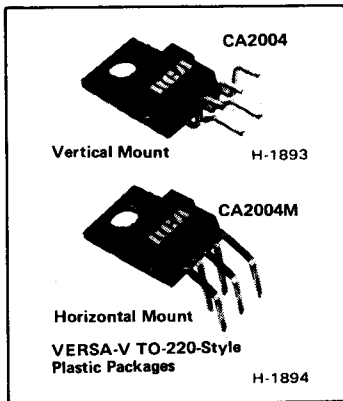


12-Watt Audio Power Amplifier

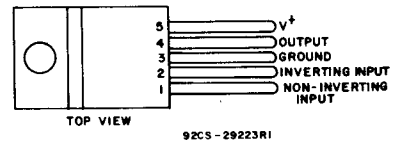


FEATURES:

- *VERSA-V 5-lead plastic TO-220-style package (insulation not required)*
- *Thermal overload protection*
- *Drives load impedance as low as 3.2Ω*
- *Deflection amplifier capability*
- *Output current capability of up to 3.5 A*
- *Few external components*

The RCA-CA2004 is a monolithic silicon class B audio power amplifier designed for driving loads as low as 3.2Ω. It provides a high output current capability (up to 3.5A), and very low harmonic and cross-over distortion.

The CA2004 is supplied in a 5-lead plastic TO-220-style VERSA-V package. All leads (except term. 3) are electrically insulated from the mounting flange, eliminating the need for insulating hardware. The VERSA-V package is available with two lead configurations. The CA2004 has a vertical-mount lead form, and the CA2004M has a horizontal-mount lead form.



TERMINAL ASSIGNMENT

MAXIMUM RATINGS, Absolute-Maximum Values:

DC SUPPLY VOLTAGE	28 V
OPERATING SUPPLY VOLTAGE	26 V
OUTPUT PEAK CURRENT:	
REPETITIVE	3.5 A
NON-REPETITIVE	4.5 A
POWER DISSIPATION, P _D at T _A = 90° C	15 W
THERMAL RESISTANCE, JUNCTION TO CASE	4° C/W
AMBIENT-TEMPERATURE RANGE:	
OPERATING	0 to +125° C
STORAGE	-40 to +150° C
LEAD TEMPERATURE (DURING SOLDERING):	
At distance 1/16 ± 1/32 inch (1.59 ± 0.79 mm) from case for 12 s max.	260° C

Linear Integrated Circuits

CA2004, CA2004M

ELECTRICAL CHARACTERISTICS at $T_A = 25^\circ\text{C}$, $V^+ = 24\text{ V}$
 Unless otherwise specified (See Figure 1)

CHARACTERISTIC	TEST CONDITIONS	LIMITS			UNITS	
		Min.	Typ.	Max.		
Supply Voltage, V^+		8	—	26	V	
Quiescent Output Voltage, V_O	Measure at Term. 4	11	12	13	V	
Quiescent Drain Current, I_D	Measure at Term. 5	—	40	100	mA	
Output Power, P_O	THD = 10%, A = 40 dB, f = 1 KHz	$R_L = 4\ \Omega$	10	12	—	W
		$R_L = 8\ \Omega$	—	8	—	
Input Saturation Voltage, $V_{I(RMS)}$		400	—	—	mV	
Input Resistance, R_I (Term.1)	f = 1 KHz	70	150	—	K Ω	
Open-Loop Voltage Gain, A_{OL}	$R_L = 8\ \Omega$, f = 1 KHz	—	80	—	dB	
Closed-Loop Voltage Gain, A	$R_L = 8\ \Omega$, f = 1 KHz	39.5	40	40.5	dB	
Input Noise Voltage, e_N	Freq. Resp. = 40 to 15,000 Hz (-3 dB)	—	4	—	μV	
Power Supply Rejection Ratio, PSRR	$R_L = 4\ \Omega$, A = 40 dB, $R_g = 10\ \text{K}\Omega$, f _{ripple} = 100 Hz, $V_{\text{ripple}} = 0.5\ \text{V}$	30	35	—	dB	

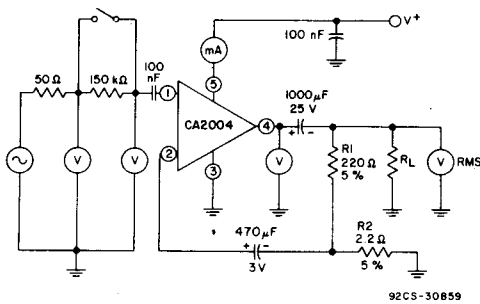


Fig. 1 — Test circuit.

Thermal Shut-Down

Thermal shut-down occurs if the output overloads (temporary or permanent), the ambient temperature is excessive, or the junction temperature is excessive. None of these conditions results in device damage. They merely cause a temporary automatic reduction of output power and drain current.

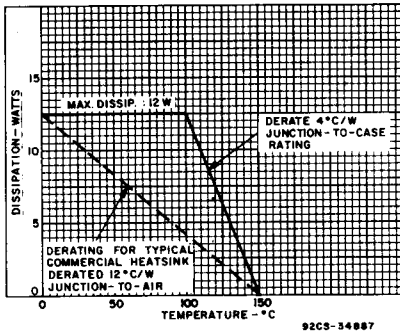


Fig. 2 — Derating curve

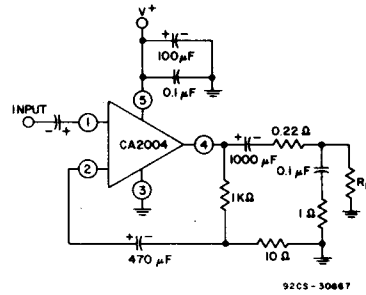


Fig. 3 — Typical application.

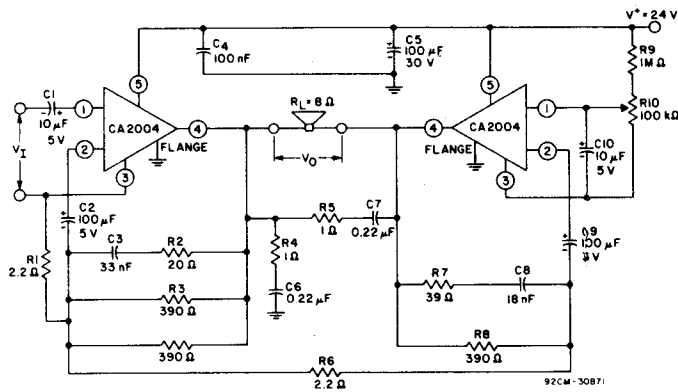


Fig. 4 — 25 W circuit-bridge application.