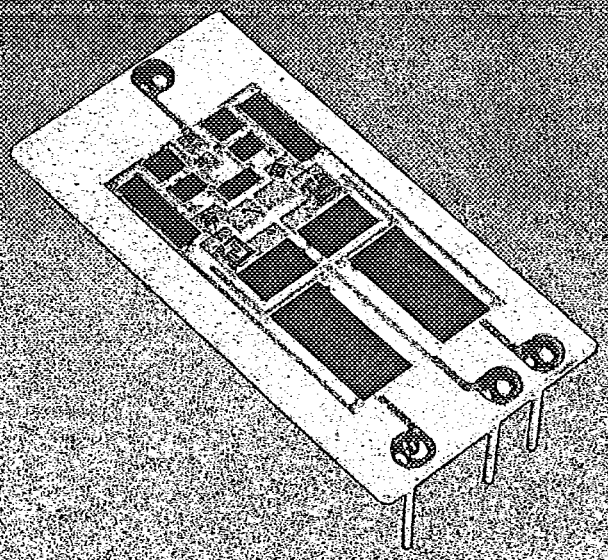
White Technology, Inc.

A wholly owned subsidiary of Bowmar Instrument Corporation

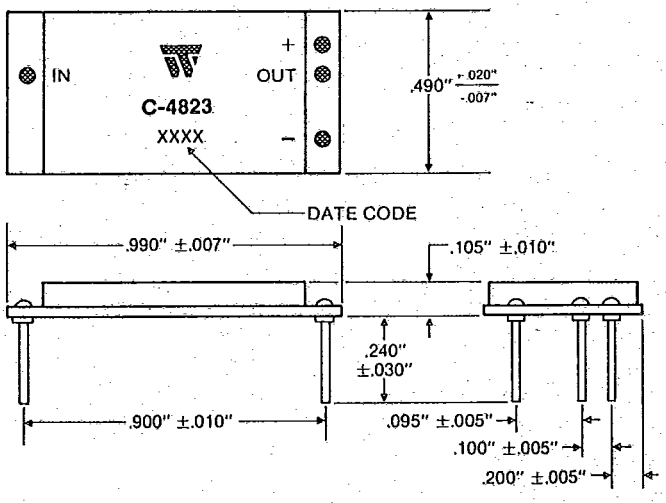
WIDE BAND POWER AMPLIFIER MODEL C-4823



FEATURES

- Operates at 200°C
- Unity Voltage Gain
- High Voltage Swing
- Wide Bandwidth
- Rugged Hybrid Construction
- Improved Direct Replacement for Beckman 823

CASE OUTLINE



DESCRIPTION

The C-4823 power amplifier is a thick film, miniature device, with a bandwidth spanning dc to 8MHz. The low impedance output permits driving low impedance loads to within 4 volts of each power supply voltage. The unity voltage gain permits power amplification without affecting compensation networks or other voltage sensitive circuit components. The output will withstand a one-time short circuit of less than ten seconds duration without damage. The circuit uses a complementary symmetry driver and compound two-stage amplifier for each half of the circuit. Voltage output follows voltage input and the transition from class A to class B operation is accomplished smoothly.

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4246 EAST WOOD STREET • PHOENIX, ARIZONA 85040
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WIDE BAND POWER AMPLIFIER—C-4823

TYPICAL PERFORMANCE DATA

Operating Voltage: ±10 to 30 Volts
Standby Current: Approx. 5.0mA
Output Current: ±500mA
Input Impedance: 4000 Ohms
Gain: 0 ±0.1 dB
Bandwidth: 8MHz
Step Response: 15nsec
Total Harmonic Distortion: Less Than 1%
Output Impedance: 10 Ohms

ABSOLUTE MAXIMUM RATINGS

Supply Voltage: ±30V
Input Voltage: ±30V
Output Voltage: ±26V
Short Circuit Output Current (Operating): ±500mA
Power Output: 5.0 Watts
Temperature Range: (Case Temp.) -55° C to +200° C

ELECTRICAL CHARACTERISTICS

V_{CC} = +15V, V_{EE} = -15V, T_A = -55° C to +200° C Unless Otherwise Specified

CHARACTERISTIC	SYMBOL	MINIMUM	TYPICAL	MAXIMUM	UNITS
Positive Power Supply Voltage Range	$+V_{CC}$	+10		+30	Volts
Negative Power Supply Voltage Range	$-V_{EE}$	-10		-30	Volts
Standby Current (V_{in} = 0 No Load) T_A = 25° C	I_B			5.0	mA
Standby Current (V_{in} = 0 No Load) T_A = 200° C				30	mA
Maximum Supply Current ($V_{in} = V_{CC} = \pm 30$. Output Shorted for 10 Seconds Max. Duration)	I_{SC}			1.2	Amps
Input Voltage Range	V_{IR}	V_{EE}		V_{CC}	Volts
Input Resistance	R_I	4000			Ohms
Input Capacitance	C_I		15	20	pF
Input Current Overscale (V_{in} in Volts)	I_I			V_{in}/4K*	Amps
Offset (Input/Output) $V_{in} = 0 + V_{CC} = -V_{EE} \pm 20\%$	V_{IO}		±0.02	±0.1	Volts
Output Voltage, Operating	V_O			$\pm(V_{CC} - 4)$	Volts
Output Current Capability, Operating	I_O	$\frac{V_{CC} - 1}{R_L + 30}$			Amps
Load Resistance, Operating	R_L	$\frac{3V_O}{V_{CC} - V_O - 1}$			Ohms
Output Impedance, Resistance. . . Ohms	R_O		9.0	10	Ohms
Output Impedance, In Series with. . . μh	L_O		0.8	10	μh
Power Dissipation at +25° C in Free Air	P_D			1.6	Watts
Power Dissipation at +200° C in Free Air	P_D			0.7	Watts
Power Dissipation at +25° C Case Temperature	P_D			4.0	Watts
Power Dissipation at +200° C Case Temperature	P_D			1.0	Watts

*Maximum input current during short circuited condition is V_{CC}/1K amps.

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WIDE BAND POWER AMPLIFIER—C-4823

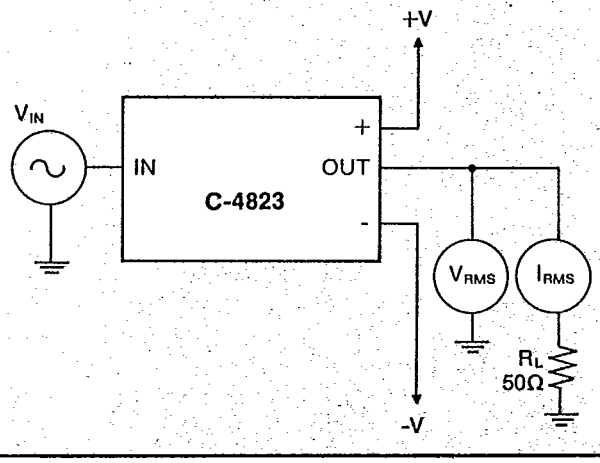
DYNAMIC CHARACTERISTICS

V_{CC} = +15V, V_{EE} = -15V, T_A = -55°C to +200°C Unless Otherwise Specified

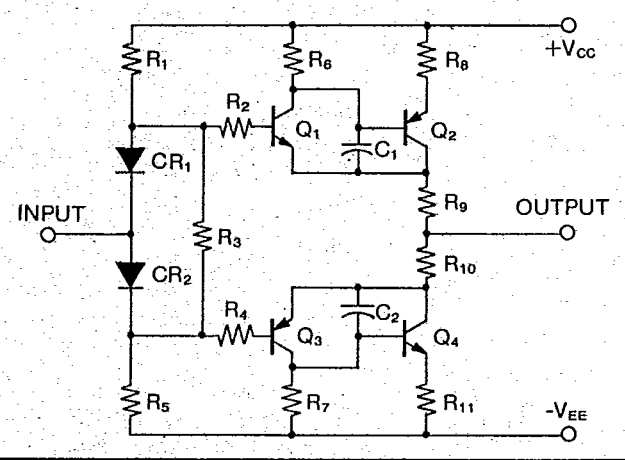
CHARACTERISTIC	SYMBOL	MINIMUM	TYPICAL	MAXIMUM	UNITS
Gain Operating (No Load)	A_{VOL}	-0.1	0	+0.1	dB
Small Signal Bandwidth f at 3 dB point. V_{In} = 0.2 V_{PEAK}	B_W	4.0	8.0		MHz
Total Harmonic Distortion f = 1KHz V_{In} = ±10V, R_L = 50 Ohms	T_{HD}		0.7	1.0	%
Step Response** 10%-90% 10V Step	t_S			100	nsec

** Output load capacitance is limited by the slewing rate desired or by the closed loop time constant introduced by the capacitance and the intrinsic 9.0 ohm resistance.

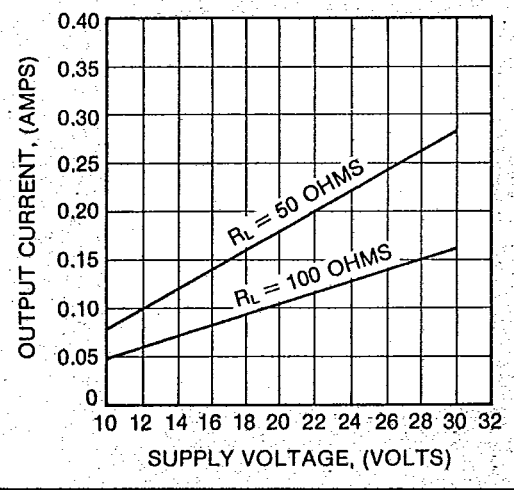
TEST CIRCUIT



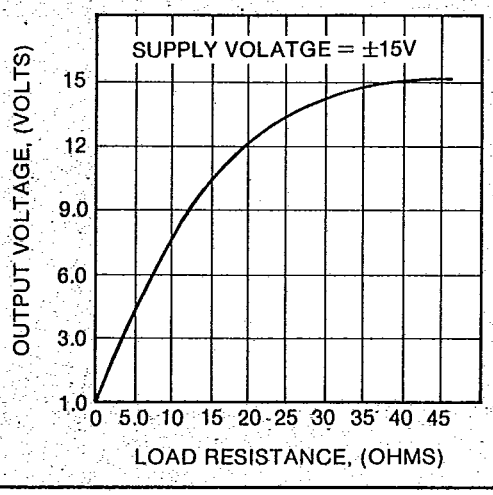
SCHEMATIC DIAGRAM



SUPPLY VOLTAGE vs LOAD RESISTANCE



OPERATING LOAD RESISTANCE



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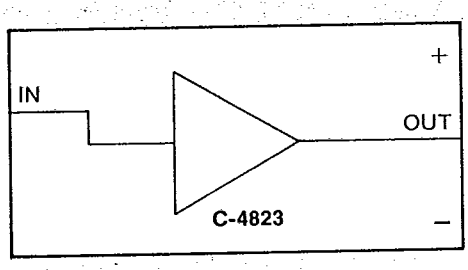
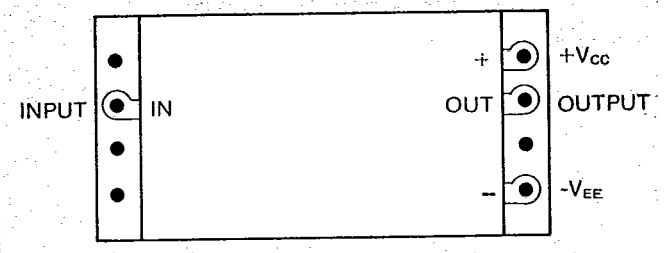
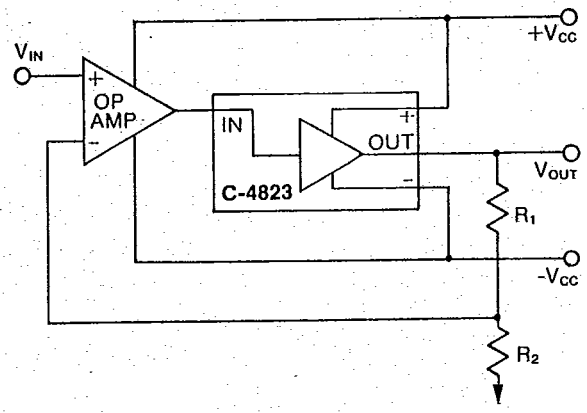
BLOCK DIAGRAM

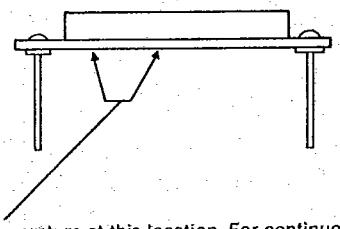


CONNECTION DIAGRAM



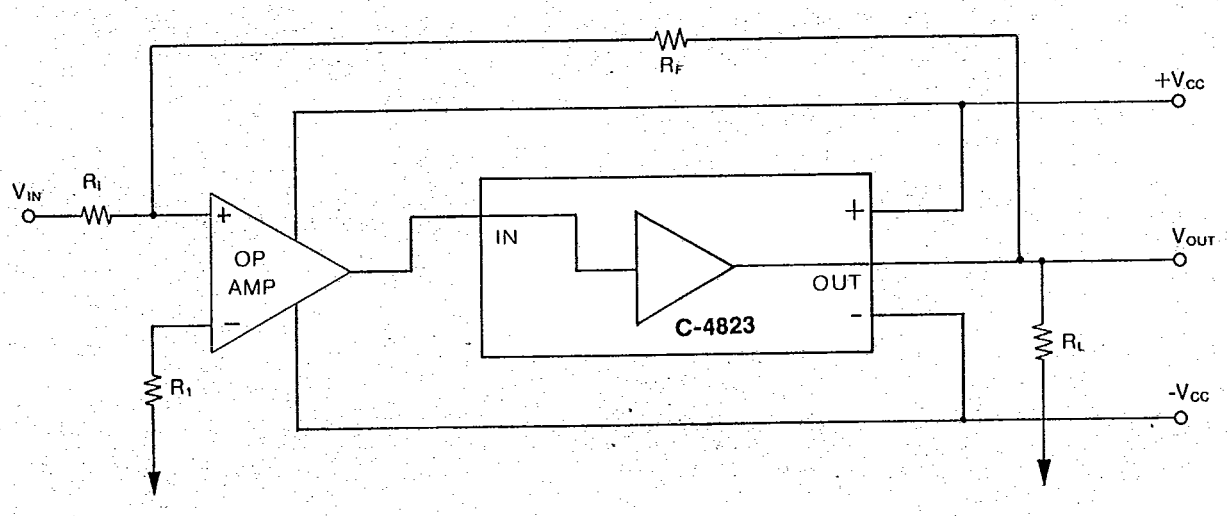
TYPICAL CIRCUIT—POTENTIOMETRIC





TC = Case temperature at this location. For continuous use at maximum ratings, use IREC #LBOC1-61 heatsink or equivalent.

TYPICAL OPERATIONAL CIRCUIT



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