transistor Input	600	50	94.5	11	3.47:1	40-60,000	500	TZ	Leads	3/4	1/2	3/4	.015	
TZ-103XT	-	Coupling Reactor	4 Hy. or 1 Hy.	-	400	-	-	-	500	XT	Leads	3/4	1/2	3/4	.015	

‡ Split winding. CT for Center Tap. † Static shield. ▲ Discontinued item, available until stock depleted.



Designed and Constructed to meet MIL-T-27B

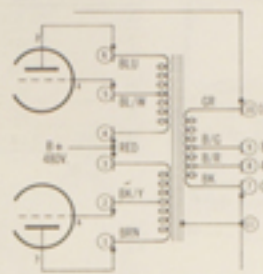


HS
HSM

HS and HSM Case
See case chart, page 21



SCREEN TAPPED ARRANGEMENT SHOWN, MAY BE USED TO INCREASE POWER, FREQUENCY RESPONSE AND DISTORTION REMAIN APPROXIMATELY THE SAME AS FOR TRIODE CIRCUIT.



GP Case

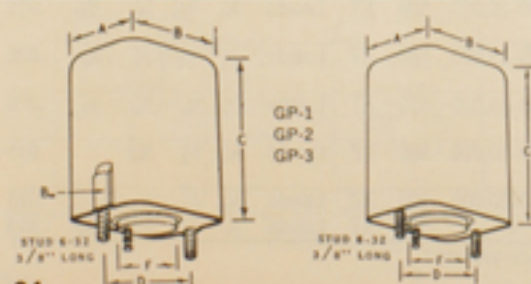
HIGH FIDELITY OUTPUT / high level / to line or voice coil

Type No.	Mil Type Number	Output Watts	Application	Matching Impedance		Primary Ma. D.C.		D.C. Resistance		Overall Turns Ratio	Freq. Resp. ± 3 dB	RMS Test Voltage	F. Dim. Inch	Mil. Case Type	Max. Unit Wt. Lbs.
				Primary	Secondary	P.P. Single Total	D.C.	Pri-Secondary							
HSM-79	TF4RX13FA	5	Sgl or P.P. Plates to Voice Coil	20,000 CT / 5000 $\S\S\S$	16/8/4	40	20	1800	1.25	35.4:1	40-20,000	Pri. 2000 Sec. 1500	1 3/4	FA	2
HSM-80	TF4RX13FA	5	Sgl or P.P. Plates to Line	20,000 CT / 5000 $\S\S\S$	600 CT / 250 CT / 150/62.5	40	20	1800	30	5.75:1	40-20,000	Pri. 2000 Sec. 1500	1 3/4	FA	2
HSM-81	TF4RX13JB	15	P.p. 6V6's, etc. to V.C.	8000 CT $\S\S\S$	16/8/4	100		420	.75	22.3:1	7-50,000	1500	1 3/4	JB	5.12
▲HSM-82	TF4RX13JB	15	As above—to line	8000 CT $\S\S\S$	500/250/125	100		360	30	3.6:1	7-50,000	1500	1 3/4	JB	5.12
HSM-181	TF4RX13JB	15	P.p. 6V6's, 2A3's, EL84's, etc. to V.C.	8000 CT ■ or 2000 CT $\S\S\S$	16/8/4	100		420	1.75	22.3:1	7-50,000	1500	1 3/4	JB	5
▲HSM-182	TF4RX13JB	15	As above—to line	8000 CT ■ or 2000 CT $\S\S\S$	500/250/125	100		360	30	3.6:1	7-50,000	1500	1 3/4	JB	5
▲HSM-84	TF4RX13JB	20	P.p. 2A3's, 6B4's, 6L6's, etc. to V.C.	5000 CT $\S\S\S$	16/8/4	160		204	.75	17.15:1	15-30,000	1500	1 3/4	JB	5
HSM-85R	TF4RX13JB	20	As above—to line	5000 CT $\S\S\S$	500/250/125	160		284	21	3.17:1	7-50,000	1500	1 3/4	JB	5
HSM-184	TF1RX13KB	25	P.p. 7189A	8000 CT ■	16/8/4 111	200		245	.63	22.2:1	10-50,000	1500	1 3/4	KB	7.5
HSM-189	TF1RX13KB	25	P.p. KT-66's, 807's, etc.—for Williamson circuit	10,000 CT ■ or 2500 CT $\S\S\S$	16/8/4	200		280	.9	24.8:1	7-50,000	Pri. 2000 Sec. 1500	1 3/4	KB	7.12
HSM-190	TF1RX13KB	25	As above—to line	10,000 CT ■ or 2500 CT $\S\S\S$	500/250/125	200		280	14.3	4.45:1	7-50,000	Pri. 2000 Sec. 1500	1 3/4	KB	7.5
▲HSM-186	TF1RX13KB	25	5881, 6L6, 807, etc. for Williamson circuit	6600 CT ■ or 1650 CT $\S\S\S$	16/8/4	160		245	.69	20:1	7-50,000	Pri. 2000 Sec. 1500	1 3/4	KB	7
HSM-187	TF1RX13KB	25	As above—to line	6600 CT ■ or 1650 CT $\S\S\S$	500/250/125	160		252	13.4	3.7:1	7-50,000	Pri. 2000 Sec. 1500	1 3/4	KB	7.5
▲HSM-91	TF1RX13LA	50	P.p. parallel 2A3's, 6L6's, etc. to V.C.	2500 CT or 625 $\S\S\S$	16/8/4	320		110	.5	12.62:1	7-50,000	2000	1 3/4	LA	10
HSM-94	TF1RX13LA	55	P.p. par. 6L6's to V.C.	4500 CT $\S\S\S$	16/8/4	360		138	.46	17.5:1	7-50,000	2000	1 3/4	LA	11.1
HSM-95	TF1RX13LA	55	As above—to line	4500 CT $\S\S\S$	500/250/125	360		138	14	3:1	7-50,000	2000	1 3/4	LA	11.3
▲HS-97	TF1RX13YY	125	P.p. 845's to line	6600 CT or 1650 $\S\S\S$	500/250/125	480		154	7.9	3.6:1	15-30,000	Pri. 5000 Sec. 1500	Special GP-15*	GP-15* 26.25	

POWER OUTPUT / to line or voice coil

Type No.	Mil. Type Number	Power Output	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	Freq. Resp. ± 3 dB	RMS Test Voltage	F. Dim. Inches	Case	Max. Unit Wt. Lbs.
				Primary	Secondary	Primary	Secondary						
HS-71	TF1QX13YY	2W	Plate to Line	10,000 10 MA DC	600 CT / 150 $\S\S\S$	800	46	4.1:1	150-15,000	1000	5/8	AH-2 ■ ■	.4
HS-73	TF1RX13YY	5W	Plate to Line or Voice Coil	5000 40 MA DC	500/250 / 16/8/4	273	40	3.15:1	70-15,000	1500	3/4	AJ-2 ■ ■	.75
HS-75	TF4RX13EB	10W	Single or P.P. Plates to Line or V.C.	10,000 CT 50 MA DC	500/250 / 16/8/4	325	13.8	4.48:1	100-25,000	1500	3/4	EB	1.12
HS-77	TF4RX13GA	25W	Single or P.P. Plates to Line or V.C.	9000 CT 120 MA DC	500/250 / 16/8/4	157	9.1	4.24:1	70-20,000	2000	1 3/4	GA	3.12

▲ Discontinued item available until stock depleted. $\S\S\S$ Split winding. CT for Center Tap. ■ Williamson type circuit may be used. Taps on primary for proper screen operation. ■ See case chart, page 54. * GP-15 dim ensions 4 3/4" x 5 3/4" x 6 3/4" high. Mounting centers 3 3/4" x 4 3/4".



SHIELDING

- P-1 — One nickel alloy high permeability shield — 45db. reduction in pickup.
- P-3 — Two nickel alloy shields interleaved with one heavy copper shading ring — 70db. reduction in pickup.
- P-5 — Three nickel alloy shields interleaved with two heavy copper shading rings — 90db. reduction in pickup.

	GP-1	GP-2	GP-3	GP-4	GP-5
A	3/4	1 1/4	1 3/4	1 3/4	1 3/4
B	1 1/4	1 3/4	1 3/4	1 3/4	2
Bw	1 3/4	1 3/4	1 3/4		
C	1 3/4	2 1/4	2 1/4	2 1/4	2 1/4
D	1 3/4	1 3/4	1 3/4	1 3/4	1 3/4
F	3/4	3/4	3/4	3/4	3/4
WL	3 oz.	5 1/2 oz.	8 oz.	12 oz.	17 oz.

AUDIO TRANSFORMERS

Designed and Constructed to meet MIL-T-27B



MILITARY GRADE



SM-1
SM-2



LOW LEVEL AUDIO INPUT

Type No.	Mil. Type Number	Power Output	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Magnetic Shielding	F. Dim. Inch	Case	Max. Unit Wt. Lbs.
				Primary	Secondary	Pri-ary	Sec-ondary							
HS-11	TF1QX10YY	10MW.	Universal-Line or Mike to Grid	600 Ω /250 Ω /150/62.5	77,000	70	3640	1:11.3	20-20,000	500	90 DB P-5	$\frac{3}{8}$	GP-4	.75
HS-111	TF1QX10YY	10MW.	Universal-Line or Mike to Grid	600 Ω /250 Ω /150/62.5	77,000	70	3640	1:11.3	20-20,000	500	45 DB P-1	$\frac{5}{16}$	GP-2	.5
AHS-31	TF1QX10YY	10MW.	Universal-Line or Mike to Sgl. or P.P. Grids	600 Ω /250 Ω /150/62.5	117,600 CT	70	4160	1:14	20-20,000	500	90 DB P-5	$\frac{3}{8}$	GP-5	1
HS-41	TF1QX10YY	10MW.	Universal-Line or Mike to Sgl. or P.P. Grids	600 Ω /250 Ω /150/62.5	117,600 CT	70	4160	1:14	20-20,000	500	70 DB P-3	$\frac{3}{8}$	GP-4	.65
AHS-141	TF1QX10YY	10MW.	Universal-Line or Mike to Sgl. or P.P. Grids	600 Ω /250 Ω /150/62.5	117,600 CT	70	4160	1:14	20-20,000	500	45 DB P-1	$\frac{3}{8}$	GP-3	.5
HS-151	TF1QX10YY	100MW.	Universal-Line or Mike to Sgl. or P.P. Grids	600 Ω /250 Ω /150/62.5 (10 MA. D.C.)	38,400 CT \S	100	6150	1:8	30-20,000	500	70 DB P-3	$\frac{3}{8}$	GP-5	1.25
HS-5	TF1QX10YY	1MW.	Dynamic Mike to Grid	30	127,500	4.1	4860	1:65.2	40-12,000	500	90 DB P-5	$\frac{3}{8}$	GP-4	.7

LOW LEVEL AUDIO INTERSTAGE

Type No.	Mil. Type Number	Power Output	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Magnetic Shielding	F. Dim. Inch	Case	Max. Unit Wt. Lbs.
				Primary	Secondary	Pri-ary	Sec-ondary							
HS-23	TF1QX10YY	40MW.	Sgl. Plate to Sgl. Grid	15,000	110,000	1610	4320	1:2.7	20-20,000	1500	70 DB P-3	$\frac{3}{8}$	GP-4	.65
HS-25	TF1QX10YY	75MW.	Sgl. Plate to Sgl. or P.P. Grid	15,000	111,000 CT $\S\S\S$	1115	6100	1:2.72	20-20,000	500	45 DB P-1	$\frac{3}{8}$	GP-4	.65
HS-35	TF1QX10YY	25MW.	Sgl. Plate to Sgl. or P.P. Grid	15,000	111,000 CT $\S\S\S$	1440	3940	1:2.72	20-20,000	500	45 DB P-1	$\frac{5}{16}$	GP-2	.35
HS-27	TF1QX15YY	130MW.	Sgl. or P.P. Plates to Sgl. or P.P. Grid	20,000 CT \S /5000	60,000 CT \S /15,000	1700	6420	1:1.72	20-20,000	1000	45 DB P-1	$\frac{3}{8}$	GP-4	.72
HS-29	TF1QX10YY	20MW.	Sgl. or P.P. Plates to Sgl. or P.P. Grids	20,000 CT \S /5000	80,000 CT \S /20,000	2000	4000	1:2	20-20,000	500	90 DB P-5	$\frac{3}{8}$	GP-4	.7
HSM-31	TF4RX19FA	3W.	Sgl. or P.P. Plates to Sgl. or P.P. Grids	20,000 CT \S /5000	20,000 CT \S /5000 CT	2060	950	1:1	20-20,000	1500	-	1 $\frac{1}{2}$	FA \blacksquare	2
SM-1	TF5RX13ZZ	200MW.	Transistor Interstage	20K 30K	800 1,200	1144	32.8	5:1	200-20,000	500	+23 DBM			.05
HS-32	TF1QX15YY	200MW.	Sgl. Plate to Sgl. or P.P. Grids	15,000 (6 MA. D.C.)	60,000 CT \S /15,000	5000	10,000	1:2	20-15,000	1000	45 DB P-1	$\frac{3}{8}$	GP-5	1.13

LOW LEVEL AUDIO OUTPUT / mixing, matching & bridging

Type No.	Mil. Type Number	Power Output	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Magnetic Shielding	F. Dim. Inch	Case	Max. Unit Wt. Lbs.
				Primary	Secondary	Pri-ary	Sec-ondary							
HS-50	TF1QX16YY	400MW.	Sgl. Plate to Line	15,000	600 Ω /250 Ω /150/62.5	1020	52.6	5:1	20-20,000	500	70 DB P-3	$\frac{3}{8}$	GP-4	.75
HS-60	TF1QX16YY	20MW.	Sgl. Plate to Line	15,000	600 Ω /250 Ω /150/62.5	900	45	5:1	20-20,000	500	45 DB P-1	$\frac{5}{16}$	GP-2	.4
HS-61	TF1QX13YY	200MW.	Sgl. Plate to Line	15,000 (5 MA. D.C.)	600 Ω /250 Ω /150/62.5	2200	80	5:1	40-15,000	1000	45 DB P-1	$\frac{3}{8}$	GP-5	1.25
HS-52	TF1QX13YY	400MW.	P.P. Plates to Line	20,000 CT \S /5000	600 Ω /250 Ω /150/62.5	815	30	5.6:1	20-20,000	1000	45 DB P-1	$\frac{3}{8}$	GP-4	.85
HS-54	TF1QX13YY	10MW.	Bridging or P.P. Plates to Line	20,000 CT \S /5000	600 Ω /250 Ω /150/62.5	1300	50	5.78:1	20-20,000	500	90 DB P-5	$\frac{3}{8}$	GP-4	.75
SM-2	TF5RX17ZZ	250MW.	Matching or Transistor Output	600 CT	600/150	35	60	1:1	200-20,000	500	+24 DBM			.05
HS-56V1	TF1VX16YY	100MW.	Line to Line	600 Ω /250 Ω /150/62.5	600 Ω /250 Ω /150/62.5	60	60	1:1	10-30,000	500	70 DB P-3	$\frac{3}{8}$	GP-4	.75
HS-661	TF1QX16YY	100MW.	Line to Line	600 Ω /250 Ω /150/62.5	600 Ω /250 Ω /150/62.5	60	60	1:1	10-30,000	500	45 DB P-1	$\frac{3}{8}$	GP-3	.6
HS-581	TF1QX16YY	50MW.	Line to Line Balanced resistance and Capacitance	600 Ω /250 Ω /150/62.5	600 Ω /250 Ω /150/62.5	31.3	37.3	1:1	20-20,000	500	115 DB P-3H	$\frac{3}{8}$	GP-5	1.25

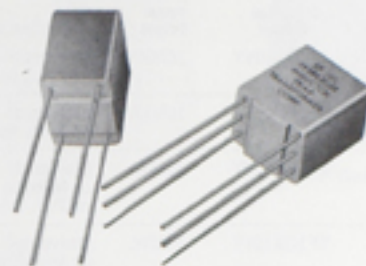
CT for Center Tap. \S Balanced two windings. $\S\S$ Balanced parallel windings. \blacksquare See case chart, page 21 \dagger Static shield. $\S\S\S$ Split Winding. \blacktriangle Discontinued item, available until stock depleted. \blacksquare New item.



RED SPEC TRANSISTOR TRANSFORMERS

Difficult, complex assembly processes make the Red Specs a notable achievement in high-quality miniaturization. They offer the same quality and reliability as larger units which use far less sophisticated materials. All Red Spec transformers are designed and constructed to conform to the rigid requirements of Specification MIL-T-27B.

Features of the reliable Red Specs: solid epoxy molded case . . . legible, permanent circuit data on every unit . . . base mounting pad for ready inspection of all solder joints . . . high-strength .020-diameter nickel alloy leads . . . no stripping or tinning required . . . operating voltage: 150 volts DC . . . exceptional operation from 100 to 100,000 cycles . . . base dimensions of only .310 by .410 inch . . . total height of just .465 inch . . . weight: 1/10 ounce . . . lowest possible fatigue factor . . . dry hydrogen-annealed Trialloy, deep-drawn .020-inch case available for providing as much as 20 to 45 db magnetic shielding. (See SP-310 case and dimensions on opposite page.)

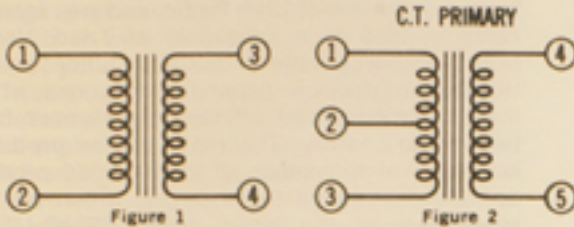


Type No.	Mil Type Number	Power Level in MW	Application	Matching Impedance		Max MA DC Unbalanced In Primary	DC Resistance		Overall Turns Ratio	Fig. No.
				Primary	Secondary		Primary	Secondary		
SP-4	TF5SX16ZZ	10	Input	200,000 CT	1,000 CT	0	5300	100	14.1:1	3
SP-5	TF5SX16ZZ	25	Input	50,000 CT	1,000 CT	0	3800	75	7.1:1	3
SP-7	TF5SX16ZZ	10	Input	200,000	1,000	0	5300	100	14.1:1	1
SP-11	TF5SX13ZZ	40	Interstage	25,000/20,000	1,000/800	.5	1700	115	5:1	1
SP-13	TF5SX13ZZ	40	Interstage	25,000 CT/20,000 CT	1,000 CT/800 CT	.5	1700	115	5:1	3
SP-15	TF5SX13ZZ	50	Interstage	10,000 CT	1,500 CT	1	1050	300	2.57:1	3
SP-20	TF5SX13ZZ	50	Driver	10,000 CT	1,200 CT	1	1050	200	2.88:1	3
SP-21	TF5SX13ZZ	50	Driver	10,000 CT	2,000 CT	1	1050	330	2.24:1	3
SP-22	TF5SX13ZZ	50	Driver	10,000	2,000 CT/500§	1	1050	146/168§	4.48:1:1	4
SP-29	TF5SX13ZZ	50	Driver	10,000 CT	500 CT	1	1050	80	4.47:1	3
SP-32	TF5SX17ZZ	50	Output	500	50	3	60	8	3.16:1	1
SP-33	TF5SX17ZZ	50	Output	1,000	50	3	145	8	4.4:1	1
SP-34	TF5SX17ZZ	50	Output	600	3.2	3	70	.76	13.6:1	1
SP-35	TF5SX13ZZ	50	Output	1,200	3.2	2	131	.76	19.3:1	1
SP-36	TF5SX13ZZ	50	Output	10,000	3.2	1	1160	.81	55.8:1	1
SP-42	TF5SX17ZZ	50	Output	150 CT	12	10	18	2.7	3.54:1	2
SP-47	TF5SX13ZZ	50	Output	1,500 CT	12	3	179	2.9	11.2:1	2
SP-48	TF5SX13ZZ	50	Output	7,500 CT	12	1	796	2.9	25:1	2
SP-49	TF5SX17ZZ	50	Output	300 CT	600	7	41	98	1:1.42	2
SP-50	TF5SX17ZZ	50	Output	500 CT	600	3	67	98	1:1.1	2
SP-51	TF5SX17ZZ	50	Output	900 CT	600	4	104	96	1.22:1	2
SP-52	TF5SX13ZZ	50	Output	1,500 CT	600	3	168	92	1.58:1	2
▲SP-63	TF5SX13ZZ	50	Output	1,200 CT	3.2	3	131	.87	19.3:1	2
SP-64	TF5SX13ZZ	50	Output	1,600 CT	3.2	2.5	186	.8	22.3:1	2
SP-65	TF5SX13ZZ	50	Output	8,000 CT	3.2	1	790	.76	50:1	2
SP-66	TF5SX13ZZ	50	Output-Isolation	10,000 CT	10,000 CT	1	1000	1300	1:1	3
SP-67	TF5SX17ZZ	50	Output-Isolation	600 CT	600 CT	3	72	92	1:1	3
SP-68	TF5SX13ZZ	50	Output-Isolation	10,000	10,000 CT/2500§	1	1000	565/650§	2:1:1	4
SP-69	TF5SX17ZZ	50	Output-Isolation	600	600 CT/150§	3	72	40/45§	2:1:1	4
SP-70	TF5SX17ZZ	50	Output-Isolation	600	600	3	72	92	1:1	1
SP-106	TF5SX20ZZ	—	Audio Choke	6HY	—	2	1700	—	—	5
SP-107	TF5SX20ZZ	—	Audio Choke	1.25HY	—	2	180	—	—	5
SP-108	TF5SX20ZZ	—	Audio Choke	3.5HY	—	2	1100	—	—	5
SP-117	TF5SX20ZZ	—	Audio Choke	.9HY	—	2	110	—	—	5
SP-118	TF5SX20ZZ	—	Audio Choke	.3HY	—	4	42	—	—	5
SP-128	TF5SX20ZZ	—	Audio Choke	.1HY	—	5	15	—	—	5

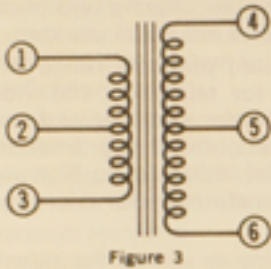
CT for Center Tap. § Split Secondary. ▲ Discontinued item, available until stock depleted.



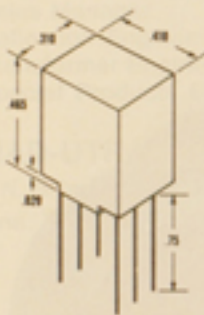
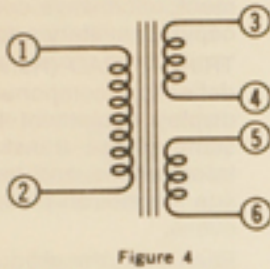
RED SPEC SCHEMATICS



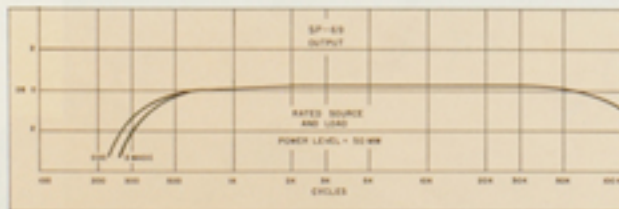
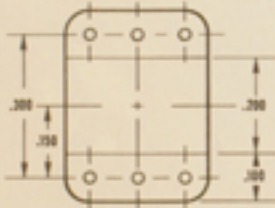
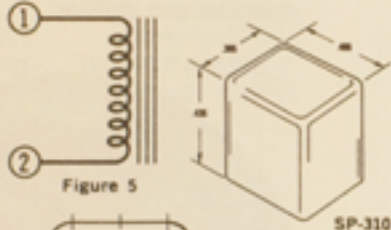
TAP PRIMARY — TAP SECONDARY



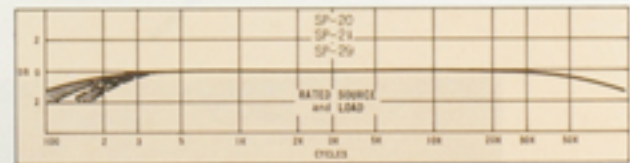
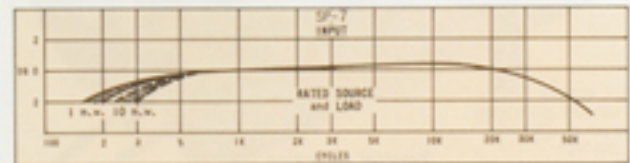
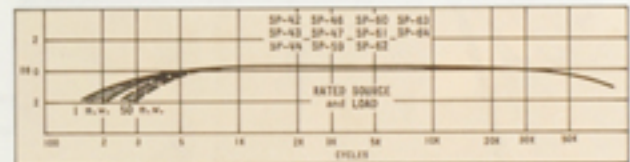
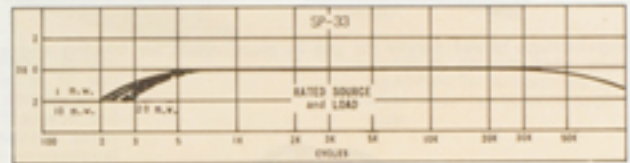
SPLIT WINDINGS



INDUCTOR



TYPICAL PERFORMANCE CHARACTERISTIC CHARTS



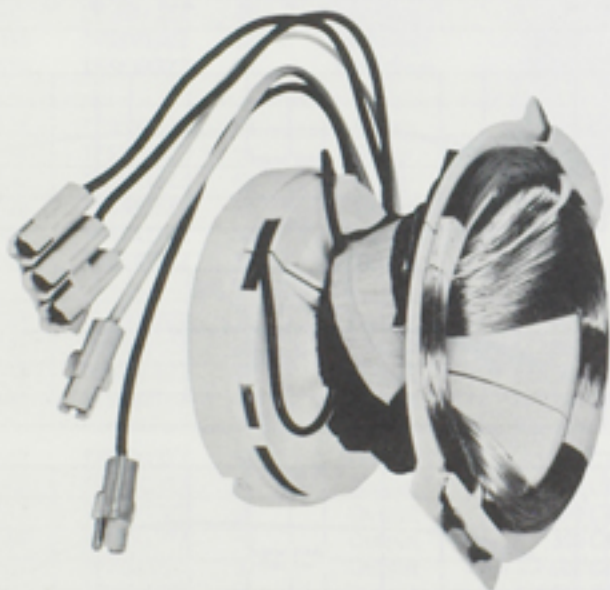


High voltage power supply for use in electrostatic air filtering and electrostatic photocopying equipment.

Triad-Utrad of Huntington was originally the transformer operation of Utah Radio, and was incorporated in 1956 as a subsidiary of Triad, Venice. Both plants were later acquired by Litton, and the Huntington division expanded into one of the most up-to-date and efficient transformer facilities in the country. The plant is now producing hundreds of thousands of such varied products as those shown on these pages, which are representative of the types which TRIAD-UTRAD makes for its customers in the home entertainment, microwave cooking, air filtering and photocopying, military and broad industrial markets.

TRIAD-UTRAD (Huntington) products range from deflection components for television and video display equipment to power supplies and constant-voltage transformers, from tiny transistor transformers and toroidal inductors to high-voltage magnetron pulse transformers for microwave ovens.

Each year, the product line as well as the industry recognition of TRIAD-UTRAD, Huntington, gains in scope and stature.



Toroidal deflection yoke for black-and-white television sets



Deflection yoke for color television receivers



The Huntington operation employs a versatile staff of design engineers and technicians whose sole purpose is to work directly with you in the initial stages of your equipment development. In addition, Triad-Utrad supports the design activity with a model shop to effect the most expeditious handling of engineering prototypes and pilot line runs. Triad-Utrad has unique machines and methods in all departments; a temperature-controlled room for the winding and assembly of miniature fine-wire components, toroidal inductors and transistor power supply transformers; an in-plant machine shop with tool and die making facilities; and automated conveyor system for large-scale production of deflection yokes.

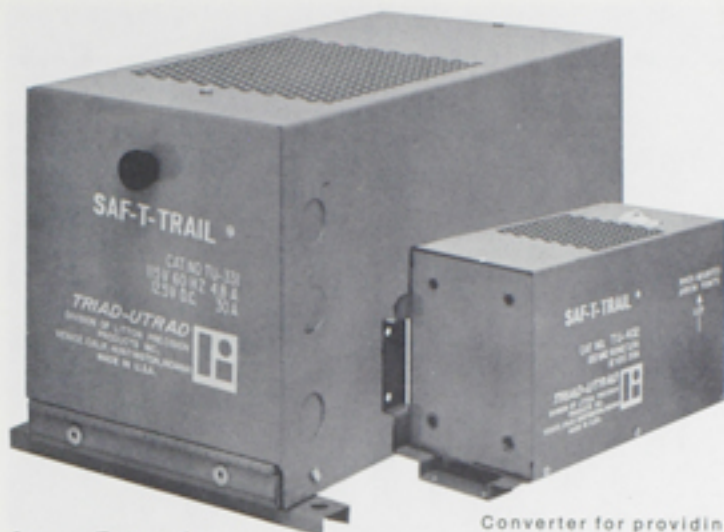
A quick look at the varied types of magnetic components, shown on these pages could make your engineering and purchasing problems noticeably simpler and faster. Write, or give us a call.

Personnel includes:

- President.....Maurice G. Clark
- Operations Manager.....Stuart Wechsler
- Sales Manager.....Jas. Tracy
- Deflection Engineering.....Marlane Miller
- Transformer Engineering....Robert Koehlinger
- Special Products Engineering....Thos. Hester

TRIAD-UTRAD (Huntington)

305 N. Briant Street, Huntington, Indiana 46750
 Phone: 219-356-7100 • TWX: 810-333-1532

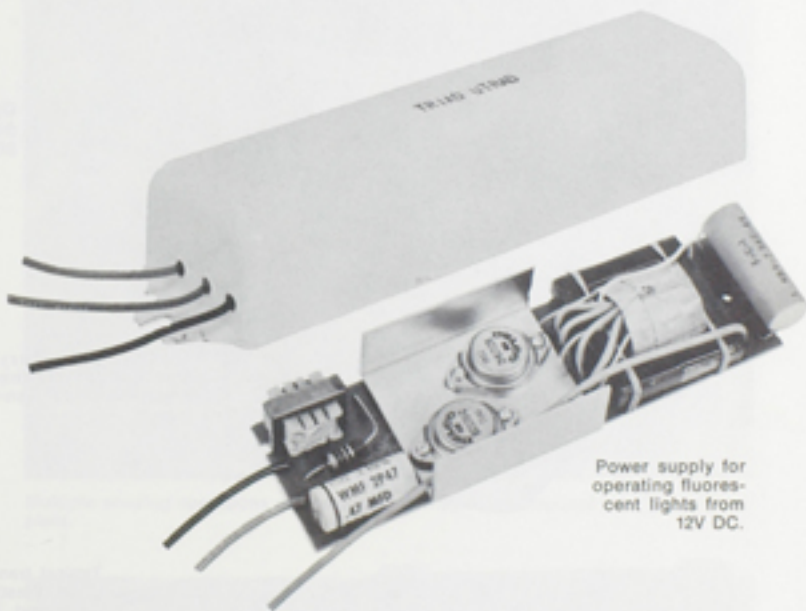


Converter/Battery charge for operation of 12 volt equipment and lighting from 110 volt source and charging battery automatically, in recreational vehicles.

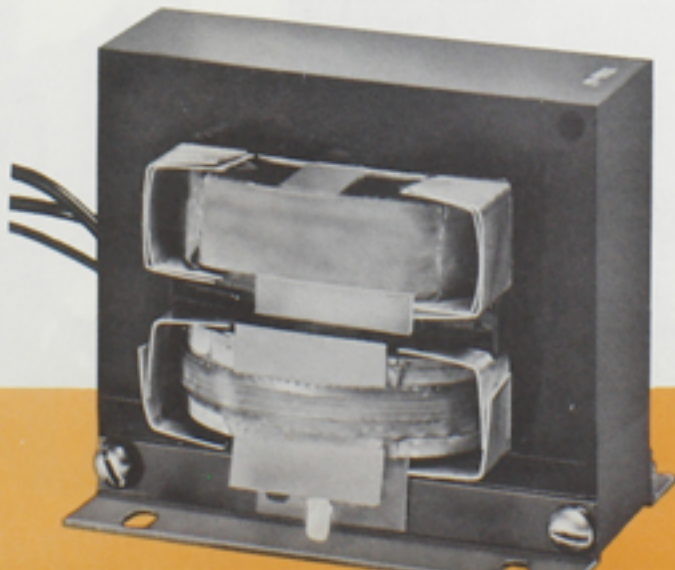
Converter for providing power to 12 volt lights and equipment in recreational vehicle when 110 volts is available.



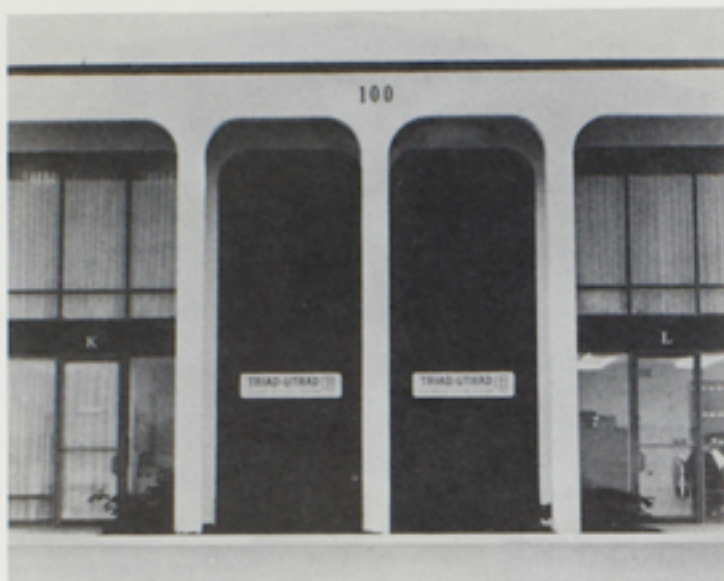
Horizontal deflection (flyback) transformer for color television.



Power supply for operating fluorescent lights from 12V DC.



Ferroresonant transformers for microwave cooking applications.



Headquarters of Triad-Utrad (West) in National City, Calif.

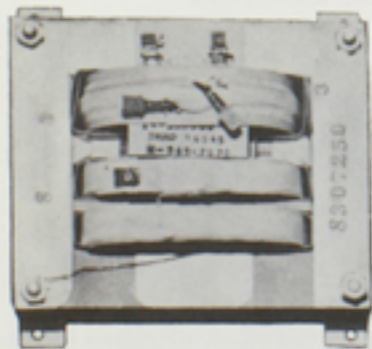
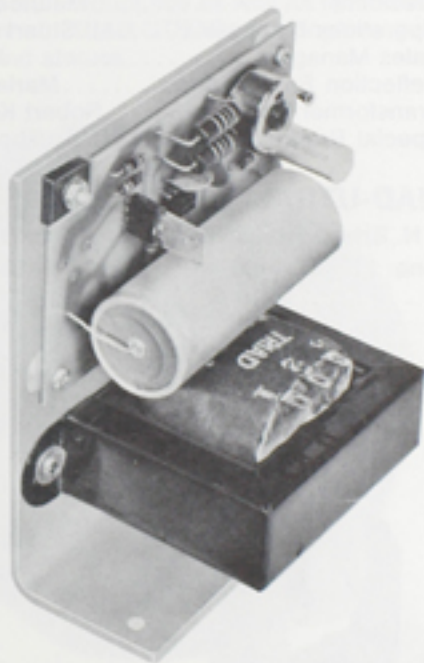
Triad-Utrad (West) with headquarters in National City, Calif., and production facilities in National City and Tia Juana, Mexico, specializes in a wide variety of transformers, power supplies and other magnetic components for both commercial and military applications. The plants also devote a great deal of their design skills and production capacity to re-chargeable NiCad battery chargers for hand-held calculators, small tools and other devices; converter/battery chargers for marine and other applications; ferro-resonant transformers, and other components.

The National City operation supports the Tia Juana plant with sales, engineering, prototyping, purchasing and other services, in addition to producing low-quantity high-cost power supplies. The Tia Juana plant has expanded steadily since its start in 1965, and is now turning out an increasing

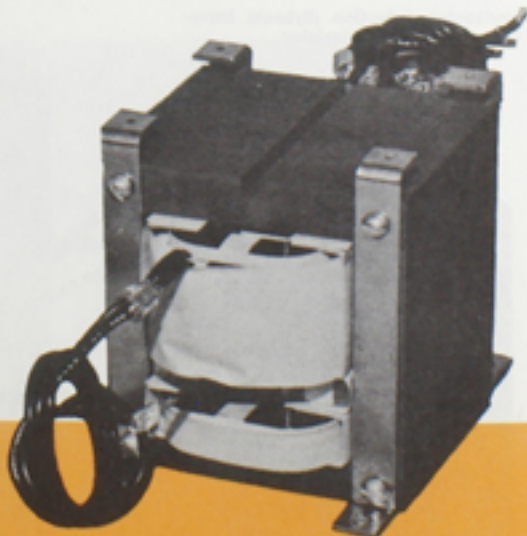


Converter/Battery Charger for marine application (CEC Benmar).

Open frame general purpose DC power supply.



Typical transformers made in Triad-Utrad (West) plants in National City, Calif. and Tia Juana.



variety of high-volume components—transformers, battery chargers and power supplies—as well as printed circuit board loading and wave soldering with customer supplied materials, and other special long-running assembly work. The Tia Juana operation, under the general supervision of the National City management, offers expert workmanship, close quality control and quick delivery by plane, train or motor freight.

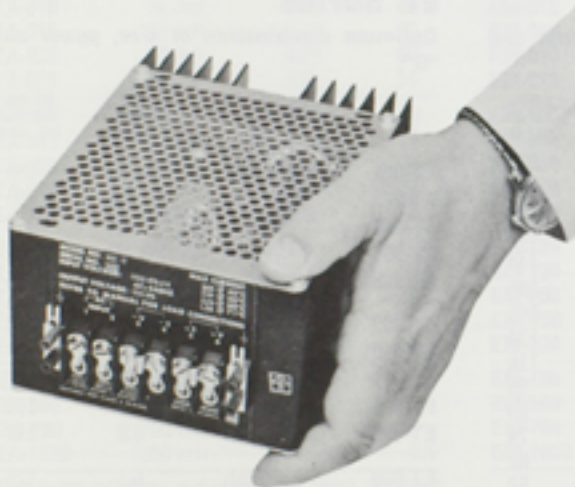
You can look confidently to the efficient facilities of Triad-Utrad (West) for your volume production requirements in both conventional and high reliability components and assemblies. Call or write Harry Wareham, in Sales Engineering.

TRIAD-UTRAD (West)

118 W. 35th St., National City, Calif. 92050
Phone: (714) 425-2100 • TWX 910-322-1485



Power supply printed circuit board assembly in Tia Juana plant.



Wide range adjustable regulated DC power supply for OEM's.



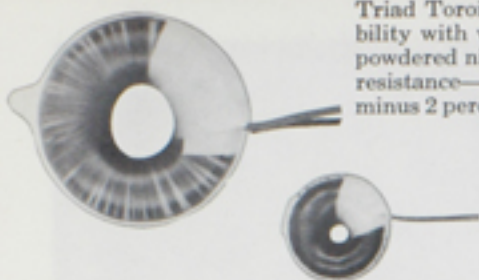
Multiple winding operations and assembly of magnetic components in Tia Juana plant.



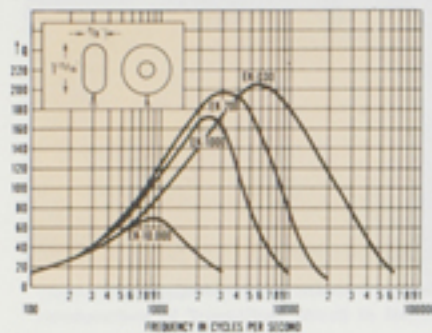
Standardized DC power module in B package for OEM systems.



NiCad battery charger assembly line in Tia Juana plant.



Triad Toroidal Inductors have the highest Q and highest measure of stability with voltage and temperature variations. These units have cores of powdered nickel alloy and are wound with low distributed capacitance and resistance—each coil providing a minimum inductance tolerance of plus or minus 2 percent. Triad toroids may be ordered with standard leads in strong plastic coating, or epoxy molded, encapsulated per Specification MIL-T-27B; TF5RX20ZZ. To specify molded toroids with gold-plated fixed terminals, an "A" should be added to the full type number; for example, EM-001A. Should special applications require even closer tolerances, call your Triad representative for assistance.

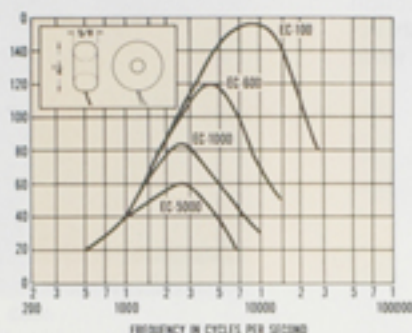


EK Series

For maximum "Q" and power.

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% ind. drop
▲EK-010	10 mh	.82	262
EK-020	20 mh	1.10	185
EK-030	30 mh	1.40	150
EK-040	40 mh	1.90	130
▲EK-050	50 mh	2.4	116
▲EK-060	60 mh	2.6	106
EK-080	80 mh	3.1	92
EK-100	100 mh	4.4	82
EK-120	120 mh	4.8	75
EK-150	150 mh	6.20	67
EK-200	200 mh	7.50	58
EK-250	250 mh	9.0	52
▲EK-300	300 mh	12.00	47
EK-400	400 mh	14.0	41
▲EK-500	500 mh	19.0	37
EK-700	700 mh	27.0	31
EK-1000	1000 mh	45.00	26
EK-1500	1500 mh	67.00	21
EK-2000	2000 mh	100.00	18.4
EK-2500	2500 mh	108	16.5
EK-3000	3000 mh	116	15
EK-4000	4000 mh	150	13
EK-5000	5000 mh	200	11.6
EK-7000	7000 mh	300	9.8
▲EK-10000	10000 mh	350	8.2
EK-20000	20000 mh	800	5.8
EK-30000	30000 mh	1250	4.7
EK-40000	40000 mh	2000	4.1

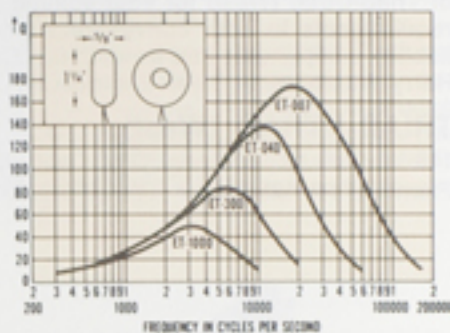
▲ Discontinued item, available until stock depleted.



EC Series

Optimum combination of size, power and "Q".

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% ind. drop
EC-001	1 mh	.40	520
EC-002	2 mh	.56	368
EC-003	3 mh	.70	300
▲EC-004	4 mh	.82	260
EC-005	5 mh	.92	233
EC-007	7 mh	1.05	195
EC-010	10 mh	1.30	165
EC-015	15 mh	1.60	134
EC-020	20 mh	1.85	116
EC-030	30 mh	2.85	95
▲EC-040	40 mh	4.20	82
EC-050	50 mh	5.50	74
EC-070	70 mh	8.30	62
EC-100	100 mh	13.00	52
EC-200	200 mh	23.00	37
EC-250	250 mh	33.00	33
EC-300	300 mh	35.00	30
EC-400	400 mh	42.00	26
EC-500	500 mh	72.00	23
EC-600	600 mh	80.00	21
EC-700	700 mh	68.00	19.5
EC-1000	1000 mh	134	16.5
EC-1500	1500 mh	200	13.5
EC-2000	2000 mh	220	11.6
EC-3000	3000 mh	370	9.5
▲EC-4000	4000 mh	550	8.2
EC-5000	5000 mh	780	7.4
EC-7000	7000 mh	700	6.2
EC-10000	10000 mh	1100	5.2



ET Series

Optimum combination of size, power and "Q".

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% ind. drop
ET-001	1 mh	.30	680
ET-002	2 mh	.50	480
ET-003	3 mh	.68	396
ET-004	4 mh	.81	342
ET-005	5 mh	1.10	306
ET-007	7 mh	1.50	260
ET-010	10 mh	2	217
ET-015	15 mh	2.85	177
ET-020	20 mh	4.0	153
ET-025	25 mh	4.8	137
ET-030	30 mh	6.5	125
ET-040	40 mh	9.2	108
ET-050	50 mh	10.3	97
ET-060	60 mh	14.5	88
ET-070	70 mh	15.0	82
ET-100	100 mh	24	68
ET-150	150 mh	35	56
ET-200	200 mh	44.5	48
ET-250	250 mh	64	43
ET-300	300 mh	70	40
ET-400	400 mh	94	34
ET-500	500 mh	108	31
ET-700	700 mh	173	26
ET-1000	1000 mh	230	22

Note: For molded toroids with gold plated fixed terminals, add A to type number.

OPEN TYPE SIZES AND WEIGHTS

	EA Series	EC-ET Series	EK Series	EM Series
DIA.	1 1/8	1 3/8	2 1/8	1 1/4
HT.	1/2	3/4	1 1/8	3/8
I.D.	1/4	1/4	3/8	1/8
WT. (oz.)	.6	1.6	5	.2

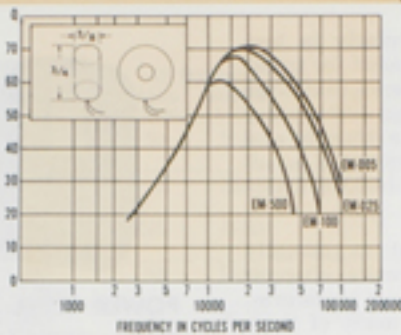
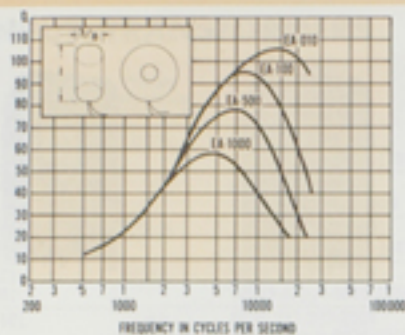


MOLDED TYPE SIZES AND WEIGHTS

	EA Series	EC-ET Series	EK Series	EM Series
DIA.	1 1/8	1 3/8	2	3/4
HT.	1/2	3/8	1	3/8
I.D.	1/4	1/4	1/4	1/4
WT. (oz.)	.8	2	6	.3



TRIAD SUB-MINIATURE TOROIDAL INDUCTORS



EA Series

Smaller size for compact circuitry such as airborne applications.

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% ind. drop
EA-001	1 mh	.40	270
EA-002	2 mh	.58	192
EA-003	3 mh	.73	157
EA-004	4 mh	.85	135
EA-005	5 mh	1.10	121
EA-007	7 mh	1.35	102
EA-010	10 mh	2.10	86
EA-015	15 mh	3.10	70
EA-020	20 mh	4.25	60
EA-025	25 mh	4.80	54
EA-030	30 mh	6.70	50
EA-040	40 mh	9.50	43
EA-050	50 mh	11.0	38
EA-070	70 mh	16.0	32
EA-100	100 mh	23.0	27
EA-150	150 mh	37.0	22
EA-200	200 mh	42.0	19
EA-250	250 mh	60.0	17
EA-300	300 mh	70.0	16
EA-400	400 mh	95.0	14
EA-500	500 mh	115	12
EA-600	600 mh	150	11
EA-700	700 mh	160	10
EA-1000	1000 mh	260	8.6

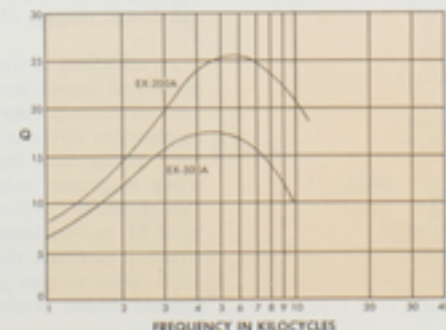
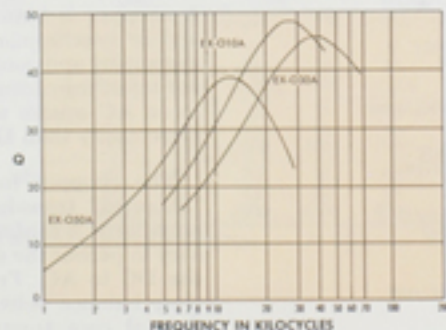
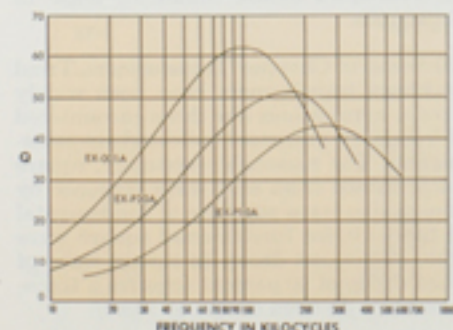
▲ Discontinued item, available until stock depleted.

"Q" vs. frequency curves on Sub-miniature Inductors

$$Q = \frac{\omega L}{R_{eff}}$$

$\omega = 2\pi f$ where f is freq. in cps
 L = inductance in henries
 R_{eff} = effective resistance

These curves show "Q" versus frequency for eight typical Triad type EX toroidal inductors. At low frequencies the effective resistance consists principally of the DC resistance of the coil; therefore, "Q" increases linearly with frequency. As the frequency is raised, core losses (hysteresis, eddy current and residual) increase the effective resistance. Distributed capacity in the winding effectively increases the reactive impedance until resonance, then reduces it. As a result, the "Q" curve levels off and then drops.



EM Series

For extremely miniaturized circuits such as missile applications, where size and weight must be kept to a minimum.

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% ind. drop
EM-001	1 mh	1.25	150
EM-002	2 mh	1.70	108
EM-003	3 mh	2.25	87
EM-004	4 mh	2.60	76
EM-005	5 mh	3.10	68
EM-007	7 mh	4.5	57
EM-010	10 mh	6.5	48
EM-015	15 mh	10.0	39
EM-020	20 mh	11.5	34
EM-025	25 mh	16.5	30
EM-030	30 mh	18	27.6
EM-040	40 mh	27	24
EM-050	50 mh	30	22
EM-060	60 mh	40	19.5
EM-070	70 mh	43	18
EM-100	100 mh	66	15
EM-150	150 mh	100	12.5
EM-200	200 mh	115	11
EM-250	250 mh	155	9.6
EM-300	300 mh	180	8.8
EM-400	400 mh	265	7.6
EM-500	500 mh	295	7
EM-700	700 mh	400	5.8
EM-1000	1000 mh	650	4.8

Triad sub-miniature toroidal inductors, designed for quick, easy printed-circuit board mounting, are now stocked for immediate delivery in a range of standard ratings from 50 micro-henries to 400 milli-henries. Case size of all units is 3/16 inch diameter by 1/4 inch high.

Triad sub-miniature inductors are toroidally wound on permalloy powdered cores. Encapsulated in high temperature epoxy resin. Weldable or solderable leads of gold plated nickel alloy. Highly resistant to severe acceleration, shock or vibration. Manufactured to meet the requirements of MIL-T-27B, Grade 5 Class S (MIL type TF5SX20ZZ). Average weight, .1 oz.

Type No.	Ind.	Res. ohms approx.	DC-ma. for 5% ind. drop
EX-P05A	50 μ h	1.2	75*
EX-P10A	100 μ h	1.4	75*
EX-P20A	200 μ h	2.0	75*
EX-P30A	300 μ h	2.3	75*
EX-P50A	500 μ h	3.0	75*
EX-P60A	600 μ h	3.0	75*
EX-001A	1 mh	4.3	75*
EX-001.5A	1.5 mh	4.9	60*
EX-002A	2 mh	8	60*
EX-002.5A	2.5 mh	5.3	60*
EX-003A	3 mh	6.5	60
EX-005A	5 mh	11	47
EX-006A	6.0 mh	11.5	43
EX-008A	8.0 mh	13.0	37
EX-010A	10 mh	15.6	33
EX-012.5A	12.5 mh	17.0	30
EX-015A	15.0 mh	23.0	27
EX-020A	20 mh	35	23
EX-025A	25.0 mh	37.0	21
EX-030A	30 mh	55	19
EX-040A	40.0 mh	54.0	15
EX-050A	50 mh	62	14
EX-060A	60.0 mh	82.0	12
EX-100A	100 mh	130	10
EX-120A	120 mh	142.0	8
EX-200A	200 mh	139	6
EX-300A	300 mh	206	5
EX-400A	400 mh	310	4.5

* Will give less than 5% inductance drop but should not be exceeded under operating conditions.

Inductance tolerance of EX-P05A through EX-P50A is $\pm 5\%$; EX-001A through EX-400A is $\pm 2\%$.



Advances in instrumentation techniques, particularly in low-level signal measurements, have emphasized the need for transformers capable of discriminating against interference that often accompanies signal voltages. Interference problems due to stray magnetic fields, ground loops, common-mode signals and machine-made noise can be reduced and even eliminated for all practical purposes by using the Triad standard shielded transformers, reactors and filters.

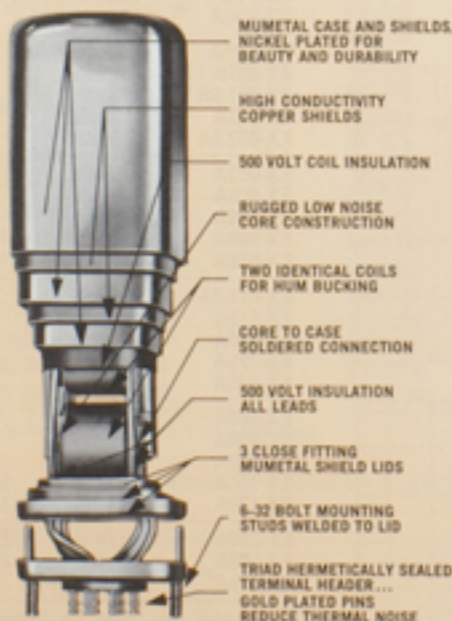
Magnetic components intended for low-level systems generally fall into the following categories: input transformers; chopper input transformers; interstage transformers; output transformers; filter reactors; and low pass filters. Because many of these types were originally developed by Triad to meet the stringent requirements of geophysical recording equipment, the trade-name "Geoformer" has become almost synonymous with Triad low-frequency magnetic components.

Since mechanical vibration, stray magnetic fields or stray voltage pickup impairs the signal to noise ratio of micro-volt range instrumentation, an understanding of the shielding techniques employed in Triad low-level components, as well as pertinent information on their electrical and physical parameters, will aid the engineer to specify suitable units.

MAGNETIC SHIELDING

All cases used for housing Triad low-frequency components are drawn from Mumetal and dry hydrogen-annealed after fabrication to provide the greatest possible low-density permeability. When Mumetal cases are used with heavy copper interleaving, maximum attenuation as high as 100 db. is achieved; additional reduction in pickup through use of humbucking coils can add 45 db. in the most effective plane. Stray field shield designations for the standard types listed are:

- P-1 one Mumetal case gives 45 db;
- P-1H P-1 shielding with humbucking coils gives 90 db;
- P-3 two Mumetal cases with copper interleaving gives 70 db;
- P-3H P-3 shielding with humbucking coils gives 115 db;
- P-5 three Mumetal shields with interleaving gives 95 db;
- P-5H P-5 shielding with humbucking coils provides 135 db in most effective plane.



- MUMETAL CASE AND SHIELDS, NICKEL PLATED FOR BEAUTY AND DURABILITY
- HIGH CONDUCTIVITY COPPER SHIELDS
- 500 VOLT COIL INSULATION
- RUGGED LOW NOISE CORE CONSTRUCTION
- TWO IDENTICAL COILS FOR HUMBUCKING
- CORE TO CASE SOLDERED CONNECTION
- 500 VOLT INSULATION ALL LEADS
- 3 CLOSE FITTING MUMETAL SHIELD LIDS
- 6-32 BOLT MOUNTING STUDS WELDED TO LID
- TRIAD HERMETICALLY SEALED TERMINAL HEADER... GOLD PLATED PINS REDUCE THERMAL NOISE



POWER LEVEL

The power level shown opposite each unit is the maximum value for the lowest frequency shown. When low-frequency response is higher than the low frequency indicated, the power level can be increased by adding plus 3 dbm. each time the frequency is doubled—provided that the power level does not exceed plus 25 dbm.

IMPEDANCE

The impedances shown opposite the standard components are matching impedances and do not necessarily indicate the measured impedance of the transformer windings; rather, they indicate that the transformer will perform within the specifications and data ranges when matched and loaded at the stated impedance.

FREQUENCY RESPONSE

Special emphasis has been placed on the 5 to 2,000 cycle range, with gradual attenuation of frequencies above 2,000 cycles. In many applications, the 3 db. point has been brought down to one cycle or a fraction of one cycle. While the high-frequency response has been deliberately sacrificed to obtain the necessary low-frequency response, the 3 db. point on many standard Triad units is 8,000 to 10,000 cycles.

INDUCTANCE

Unless otherwise stated all inductances are within plus or minus 5% of standard. However, individual units may often fall within plus or minus 2% of the standard. During testing on a special bridge, a low potential voltage is maintained across the unit's coil with voltage levels and frequencies as specified. No test is conclusively made until coils have been normalized at 26° C.

CHOPPER APPLICATIONS

A chopper is basically a SPDT switch that runs continuously and in synchronism with its drive voltage. It is used in servo, measuring and coupling circuits immediately ahead of the chopper input transformer to "chop" a DC signal so that it is changed to an AC square wave. Low level AC signals can be amplified more easily than DC signals.

The chopper input transformer transfers 30 to 500 cycle "chopped" transducer or thermocouple signals to instrument amplifiers. A center-tapped primary on the transformer is necessary to permit the switching action of the chopper which changes the DC to AC. Triad chopper input units supply exceedingly close balance between the two halves of the primary winding. Special core treatment techniques assure minimum noise in microvolt ranges of input signals.

In addition to the G-20 Series of Chopper Transformers, Triad standard input and interstage transformers have been widely and effectively used for pulse applications like those encountered in chopper circuits. The frequency responses indicated are measured using sine wave signals. For reasonable accuracy, square wave response can be determined from sine wave response by this method . . . determine a sine wave response of fundamental over 16 to fundamental times 10, for fundamental square wave with 10 percent rise time, 10 percent droop (a square wave of 1000 cps with rise time and droop of 10 percent requires a transformer which is plus or minus 1 db from 63 cps to 10 kc).



INPUT TRANSFORMERS

Type No.	Primary Inductance @ 10MV-60 CPS	Primary Matching Impedance In Ohms	Secondary Matching Impedance In Ohms	DC Resistance		Turns Ratio	Frequency Response In C.P.S. ± 10B	Max. Level DBM	Stray Fields Shield	Case and Mounting	Weight
				Primary In Ohms	Secondary In Ohms						
G-2; ▲G-2H3;	8.7 h.	5001-333-233-2001 12511-67½1-5011-1711	157,0001 or 39,25011	50	10,400	1-17.7	9.5-5000	0	P5-H P3-H	GP-4T GP-3R	11½ oz. 8 oz.
G-4;	9 h.	601-44-301-25 1511-7½11-51-1.2511	157,0001 or 39,25011	9	10,400	1-51	11-5000	0	P5-H	GP-4T	11½ oz.
G-5; G-5TS;	55 h.	10001-666-466-4001 25011-1351-10011-3411	137,0001 or 34,25011	235	15,500	1-11.75	3-4000	-10	P1-H P5-H	GP-3P GP-5W	7½ oz. 1 lb.
G-7; G-8;	11.5 h.	5001-333-233-2001 12511-67½1-5011-1711	315,0001 or 78,75011	58	16,220	1-25	7-3000	-10	P1-H P5-H	GP-3P GP-5W	7½ oz. 1 lb.
G-10;	8 h.	5001-333-233-2001 12511-67½1-5011-1711	712,0001 or 178,00011	72	20,000	1-37.7	10-1700	0	P5-H	GP-5W	1 lb.
G-12;	10 h.	5001-12511	50,000**	165	20,000	1-10	10-3000	0	P1-H	GP-2L	5¼ oz.
▲G-14; G-14TS;	6.8 h.	5001-333-233-2001 12511-67½1-5011-1711	450,000**	54	12,500	1-30	14-2000	-10	P1-H P5-H	GP-2K GP-4T	5¼ oz. 11½ oz.
G-17; G-101; G-101TS;	4 h. 8.3 h.	2001-5011 5001-333-233-2001 12511-67½1-5011-1711	442,000** 145,000**	17 120	26,000 10,000	1-47 1-17	8.5-2500 11-3700	-10 -10	P3-H P1-H P5-H	GP-3R GP-1D GP-3R	8 oz. 3.2 oz. 10 oz.
G-202; G-301; G-306; ▲G-309;	8.3 h. 3 h. 7 h. 6.4 h.	5001-12511 5001-12511 5001-12511 329-819	392,000** 145,000** 60,000** 320,0001 80,00011	94 106 190 5.5	13,000 6500 6500 44,000	1-28 1-17 1-11 1-100	11-1800 30-3200 15-12,000 1-2000	-10 -10 -10 -10	P1-H P1-H P1-H P5-H	GP-1F AF-1 AF-1 GP-5W	3.2 oz. 1.5 oz. 1.5 oz. 1 lb.
G-310; G-313; G-315; G-401;	22.0 h. 10.5 h. 5.2 h. 8 h.	3201-8011 5001-12511 5001-12511 5001-12511	175,000** 36,000** 114,000** 157,000**	80 350 235 100	13,800 5600 6700 9800	1-22.4 1-8.5 1-15.1 1-17.7	3-2500 10-18,000 19-7000 11-4000	-10 -10 -10 -10	P1-H P1-H P1-H P1-H	GP-1F AF-1 AF-1 GP-1F	3.2 oz. 1.5 oz. 1.5 oz. 3.2 oz.

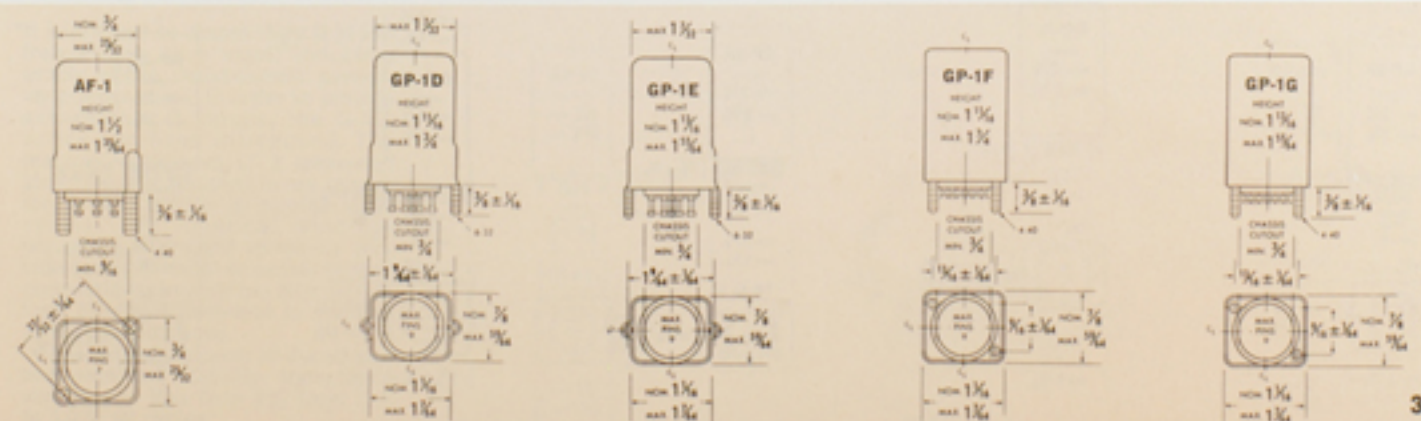
CHOPPER INPUT TRANSFORMERS

Type No.	Turns Ratio	Minimum Primary Inductance @ 1V-60 CPS	Maximum Primary Volts @ 60 CPS	Primary Matching Impedance In Ohms	Secondary Matching Impedance In Ohms	DC Resistance		Stray Fields Shield	Case and Mounting	Weight
						Primary In Ohms	Secondary In Ohms			
G-20;	1:8	120 h.	25	10,000 CT or 2500	640,000 CT	370	21,000	P5-H	GP-4T	11½ oz.
G-21; G-21TS;	4:1	1200 h.	84	200,000 CT	12,500 CT	4000	1300	P1-H P5-H	GP-2L GP-4T	5¼ oz. 11½ oz.
G-22H; G-22;	1:4	1000 h.	90	50,000 CT	800,000 CT	2200	19,000	P1-H P5-H	GP-3R GP-5W	7½ oz. 1 lb.
G-23;	6.32:1	1000 h.	75	40,000 CT	1000 CT	4400	160	P1-H	GP-2L	5¼ oz.
G-24;	1:1	400 h.	19.5	40,000 CT	40,000 CT	1625	1625	P5	GP-5S	1 lb.
Low capacity coupling less than .02 µF between windings.										
G-25; G-25TS;	2:1	800 h.	70	40,000 CT or 10,000 CT	10,000 CT	3200	2200	P1-H P5-H	GP-2L GP-4T	5¼ oz. 11½ oz.

TRANSISTOR TRANSFORMERS

Type No.	Min. Pri. Ind. @ 100MV-60 cy. With No Unbalanced D.C. Current	Impedance Ohms		Turns Ratio	D.C. Resistance (Ohms)		Frequency Response in Cycles Primary Signal of 1 Volt Unbalanced D.C. Secondary Current of						Max. Level DBM	Stray Fields Shield	Case & Mounting	Weight		
		Pri.	Sec.		Pri.	Sec.	1 Ma.		2 Ma.		5 Ma.							
							-30B	-10B	-30B	-10B	-30B	-10B						
G-18; ▲G-18TS;	60 h.	1000 or 250	125 or 31	2.83:1	500	44	5 to 20,000	8 to 7000	5 to 20,000	8 to 7000	6 to 20,000	9 to 7000	7 to 20,000	10 to 7000	+10	P1-H P5-H	GP-1F GP-3P	3.2 oz. 10 oz.
G-19; G-19TS;	65 h.	1000 or 250	1000 or 250	1:1	540	230	12 to 7000	15 to 3800	12 to 7000	15 to 3800	12 to 7000	15 to 3800	20 to 7000	40 to 3800	+10	P1-H	GP-2L	5¼ oz.
G-30;	20 h.	1000 CT	2500 CT	1:1.58	350	1800	20 to 8000	40 to 4200	22 to 8000	45 to 4200	40 to 8000	75 to 4200	70 to 8000	160 to 4200	+ 8	P1	GP-1F	3.2 oz.

‡ Static shield. § Balanced two windings. §§ Balanced parallel windings. ** Balanced windings C.T. CT for Center Tap.
▲ Discontinued item, available until stock depleted.





INTERSTAGE TRANSFORMERS

Type No.	Primary Inductance @ 10MV-60 CPS	Primary Matching Impedance in Ohms	Secondary Matching Impedance in Ohms	DC Resistance		Turns Ratio	Frequency Response in C.P.S. $\pm 10\text{B}$	Max. Level DBM	Stray Fields Shield	Case	Weight
				Primary in Ohms	Secondary in Ohms						
G-31:	350 h.	10,000 Ω	100,000 Ω	1400	10,000	1-3.16	5-5000	-15	P1-H	GP-2K	5 $\frac{1}{2}$ oz.
G-32:		or 2500 Ω	or 25,000 Ω						PS-H	GP-4T	11 $\frac{1}{2}$ oz.
G-33:	725 h.	10,000 Ω	90,000 Ω	2100	14,000	1-3	3-3500	-10	P1-H	GP-3P	7 $\frac{3}{4}$ oz.
		or 2500 Ω	or 22,500 Ω								
G-36	135 h.	10,000 Ω	22,500 Ω	1600	2350	1-1.5	13.5-25,000	-10	P1	GP-1D	2 $\frac{3}{4}$ oz.
		or 2500 Ω	or 5625 Ω								
G-40:	230 h.	10,000 Ω	483,000 Ω	1100	17,000	1-7	7.5-1500	-10	P1-H	GP-3P	7 $\frac{3}{4}$ oz.
		or 2500 Ω	or 120,700 Ω								
G-48	18 h.	1000 Ω	250 Ω	165	40	2-1	10-30,000	-10	P1	GP-1D	2 $\frac{1}{2}$ oz.
G-48TS		or 250 Ω	or 62 $\frac{1}{2}$ Ω						PS	GP-3P	10 oz.
G-135	300 h.	10,000 Ω	75,000 Ω	2800	9000	1-2.75	6-5000	-15	P1-H	GP-1D	3.2 oz.
G-235		or 2500 Ω	or 18,750 Ω						P1-H	GP-1F	3.2 oz.
G-335	80 h.	10,000 Ω	75,000**	1700	5400	1-2.72	20-10,000	-10	P1-H	AF-1	1.5 oz.
		or 2500 Ω									
G-336	160 h.	10,000 Ω	22,500**	2600	4200	1-1.5	12-20,000	-10	P1-H	AF-1	1.5 oz.
		or 2500 Ω									
G-435	285 h.	10,000 Ω	90,000**	2700	9500	1-3	6.5-5000	-15	P1-H	GP-1F	3.2 oz.
▲G-435TS		or 2500 Ω							PS-H	GP-3R	10 oz.
▲G-437:		10,000 Ω	22,500**	2000	3650	1-1.5	6-15,000	-20	P1-H	GP-1F	3.2 oz.
		or 2500 Ω									

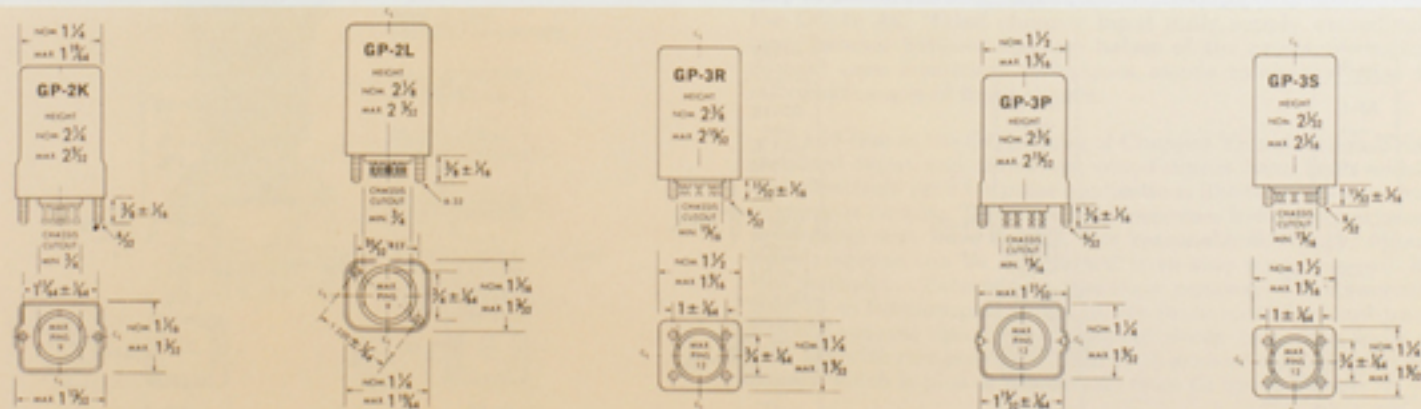
OUTPUT TRANSFORMERS / standard

Type No.	Primary Impedance in Ohms	Secondary Impedance in Ohms	Primary Inductance @ 100MV	Freq. Resp. in C.P.S. $\pm 10\text{B}$	Max. Level DBM	DC Resistance		Turns Ratio	Stray Fields Shield	Case and Mounting	Weight
						Primary in Ohms	Secondary in Ohms				
G-51	15,500 Ω or 3750 Ω	500 Ω -125 Ω	915 h.	3-7000	-10	2600	80	5.47-1	P1-H	GP-2K	5 $\frac{1}{2}$ oz.
G-51A	15,500 Ω or 3750 Ω	500 Ω -125 Ω	65 h.	45-7000	+10	2600	80	5.47-1	P1-H	GP-2K	5 $\frac{1}{2}$ oz.
G-53	16,000 Ω or 4000 Ω	500 Ω -333-233 200 Ω -125 Ω -67 $\frac{1}{2}$ Ω 50 Ω -17 Ω	1600 h.	2-3000	-10	4400	105	5.65-1	P1-H	GP-3P	7 $\frac{3}{4}$ oz.
G-53A	16,000 Ω or 4000 Ω	500 Ω -333-233 200 Ω -125 Ω -67 $\frac{1}{2}$ Ω 50 Ω -17 Ω	94 h.	35-3000	+10	4400	105	5.65-1	P1-H	GP-3P	8 $\frac{1}{4}$ oz.
G-54	20,000 Ω or 5000 Ω	60 Ω -45-30 Ω -24 15 Ω -7 $\frac{1}{2}$ Ω -5 Ω -1.3 Ω	1750 h.	2-3000	-10	4000	12.5	18.25-1	P1-H	GP-3P	7 $\frac{3}{4}$ oz.
G-59	600 Ω -150 Ω	600 Ω -150 Ω	15 h.	7-6000	+10	46	62	1-1 or 2:1 or 1:2	P3-H	GP-4T	11 $\frac{1}{2}$ oz.

miniature and sub-miniature

G-57	18,000 CT	500 Ω -333-233 200 Ω -125 Ω -67 $\frac{1}{2}$ Ω 50 Ω -17 Ω	280 h.	10-22,000	-10	2200	137	6-1	P1	GP-1D	2 $\frac{1}{4}$ oz.
G-64	500 or 125	500 or 125	3 h.	28-30,000	+10	80	80	1-1	P1	GP-1D	2 $\frac{1}{4}$ oz.
▲G-65	500 or 125	16 or 4	3 h.	28-30,000	+10	72	3.9	5.6-1	P1	GP-1D	2 $\frac{1}{4}$ oz.
G-150	15,000 CT Ω	16 Ω -12-8 Ω -6 $\frac{1}{2}$ Ω 4 Ω -2 Ω -1 $\frac{1}{2}$ Ω -1-35 Ω	1000 h.	3-10,000	-20	6500	4.5	30.5-1	P1-H	GP-1D	3.2 oz.
G-250	15,000 CT Ω	16 Ω -12-8 Ω -6 $\frac{1}{2}$ Ω 4 Ω -2 Ω -1 $\frac{1}{2}$ Ω -1-35 Ω	1000 h.	3-10,000	-20	6500	4.5	30.5-1	P1-H	GP-1F	3.2 oz.
G-255	15,000 CT Ω	60 Ω -45-30 Ω -24 15 Ω -7 $\frac{1}{2}$ Ω -5 Ω -1.3 Ω	1000 h.	3-15,000	-20	6500	21	15.8-1	P1-H	GP-1F	3.2 oz.
▲G-350	15,000 CT Ω	16 Ω or 4 Ω	400 h.	8-25,000	-10	4100	7	30.6-1	P1-H	AF-1	1.5 oz.
G-455	20,000 Ω or 5000 Ω	50 Ω -25-12.5-3	1450 h.	3-15,000	-10	4000	22	20-1	P1-H	GP-1F	3.2 oz.

§§ Balanced parallel windings. ** Balanced windings C.T. † Static shield. § Balanced two windings. CT for Center Tap
▲ Discontinued item, available until stock depleted.





A.V.C. OUTPUT TRANSFORMERS

Type No.	Primary Impedance in Ohms	Secondary Impedance in Ohms	Primary Inductance @ 100MV	DC Resistance		Turns Ratio	Stray Fields Shield	Case and Mounting	Weight
				Primary in Ohms	Secondary in Ohms				
G-72	16,000 Ω or 4000 Ω	256,000 Ω or 64,000 Ω and 150 Ω or 37 $\frac{1}{2}$ Ω	500 h.	1900	16000 32	1-4 10.3-1	P1-H	GP-3P	7 $\frac{1}{4}$ oz.

miniature

AG-266	10,000 Ω or 2500 Ω	10,000 Ω CT & 10,000 Ω	150 h.	700	1220 1440	1-1-1	P1-H	GP-1F	3.2 oz.
G-274	15,000 Ω CT	240,000 Ω CT and 140 Ω or 35 Ω	200 h.	2000	9800 60	1-4 10.3-1	P1-H	GP-1F	3.2 oz.

FILTER REACTORS / standard

Type No.	Inductance 100MV	$Q = \frac{\omega L}{R}$ @ 60 cy.	DC Resistance in Ohms	Low Percentage Taps	Stray Fields Shield	Case and Mounting	Weight
G-80	1050 Ω -800 Ω 550 Ω -400 Ω 280 Ω h.	11	13,000	None	P1-H	GP-2K	5 $\frac{1}{2}$ oz.
G-84	1000 Ω h. 250 Ω h.	14	10,000	4-2 $\frac{1}{2}$ % 2-5%	P1-H	GP-3P	8 $\frac{1}{4}$ oz.

high "Q" *

Type No.	Inductance Reacts 100 MV-60 Cy.	DC Resistance in Ohms	Low Percentage Taps	Stray Fields Shield	Case and Mounting	Weight
G-500	18 Ω	77.7	4-2 $\frac{1}{2}$ % 4-5%	P-1	GP-4T	12.5 oz.
TF4QX09YY	4.5 Ω		4-5%			
G-501	5 Ω	16.7	4-2 $\frac{1}{2}$ % 4-5%	P-1	GP-4T	12.5 oz.
TF4QX09YY	1.25 Ω		4-5%			
G-502	100 Ω	392	4-2 $\frac{1}{2}$ % 4-5%	P-1	GP-4T	12.5 oz.
TF4QX09YY	25 Ω		4-5%			

miniature

Type No.	Inductance 100MV	$Q = \frac{\omega L}{R}$ @ 60 cy.	DC Resistance in Ohms	Low Percentage Taps	Stray Fields Shield	Case and Mounting	Weight
G-183	1050 Ω h.-800 Ω h.-550 Ω h. 400 Ω h.-280 Ω h.-245 Ω h. 153 Ω h.-133 Ω h.-80 Ω h. 68 Ω h.-45 Ω h.	9	11,500	None	P1-H	GP-1E	3.4 oz.
AG-283	1050 Ω h.-800 Ω h.-550 Ω h. 400 Ω h.-280 Ω h.-245 Ω h. 153 Ω h.-133 Ω h.-80 Ω h. 68 Ω h.-45 Ω h.	9	11,500	None	P1-H	GP-1G	3.4 oz.
G-284	1000 Ω h.-250 Ω h.	9	13,000	4-2%	P1-H	GP-1G	3.4 oz.
G-285	500 Ω h.-125 Ω h.	9	10,500	4-2 $\frac{1}{2}$ %	P1-H	GP-1G	3.4 oz.
G-286	10 h. Ω 2.5 h. Ω	30	52	None	P1-H	GP-1G	3.4 oz.

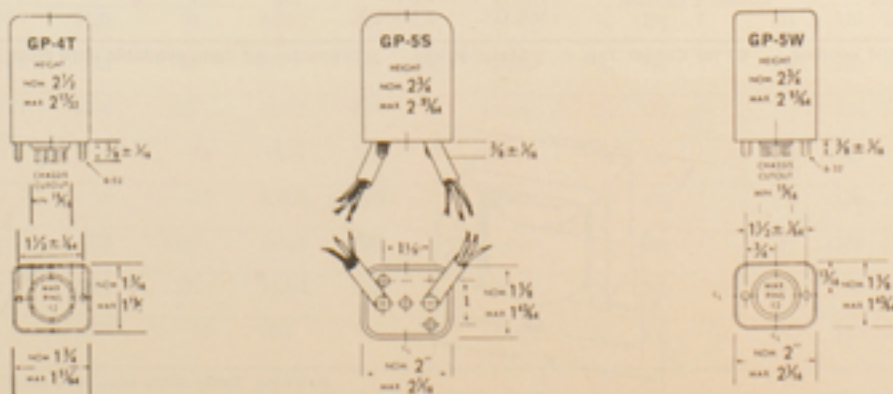
sub-miniature

G-388	1000 h.	9	12,000	2-2%	P1	AF-1	1.5 oz.
AG-391	300 h.	9	5400	2-2%	P1	AF-1	1.5 oz.
G-394	100 h.	9	1950	2-2%	P1	AF-1	1.5 oz.

Ω Balanced, two windings. $\Omega\Omega$ Balanced, parallel windings. CT for Center Tap. \blacktriangle Discontinued item, available until stock depleted.

*It is difficult to obtain High Q at low frequencies from small inductors which utilize molybdenum permalloy powder cores. In order to provide exceptional Q values, the G-500 series has been introduced. The reactors, composed of a laminated structure, are adjusted in our laboratory to within $\pm 5\%$ of nominal at 60 cycles. Two identical windings brought out to eight terminals provide series, parallel or center tapped connections. In addition four $\pm 2\frac{1}{2}\%$ taps provide adjustment to nominal value of inductance.

This series features: Reduced size and excellent stability. Inductance variation is less than 1% from .1 V to 1.0 V, 60 cycles.



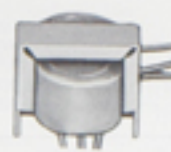


MINIATURE AUDIO "trijets"

Highly dependable Triad Trijets open frame units, Climatite treated (both coil and core) for protection against moisture and for prevention of lamination chatter.



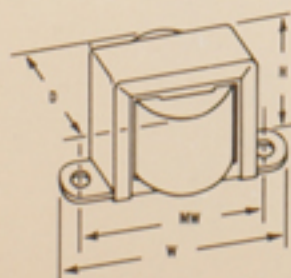
X Case



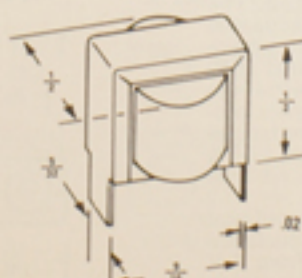
XT Case

Type No.	Power Output	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	Frequency Response $\pm 3dB$	RMS Test Volts	Case Type	Connections	Case Dimension			Mounting Dimension MW	Mtg. Hole Size	Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary						H	W	D			
T-1X†	1MW.	Line or Mike to Grid	600/250/50	50,000	80	3200	1:9.16	60-15,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-2X†	1MW.	Line or Mike to Grid-Hi Gain	600/250/50	250,000	44	3600	1:20.6	100-15,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-3X	1MW.	Line or Mike to Single or P.P. Grids	600/250/50	60,000 CT	100	3600	1:10	60-15,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-5X†	1MW.	Mike or Voice Coil to Grid	30/12/4	50,000	7	3500	1:39.7	50-15,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
▲ T-11X	10MW.	Interstage-Plate to Grid	15,000	50,000	1100	2860	1:1.81	60-15,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-12X	10MW.	Interstage-Plate to Single or P.P. Grids	15,000	60,000 CT	1350	2700	1:2	60-15,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-13X	10MW.	Interstage-Plate to Single or P.P. Grids	15,000 3 MA. D.C.	95,000 CT	1330	3300	1:2.5	350-7,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-14X†	10MW.	Line to Grid	200	500,000	63	4900	1:50	300-3,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
▲ T-15X	10MW.	Plate to Grid	15,000	1 Megohm	370	4450	1:8.2	150-15,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-20X	10MW.	Output-Plate to Line	15,000	600/250/50	1330	58	5:1	60-15,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-21X	10MW.	Output-Plate to Line	30,000	50	1100	15	24.5:1	100-15,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-22X	10MW.	Output-Plate to Line	15,000 3 MA. D.C.	600/250/50	1330	58.8	5:1	350-7,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-23X	10MW.	Output-Single or P.P. Plates to Line	20,000 CT	600/250/50	2000	70	5.76:1	60-15,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-24X	10MW.	Plate or Transistor to Transistor	10,000 CT 2 MA. D.C.	2000 CT	1000	200	2.24:1	50-20,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-25X	10MW.	Plate to Line or Transistor	12,000 CT 2 MA. D.C.	600 CT/150§	1350	70	4.47:1	50-16,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-26X	20MW.	Transistor to Line or Transistor	50,000 CT 5 MA. D.C.	600 CT/150§	2500	70	9.1:1	100-15,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-31X†	10MW.	Line to Line	600/250/50	600/250/50	55	80	1:1	50-15,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-32X	20MW.	Transistor to Transistor or Line	1500 CT 2 MA. D.C.	600 CT/150§	150	60	1.58:1	50-20,000	500	X	Leads	3/4	1 3/8	3/4	1 1/4	.125	.04
T-33X†	10MW.	Isolation-High Impedance	5000 CT	5000 CT	1500	2200	1:1	60-15,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-41X	1MW.	Transistor-Driver-Single to Push-Pull	1000 10 MA. D.C.	200 CT	428	128	2.25:1	20-15,000	500	X	Leads	3/4	1 3/8	3/4	1 1/4	.125	.04
T-42X	1MW.	Transistor-Output-Single to Voice Coil	9800 2 MA. D.C.	15	855	1.73	25.5:1	200-50,000	500	X	Leads	3/4	1 3/8	3/4	1 1/4	.125	.04
T-34X	20MW.	Transistor or Line to Transistor or Line	500 CT 2 MA. D.C.	500 CT/125§	45	55	1:1.03	50-20,000	500	X	Leads	3/4	1 3/8	3/4	1 1/4	.125	.04
T-35X	10MW.	Transistor or Line to Transistor	600 CT 1 MA. D.C.	2000 CT/500§	68	200	1:1.7	50-20,000	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-101X	-	Audio Choke	50 HY .75 MA. D.C.	-	4000	-	-	-	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045
T-102X	-	Coupling Reactor	6 HY. or 3 MA. D.C.	4 HY- 6 MA. D.C.	295	-	-	-	500	X	Leads	3/4	1 3/8	3/4	1	.100	.045

§ Split winding. CT for Center Tap. ‡ Static shield. ▲ Discontinued item, available until stock depleted.



X Case



XT Case



MINIATURE AUDIO TRANSISTOR TRANSFORMERS

Developed primarily for transistor circuitry, Triad miniatures can be applied with equal effectiveness in tube circuitry. Skillful design of these units permits the reversing of primary and secondary windings with virtually no loss in coupling characteristics.

Power wattage given in the table is for lowest operating frequency; this wattage can be increased by as much as five times at the center of the frequency response curve. Frequency response will be equal to, or better than ± 3 db. 300-10,000.

Type No.	Power Output Watts	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	RMS Test Volts	Case Type	Connections	Case Dimension			Mounting Dimension MW	Mfg. Hole Size	Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary					H	W	D			
TY-19XT	.150	Output-Single or P.P. to V.C.	10000 CT	16/8/4	1174	2.6	24.6:1	500	XT	Leads	$\frac{3}{16}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{3}{16}$	—	.65
TY-21XT	.150	Interstage-Sgl. to Sgl. or P.P.	1200	20000 CT	142	1860	1:408	500	XT	Leads	$\frac{3}{16}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{3}{16}$	—	.65
TY-22XT	.150	Interstage-Sgl. or P.P. to Sgl or P.P.	5000 CT	7500 CT	650	790	1:1.22	500	XT	Leads	$\frac{3}{16}$	$\frac{1}{8}$	$\frac{1}{8}$	$\frac{3}{16}$	—	.65
TY-23X	.1	Driver-Single to Sgl or P.P.	50000 .5MA D.C.	500 CT	6090	47.5	10:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{16}$	$\frac{1}{4}$	$1\frac{1}{4}$	.125	.045
TY-24X	.2	Driver-Single to Sgl or P.P.	50000 .5MA D.C.	3000 CT	3720	250	4.08:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-25X	.2	Driver-Single to Sgl or P.P.	100000 .5MA D.C.	200 CT	9900	19.5	22.4:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-26X	.2	Driver-Single to Sgl or P.P.	100000 .5MA D.C.	3000 CT	9880	318	5.78:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-27XT	.01	Output-Single or P.P. to Line	500 CT 2MA D.C.	500 CT	37.5	51.5	1:1	500	XT	Leads	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{4}$	—	.025
TY-28XT	.01	Output-Single or P.P. to Line	500 CT 2MA D.C.	200 CT	38.2	25	1.58:1	500	XT	Leads	$\frac{1}{2}$	$\frac{1}{4}$	$\frac{1}{2}$	$\frac{1}{4}$	—	.025
TY-32X	.2	Interstage-Sgl or P.P. to P.P.	200 CT 2MA D.C.	2000 CT	29	233	3.18:1	1000	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-33X	.2	Output-Single or P.P. to V.C.	400 CT 5MA D.C.	16/8/4	30	3	5:1	1000	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-34X	.2	Interstage-Sgl or P.P. to Sgl or P.P.	400 CT 5MA D.C.	2000 CT	41	128	2.25:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-35X TY-35XT	.1	Interstage-Sgl or P.P. to Sgl or P.P.	500 CT 2MA D.C.	150 CT	57	32	1.82:1	500	X XT	Leads	$\frac{1}{4}$	$1\frac{1}{16}$	$\frac{1}{4}$	$1\frac{1}{4}$ $1\frac{1}{4}$	.125	.04
TY-36X	.2	Interstage-Sgl to Sgl or P.P.	2000 2MA D.C.	1500 CT	165	140	1.15:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-37X TY-37XT	.2	Interstage-Sgl or P.P. to Sgl or P.P.	2000 CT 4MA D.C.	8000 CT	200	550	1:2	500	X XT	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$ $1\frac{1}{4}$	.120	.08
TY-38X TY-38XT	.2	Interstage-Sgl or P.P. to Sgl or P.P.	3000 CT 4MA D.C.	1000 CT	263	105	1.74:1	500	X XT	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$ $1\frac{1}{4}$	.120	.08
TY-39X	.2	Output-P.P. to V.C.	4000 CT 4MA D.C.	16/8/4	333	1.8	15.7:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-40X	.1	Interstage-Sgl to Sgl or P.P.	5000 1MA D.C.	200 CT	440	27	5:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{16}$	$\frac{1}{4}$	$1\frac{1}{4}$	.125	.04
TY-41X	.1	Interstage-Sgl to Sgl	16000 1MA D.C.	4000	1373	330	2:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{16}$	$\frac{1}{4}$	$1\frac{1}{4}$	.125	.04
TY-42X	.1	Output-Sgl to V.C.	20000 .5MA D.C.	8/4	1440	1.07	50:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{16}$	$\frac{1}{4}$	$1\frac{1}{4}$	.125	.04
TY-43X	.1	Interstage-Sgl to Sgl or P.P.	20000 .5MA D.C.	800 CT	1435	82	5:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{16}$	$\frac{1}{4}$	$1\frac{1}{4}$	.125	.04
TY-44X	.2	Output-Sgl to V.C.	1000 10MA D.C.	16/8/4	181	3.8	7.9:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-45X TY-45XT	.2	Output-Sgl or P.P. to V.C.	500 CT 5MA D.C.	16/8/4	56	3.8	5.2:1	500	X XT	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$ $1\frac{1}{4}$	.120	.08
TY-46X	.25	Interstage-Sgl to P.P. or Sgl	100 100MA D.C.	1000 CT	5.5	60	1:3.15	1500	X	Leads	$1\frac{1}{4}$	$2\frac{1}{4}$	$1\frac{1}{2}$	2	$\frac{1}{4}$	
TY-47X	.2	Output-Sgl or P.P. to V.C.	2000 CT 10MA D.C.	16/8/4	260	3.95	11.2:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-49X	.3	Interstage-Sgl or P.P. to Sgl or P.P.	500 CT 12MA D.C.	5000 CT	40	245	1:3.15	500	X	Leads	$1\frac{1}{4}$	$2\frac{1}{4}$	$1\frac{1}{4}$	2	$\frac{1}{4}$	.4
TY-50X	.04	Input-Sgl to Sgl or P.P.	125000 0 D.C.	2000 CT	5500	120	8:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-51X TY-51XT	.05	Driver-Sgl or P.P. to Sgl or P.P.	2000 CT 10MA D.C.	200 CT	748	120	3.16:1	500	X XT	Leads	$\frac{1}{4}$	$1\frac{1}{16}$	$\frac{1}{4}$	$1\frac{1}{4}$ $\frac{1}{4}$	.125	.04
TY-52X	.1	Driver-Sgl or P.P. to Sgl or P.P.	20000 CT 1MA D.C.	2000 CT	2140	327	3.17:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-54X	.1	Interstage-Sgl to Sgl or P.P.	15000 1.5MA D.C.	200 CT	2130	55	8.65:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-55X	.2	Interstage-Sgl or P.P. to Sgl or P.P.	2000 CT 2MA D.C.	500 CT	140	65	2:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-56X	.05	Interstage-Sgl to Sgl or P.P.	10000 1MA D.C.	2000 CT	1034	334	2.24:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-57X	.2	Output-Sgl or P.P. to V.C.	250 CT 10MA D.C.	16/8/4	34.6	3.7	3.94:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-58X	.2	Output-Sgl or P.P. to V.C.	125 CT 15MA D.C.	8/4	16	2.2	3.97:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-59X	.2	Interstage-Sgl or P.P. to Sgl or P.P.	5000 CT 1MA D.C.	50,000 CT	378	6410	1:3.16	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{4}$	1	$1\frac{1}{4}$	.120	.08
TY-60X	.1	Input-High Imp. to Transistor	200000 0 D.C.	1000	8400	195	14.2:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{16}$	$\frac{1}{4}$	$1\frac{1}{4}$	.125	.04
TY-62X	.1	Output-Sgl to Voice Coil	10000 2MA D.C.	4	709	1.5	50:1	500	X	Leads	$\frac{1}{4}$	$1\frac{1}{16}$	$\frac{1}{4}$	$1\frac{1}{4}$	.125	.04

CT for Center Tap. New item. Discontinued item, available until stock depleted.



A-200P



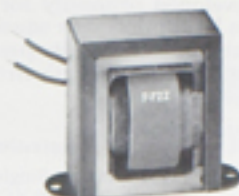
HS-273P



A Case



X Case



Z Case

PLUG-IN INPUT

Type No.	Application	Matching Impedance		D.C. Resistance		Overall Turns Ratio	Freq. Resp. ± 3 DB	RMS Test Voltage	Mag. Shielding	Case Type	Case Dimension		Max. Unit Wt. Lbs.
		Primary	Secondary	Primary	Secondary						H	D	
AA-200P	Line or Mike to Grid	200 CT/50 CT $\frac{1}{2}$	36,000	40	2300	1:13.6	50-15,000	500	70 DB	P 9 Pin	2 $\frac{1}{2}$	1 $\frac{1}{4}$	.25
HS-273P	Line or Mike to Grid	200 CT/50 $\frac{1}{2}$	80,000	14	3460	1:20	30-20,000	500	70 DB	Octal 8 Pin	1 $\frac{3}{4}$	1 $\frac{1}{4}$	.35

Note: All items have electrostatic shield between primary and secondary plus magnetic shielding.

OUTPUT AND DRIVER TRANSISTOR TRANSFORMERS / medium and high level

Type No.	Power Output Watts	Application	Matching Impedance		D.C. Resistance		Overall Turns Ratio	Freq. Response ± 3 DB	RMS Test Voltage	Case Type	Connections	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary						H	W	D	MW	MD	
TY-28X	8	Output-Push-Pull to V.C.	24 CT 500MA D.C. Bal.	8/4	2.57	2.2	1.73:1	30-20,000	1000	X	Leads	1 $\frac{1}{8}$	3 $\frac{1}{8}$	1 $\frac{1}{4}$	2 $\frac{1}{8}$		1.1
TY-31X	2	Output-Sgl or P.P. to V.C.	200 CT 50MA D.C. Bal.	8/4	27	1.4	5:1	50-10,000	500	X	Leads	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$		.21
TY-48X	.5	Output-Class B P.P. to V.C.	100 CT 40MA D.C.	16/8/4	14	4	2.5:1	50-20,000	500	X	Leads	$\frac{1}{8}$	1 $\frac{1}{8}$	1	1 $\frac{1}{4}$		.08
TY-30X	2	Output-Sgl or P.P. to V.C.	100 CT 100MA D.C. Bal.	8/4	14.4	1.1	3.54:1	50-10,000	500	X	Leads	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{4}$	1 $\frac{1}{4}$		.2
TY-53X	.6	Driver-Sgl or P.P. to Sgl or P.P.	200 CT 10MA D.C.	400 CT	26.5	58.6	1:1.4	20-20,000	1000	X	Leads	1 $\frac{1}{8}$	3 $\frac{1}{8}$	1 $\frac{1}{4}$	2 $\frac{1}{8}$		1
TY-61X	.5	Driver-Sgl to Sgl or P.P.	100 100MA D.C.	100 CT	10.6	10	1:1	50-10,000	1000	X	Leads	1 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{2}$	2 $\frac{1}{4}$		.6
TY-63X	5	Output-P.P. 2N65's to V.C.	48 CT 275MA D.C. Bal.	16/8	4.5	1.4	1.72:1	50-10,000	1000	X	Leads	1 $\frac{1}{8}$	3 $\frac{1}{8}$	1 $\frac{1}{4}$	2 $\frac{1}{8}$		1
TY-64X	10	Output-P.P. to Voice Coil	32 CT 575MA D.C. Bal.	16/8/4	2.24	1.3	1.44:1	300-10,000	1000	X	Leads	1 $\frac{1}{8}$	3 $\frac{1}{8}$	1 $\frac{1}{4}$	2 $\frac{1}{8}$		1
TY-65Z	10	Modulation-P.P. Class B to Modulation	32 CT 575MA D.C. Bal.	6K/4K/ 3K	1.9	275	1:13.7	300-3000	1500	Z	Leads	2 $\frac{1}{8}$	2 $\frac{1}{8}$	2	2 $\frac{1}{4}$		1.3
TY-20Z	10	Output P.P. to Voice Coil	100 CT 500MA D.C. Bal.	16/8/4	1.5	1.6	6:1	300-10,000	1000	Z	Leads	2 $\frac{1}{8}$	2 $\frac{1}{8}$	1 $\frac{1}{4}$	2 $\frac{1}{4}$		1
▲TY-66A	40	Modulation-Class B-P.P. to Modul.	6 CT 5A. D.C.	6K/4K/ 3K	.158	80	1:31.6	300-3000	Pri 1500 Sec 3000	A	Leads-2	3 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	2 $\frac{1}{2}$	2 $\frac{1}{4}$	5.2
TY-67A	40	Output-Class B P.P. to Voice Coil	6 CT 5A. D.C.	16/8/4	.174	.24	1:1.63	300-3000	1500	A	Leads-2	3 $\frac{1}{8}$	3 $\frac{1}{8}$	3 $\frac{1}{8}$	2 $\frac{1}{2}$	2 $\frac{1}{4}$	5

TRANSISTOR DRIVER TRANSFORMERS / split secondary

Type No.	Power Output Watts	Turns Ratio	D.C. Resistance		Max. Pri. D.C. Ma.*	Min. Pri. Inductance**	RMS Test Voltage	Case Type	Connections	Case Dimensions			Mtg. Hole Size	Max. Unit Wt. Lbs.	
			Pri.	Ea. Sec.						H	W	D			
TY-158X	3-5	1.5:1:1	3	3.6	50	.2H	500	X	Leads	1 $\frac{1}{8}$	3 $\frac{1}{8}$	1 $\frac{1}{4}$	2 $\frac{1}{8}$	$\frac{3}{16}$	1.2
TY-159X	3-5	3:1:1	11	3.6	50	.8H	500	X	Leads	1 $\frac{1}{8}$	3 $\frac{1}{8}$	1 $\frac{1}{4}$	2 $\frac{1}{8}$	$\frac{3}{16}$	1.2
TY-160X	3-5	6:1:1	45	3.6	50	3.5H	500	X	Leads	1 $\frac{1}{8}$	3 $\frac{1}{8}$	1 $\frac{1}{4}$	2 $\frac{1}{8}$	$\frac{3}{16}$	1.2

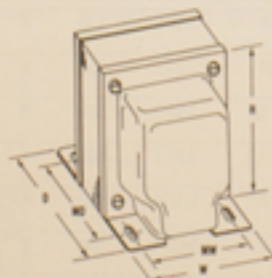
*For single end operation—may also be used in P.P. circuits. **Measured at 3V, 60 CPS and rated D.C. CT for Center Tap. † Split winding. ▲ Discontinued item, available until stock depleted.



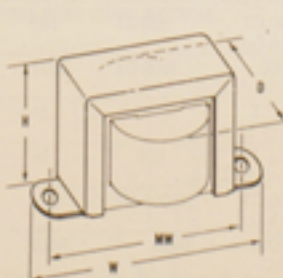
P Case, 8 Pin



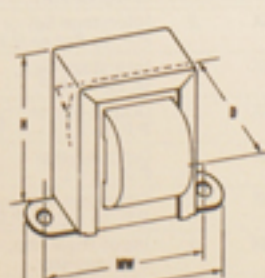
P Case, 9 Pin



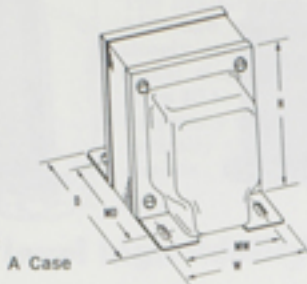
A Case



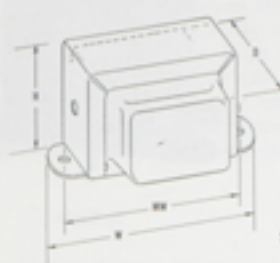
X Case



Z Case



S-80E Case



SX Case

HIGH FIDELITY OUTPUT / tube to line or voice coil

Type No.	Output Watts	Application	Matching Impedance		D.C. Resistance		Primary Ma. D.C. Per Side	Overall Turns Ratio	Frequency Response ± 3 dB	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary							H	W	D	MW	MD	
S-31A	15	P.P. 6V6's, EL84's, etc. to Speaker	8000 CT	16/8/4	470	.33	40	22.2:1	30-20,000	1500	A	1	3 $\frac{3}{8}$ "	2 $\frac{1}{2}$ "	3 $\frac{1}{2}$ "	2	2 $\frac{1}{4}$ "	3.8
S-32A	15	P.P. 6V6's, EL84's, etc. to Line	8000 CT	500/250/125	455	28.2	40	4:1	30-15,000	1500	A	1	3 $\frac{3}{8}$ "	2 $\frac{1}{2}$ "	3 $\frac{1}{2}$ "	2	2 $\frac{1}{4}$ "	3.8
S-142A	15	P.P. 6V6's, EL84's, etc. to Speaker	8000 CT	16/8/4	450	.76	50	22.2:1	20-20,000	1500	A	2	3 $\frac{3}{8}$ "	2 $\frac{1}{2}$ "	3 $\frac{1}{2}$ "	2	2 $\frac{1}{4}$ "	3.75
S-35A	20	P.P. 6L6's, etc. to Speaker	5000 CT	16/8/4	320	.8	80	17.6:1	20-20,000	1500	A	1	3 $\frac{3}{8}$ "	2 $\frac{1}{2}$ "	3 $\frac{1}{2}$ "	2	2 $\frac{1}{4}$ "	4.3
S-38A	20	P.P. 6L6's, etc. to Line	5000 CT	500/250/125	310	30	80	3.16:1	20-20,000	1500	A	1	3 $\frac{3}{8}$ "	2 $\frac{1}{2}$ "	3 $\frac{1}{2}$ "	2	2 $\frac{1}{4}$ "	4.25
S-144A	25	P.P. 7189A or Equiv. to Speaker	8000 CT	16/8/4	240	.58	100	22.2:1	10-15,000	1500	A	2	3 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	4 $\frac{1}{4}$ "	2 $\frac{1}{4}$ "	3 $\frac{1}{4}$ "	6
S-146A	25	P.P. 5881, 6L6's, etc. to Speaker	6600 CT	16/8/4	250	.715	80	20:1	10-50,000	Pri. 2000 Sec. 1500	A	2	3 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	4 $\frac{1}{4}$ "	2 $\frac{1}{4}$ "	3 $\frac{1}{4}$ "	5.75
S-42A	50	P.P. Par. 6L6's Class A to Speaker	4500 CT	16/8/4	147	.56	140	16.9:1	30-15,000	1500	A	1	4 $\frac{1}{4}$ "	3 $\frac{3}{8}$ "	4 $\frac{1}{4}$ "	2 $\frac{1}{4}$ "	3 $\frac{1}{2}$ "	8.25
SR-45Z	10	70 Volt Line Autoformer	4000/2000/1000/500	16/8/4	255	.77	-	15.7:1	20-20,000	1000	Z	Leads	2 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "	2 $\frac{1}{4}$ "	2 $\frac{1}{4}$ "	-	1.75
S-46A	20	70 Volt Line Autoformer	2000/1000/500/250	16/8/4	88	.82	-	11:1	30-15,000	1000	A	1	3 $\frac{3}{8}$ "	2 $\frac{1}{2}$ "	3 $\frac{1}{2}$ "	2	2 $\frac{1}{4}$ "	4

OUTPUT / tube to voice coil & line

Type No.	Output Watts	Application	Matching Impedance		D.C. Resistance		Primary Ma. D.C. Per Side	Overall Turns Ratio	Frequency Response ± 3 dB	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary							H	W	D	MW	MD	
S-27A	8	Single Plate to Line or Speaker	2500	500/16/8/4	260	34	80	2.22:1	40-12,000	1000	A	1	2 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	1.75
S-28X	5	Single Plate to Line or Speaker	7500	500/16/8/4	595	35.8	40	4.05:1	50-12,000	1000	X	Leads & Lugs	1 $\frac{1}{8}$ "	3 $\frac{1}{8}$ "	1 $\frac{1}{4}$ "	2 $\frac{1}{4}$ "	-	1
S-28X	5	Single Plate to Line or Speaker	5000	500/16/8/4	660	56	45	3.16:1	50-12,000	1000	X	Leads & Lugs	1 $\frac{1}{8}$ "	3 $\frac{1}{8}$ "	1 $\frac{1}{4}$ "	2 $\frac{1}{4}$ "	-	1
S-22A	15	P.P. Plates to Line or Speaker	5000 CT	500/16/8/4	424	48.3	50	3.16:1	25-15,000	1500	A	1	2 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	2.5
S-24A	15	P.P. Plates to Line or Speaker	8000 CT	500/16/8/4	675	39.5	40	3.98:1	20-15,000	1500	A	1	2 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	2.5
S-80E	20	P.P. Plates to Line or Speaker	8000 CT	500/200/16/8/5/3/1.5	199	21.33/504	200	22.2:1/5.5	40-10,000	1500	Spl.	-	3 $\frac{1}{4}$ "	3"	3"	2 $\frac{1}{4}$ "	2 $\frac{1}{4}$ "	3.50
S-60A	35	P.P. Plates to Line or Speaker	6600 CT	500/250/16/8/4	118.5	9.6	150	3.65:1	30-20,000	2000	A	2	3 $\frac{1}{4}$ "	3 $\frac{1}{2}$ "	3 $\frac{1}{4}$ "	2 $\frac{1}{2}$ "	2 $\frac{1}{4}$ "	4

HIGH FIDELITY OUTPUT / for "low profile" amplifiers / case type SX

Give maximum performance in low-height limited-space amplifiers — particularly those which incorporate high-gain pre-amplifier stages, and which are prone to hum pickup. All SX

units are in cases 2 $\frac{1}{2}$ " high, 3" wide and 2 $\frac{3}{4}$ " deep, with mounting dimension of 3 $\frac{1}{16}$ " (mtg. hole size $\frac{3}{16}$ "). Weight 2 $\frac{1}{2}$ lbs.

Type No.	Output Watts	Application	Matching Impedance		Overall Turns Ratio	Frequency Response ± 2 db.	RMS Test Volt.
			Primary	Secondary			
SX-201	10-15	Williamson circuit	3300 CT	4/8/16	13.3:1	20-20,000	1500
SX-202	10-15	Williamson circuit	4500 CT	4/8/16	15.5:1	20-20,000	1500
▲ SX-203	5-7	Single-ended oper.	5000	4/8/16	16.5:1	20-20,000	1500
▲ SX-206	10-15	Williamson circuit	6600 CT	4/8/16	18.8:1	20-20,000	1500
SX-207	10-15	Williamson circuit	8000 CT	4/8/16	21.2:1	20-20,000	1500
SX-208	10-15	Push-pull oper.	8000 CT	4/8/16	21.2:1	20-20,000	1500

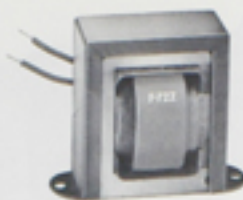
▲ Discontinued item, available until stock depleted. ■ New item.
 ■ Williamson type circuit may be used. Taps on primary for proper screen operation. CT for Center Tap.



A Case



X Case



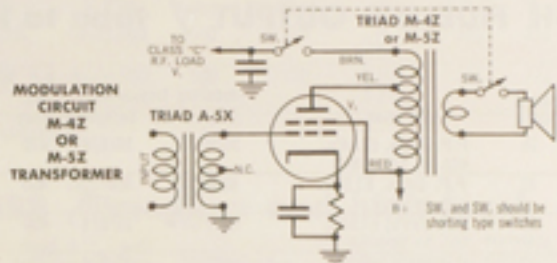
Z Case



AL Case

Available in a wide range of sizes and mounting types, Triad Replacement Output Transformers are specifically engineered for mounting in precise chassis locations. Units are Climatite treated, manufactured to the same exacting standards as more costly types. Triad transformers give the most complete coverage in impedance and wattage ranges, provide best response in minimum space, and outlive all others of comparable scope.

Triad transformers for transmitter audio circuitry are widely used, field-proved, highly reliable, and sensibly priced. In development and design of efficient, flexible modulator units, Triad is the recognized leader.



REPLACEMENT OUTPUT / single tube to standard voice coil / 3-4 ohms

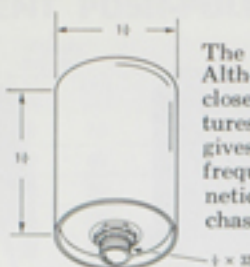
Type No.	Output Watts	Primary D.C. MA	Matching Impedance		DC Resistance		Overall Turns Ratio	RMS Test Voltage	Case Type	Case Dimension			Mtg. Dim.	Mtg. Hole Size	Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary				H	W	D			
S-40X	.25	5.5	14,000	3-4	1380	.63	65.8:1	500	X	1 1/4	1 1/4	1	1 3/4	.120	.08
S-37X	.25	4	25,000	3-4	2350	.63	88.4:1	500	X	1 1/4	1 1/4	1	1 3/4	.120	.08
S-20X	2-3	50	2000	3-4	97	.5	22.4:1	1500	X	1 3/4	2 1/4	1 1/4	1 3/4	3/8	.21
S-20Z	2-3	50	2000	3-4	97	.5	22.4:1	1500	Z	1 3/4	1 3/4	1 1/4	1 1/2	3/8	.21
S-12X	2-3	50	2500	3-4	138	.52	26.8:1	1000	X	1 3/4	2 1/4	1 1/4	1 3/4	3/8	.21
S-12Z	2-3	50	2500	3-4	138	.52	26.8:1	1000	Z	1 3/4	1 3/4	1 1/4	1 1/2	3/8	.21
S-16X	2-3	50	3000/5% tap	3-4	207	.31	27.3:1	1000	X	1 3/4	2 1/4	1 1/4	1 3/4	3/8	.21
S-14Z	2-3	50	4000	3-4	332	.31	35:1	1500	Z	1 3/4	1 3/4	1 1/4	1 1/2	3/8	.21
S-6X	2-3	35	5000	3-4	440	.42	39:1	1000	X	1 3/4	2 1/4	1 1/4	1 3/4	3/8	.21
S-6Z	2-3	35	5000	3-4	440	.42	39:1	1000	Z	1 3/4	1 3/4	1 1/4	1 1/2	3/8	.21
S-48Z	2-3	35	6500	3-4	540	.31	45:1	1500	Z	1 3/4	1 3/4	1 1/4	1 1/2	3/8	.21
S-8X	2-3	30	8000	3-4	477	.34	48:1	1000	X	1 3/4	2 1/4	1 1/4	1 3/4	3/8	.21
S-8Z	2-3	30	8000	3-4	477	.34	48:1	1000	Z	1 3/4	1 3/4	1 1/4	1 1/2	3/8	.21
S-11X	2-3	30	10,000	3-4	670	.32	53.7:1	1000	X	1 3/4	2 1/4	1 1/4	1 3/4	3/8	.21
S-11Z	2-3	30	10,000	3-4	670	.32	53.7:1	1000	Z	1 3/4	1 3/4	1 1/4	1 1/2	3/8	.21
S-38X	2-3	15	16,000	3-4	1420	.31	71:1	1500	X	1 3/4	2 1/4	1 1/4	1 3/4	3/8	.21
▲ S-38Z	2-3	15	16,000	3-4	1420	.31	71:1	1500	Z	1 3/4	1 3/4	1 1/4	1 1/2	3/8	.21
S-13X	2-3	10	25,000	3-4	1780	.36	84.6:1	1000	X	1 3/4	2 1/4	1 1/4	1 3/4	3/8	.21
S-13Z	2-3	10	25,000	3-4	1780	.36	84.6:1	1000	Z	1 3/4	1 3/4	1 1/4	1 1/2	3/8	.21
S-2X	3-5	55	2000	3-4	150	.5	23.8:1	1000	X	1 3/4	2 3/4	1 3/4	2	3/8	.45
S-1X	3-5	60	2500	3-4	150	.5	27:1	1000	X	1 3/4	2 3/4	1 3/4	2	3/8	.45
S-30X	3-5	60	3000	3-4	187	.5	30.5:1	1000	X	1 3/4	2 3/4	1 3/4	2	3/8	.45
S-41X	3-5	50	4000	3-4	300	.34	35.4:1	1500	X	1 3/4	2 3/4	1 3/4	2	3/8	.45
S-3X	3-5	40	5000	3-4	495	.5	40:1	1000	X	1 3/4	2 3/4	1 3/4	2	3/8	.45
S-7X	3-5	30	7500	3-4	740	.53	46.6:1	1000	X	1 3/4	2 3/4	1 3/4	2	3/8	.45
S-17X	3-5	30	10,000	3-4	600	.38	53.3:1	2000	X	1 3/4	2 3/4	1 3/4	2	3/8	.5
S-50X	4-6	60	2500	3-4	117	.32	24.9:1	1500	X	1 3/4	2 3/4	1 3/4	2 1/2	3/8	.6
S-67X	4-6	60	3200	3-4	155	.35	27.9:1	1500	X	1 3/4	2 3/4	1 3/4	2 1/2	3/8	.6
S-18X	4-6	45	8000	3-4	675	.35	49.3:1	1500	X	1 3/4	2 3/4	1 3/4	2 1/2	3/8	.6
S-18Z	4-6	45	8000	3-4	675	.35	49.3:1	1500	Z	1 3/4	2 3/4	1 3/4	2	3/8	.6
▲ S-10X	4-6	45	10,000	3-4	920	.34	39.2:1	1500	X	1 3/4	2 3/4	1 3/4	2 1/2	3/8	.6
S-4X	5-8	70	3000	3-4	130	.26	55:1	1000	X	1 3/4	3 1/4	1 3/4	2 3/4	3/8	1
S-5X	5-8	50	5000	3-4	283	.275	30.7:1	1000	X	1 3/4	3 1/4	1 3/4	2 3/4	3/8	1
S-5Z	5-8	50	5000	3-4	283	.275	39.2:1	1000	Z	2 1/4	2 3/4	1 3/4	2 3/4	3/8	1
S-9X	5-8	50	7500	3-4	635	.17	46.7:1	1000	X	1 3/4	3 1/4	1 3/4	2 3/4	3/8	1
S-9Z	5-8	50	7500	3-4	635	.17	46.7:1	1000	Z	2 1/4	2 3/4	1 3/4	2 3/4	3/8	1

▲ Discontinued item, available until stock depleted.

AUDIO TRANSFORMERS



COMMERCIAL GRADE

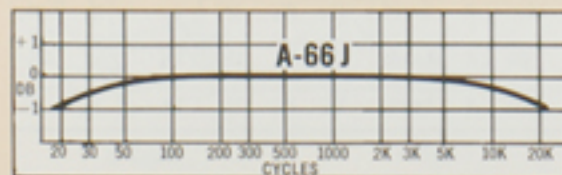
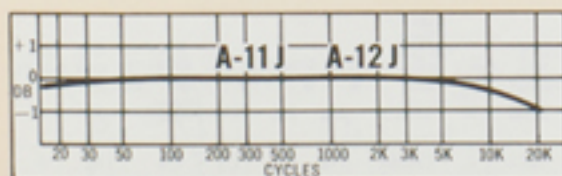


The flexibility of Triad J Series transformers permits amplifiers to exceed broadcast standards. Although economy in construction places them in a lower price class, these units approach and closely approximate the performance characteristics of more costly hermetically sealed units. Features: single-hole mounting, allowing rotation for maximum hum reduction . . . alloy shielding gives 40 to 60 db hum reduction (60 to 80 db in Types A-11J, A-12J, A-13J and A-74J) . . . wide frequency ranges . . . flexible leads for ease of mounting . . . input units electrostatically and magnetically shielded . . . light weight . . . smooth, baked enamel cases, 1 1/8" diameter, 1 1/4" above chassis . . . legible circuit diagrams permanently affixed to every case.

J SERIES / low level high fidelity

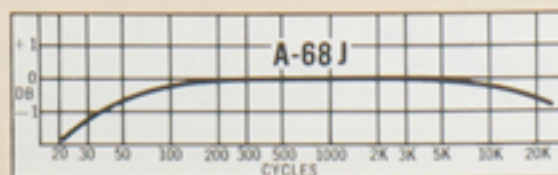
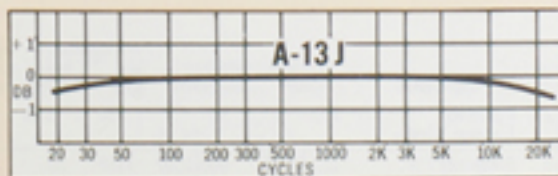
Type No.	Power Output	Application	Matching Impedance		D. C. Resistance		Overall Turns Ratio	Freq. Resp. \pm 3DB	RMS Test Voltage	Case Type	Connections	Case Dim		Mtg. Hole Diameter	Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary						H	D		
A-9J†	1MW	Line or Mike to Grid	600/250/50	85,000	32.7	3450	1:12	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-10J†	1MW	Balanced Line or Mike to Single Grid	600 CT/150 \$\$\$	60,000	33.7	3380	1:10.5	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-80J	1MW	Balanced Line or Mike to Single Grid	900/225 \$\$\$	60,000	53.4	4178	1:8.7	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-11J†	10MW	Line or Mike to Grid	600/250/50	60,000	50	5000	1:10	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-12J†	10MW	Balanced Line or Mike to Grid	600 CT/150 \$\$\$	60,000	50	4920	1:10	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-13J†	1MW	Line to Line or Transistor	600/300/200 CT/110/50 \$\$\$	600 CT/150 \$\$\$	62	70	1:1	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-52J	100MW	Line or Transistor to Line or Transistor	500 CT/125 \$\$\$ 20 MA D.C.	2000 CT/500 \$\$\$	50	200	1:2	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-56J	100MW	Line or Transistor to Voice Coil	500 CT/125 \$\$\$ 15 MA D.C.	16/4 \$\$\$	50	1.5	5.6:1	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-64J	500MW	Line or Transistor to Transistor	100 CT/25 \$\$\$	40 CT/10 \$\$\$	10	4	1.58:1	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.4
A-70J	100MW	Line or Transistor to Line or Transistor	500 CT/125 \$\$\$	100 CT/25 \$\$\$	50	10	2.24:1	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-78J	200MW	Transistor to P-P Transistors or Line	1000 10 MA D.C.	200 CT/50 \$\$\$	302	138	2.2:1	20-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
AA-58J	750MW	P-P Plates to Voice Coil	10,000 CT	4/8	1000	.8	35.3:1	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.4
A-58J	100MW	P-P Plates or Transistors to Line or Transistors	10,000 CT/2500 \$\$\$	2000 CT/500 \$\$\$	1000	200	2.24:1	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-40J	10MW	Plate to 1 or 2 Grids	15,000	115,000 CT	1540	4020	1:2.76	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-41J	32MW	Tube to 1 or 2 Grids	15,000 8 MA D.C.	80,000 CT	1392	8109	1:2.3	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-55J	100MW	Plate to Line	15,000	600/250/50	1020	46	5:1	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-61J	50MW	Line to 2 simultaneously loaded lines or transistors	600/150 \$\$\$	600/150 \$\$\$ 600/150 \$\$\$	47	40 40	1.4:1:1	60-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-65J	100MW	Single or Push-Pull Plates to Balanced Line	15,000 CT	600 CT/150 \$\$\$	1630	73	5:1	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-66J	100MW	Plate to Line	15,000 4 MA D.C.	600/250/50	1740	81.2	5:1	40-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-68J	100MW	Sgl or P-P Plates to Balanced Line	15,000 CT 4 MA D.C.	600 CT/150 \$\$\$	1723	81	5:1	40-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-69J	100MW	P-P Plates or Bridging to Line	25,000 CT/6250 \$\$\$ 2.5 MA D.C.	500 CT/125 \$\$\$	2500	50	7.1:1	50-20,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-78J	100MW	1 or 2 Transistor to Balanced Line	2,000 CT	600 CT/150 \$\$\$	112	48.5	1.82:1	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-57J	50MW	Line or Transistor to Line	600/250/50	600/250/50	40	44	1:1	20-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-67J†	50MW	Balanced Line to Balanced Line	600 CT/150 \$\$\$	600 CT/150 \$\$\$	43.8	44.1	1:1	30-15,000	500	J	Leads	1 3/4	1 3/4	3/4	.35
A-75J	-	Audio Choke	16 HY	-	470	-	-	-	1000	J	Leads	1 3/4	1 3/4	3/4	.35
A-77J	-	Audio Choke	250 HY/62.5 HY 5 MA DC/10 MA D.C.	-	7500	-	-	-	500	J	Leads	1 3/4	1 3/4	3/4	.35

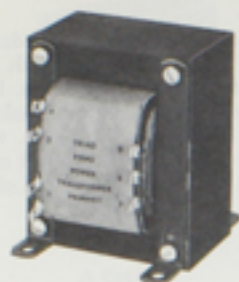
CT for Center Tap. † Static shield. \$\$\$ Split winding. ▲ Discontinued item, available until stock depleted.



PERFORMANCE CURVES

- A-11J
- A-12J
- A-13J
- A-66J
- A-68J





U Case



X Case



A Case



Z Case



A-7J Case

These medium-priced audio components are manufactured to Triad's strict quality control standards to provide highly reliable performance in minimum over-all space. Designed for quick and easy mounting, they have exceptional construction features which make them ideal for replacement purposes in public address, amateur radio, and all other audio systems. Like all standard Triad units, these are instantly obtainable from your stocking Triad distributor.

Triad's research, quality control, and production capabilities have combined to turn out complete transformer coverage for today's complex tube and circuitry developments. As industry leader in the replacement field, Triad offers: minimum over-all size . . . greatest life expectancy . . . easy mounting . . . exact location placement in chassis . . . widest range of types and power ratings . . . economical price.

INPUT / line or microphone to grid

Type No.	Output Watts	Application	Matching Impedance		DC Resistance		Primary Ma. D.C. Per Side	Overall Turns Ratio	Frequency Response $\pm 30\text{dB}$	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary							H	W	D	MW	MD		
A-1X	1	Mike or Line to Grid	100	98,500	4.44	1455	-	1:31.4	100-15,000	500	X	Leads	1 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	1 $\frac{3}{4}$ "	1 $\frac{1}{2}$ "	$\frac{3}{16}$ "	.21
A-3X	1	Line or Mike to Grid	400 CT	195,000	5	1290	-	1:22.1	200-10,000	500	X	Leads	1 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	1 $\frac{3}{4}$ "	1 $\frac{1}{2}$ "	$\frac{3}{16}$ "	.21
A-4X	1	Line to Single Grid	500 CT/333/ 200 CT/125/ 67.5 CT/50	72,000	32.6	1290	-	1:12	100-20,000	500	X	Leads	1 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	1 $\frac{3}{4}$ "	1 $\frac{1}{2}$ "	$\frac{3}{16}$ "	.21
A-5X	5	Mike or Line to Single or P.P. Grid	100	700,000 CT	1.1	3600	-	1:83.3	100-15,000	500	X	Leads	1 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	$\frac{3}{16}$ "	.6
A-6X	1	Intercom-Speaker V.C. to Grid	8/4	50,000	.74	1420	-	1:79.6	150-20,000	500	X	Leads	1 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	1 $\frac{3}{4}$ "	1 $\frac{1}{2}$ "	$\frac{3}{16}$ "	.21
A-7J	.01	Intercom-Speaker V.C. to Grid	3.2-4	50,000	.54	612	-	1:124	150-10,000	500	A-7J	Leads	1 $\frac{3}{8}$ "		1 $\frac{1}{8}$ "	1 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	$\frac{3}{16}$ "	.25

INTERSTAGE / plate to grid

Type No.	Output Watts	Application	Matching Impedance		DC Resistance		Primary Ma. D.C. Per Side	Overall Turns Ratio	Frequency Response $\pm 30\text{dB}$	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary							H	W	D	MW	MD		
A-31X	3	Plate to Single or P.P. Grids	10,000	90,000 CT	885	2660	10	1:3	100-10,000	500	X	Leads	1 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	1 $\frac{3}{4}$ "	2		$\frac{3}{16}$ "	.45
A-33X	6	Plate to Single or P.P. Grids	10,000	90,000 CT	1250	3750	20	1:3	70-10,000	1000	X	Leads	1 $\frac{1}{4}$ "	3 $\frac{1}{4}$ "	1 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "		$\frac{3}{16}$ "	1
A-35A	15	Plate to Single or P.P. Grids	10,000	90,000 CT	1315	4950	25	1:3	50-10,000	1000	A	1	2 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	2 $\frac{1}{4}$ "	1 $\frac{3}{4}$ "	1 $\frac{1}{4}$ "	$\frac{3}{16}$ "	1.75
A-39A	15	P.P. Plates to P.P. Grids	20,000 CT	45,000 CT	2320	3460	25	1:1.5	50-10,000	1000	A	1	2 $\frac{1}{2}$ "	2 $\frac{1}{2}$ "	2 $\frac{1}{4}$ "	1 $\frac{3}{4}$ "	1 $\frac{1}{4}$ "	$\frac{3}{16}$ "	1.75
A-42Z	6	Multi-Ratio Single or P.P. Plates to Single or P.P. Grids	15,000 CT 15,000 CT 3750	135,000 CT 33,750 135,000 CT	1310	3910	20	1.3 1:1.5 1:6	70-10,000	1500	Z	Leads	2 $\frac{1}{4}$ "	2 $\frac{1}{4}$ "	1 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "		$\frac{3}{16}$ "	1

OUTPUT / low level

Type No.	Output Watts	Application	Matching Impedance		DC Resistance		Primary Ma. D.C. Per Side	Overall Turns Ratio	Frequency Response $\pm 30\text{dB}$	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary							H	W	D	MW	MD		
A-51X	1	Plate to Lo Imp. Line	7000	50	564	5.35	20	11.8:1	200-8000	1000	X	Leads	1 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	1 $\frac{3}{4}$ "	1 $\frac{1}{2}$ "	$\frac{3}{16}$ "	.21
A-53X	2	Single or P.P. Plates to Line	18,000 CT	600/250/ 50	1160	38	20	5.5:1	70-7000	1000	X	Leads	1 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{2}$ "	2 $\frac{1}{4}$ "		$\frac{3}{16}$ "	.6
A-54X	2	Single or P.P. Plates to Speaker	7700 CT	8/4	600	.8	28	30:1	150-20,000	1500	X	Leads	1 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	1 $\frac{3}{4}$ "	2		$\frac{3}{16}$ "	.45
S-58X	1	Line to Line	600 CT/ 150 Ω	600 CT/ 150 Ω	46	47.2	-	1:1	100-10,000	500	X	Leads	1 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	1 $\frac{3}{4}$ "	1 $\frac{1}{2}$ "	$\frac{3}{16}$ "	.21
S-81X	1	Line to Line	600	600	46	47.2	-	1:1	100-10,000	500	X	Leads	1 $\frac{3}{4}$ "	2 $\frac{1}{4}$ "	1 $\frac{1}{4}$ "	1 $\frac{3}{4}$ "	1 $\frac{1}{2}$ "	$\frac{3}{16}$ "	.20

CT for Center Tap. Ω Split winding. \blacktriangle Discontinued item, available until stock depleted.



REPLACEMENT PUSH-PULL OUTPUT / push-pull tubes to voice coil / 3-4 ohms

Type No.	Output Watts	Primary D.C. Ma.		Matching Impedance		D.C. Resistance		Overall Turns Ratio	RMS Test Voltage	Case Type	Case Dimension			Mounting Dimension		Mfg. Hole Size	Max. Unit Wt. Lbs.
		Total	Each Side	Primary	Secondary	Primary	Secondary				H	W	D	MW	MD		
S-38X	3-4	60	30	12,000 CT	3-4	750	.46	54.6:1	1500	X	1 3/4	2 3/4	1 3/4	2		3/8	.45
S-64X	4-6	80	40	6000 CT	3-4	550	.35	42.5:1	1500	X	1 3/4	2 3/4	1 1/2	2		3/8	.5
S-15X	7-10	70	35	10,000 CT	3-4	785	.32	53.7:1	1000	X	1 3/4	2 3/4	1 1/2	2 3/4		3/8	.6
S-19Z	10-14	100	50	10,000 CT	3-4	755	.33	53.7:1	1000	Z	2 3/4	2 3/4	2	2 3/4		3/8	1.3
S-68Z	15-18	180	90	3400 CT (3000 CT/3800 CT)	3-4	135	.29	29.1:1	1500	Z	2 3/4	3 1/4	2	2 3/4		3/8	1.6
S-69Z	15-18	120	60	5000 CT	3-4	230	.31	35.4:1	1500	Z	2 3/4	3 1/4	2	2 3/4		3/8	1.6
▲ S-21A	15-18	110	55	8000 CT	3-4	520	.32	48:1	1000	A	2 3/4	2 3/4	2 3/4	1 3/4	1 3/4	3/8 x 3/8	1.75
S-21Z	15-18	110	55	8000 CT	3-4	520	.32	48:1	1000	Z	2 3/4	3 1/4	2	2 3/4		3/8	1.6

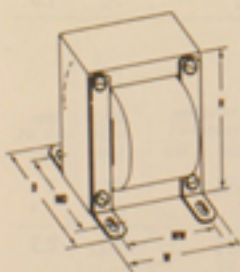
UNIVERSAL OUTPUT / single or push-pull tubes to voice coil

Type No.	Output Watts	Application	Primary D.C. Ma.		Matching Impedance		D.C. Resistance		Overall Turns Ratio	RMS Test Voltage	Case Type	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
			P.P. Total	Single Total	Primary	Secondary	Primary	Secondary				H	W	D	MW	MD	
S-62X	2	Single or P.P. Plates	60	30	2000 to 10,000	.64 to 26.3	474	.79	25:1	1500	X	1 3/4	2 3/4	1 3/4	1 3/4		.21
S-52X	4	Single or P.P. Plates	50	25	4000 to 24,000	1.3 to 24.5	930	.745	32.7:1	1500	X	1 3/4	2 3/4	1 3/4	2		.45
S-51X	5	Single or P.P. Plates	70	35	4000 to 14,000	.04 to 89.6	420	.98	25:1	1000	X	1 3/4	2 3/4	1 3/4	2		.45
S-63X	6	Single or P.P. Plates	100	50	1500 to 7000	.5 to 28.6	280	.745	18.7:1	1500	X	1 3/4	2 3/4	1 3/4	2		.45
S-54X	8	Single	70		1500 to 5000	.535 to 15.6	182	.835	17.9:1	1500	X	1 3/4	2 3/4	1 1/2	2 3/4		.6
S-53X	8	Single or P.P. Plates	80	40	4000 to 14,000	.04 to 89.6	340	.83	24.9:1	1000	X	1 3/4	2 3/4	1 1/2	2 3/4		.6
S-55X	10	P.P. Plates	100		4000 to 14,000	.04 to 89.6	427	1.04	24.9:1	1000	X	1 3/4	3 3/4	1 3/4	2 3/4		1
S-55Z	10	P.P. Plates	100		4000 to 14,000	.04 to 89.6	427	1.04	24.9:1	1000	Z	2 3/4	2 3/4	1 3/4	2 3/4		1
S-56Z	12	Single	85		1500 to 6000	.35 to 24	135	.7	15.8:1	1500	Z	2 3/4	3 1/4	2	2 3/4		1.6
▲ S-59Z	15	P.P. Plates	175		1500 to 4000	.8 to 25.4	90	1.06	11.3:1	1500	Z	2 3/4	3 1/4	2	2 3/4		1.6
S-57Z	15	P.P. Plates	110		4000 to 14,000	.04 to 89.6	456	1.76	25:1	1000	Z	2 3/4	3 1/4	2	2 3/4		1.6
S-61Z	20	P.P. Plates	125		4000 to 12,000	1.5 to 20.2	214	.7	19.85:1	1500	Z	2 3/4	3 1/4	2 3/4	2 3/4		1.8

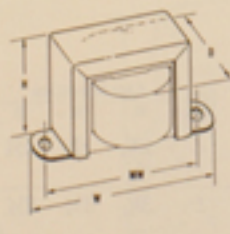
OUTPUT / line to voice coil

Type No.	Output Watts	Application	Matching Impedance		D.C. Resistance		Primary Ma. D.C. Per Side	Overall Turns Ratio	Frequency Response $\pm 3dB$	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary							H	W	D	MW	MD	
S-23X	1	Lo Imp. Line to Speaker Autoformer	50	3.2-4	3.8	.29	-	3.75:1	100-8000	1000	X	Leads	1 3/4	2 3/4	1 3/4	1 3/4		.21
S-26X	4	Line to Speaker Autoformer	500/50	3.2-4	28.8	.3	-	11.2:1	100-8000	1000	X	Leads	1 3/4	2 3/4	1 3/4	1 3/4		.21
S-66X	3	Line to Speaker Autoformer	500	16/8/4	42	1.25	-	5.6:1	100-10,000	1000	X	Leads	1 3/4	2 3/4	1 3/4	2		.45
S-65X	5	Line to Speaker	500	8/4	33.6	.7	-	7.95:1	300-7000	500	X	Leads	1 3/4	2 3/4	1 3/4	2		.45
S-76Z	10	Variable Line to Speaker Matching Transformer	250/125 62.5/31	16/8/4	30	.67	-	3.92:1	40-15,000	1500	Z	Lugs	2 3/4	3 1/4	2 3/4	2 3/4		1.8
S-77U	30	High Level Line to Line or Speaker Matching Transformer	500 CT/ 125 §	32/16/8/4/2	36	2.05	-	3.96:1	40-15,000	1500	U	Leads & Lugs	3 3/4	2 3/4	4 3/4	2 3/4	3 3/4	5

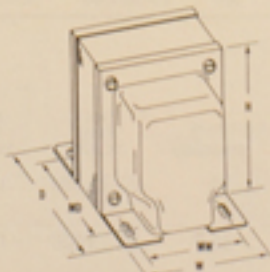
CT for Center Tap. § Split winding. ▲ Discontinued item, available until stock depleted.



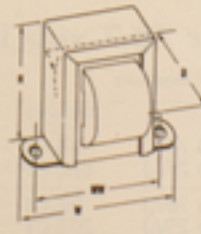
U Case



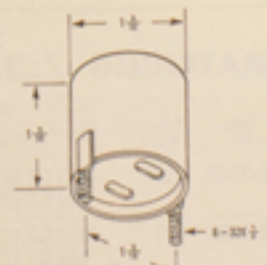
X Case



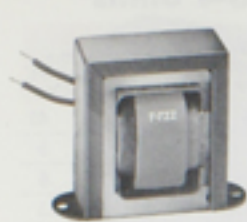
A Case



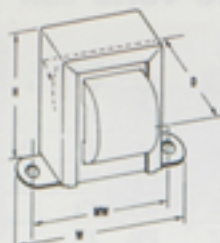
Z Case



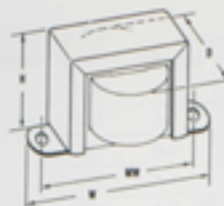
A-7J Case



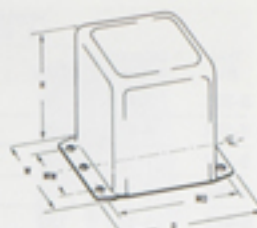
Z Case



X Case



K Case



BULK-PACKED LINE— MATCHING TRANSFORMERS

These line matching transformers available in bulk only are the most reliable, easy-to-install and economical choice for use in efficient public address systems. Leads are color-coded for instant identification, and stripped and tinned for use with twist-on solderless connectors provided in each box.

Type No.	Output Watts	Secondary Impedance	H	Dimensions—Inches		MC	WT. Lbs.
FOR 70.7-VOLT CONSTANT VOLTAGE LINE							
S-7010	10/5/2.5	8 ohms	1 3/8	2 3/4	1 3/8	2 3/8	.50
S-7005	5/2.5/1.25	8 ohms	1 3/8	2 3/8	1 3/8	2	.37
S-7002	2/1/0.5	8 ohms	1 3/8	2 3/8	1 3/8	2	.37
S-7001	1/0.63/0.32	8 ohms	1 3/8	2 5/8	1 3/8	1 3/4	.25
FOR 25-VOLT CONSTANT VOLTAGE LINE							
S-2510	10/5/2.5	8 ohms	1 3/8	2 3/4	1 3/8	2 3/8	.50
S-2505	5/2.5/1.25	8 ohms	1 3/8	2 3/8	1 3/8	2	.37
S-2505	2/1/0.5	8 ohms	1 3/8	2 3/8	1 3/8	2	.37
S-2501	1/0.63/0.32	8 ohms	1 3/8	2 5/8	1 3/8	1 3/4	.25

OUTPUT / 70.7 volt line to voice coil

Type No.	Output Watts	Type	Secondary Impedance	D. C. Resistance		Freq. Resp. $\pm 30\text{B}$	RMS Test Voltage	Case Type	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
				Primary	Secondary				H	W	D	MW	MD		
S-73X	5/2.5/1.25/.625/.31	Isolation	16/8/4	838	1.17	40-15,000	1500	X	1 3/8	2 3/8	1 3/8	2		3/8	.45
S-70Z	5/2.5/1.25/.625/.31	Autoformer	8/4	580	.65	40-15,000	1000	Z	1 1/8	2	1 3/8	1 3/8		3/8	.45
S-47Z	8/4/2/1/.5	Isolation	16/8/4	515	.93	30-20,000	1500	Z	1 1/8	2 3/8	1 3/8	2		3/8	.67
S-78Z	10/5/2.5/1.25	Isolation	16/8/4	157	.84	40-20,000	1000	Z	1 1/8	2 3/8	1 1/2	2		3/8	.6
S-25Z	10/5/2.5/1.25	Autoformer	8/4	120	.475	30-20,000	1000	Z	2 3/8	2 3/8	1 3/8	2 3/8		3/8	1
S-71Z	10/5/2.5/1.25	Autoformer	16/8/4	148	.835	40-20,000	1000	Z	1 1/8	2 3/8	1 1/2	2		3/8	.6
SR-45Z	10/5/2.5/1.25	Autoformer	16/8/4	267	.866	20-20,000	1000	Z	2 3/8	3 3/8	2 3/8	2 1/8		3/8	1.8
ASR-74K	10/5/2.5/1.25	Weatherproof Autoformer	16/8/4	257	.8	30-15,000	1000	K	3 3/8	2 1/8	3 3/8	1 3/4	2 1/8	3/8	2.25
S-79Z	20/10/5/2.5	Isolation	16/8/4	69	.7	40-20,000	1000	Z	2 3/8	2 3/8	1 3/8	2 3/8		3/8	1
S-72Z	20/10/5/2.5	Autoformer	16/8/4	56.5	.5	40-20,000	1000	Z	2 3/8	2 3/8	1 3/8	2 3/8		3/8	1
S-46A	20/10/5/2.5	Autoformer	16/8/4	88.7	.82	30-15,000	1000	A	3 3/8	2 1/8	3 3/8	2	2 3/8	3/8 x 3/8	4
S-43Z	30/20/10/5	Isolation	16/8/4	40	1.0	40-20,000	1500	Z	2 3/8	2 3/8	1 3/8	2 3/8		3/8	1.6
S-44Z	50/40/25/15	Isolation	16/8/4	25	1.5	40-20,000	1500	Z	2 3/8	2 3/8	2	2 3/8		3/8	1.5

OUTPUT / 25 volt line to voice coil

Type No.	Output Watts	Type	Secondary Impedance	D. C. Resistance		Freq. Resp. $\pm 30\text{B}$	RMS Test Voltage	Case Type	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
				Primary	Secondary				H	W	D	MW	MD		
S-131X	2/1/.5	Isolation	8/4	63	.67	50-20,000	1500	X	1 3/8	2 3/8	1 3/8	2		3/8	.45
S-132X	5/2.5/1.25/.625	Isolation	16/8/4	37.6	.76	30-20,000	1500	X	1 3/8	2 1/8	1 3/8	2 3/8		3/8	.8
S-133Z	10/5/2.5/1.25	Isolation	16/8/4	12.5	.66	20-20,000	1500	Z	2 3/8	3 3/8	2	2 3/8		3/8	1.6

MATCHING / 25 or 70.7 volt line

Type No.	Output Watts	Matching Impedance		D. C. Resistance		Freq. Resp. $\pm 30\text{B}$	RMS Test Voltage	Case Type	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
		Primary	Secondary	Primary	Secondary				H	W	D	MW	MD		
S-130Z	10	62.5 CT (25V. to 70V.) 500 CT (70V. to 25V.)	500 CT 62.5 CT	11	94	20-15,000	1500	Z	2 3/8	2 3/8	1 3/8	2 3/8		3/8	1
S-129Z	30	20.8 CT (25V. to 70V.) 166 CT (70V. to 25V.)	166 CT 20.8 CT	1.9	16.9	20-15,000	1500	Z	3 3/8	3 3/8	2 3/8	3 3/8		3/8	2.3

CT for Center Tap. ▲ Discontinued item, available until stock depleted.



DRIVER

Type No.	Power Output Watts	Application	Matching Impedance		Overall Turns Ratio	Freq. Resp. $\pm 3dB$	RMS Test Volts	Case Type	Connections	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
			Primary	Secondary						H	W	D	MW	MD		
A-81X	.5	Driver-Plate to Single or P.P. Grids	15,000 15 MA D.C.	8500 CT	1.33:1	300-3000	1000	X	Leads	1 $\frac{3}{4}$	2 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{3}{4}$		$\frac{3}{4}$	.21
A-83X	2.5	Driver-Plate to Single or P.P. Grids	7000 40 MA D.C.	15,800 CT	1:1.5	70-7000	1000	X	Leads	1 $\frac{3}{4}$	2 $\frac{1}{4}$	1 $\frac{1}{2}$	2 $\frac{1}{4}$		$\frac{3}{4}$	.6
A-85X	5	Driver-Plate to Class B P.P. Grids	7000 40 MA D.C.	4000 CT	1.33:1	50-10,000	1000	X	Leads	1 $\frac{3}{4}$	3 $\frac{1}{4}$	1 $\frac{3}{4}$	2 $\frac{1}{4}$		$\frac{3}{4}$	1
A-89A	15	Univ. Driver-P.P. Plates to AB or B Grids	4K/8K 100 MA D.C. Per Side	4.4K/8.8K Split Winding	1:1.1	50-10,000	1500	A	Leads	3 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{3}{4}$	2	1 $\frac{1}{4}$	$\frac{3}{4}$ x $\frac{3}{4}$	3.5
AA-91A	30	Univ. Drive P.P. Plates to AB or B Grids	4K/8K 160 MA DC Per Side	4.3K/8.6K Split Winding	1:1.055	50-10,000	1500	A	Leads	3 $\frac{3}{4}$	2 $\frac{1}{2}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	$\frac{3}{4}$ x $\frac{3}{4}$	6
TY-61X	.5	Transistor Driver	100 100 MA D.C.	100 CT	1:1	50-10,000	1000	X	Leads	1 $\frac{3}{4}$	2 $\frac{1}{4}$	1 $\frac{1}{2}$	2 $\frac{1}{4}$		$\frac{3}{4}$	.6

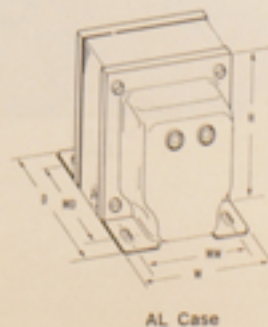
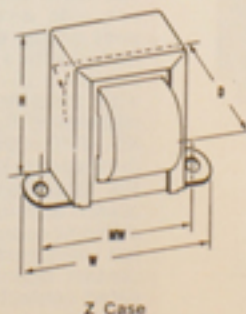
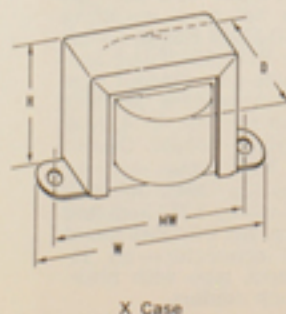
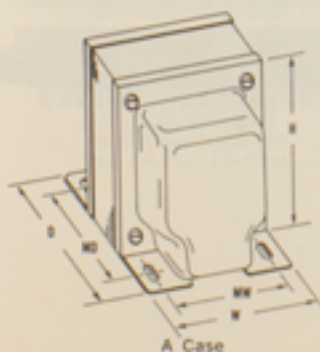
MODULATION / tube to rf load

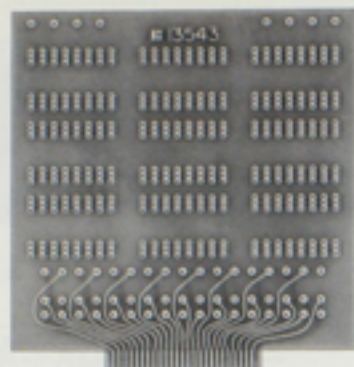
Type No.	Output Watts	Matching Impedance		DC Resistance		Sec. D.C. MA	Over-All Turns Ratio	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Max. Unit Wt. Lbs.
		Primary	Secondary	Primary	Secondary						H	W	D	MW	MD	
M-1X	5	10,000 CT 5 MA Unbal.	5K/8K/ 10K	710	965	50	1:1	1000	X	Leads	1 $\frac{3}{4}$	2 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{3}{4}$		.45
TY-65Z	10	32 CT 575 MA	3K/4K/ 6K/	2	275	100	1:13.7	1500	Z	Leads	2 $\frac{1}{4}$	2 $\frac{3}{4}$	2	2 $\frac{1}{4}$		1.3
M-4Z	10	5000 Autoformer	6750 4 (VC)	3600	1.9	100 Total	1:1.16	2000	Z	Leads	1 $\frac{3}{4}$	2 $\frac{3}{4}$	1 $\frac{1}{4}$	2		.67
M-3X	20	10,000 CT 10 MA Unbal.	3K/5K/8K	523	471	100	1:11:1	1500	X	Leads	2 $\frac{1}{2}$	3 $\frac{1}{4}$	2	3 $\frac{1}{4}$		1.6
M-6X	20	10,000 CT 10 MA Unbal.	3K/5K/8K 4 (VC)	523	471	100	1:11:1	2000	X	Leads	2 $\frac{1}{2}$	3 $\frac{1}{4}$	2	3 $\frac{1}{4}$		1.6
AM-15A	30	4K to 20K Universal	4K to 20K	212	248	150	1:1.9	1500	A	Leads-2	3 $\frac{1}{2}$	2 $\frac{1}{2}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{1}{4}$	3
ATY-66A	40	6 CT 5A	3K/4K/6K	.16	81	200	1:31.7	3000	A	Leads-2	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{4}$	4.5
M-7AL	60	4250 CT	3K/5K/8K	90	120	200	1:1.37	3500	AL	Leads-2 \circ	4 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{4}$	2 $\frac{1}{4}$	2 $\frac{3}{4}$	6.5
M-16AL	60	4K to 20K Universal	4K to 20K	180	225	180	1:1.19	3000	AL	Leads-2 \circ	3 $\frac{1}{4}$	3 $\frac{1}{2}$	3 $\frac{1}{4}$	2 $\frac{1}{2}$	2 $\frac{1}{2}$	5.5
AM-8AL	80	4K to 20K Universal	4K to 20K	152	181	200	1:1.19	4000	AL	Leads-2 \circ	4 $\frac{1}{4}$	3 $\frac{1}{2}$	4 $\frac{1}{4}$	2 $\frac{3}{4}$	3 $\frac{1}{4}$	8

SPECIAL TRANSCEIVER / voice frequencies

Type No.	Output Watts	Application	Matching Impedance		DC Resistance		Overall Turns Ratio	Freq. Resp. $\pm 3dB$	RMS Test Voltage	Case Type	Connections or Lead Holes Used	Case Dimension			Mounting Dimension		Mtg. Hole Size	Max. Unit Wt. Lbs.
			Primary	Secondary	Primary	Secondary						H	W	D	MW	MD		
A-21X	.75	Mike or Plate to Grid (2 Primaries)	100 10,000	100,000	3 340	1300	1:31.5 1:3	200-20,000	500	X	Leads	1 $\frac{3}{4}$	2 $\frac{1}{4}$	1 $\frac{1}{4}$	1 $\frac{3}{4}$		$\frac{3}{4}$	.21
A-23X	1	Tube to Line or Phones (2 Secondaries)	10,000	2000 50	675 5.1	300	2.26:1 14.1:1	200-20,000	1000	X	Leads	1 $\frac{3}{4}$	2 $\frac{1}{4}$	1 $\frac{1}{4}$	2		$\frac{3}{4}$	.45

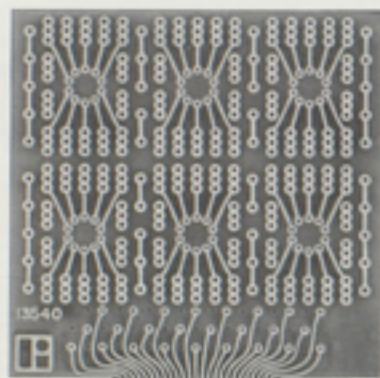
\circ Plate leads out side of case. CT for Center Tap \blacktriangle Discontinued item, available until stock depleted.





PC 25062D24-1

Cat. No. 13543
and Cat. No. CO-13543



PC 25062D24-1

Cat. No. 13540
and Cat. No. CO-13540



PC 25062D24-1

Cat. No. 13545
and Cat. No. CO-13545

**For 14-lead or 16-lead dual in-line
plug-in integrated circuits**

Integrated circuit cards for breadboarding and testing of 14-lead or 16-lead dual in-line IC packages. Available with or without applicable Winchester connector. Both the 13542 and 13543 are two-sided cards of 3/4 inch G-10 glass epoxy, for mounting as many as nine plug-in IC's. All holes are .030 in. to accept most round or flat leads.

No. 13542 Board for Dual In-Line Packages. Overall dimensions, 2.976 in. by 3.273 in. **CO-13542 Board** with Winchester 8BD18S connector—an 18-contact double-side readout type with bifurcated contacts on .156 in. centers.

No. 13543 Board for Dual In-Line Packages. Overall dimensions, 3.000 in. by 3.187 in. **CO-13543 Board** with PCM25D62D24-1 connector—a 25-contact double-side readout type with contacts on .050 in. centers. Molding material is flame resistant per MIL-M-14 Type SDG-F. Contacts are beryllium copper gold plated.

For TO-5's and flat packs

You get the advantages of component intermix, economy and universality when you plan your integrated circuit design, assembly and packaging of TO-5's and flat packs on a Triad card.

Once your circuit is proved out on a 13540 or 13541 standardized Triad card, there is no necessity to transfer components to a final circuitry package and then prove it out again. You can go directly from prototype to production.

Both the 13540 and 13541 are two-sided cards of 3/4 in. G-10 glass epoxy, with flat pack mounting tabs on one side and TO-5 pads on the other. You can mount up to six TO-5's or six flat packs—or combinations of both. The only difference between the boards is the connector pattern.

No. 13540 Board. Overall dimensions, 3.000 in. by 3.187 in.

No. CO-13540 Board includes a PCM25D62D24-1 connector—a 25-contact double-side readout type with contacts on .050 in. centers. Molding material is flame resistant per MIL-M-14, Type SDG-F. Contacts are beryllium copper, gold plated.

No. 13541 Board. Overall dimensions, 2.976 in. by 3.273 in.

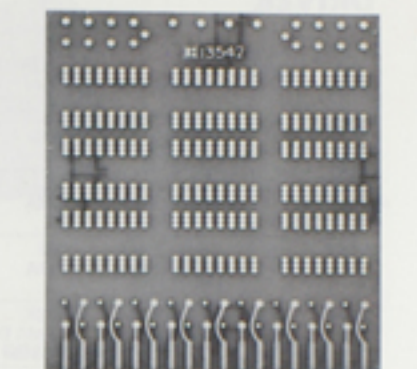
No. CO-13541 Board includes an 8BD18S connector—an 18-contact double-side readout type with bifurcated contacts on .156 in. centers.

**For 8-pin TO-5 case type
units and flat packs**

Two double-sided circuit cards, furnished with or without connector, for prototypes or limited production runs of circuitry using 8-pin TO-5 case type units and flat packs. Base material of all boards is 3/4" G-10 glass epoxy. Whether you are working on high density packaging for specialized use or more economical medium packaging densities, there are versatile Triad boards for both integrated circuits and discrete components.

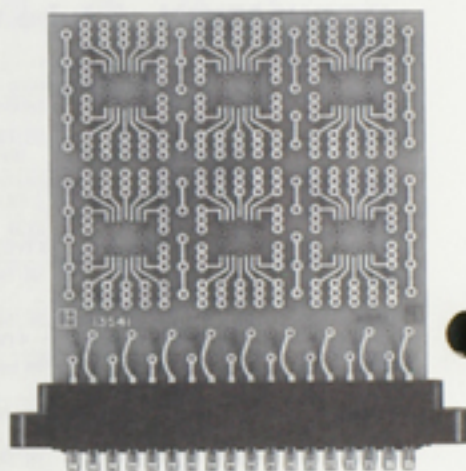
No. 13545 Board. Has six 8-pin TO-5 pads on one side and six 14-pin flat pack mounting pads on the other. **No. CO-13545 Board**, is furnished with a Winchester PCM25D62D24-1 connector—a 25-contact double-side readout type with contacts on .050 inch centers. Molding material is flame resistant per MIL-M-14, type SDG-F. Contacts are beryllium copper. Overall dimensions 3.00 inch by 3.187 inch.

No. 13546 Board. Same as No. 13545, but with overall dimensions 2.976 inch by 3.273 inch and different connector pattern. **No. CO-13546 Board** has Winchester 8BD18S connector—an 18-contact double-side readout type with bifurcated contacts on .156 inch centers.



PC 25062D24-1

Cat. No. 13542
and Cat. No. CO-13542

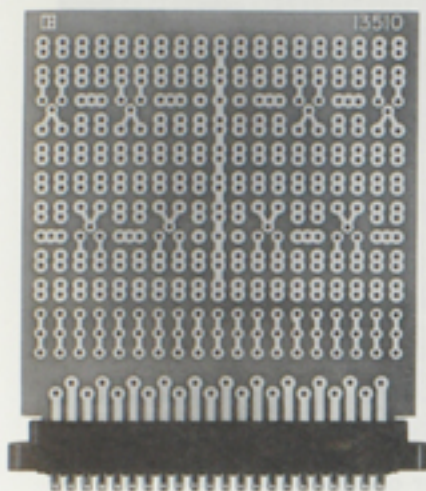


Cat. No. 13541
and Cat. No. CO-13541



881088

Cat. No. 13545
and Cat. No. CO-13545



Cat. No. 13510
and Cat. No. CO-13510

Many universal circuit cards are supplied with the applicable Winchester connector for quick and easy assembly of prototypes and short runs. The listing on pages 24 and 25 shows the types that are available from stock.

The Winchester 8BD18S and 8BD22S connectors are molded from phenolic type MFG material per MIL-M-14. Precision, uniform bifurcated contact surfaces are pressed firmly against the PC terminal area by the double-acting flat spring grip that maintains a constant and non-damaging contact at all times. Individual identification of contacts is provided on front and rear body faces for easier wiring and circuit tracing.

The Winchester PCM25D62D24-1 has straight contact tabs to permit lead insertion in through holes for wave or dip soldering applications. Exclusive design short-path contacts create a short, direct low resistance electrical path between board and back plane inter-connection.

No. 13500-1 Board has 233 mounting pads of one or more holes each, front and back, for a total of 444 holes per card. Standard hole size, .052". Land pattern is compatible with standard .1 grid design. Placing of holes permits insertion of components directly into board. Has 22 fingers to fit any standard plug-in, right angle or swage-type connector with .156" spacing. May be sawed or sheared to adapt to any circuit. Size 4" x 4 1/4". Base material 1/4" paper epoxy.

No. 13500-2 Board is same as above but glass epoxy.

No. CO-13500-1 and No. CO-13500-2 Boards include 8BD22S connector.

No. 13510-1 Board. An extension of the 13500 card, advanced design including specific transistor locating holes, a ground bus down the center of the card and more convenient location for pad rows. Has 190 mounting pads of one or more holes each, front and back, for a total of 421 holes per card. Has 22 fingers for any connector with .156" spacing, plus 22 pairs of pads located for installation of Elco-type connectors. Standard hole size, .052". Size 4" x 4 1/4", 1/4" thick. Paper base epoxy.

No. 13510-2 Board same as above but glass epoxy.

No. CO-13510-1 and CO-13510-2 Boards include 8BD22S connector.

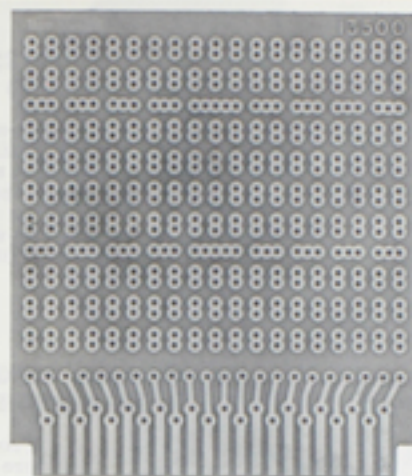
No. 13511 Board. An extension of the 13510 card, incorporating specific transistor locating holes, ground bus down the center and more convenient location for pad rows. Size 4" x 7". Base material, 1/4" paper base epoxy. Has more than 300 mounting pads of one or more holes each, front and back, for a total of more than 650 holes per card. Has 22 fingers on both ends to fit any connector with .156" spacing, plus 22 pairs of pads conveniently located for installation of Elco-type connectors. Standard hole size, .052".

No. CO-13511A Board includes one 8BD22S connector.

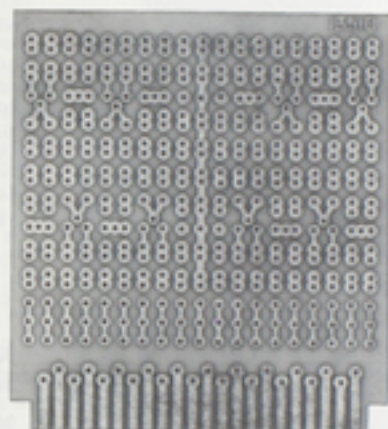
No. CO-13511B Board includes two 8BD22S connectors.

No. 13544 Board. Accommodates as many as sixteen 8-pin TO-5 case types of components. Overall dimensions, 3.000 inch by 4.860 inch.

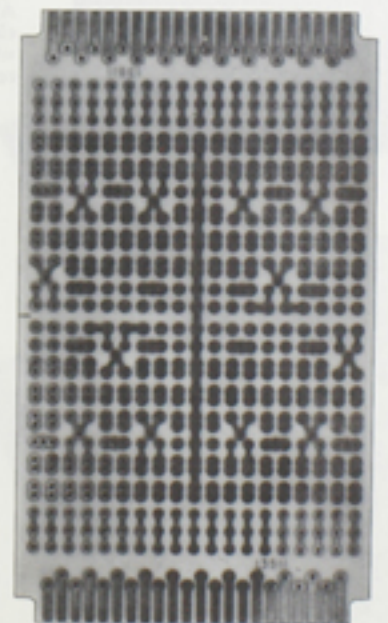
CO-13544 Board includes Winchester PCM25D-62D24-1 connector—the same as used on CO-13545.



Cat. No.
13500



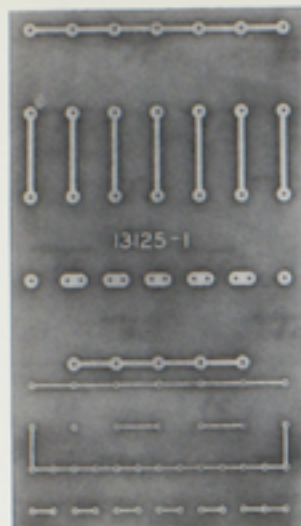
Cat. No.
13510



Cat. No.
13511



Cat. No. 13544
and Cat. No. CO-13544



**NO. 13125 NASA
TRAINING BOARD**

This single-side board of G-10 glass epoxy is designed and manufactured to meet the requirements of NASA-sponsored solder training schools. Size 3½" x 6¾", ½" thick, 1 oz. copper one side. Conductor widths, .062" and .031".

**▲ NO. 13801 (.093" hole size)
PRE-PUNCHED TERMINAL CARD**

Provides an over-all grid of pre-punched holes for breadboarding as well as production. Especially useful for subminiature circuitry using transistors and small diodes. The holes accommodate a variety of standard turned terminals as well as push-in terminals. Has 646 holes (19x34) on 0.20" centers. Board may be broken off along the hole lines when it is inconvenient to saw. Paper base epoxy, ½" thick; size 4" x 7".



**NO. 13605
EXTENDER CARD**

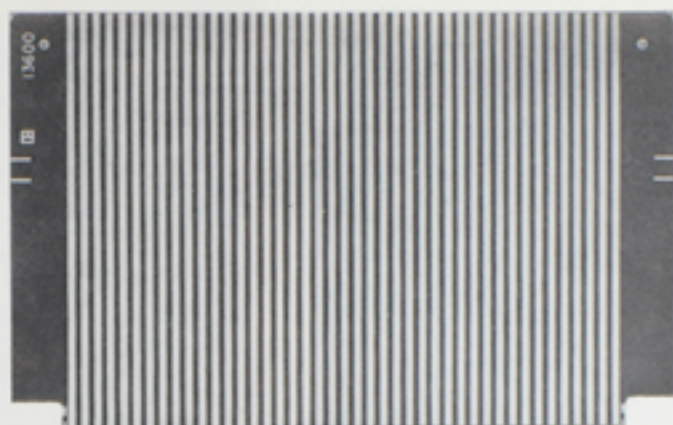
Measures 2.976 x 3.273" with 18 extender strips on each side of the board. Base material is ½" glass epoxy. Standard .156" spacing for most printed circuit connectors. Also stocked as CO-13605-A with one Winchester 8BD18S connector, and as CO-13605-B with two 8BD18S connectors, a double-side readout type with bifurcated contacts.

NO. 13610 EXTENDER CARD

Measures 3.000 x 4.860" with 25 extender strips on each side of the board. Base material is ½" glass epoxy. Standard .050" centers. Also stocked as CO-13610-A with one Winchester PCM25D62D24-1 Connector, and as CO-13610-B with two PCM25D62D24-1 connectors, a double-side readout type with beryllium copper gold-plated contacts. Molding material is flame resistant per MIL-M-14 type SDG-F.

Used in development of prototype printed circuitry and design testing of circuit layout. Either card allows use of more than 300 terminals in seven rows of ½" spacing on each side. Permits mounting of an almost unlimited number of components to either or both sides of cards. Cards have 22 fingers with standard spacing of .156" to allow use with most printed circuit connectors. Size 4" x 4½", ½" paper base epoxy. No. CO-13750 and CO-13751 Boards include Winchester 8BD22S Connector.

▲ Discontinued item, available until stock depleted.



NO. 13600-1 EXTENDER CARD

Used to extend the fingers of a circuit card to allow access to boards mounted in racks or panels. Frees both sides of electronic circuit for maintenance under operating conditions, engineering change testing during operation, and investigation of parameters or parameter changes during operation. Wire harness ends may be soldered to the card to provide a means for plug in. Measures 5" x 8" with 43 extension strips on each side of the board. Base material is ½" paper epoxy. Standard .156" spacing for most printed circuit connectors. Also stocked in glass epoxy as No. 13600-2.



**NO. 13750 (.093" hole size)
NO. 13751 (.063" hole size)
PLUG-IN TERMINAL CARDS**





No. MK-1
No. MK-2
No. MK-3
No. MK-4
No. MK-5

Lead Bending Gauges

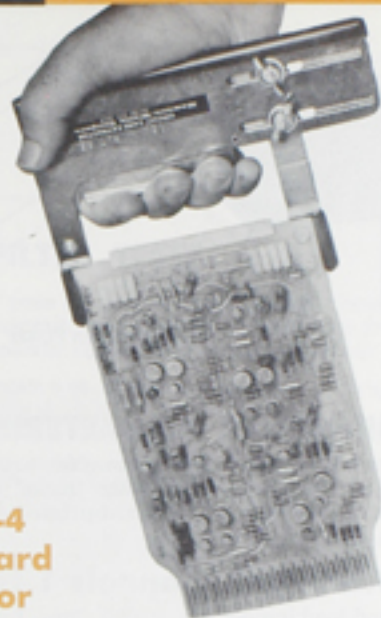
A set of five MK lead bending gauges will provide fast, accurate forming for most components used in printed board circuitry. All models have 40 numbered positions. Each position is numbered and leads are bent rapidly with gentle finger pressure. No other tools are required. Aggravation and physical damage to components associated with "free bending" by long-nose pliers are completely eliminated.

The MK-1 gauge (.375 to 1.50 centers) is designed for 1/4-watt resistors, although diodes, disc capacitors and other parts of similar size may be processed. The MK-2 gauge (.50 to 1.50 centers) is for 1/2-watt resistors and items of similar sizes. The MK-3 gauge (.75 to 2.50 centers) is designed for 1-watt resistors and similar components. The MK-4 (.875 to 2.50 centers) is used on 2-watt resistors and items of similar size, with special features to accommodate the DO outline "TOP HAT" diodes. The MK-5 (.260 to 1.42 mounting centers) accepts all 1/4-watt resistors and diodes—standard RC05 and DO-35 type components. These methods are currently being employed to determine the correct component lead spacing:

- (1) The gauges may be used to "sight" the proper position by aligning the correct slot between the holes or terminals to be used, and noting the slot number for future reference.
- (2) The design draftsman may select the proper slot number and make a notation on the list of materials by the component's reference designation.
- (3) The appropriate numbers may be silk-screened on the board. This method is being used successfully on very large and complex units. Jumper wires are also formed using the numbering systems, giving a uniform appearance to the completed assemblies.



NO. CE-4 Circuit Card Extractor



Adjusts to fit card widths from 4 to 6 inches. Does not interfere with components on card. Will not damage card in any way. Grabs card securely on edges. Measures 6 1/2 x 4 3/8 inches. Heavy gauge steel, nickel finish.

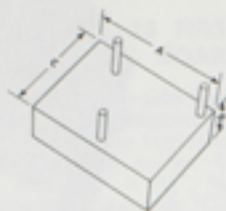
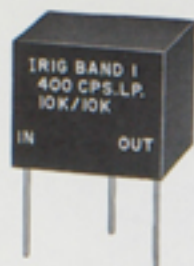
▲ NO. CE-5 Extractor for integrated circuit cards

This rugged, light-weight tool is "made to measure" for miniature integrated circuit cards and modules. With its interchangeable parts, the CE-5 is adjustable to all boards ranging from one to four inches in width. Grips the edges of the board and allows for easy handling, insertion and extraction. Measures 4 1/4 x 4 1/2 inches.



NO. CE-1 Card Extractor

Space requirements much less than finger-hole type. Becomes integral part of card until released. Cam action, quick release. One-handed operation with 60-lb. pull. Measures 4 1/4 x 2 1/2 inches. Sturdy plastic construction.



FL-404 through FL-421



FL-384 through FL-388

SUBMINIATURE TELEMETERING FILTERS

All units are epoxy molded and manufactured to MIL-F-18327B. Straight pin terminals of 22-gauge nickel alloy are spaced in multiples of 1/10 inch for standard printed circuit use.

low pass/IRIG channels 1 through 11

Source and load impedance, 10,000 ohms. Insertion loss at reference frequency (f_0) is less than 2.5 db. Attenuation at cut-off frequency ($1.075 f_0$) is less than 1 db. At frequencies above $1.85 f_0$ the attenuation is over 45 db.

Type No.	IRIG Channel	Center Frequency	Maximum Dimensions		
			A	B	C
FL-404	1	400 cps	0.947	0.75	0.760
FL-405	2	560 cps	0.947	0.75	0.760
FL-406	3	730 cps	0.947	0.75	0.760
FL-408	5	1300 cps	0.947	0.75	0.760
FL-409	6	1700 cps	0.947	0.75	0.760
FL-410	7	2300 cps	0.947	0.75	0.760
FL-411	8	3000 cps	0.947	0.75	0.760
FL-412	9	3900 cps	0.947	0.75	0.760
FL-413	10	5400 cps	0.947	0.75	0.760

band pass/IRIG channels 11 through 18

Source and load impedance, 10,000 ohms. Insertion loss at center frequency (f_0) is less than 2.5 db. The total amplitude variation in the pass band ($f_0 \pm 7.5\%$) is less than 0.5 db. At $1.85 f_0$ and $0.54 f_0$ the attenuation is more than 30 db. At frequencies above $2.78 f_0$ and at frequencies below $0.36 f_0$ the attenuation is more than 45 db.

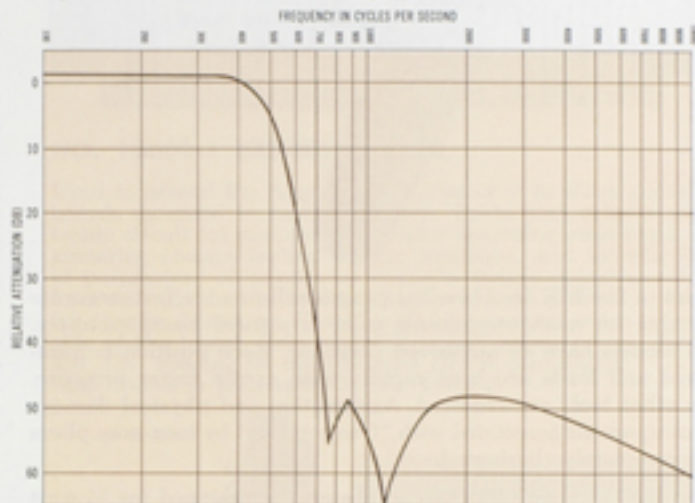
Type No.	IRIG Channel	Center Frequency	Maximum Dimensions		
			A	B	C
FL-415	12	10.5 KC	0.947	0.480	0.760
FL-416	13	14.5 KC	0.947	0.480	0.760
▲FL-417	14	22 KC	0.947	0.480	0.760
▲FL-420	17	52.5 KC	0.947	0.480	0.760
▲FL-421	18	70 KC	0.947	0.480	0.760

MINIATURE BAND PASS FILTERS

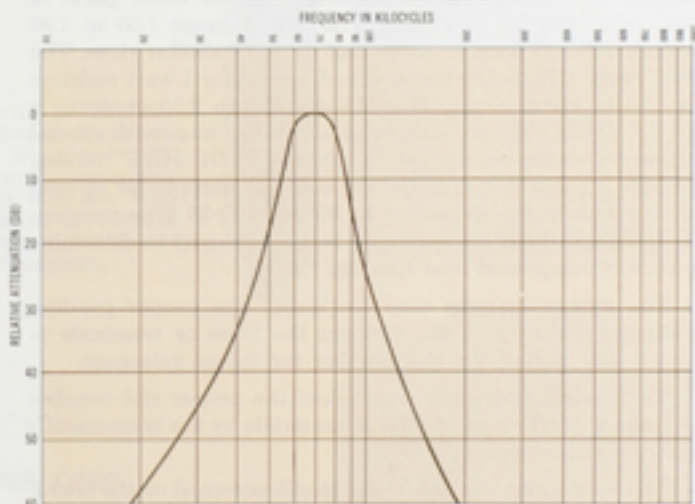
IRIG channels A through E

All filters are epoxy molded and manufactured to MIL-F-18327B. Source and load impedance, 47 K Ω . Insertion loss at center frequency (f_0) is less than 3 db. Attenuation in pass band ($f_0 \pm 15\%$) is less than 1 db. At frequencies below $0.15 \times f_0$ the attenuation is over 20 db. At frequencies above $2 \times f_0$ the attenuation is over 30 db.

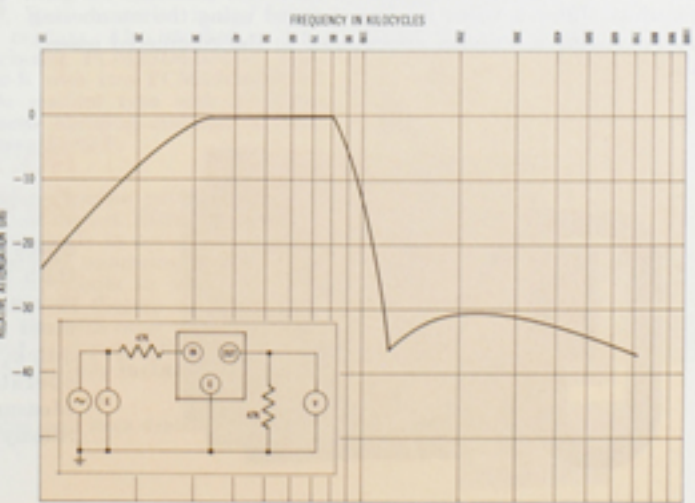
Type No.	IRIG Channel	Center Frequency	Maximum Dimensions			
			A	B	C	D
FL-384	A	22 KC	1.562	1.375	.75	1.375
FL-385	B	30 KC	1.562	1.375	.75	1.375
FL-386	C	40 KC	1.562	1.375	.75	1.375
FL-387	D	52.5 KC	1.562	1.375	.75	1.375
FL-388	E	70 KC	1.562	1.375	.75	1.375



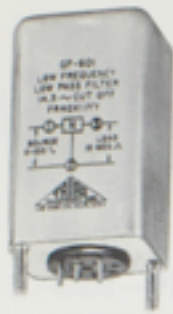
TELEMETERING L.P. FILTER CHANNEL 1 (400 C.P.S.)



TELEMETERING B.P. FILTER CHANNEL 18 (70 K.C.)



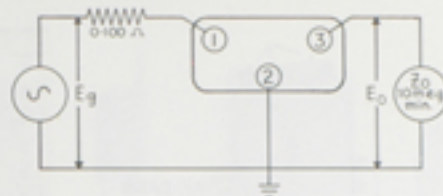
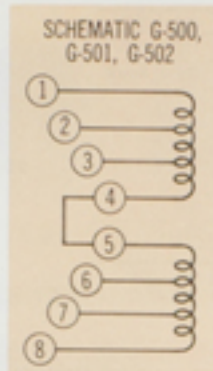
TELEMETERING B.P. FILTER CHANNEL 'C' (40 KC)



GF-601



GF-602



LOW PASS FILTER TESTS

Triad GF-series low pass filters are tested in the circuit shown above. E_g is held constant. E_o obtained at reference frequency is used as zero db. Specific requirements are as follows:

- GF-600:** (1) Maintain 0 db. at reference frequency of 1.5 cps.
(2) -3 db. at 7.5 cps. or greater.
(3) -18 db. at 19 cps. or less.
(4) -35 db. at 38 cps. or less.
- GF-601:** (1) Maintain 0 db. at reference frequency of 3 cps.
(2) -3 db. at 14.5 cps. or greater.
(3) -25 db. at 29 cps. or less.
(4) -50 db. at 58 cps. or less.
- GF-602:** (1) Maintain 0 db. at reference frequency of 10 cps.
(2) -3 db. at 150 cps. or greater.
(3) -18 db. at 310 cps. or less.
(4) -35 db. at 620 cps. or less.

LOW FREQUENCY LOW PASS FILTERS

GF-600 Series low pass filters are high-accuracy filters covering the frequency range from 7.5 CPS to 150 CPS.

This series features: Reduced size, low insertion loss and excellent temperature stability over wide temperature range.

Type No.	Input Impedance in Ohms	Output Impedance in Ohms	F _c (CPS) (±3 db)	Attenuation		Max. Input Level	Stray Fields Shield	Case and Mounting	Weight
				0.5 (f _c)	Per Octave				
GF-600	0 TO 100 Ω	10 MEG. OHMS	7.5 CPS	≤0.5db	≥16db	3.5 V	P1-H	GP-2L*	5¼ OZ.
GF-601	0 TO 100 Ω	10 MEG. OHMS	14.5 CPS	≤0.5db	≥25db	3.5 V	P1-H	GP-2L*	5¼ OZ.
GF-602	0 TO 100 Ω	10 MEG. OHMS	150 CPS	≤0.5db	≥16db	3.5 V	P1-H	GP-1G*	3.4 OZ.

* See pages 35 and 36 for dimensions.

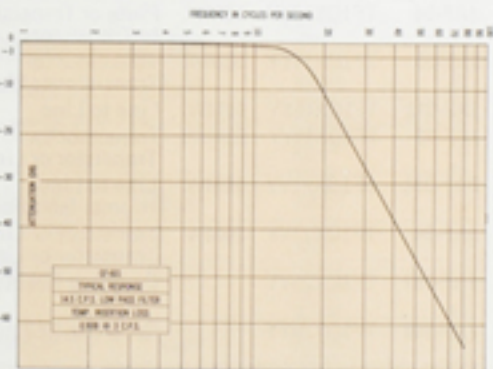
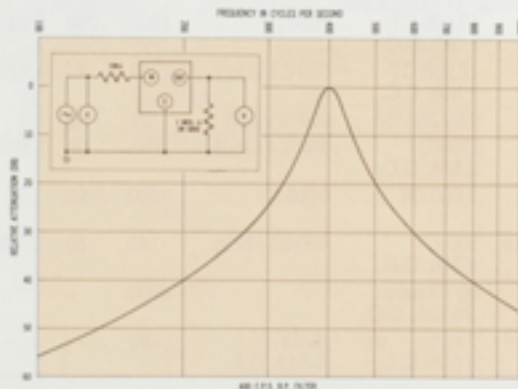


400 CPS BAND PASS FILTER

Cat. No. FL-381

Source impedance, 10K ohms; load impedance, 1M ohms; 400 cps voltage gain, 2:1.

Filter is hermetically sealed in a Mumetal case (45 db magnetic shielding). Dimensions, 1½ x 1¼ x 1½ high. Mounting centers, ¾ x 1¼. Typical frequency response shown at right.

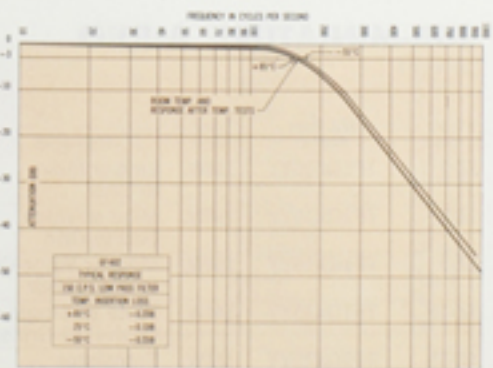
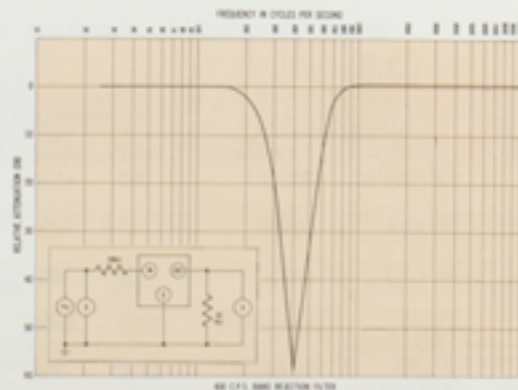


400 CPS BAND REJECT FILTER

Cat. No. FL-389

Source and load impedance is 10KΩ.

Filter is hermetically sealed in a MIL-T-27B EA case. See page 19 for dimensions. Typical frequency response shown at right.





Designed and Constructed to meet MIL-T-27B



AF CASE

	AF	AG	AH-2	AI-2	JZ*1
A	1 1/4	1	1 1/4	1 1/4	3/4 dia.
B	1 1/4	1	1 1/4	1 1/4	Round
*Hw	1 1/4	1 1/4	1 1/4	1 1/4	
C	1 1/4	1 1/4	1 1/4	1 1/4	1 1/4
D	*1 1/4	*1 1/4	*1 1/4	*1 1/4	
F	3/4	3/4	3/4	3/4	
G	4-40	6-32	6-32	6-32	
Unit	2 1/2	2 1/2	5 1/2	1 1/2	.5
Wt.	max.	oz.	oz.	oz.	oz.

*Not in conformance with MIL-T-27A
†Not in conformance with MIL-T-27



JZ CASE



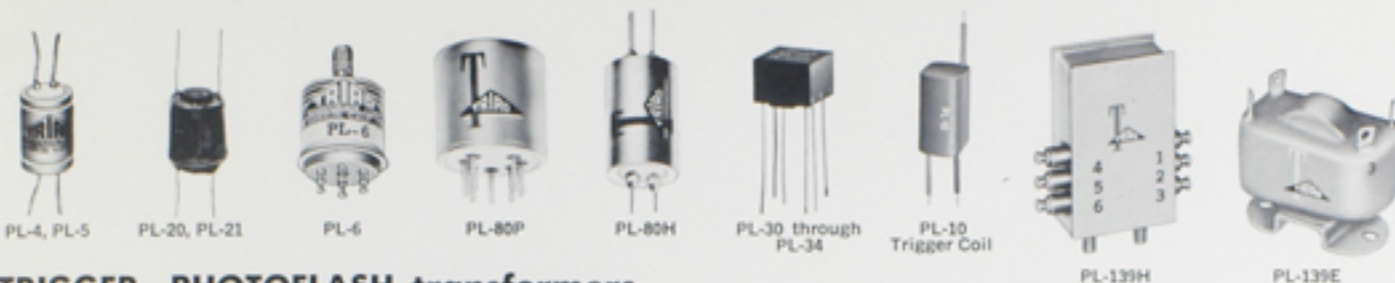
JAF SERIES

Type No.	Mil. Type Number	Power Output	Application	Matching Impedance		D.C. Resistance		Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Magnetic Shielding	F. Dim. Inch	Case	Max. Unit Wt. Lbs.
				Primary	Secondary	Pri-ary	Sec-ondary							
JAF-1†	TF1QX10YY	1MW.	Line or Mike to Grid	600/250/50	50,000	100	3180	1:9.16	60-15,000	500	45 DB	3/8	AF	.1
JAF-2†	TF1QX10YY	1MW.	Line or Mike to Grid	600/250/50	250,000	48	3600	1:20.6	100-15,000	500	45 DB	3/8	AF	.1
JAF-3	TF1QX10YY	1MW.	Line or Mike to Sgl. or P.P. Grids	600/250/50	60,000 CT	125	3600	1:10	60-15,000	500	45 DB	3/8	AF	.1
JAF-5†	TF1QX10YY	1MW.	Mike to Voice Coil to Grid	30/12/4	50,000	6	3500	1:39.7	50-15,000	500	45 DB	3/8	AF	.1
JAF-11	TF1QX10YY	10MW.	Plate to Grid	15,000	50,000	1100	2860	1:1.81	60-15,000	500	45 DB	3/8	AF	.1
JAF-12	TF1QX10YY	10MW.	Plate to Sgl. or P.P. Grids	15,000	60,000 CT	1350	2700	1:2	60-15,000	500	45 DB	3/8	AF	.1
JAF-13	TF1QX15YY	10MW.	Plate to Sgl. or P.P. Grids	15,000 3 MA. D.C.	95,000 CT	1330	3330	1:2.5	350-7,000	500	45 DB	3/8	AF	.1
JAF-14†	TF1QX10YY	1MW.	Line to Grid	200	500,000	63	4900	1:50	300-3,000	500	45 DB	3/8	AF	.1
JAF-15	TF1QX10YY	10MW.	Plate to Grid	15,000	1 Megohm	370	4450	1:8.2	350-5,000	500	45 DB	3/8	AF	.1
JAF-21	TF1QX16YY	10MW.	Plate to Line	15,000	600/250/50	1330	58	4.98:1	60-15,000	500	45 DB	3/8	AF	.1
JAF-22	TF1QX13YY	10MW.	Plate to Line	15,000 3 MA. D.C.	600/250/50	1330	58.8	4.98:1	350-7,000	500	45 DB	3/8	AF	.1
JAF-23	TF1QX16YY	10MW.	Sgl. or P.P. Plates to Line	20,000 CT	600/250/50	2000	70	5.76:1	60-15,000	500	45 DB	3/8	AF	.1
JAF-24	TF1QX13YY	10MW.	Plate or Transistor to Transistor	10,000 CT 2 MA. D.C.	2000 CT	1000	200	2.24:1	50-20,000	500	45 DB	3/8	AF	.1
JAF-25	TF1QX13YY	10MW.	Transistor to Transistor or Line	12,000 CT 2 MA. D.C.	600 CT/150§	1350	70	4.47:1	50-15,000	500	45 DB	3/8	AF	.1
JAF-31†	TF1QX16YY	10MW.	Line to Line	600/250/50	600/250/50	55	80	1:1	60-15,000	500	45 DB	3/8	AF	.1
JAF-32	TF1QX13YY	20MW.	Transistor to Transistor or Line	1500 CT 2 MA. D.C.	600 CT/150§	150	60	1.58:1	50-20,000	500	45 DB	3/8	AF	.1
JAF-33†	TF1QX21YY	10MW.	Line to Line Hi Imp. Isolation	5,000 CT	5000 CT	1500	2200	1:1	60-15,000	500	45 DB	3/8	AF	.1
JAF-34	TF1QX17YY	20MW.	Transistor or Line to Transistor or Line	500 CT 2 MA. D.C.	500 CT/125§	45	50	1:1.03	50-20,000	500	45 DB	3/8	AF	.1
JAF-101	TF1QX20YY		Coupling Reactor	50 Henries .75 MA. D.C.		4000	-	-	-	500	45 DB	3/8	AF	.1
JAF-102	TF1QX20YY		Coupling Reactor	6 HY. or 3 MA. D.C.	4 HY. 6 MA. D.C.	295	-	-	-	500	45 DB	3/8	AF	.1

SUB-MINIATURE AUDIO

Type No.	Mil. Type Number	Power Output	Application	Matching Impedance		D.C. Resistance		Overall Turns Ratio	Frequency Response ± 3 DB	RMS Test Voltage	Case	Max. Unit Wt. Lbs.
				Primary	Secondary	Pri-ary	Sec-ondary					
JZ-1	TF1QX10YY	1MW.	Line or Mike to Grid	600/250/50	60,000	350	4100	1:10	70-20,000	500	JZ	.03
JZ-5	TF1QX10YY	1MW.	Mike or Voice Coil to Grid	30/12/4	50,000	11.5	3800	1:40.5	70-20,000	500	JZ	.03
JZ-7	TF1QX16YY	1MW.	Mike or Voice Coil to Transistor	30/12/4	1000	12	480	1:5.73	40-20,000	500	JZ	.03
JZ-13	TF1QX15YY	1MW.	Plate to Single or Push-Pull Grids	15,000 1 MA. D.C.	135,000 CT	1150	4400	1:3	70-15,000	500	JZ	.03
JZ-15	TF1QX15YY	1MW.	Transistor Interstage	20,000 .5 MA. D.C.	1200/600/ 100	2700	350	4.08:1	70-15,000	500	JZ	.03
JZ-25	TF1QX13YY	1MW.	Plate or Transistor to Transistor or Line	10,000 1 MA. D.C.	200	1500	120	7.05:1	70-20,000	500	JZ	.03
JZ-26	TF1QX21YY	1MW.	Transistor to Line or Transistor	1000 5 MA. D.C.	50	355	20	4.5:1	100-10,000	500	JZ	.03

† Static shield. CT for Center Tap. § Split winding.



TRIGGER—PHOTOFLASH transformers

Type No.	Application	Turns Ratio	Primary Inductance	Leakage Inductance	Primary D.C. Resistance	Secondary D.C. Resistance	Output Volts or Volt- μ Sec Rating	Dimensions Dia.	Length	Ht.	Weight Oz.
PL-10	PHOTOFLASH	1:30	2 μ H	1 μ H	.2	115	6-8KV	1/2	3/4		1/2
PL-11	PHOTOFLASH	1:30	15 μ H	1.5 μ H	.2	115	10-12KV	1/2	3/4		1/2
PL-20	SCR TRIGGER	1:1	200 μ H	8 μ H	1.5	1.5	2000 V μ Sec	3/8	3/4		1
PL-21	SCR TRIGGER	1:1:1	200 μ H	8 μ H	1.5	1.5	2000 V μ Sec	3/8	3/4		1
PL-22	SCR TRIGGER	2:1:1	200 μ H	15 μ H	1.0	2	2000 V μ Sec	3/8	3/4		1
PL-30	SCR TRIGGER	1:1:1	7.5 μ H	90 μ H	2.5	2.5	130 V μ Sec	.562	.562	.450	1/2
PL-31	SCR TRIGGER	1:1	7.5 μ H	90 μ H	2.5	2.5	130 V μ Sec	.562	.562	.450	1/2
PL-32	SCR TRIGGER	2:1	7.5 μ H	100 μ H	2.5	1.8	130 V μ Sec	.562	.562	.450	1/2
PL-33	SCR TRIGGER	2:1:1	7.5 μ H	100 μ H	2.5	1.2	130 V μ Sec	.562	.562	.450	1/2
PL-34	SCR TRIGGER	5:1	7.5 μ H	115 μ H	2.5	1.3	130 V μ Sec	.562	.562	.450	1/2

VR-30Z For photoflash applications from 115V-60 cycle line or 4 volt-180 cy. vibrator to 350V RMS @ 14 ma.

H W D MW 2 1/8 3/8 2 1/8 2 3/8 1 1/2 lbs.

PULSE / blocking oscillator type

Type No.	Pulse Voltage per Winding	Pulse Duration— μ Sec.	Maximum Duty Ratio	Load Impedance—Ohms	Case Dimensions H	D
PL-4	100-100	.54 to .66	.01	500	3/8	1 1/2
PL-5	100-100-100	.36 to .54	.01	2000	1 1/8	1 1/2
PL-6	100-100-100	.36 to .54	.01	2000	3/4	1 1/8

PULSE / high speed low power / ferrite toroidal core

Type No.	Turns Ratio	Pulse Width μ Sec.	Rise Time μ Sec.	Repetition Rate	Suggested Load Ohms	Output Volts	Primary Inductance	Leakage Inductance	Utah or Equivalent	Figure
PL-80H	1-1	.07	.03	1-2 Mc	200	15	125 μ H	12 μ H	X80H	10
PL-80E									X80E	13
▲ PL-81H	2-1	.07	.03	1-2 Mc	200	20	65 μ H	15 μ H	X81H	10
▲ PL-81P									X81P	9
▲ PL-81E									X81E	13
▲ PL-82H	3-1	.08	.03	1-2 Mc	100	15	160 μ H	15 μ H	X82H	10
▲ PL-82P									X82P	9
▲ PL-82E									X82E	13
PL-83H	4-1	.08	.03	1-2 Mc	100	15	180 μ H	20 μ H	X83H	10
PL-83P									X83P	9
▲ PL-83E									X83E	13
PL-84H	5-1	.08	.03	1-2 Mc	100	15	200 μ H	2 μ H	X84H	10
PL-84E									X84E	13

PULSE / low speed low power / silicon core

Type No.	Mil. Type	Pulse Voltage per Winding	Pulse Duration— μ Sec.	Maximum Duty Ratio	Load Impedance—Ohms	DC Resistance			Utah or Equivalent	Figure No. or Case
						1	2	3		
PL-124H	TF1QX36YY	300-300-300	.6 to 5	.002	150	4.1	4.6	5	X-124H-2	Fig. 5
▲ PL-140E	TF1QX36YY	100-400-100	.6 to 5	.002	175	2.05	9.2	2.5	X-140F	Fig. 4
PL-140H									X-140H-2	Fig. 5
PL-140M									X-140H-6	AG ■■
PL-139E	TF1QX36YY	100-100	.3 to 1.5	.002	250	2.05	2.3		X-139F	Fig. 4
PL-139H									X-139H-2	Fig. 5
PL-139M									X-139H-6	AF ■■
PL-146E	TF1QX36YY	300-300	.6 to 5	.002	250	4.1	4.6		X-146F	Fig. 4
PL-146H									X-146H-2	Fig. 5
PL-146M									X-146H-6	AG ■■

▲ Discontinued item, available until stock depleted. ■■ See case chart, page 48. ■ New item.

(7) PINS .040 DIA. PINS TO MATE WITH A 7 PIN MINIATURE TUBE SOCKET

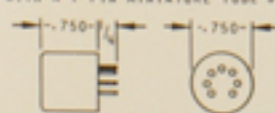


Figure 9

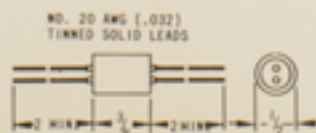


Figure 10

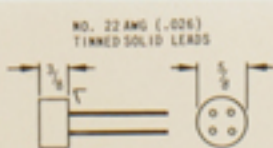


Figure 13



Figure 4

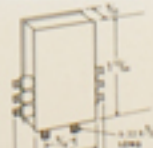


Figure 5



(1) Triad-Utrad Distributor (2) Triad-Utrad OEM (3) Warehouse

ARIZONA, Phoenix 85001

(1) (2) Shefler-Kahn Co. Inc.
2017 N. 7th St., P.O. Box 1587
(602) 258-7893

ARKANSAS, El Dorado 71730

(1) (2) Dick Bellew Sales Co. Inc.
P.O. Box 1285
(501) 863-8325

CALIFORNIA, Sherman Oaks 91403

(1) (2) ZKL Sales, Inc.
14040 Ventura Blvd.
(213) 981-8055

CALIFORNIA, No. Hollywood 91603

(1) Replacement line only
(3) Jack Carter Associates
11200 Chandler Blvd.
(213) 980-3450

CALIFORNIA, Redwood City 94063

(1) (2) Logan Sales Co.
463 Brewster Avenue
(415) 369-6726

COLORADO, Denver 80222

(1) (2) McCloud & Raymond Co.
2020 So. Pontiac Way
(303) 756-1589

FLORIDA, Winter Park 32789

(1) Lynch Gentry Associates, Inc.
3470 Bowman Dr.
(305) 671-7649

FLORIDA, St. Petersburg 33733

(1) Lynch Gentry Associates, Inc.
P.O. Box 13248
(813) 342-8731

GEORGIA, Atlanta 30324

(1) Murphy & Cota
500 Plasamour Drive N.E.
(404) 875-2525

ILLINOIS, LaGrange Park 60525

(1) (2) Harry Bertsch
530 N. Waiola Ave.
(312) 354-7272

INDIANA, Fort Wayne 46802

(1) New/Era Sales, Inc.
418 E. Berry St.
(219) 432-1164

INDIANA, Huntington 46750

(2) Triad-Utrad
305 N. Briant St.
(219) 356-7100

INDIANA, Indianapolis 46220

(1) New/Era Sales, Inc.
5335 N. Tacoma Ave., No. 12
(317) 257-7333

IOWA, W. Des Moines 50265

(1) (2) Thomas L. Dowell, Inc.
524 34th Street
(515) 225-1620

KANSAS, Overland Park 66204

(1) (2) Thomas L. Dowell, Inc.
8151 Marty
(913) 649-6069

LOUISIANA, Kenner 70062

(1) (2) Dick Bellew Sales Co. Inc.
62 Lisa Ave.
(504) 729-4550

MARYLAND, Baltimore 21228

(1) (2) Burgin-Kreh Associates, Inc.
1012 Ingleside Ave.
(301) 788-5200

MASSACHUSETTS, Bedford 01730

(1) (2) Dan Greene Organization, Inc.
P.O. Box 290
(617) 275-6400

MICHIGAN, St. Clair Shores 48081

(1) (2) Jack M. Thorpe Co.
28915 Harper Ave.
(313) 779-6363

MINNESOTA, Minneapolis 55405

(1) Clark R. Gibb Co.
1311 W. 25th St.
(612) 377-1200

MISSOURI, Shrewsbury 63119

(1) (2) Thos. L. Dowell, Inc.
17 St. Charles Place
(314) 647-7067

N.J., Englewood Cliffs 07632

(2) Talcomp, Inc.
19 Sylvan Ave.
(201) 947-5038

NEW MEXICO, Albuquerque 87108

(1) (2) Shefler-Kahn Co. Inc.
405 Ortiz N.E., P.O. Box 8342
(505) 265-7077

NEW YORK, N. Syracuse 13212

(1) (2) Advanced Components
P.O. Box 248, S. Bay Rd.
(315) 699-2671

NEW YORK, Rockville Centre 11571

(1) Willgold Electronic Sales Corp.
100 N. Village Ave.
(516) 764-4022

NORTH CAROLINA,

Burlington 27215

(1) Murphy & Cota
3019 Forestdale Dr.
(919) 584-1577

OHIO, Cincinnati 45238

(1) (2) Frank E. Kahsar Sales
5229A Glenway Avenue
(513) 471-9011

OHIO, Hudson 44236

(1) (2) Frank Kahsar Sales
47 W. Case Drive
(216) 653-6808

OREGON, Portland 97221

(1) (2) Jas. J. Backer Co.
2035 S.W. 58th St.
(503) 297-3776

PENNSYLVANIA,

Ft. Washington 19034

(1) (2) Kirk-Sandell Associates
1260 Virginia Drive
(215) 643-2100

PENNSYLVANIA, Pittsburgh 15235

(1) Trymax Co.
201 Penn Center Blvd.
(412) 823-8400

TEXAS, Dallas 75234

(2) Ammon & Rizos Co.
P.O. Box 34555
(214) 233-5591

TEXAS, Richardson 75080

(1) (3) Branum-Duke Sales, Inc.
747 Sherman St.
(214) AD1-6148

WASHINGTON, Seattle 98119

(1) (2) Jas. J. Backer Co.
221 W. Galer St., P.O. Box 9327
(206) 285-1300

CANADA, Scarborough, Ont.

(1) (2) Lake Engineering Co. Ltd.
123 Manville Road
(416) 751-5980

CANADA, Vancouver 9, B. C.

(1) Electrotec Marketers, Ltd.
1624 W. Third Ave.
Regent 6-6377

EXPORT

(Europe)

(1) (2) Litton Precision Products
International
95 High St.
Slough, Buckinghamshire
England

(Puerto Rico)

(1) (2) Saliss Co.
P.O. Box 2307
San Juan, Puerto Rico 00936

**(South & Central America
Caribbean, Australia)**

(1) Minthorne International
2200 Shames Drive
Westbury, N.Y. 11590
(516) 334-3303



TRIAD-UTRAD

Distributor Services

Litton

305 North Briant Street, Huntington, Indiana 46750