FUNCTIONAL SPECIFICATIONS

(Typical at +25°C, ±15V dc supply, unless otherwise noted.)

INPUT CHARACTERISTICS	MIN.	TYP.	MAX.	UNITS
Common Mode Voltage Range ①	—	±5	—	Volts
Maximum Input Voltage, no damage	—	±18	—	Volts
Differential Input Impedance	3	30	—	Meg
Input Bias Current	—	1	4	nA
Input Offset Current	—	0.5	8	nA
Input Offset Voltage	—	0.5	3	mV
OUTPUT CHARACTERISTICS				
Output Voltage	±10	—	—	Volts
Output Current, S.C. protected	±25	±50	—	mA
Stable Capacitative Load	—	100	—	pF
Output Impedance	—	25	—	Ω
PERFORMANCE				
DC Open Loop Gain		10^6	—	V/V
Input Offset Voltage Drift				
0°C to + 70°C	—	1	5	µV/°C
-55°C to +125°C	—	5	10	µV/°C
Input Bias Current Drift				
0°C to + 70°C	—	-20	—	pA/°C
-55°C to +125°C	doubles every 10°C			
Input Voltage Noise ②				
0.01 Hz to 1 Hz	—	15	—	µVp-p
100 Hz to 10 kHz	—	1.6	—	µVrms
1 Hz to 10 MHz	—	5.2	—	µVrms
Input Current Noise ④				
0.01Hz to 10Hz	—	5	25	µVp-p
100Hz to 10kHz	—	1	5	µVrms
10Hz to 1MHz	—	20	100	µVrms
Power Supply Rejection Ratio	80	—	—	dB
DYNAMIC CHARACTERISTICS				
Gain Bandwidth Product	100	130	—	MHz
Slew Rate, positive going	—	1000	—	V/µs
Slew Rate, negative going	—	1800	—	V/µs
Full Power Frequency				
(20V peak-to-peak)	—	16	—	MHz
Settling Time				
10V step to 1%[3]	—	70	—	ns
10VsteptoO.1%[3]	—	100	—	ns
10VsteptoO.01%[3]	—	—	200	ns
Overload Recovery Time	—	10	—	µs
POWER REQUIREMENTS				
Voltage, rated performance	—	±15	—	Vdc
Voltage, operating	± 10	—	± 18	Vdc
Quiescent Current	—	22	33	mA

Footnotes:

① dc only

② - 3 dB Single-pole bandwidth

③ 1k Input and feedback resistors, 2.4 pF feedback capacitor

PHYSICAL/ENVIRONMENTAL	MIN.	TYP.	MAX.	UNITS
Operating Temp. Range				
AM-500GC	0	—	+70	°C
AM-500MC	0	—	+70	°C
AM-500MM, MM-QL	–55	—	+125	°C
Storage Temp. Range	–55	—	+125	°C
Package Type	14-pin ceramic			
Pins	0.010xO.018˝ Kovar			
Weight	0.09 ounces (2.5 grams)			

TECHNICAL NOTES

1. The circuit design shows the connection of the AM-500 series for fast settling operation with a closed loop gain of -1. It can be used for fast settling at closed loop gains up to -10. The equivalent resistance seen by the summing junction should be 500 ohms or less. For gains larger than - 1 use an input resistor of 500 ohms and pick a feedback resistor for the required closed loop gain (1k for -2, 1.5k for -3, etc.).

2. A small feedback capacitor should be used across the feedback resistor. Determine C in nanofarads from the following formula:

$$C = \frac{1 + |G|}{0.816Rf}$$

where G is closed loop gain and Rf is in kilohms.

3. Summing point leads must be kept as short as possible. Input and feedback resistors should be soldered close to the body of the resistor directly to the summing point (pin 4). Summing point capacitance to ground must be kept very low.

4. Low output impedance power supplies should be used with 1 µF tantalum bypassing capacitors at the amplifier supply terminals. There are internal 0.03 µF ceramic capacitors in the amplifier.

5. Although these amplifiers are inverting mode only, a dc voltage in the range of ± 5V may be applied to the positive input terminal for offsetting the amplifier.

6. For interrupted power applications, apply power to the AM-500 three (3) seconds before operating the device.

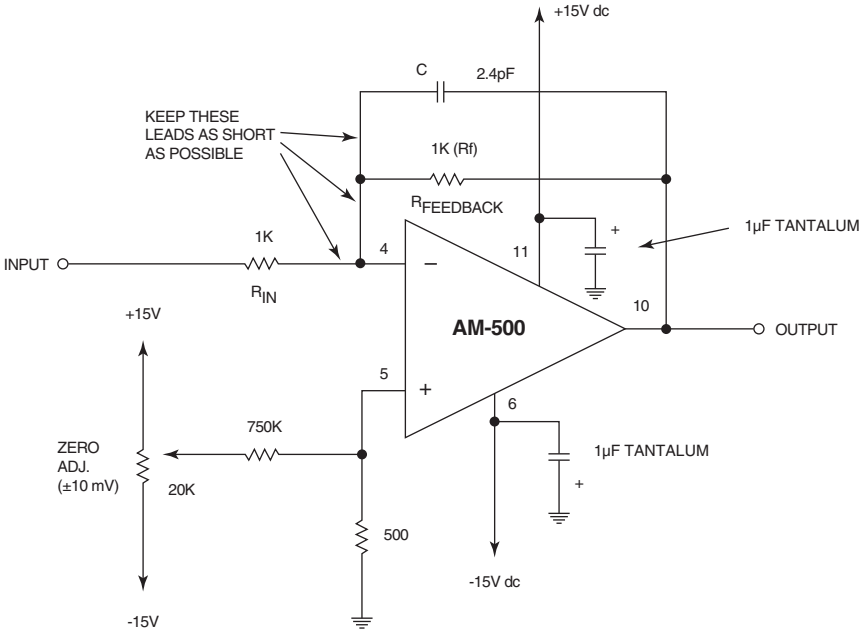


Figure 2. Connection for Fast Settling with Gain of -1

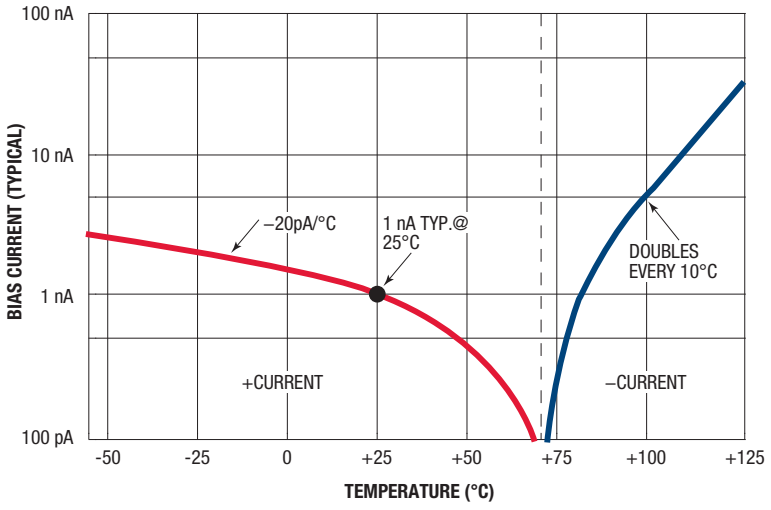
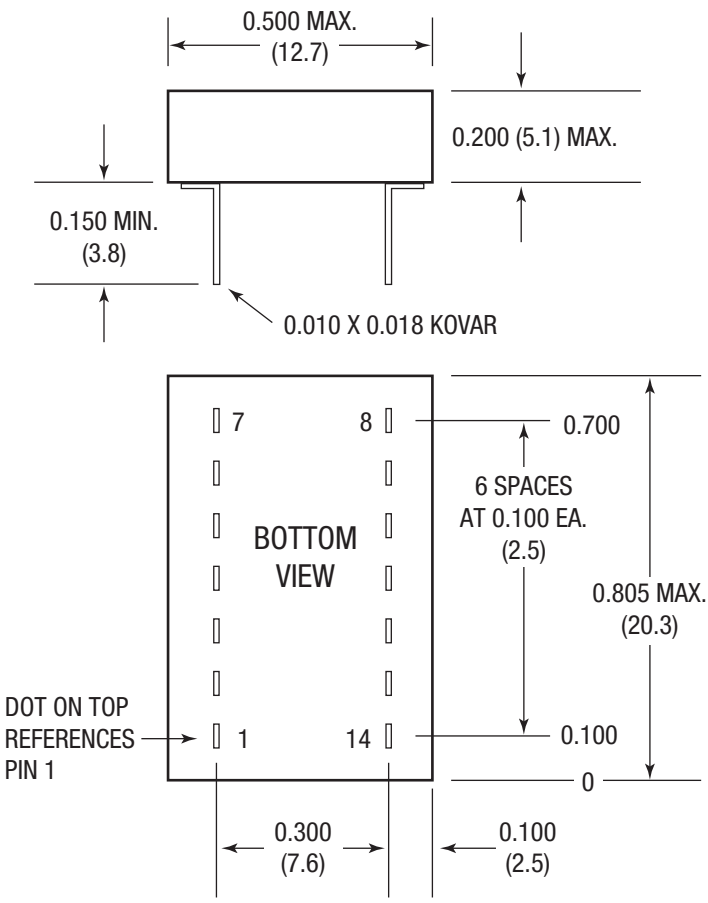


Figure 3. Input Bias Current vs. Temperature

MECHANICAL DIMENSIONS - INCHES (mm)



NOTE: PINS HAVE 0.025 INCH STANDOFF FROM CASE

ORDERING INFORMATION		
MODEL NUMBER	**OPERATING TEMP. RANGE**	**SEAL**
AM-500GC	0 to +70°C	Epoxy
AM-500MC	0 to +70°C	Herm.
AM-500MM	–55 to +125°C	Herm.

For devices compliant to MIL-STD-883, consult the factory.

DATEL is a registered trademark of
Murata Power Solutions, Inc.
11 Cabot Boulevard, Mansfield, MA 02048-1151 USA
ITAR and ISO 9001/14001 REGISTERED

www.datel.com • e-mail: help@datel.com