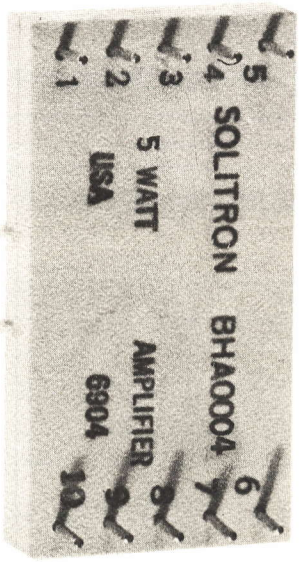
5 WATT CLASS B AUDIO AMPLIFIER

BHA-0004

FEATURES:

- Rated output power 5W (RMS) @ $T_C \leq 100°$ C
- V_{SUPPLY}= 14 V
- Low cost thick film fabrication
- Frequency response: 25 Hz to 15 KHz
- No pre amp required
- Minimum of external components required



The Solitron BHA0004 is a class B complementary audio amplifier that employs thick film cermet construction to assure uniform performance, optimum reliability and low function cost.

High gain and high input impedance eliminate the necessity for preamplifiers in most applications. Three external capacitors provide all the compensation required for stable operation. Preset idle current and center voltage provide ideal operation over a wide range of load conditions.

Applications for the BHA0004 are primarily automotive and marine (the amplifier being optimized for a supply voltage of 14 volts), however, its extensive range of operating conditions permits utilization in Hi-Fi amplifiers, record players, public address systems, intercoms and musical instruments. Packaging of the 5 Watt amplifier conforms to the Standard Solitron Modular Configuration.

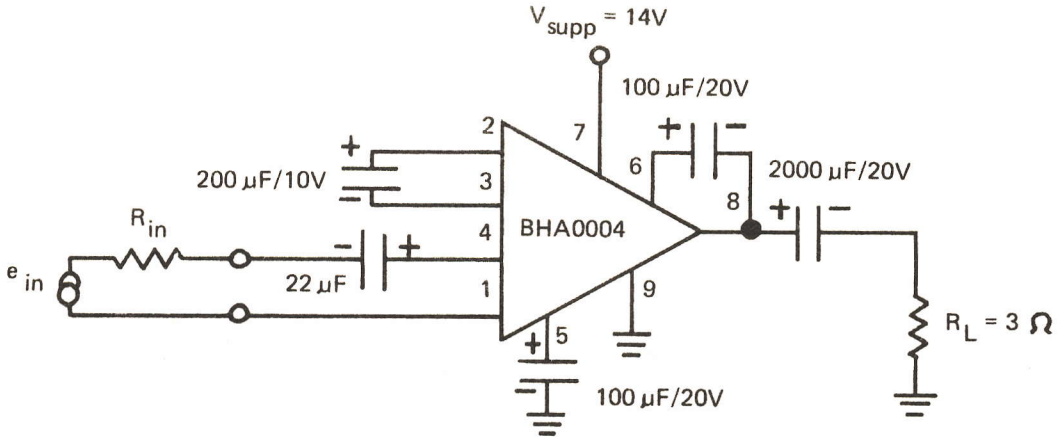


FIGURE 1

solitron devices, inc. 256 Oak Tree Road, Tappan, N. Y. 10983 (914) 359-5050 • TWX 710-576-2654

MAXIMUM RATINGS AT $T_C = 25°C$

Maximum Voltage Pin 7 to 9	V_{7-9}	20.0 Volts
Maximum Current Pin 7	I_7	0.75 Amps
Power Dissipation	P_T	15.0 Watts
Operating Case Temperature	T_C	−30 to +100°C
Storage Temperature	T_{STG}	−55 to +125°C

TERMINOLOGY

CURRENTS: I_k — means a current is entering terminal k. (k = 1,2,3 etc.)
$-I_k$ — means a current is leaving terminal k.

VOLTAGES: $V_{n=m}$ — means a positive voltage is applied to terminal n with terminal m as the reference (n = 1,2,3 etc;m = 1,2,3 etc;n / m)

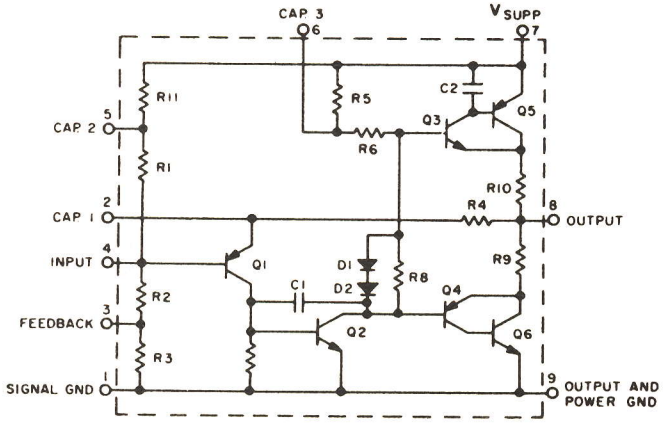
ELECTRICAL CHARACTERISTICS

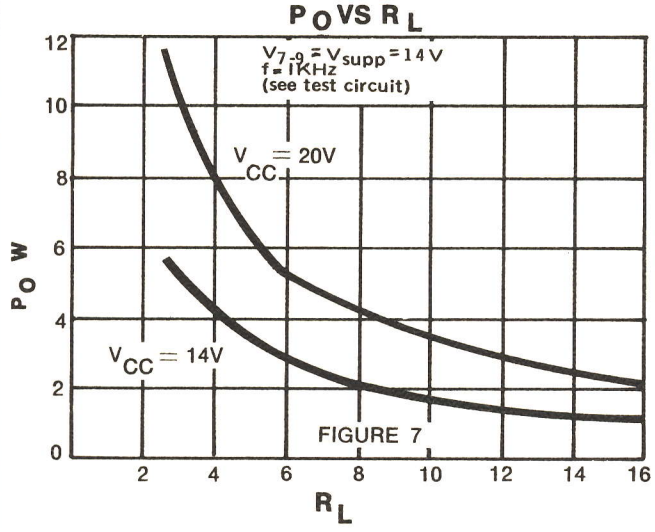
ELECTRICAL CHARACTERISTICS AT 14V SUPPLY VOLTAGE AND $T_C \leq 100°C$ TO BE MEASURED IN TEST CIRCUIT OF FIGURE 1 (NOTE 1).

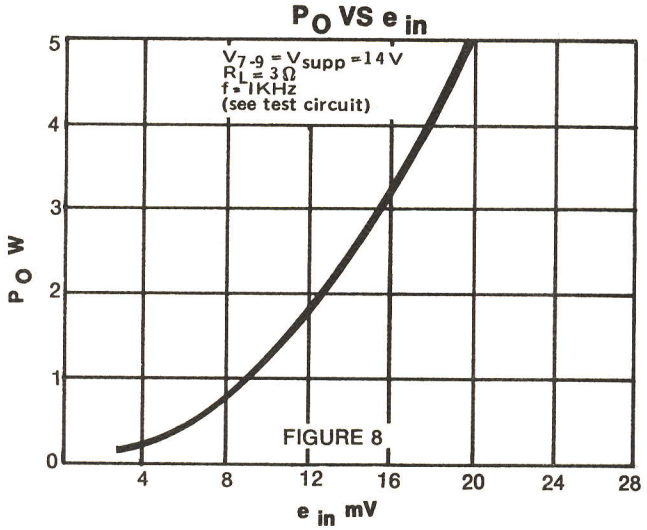
PARAMETERS	SYMBOL	MIN.	TYP.	MAX.	UNITS
Power Gain at P_o = 5 W (RMS) f = 1 KHz	G_p	80	85		db
$G_p = 10 \log \frac{P_o}{P_{in}}$ Input Voltage for P_o = 5 W at f = 1 KHz.	V_{4-1}		20		mV (RMS)
Frequency Response (−3 db at P_o = 5 W) (See Fig. 3)			25 to 15K		Hz
Quiescent Current	I_7		20		mA
Efficiency for P_o = 5 W (f = 1 KHz)	n		65		%
Distortion at f = 1 KHz and P_o = 5 W (See Figs. 4 & 5)				2	%
Input Impedance	Z_{in}		20		KΩ
Output noise voltage Input impedance = 600Ω Load impedance = 3Ω f = 25 Hz to 15 KHz (See Fig. 9)			2		mV
Thermal Resistance Junction to Case	θ_{J-C}		4		°C/W
Thermal Resistance Case to Ambient	θ_{C-A}		20		°C/W

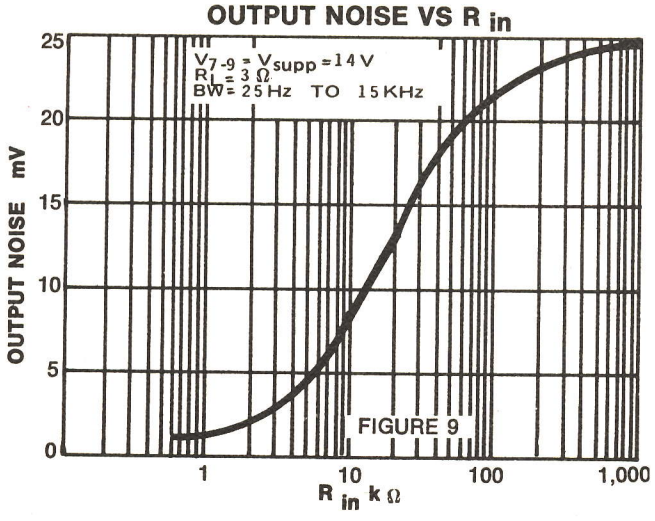
NOTE 1: Performance is dependent on the external components that are used in the test circuit.

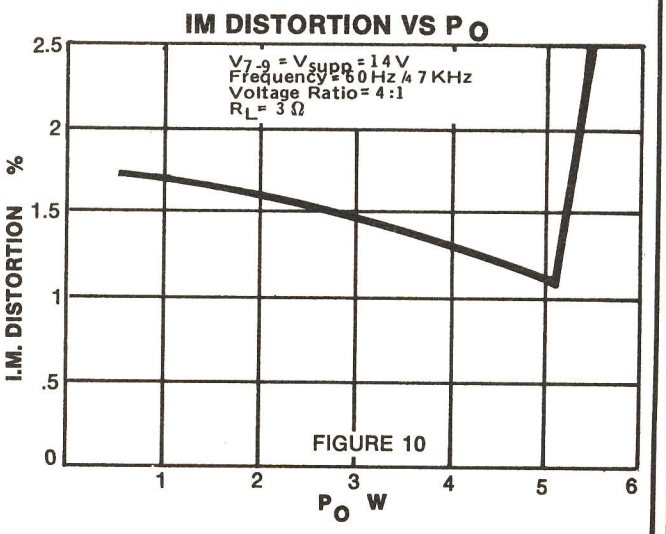
EQUIVALENT CIRCUIT











CHARACTERISTIC CURVES

10 Log $\frac{Po}{5W}$ VS f

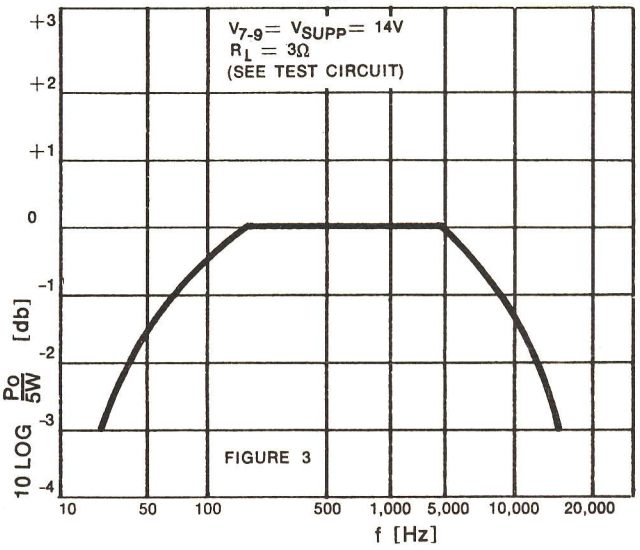


FIGURE 3

THD VS f

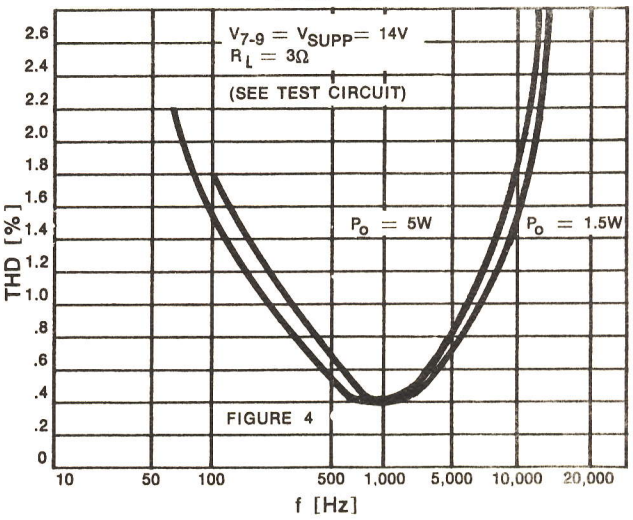


FIGURE 4

THD VS P_0

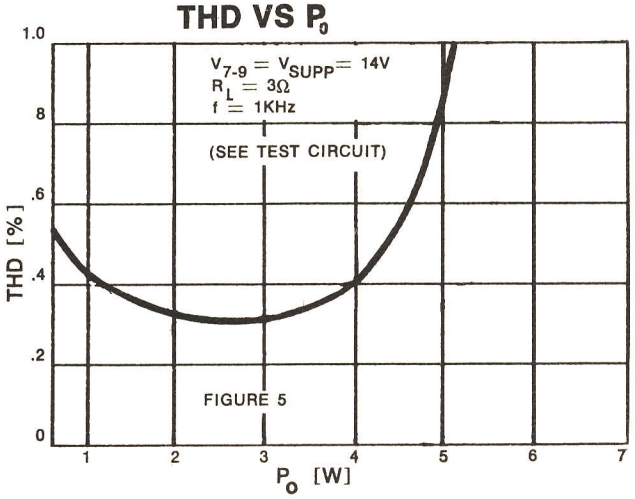


FIGURE 5

P_o VS V_{7-9}

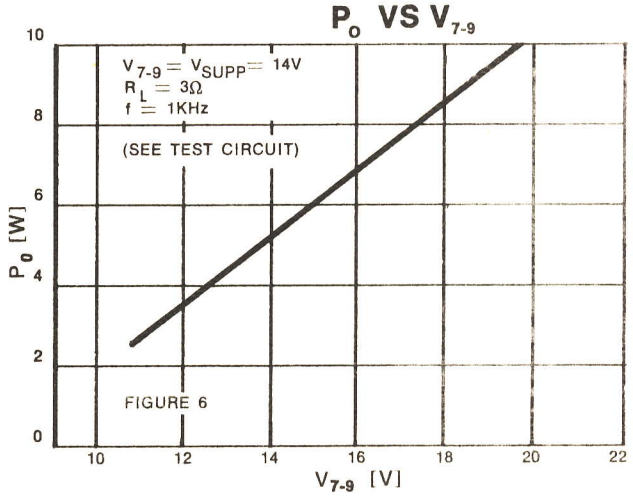
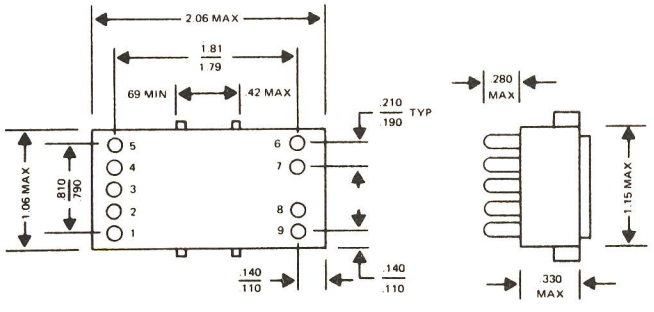
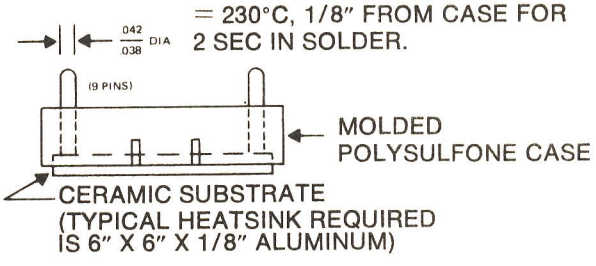


FIGURE 6

STANDARD PACKAGE DESIGN





FOR SOLDERING IRON MAX. TEMP. = 370°C (700°F) 1/8" FROM CASE FOR 5 SEC.
FLOW SOLDERING MAX. TEMP. = 230°C, 1/8" FROM CASE FOR 2 SEC IN SOLDER.