



Wide Bandwidth, Fast Settling Monolithic Operational Amplifiers AM-450 & AM-460 Series

FEATURES

- 120V/ μ sec. Slew Rate
- 100 MHz Gain Bandwidth
- 200 nsec. Settling to 0.1%
- 300 Meg. Input Impedance
- Bipolar Differential Inputs
- 5 nA Input Offset Current

GENERAL DESCRIPTION

Datel-Intersil's AM-450 and AM-460 series bipolar input op amps provide a wide spectrum of capabilities required for high-speed, wide bandwidth signal processing applications. Features available within these two high-performance families include a 100 MHz gain-bandwidth product (AM-462), a 120V/ μ sec slew rate (AM-452), 300 Meg input impedance (AM-460 and AM-462) and 200 nsec settling time to 0.1% of full scale (AM-452).

All models provide a full $\pm 10V$ output at 10 mA and may be operated in non-inverting as well as inverting modes. Other features common to these units are low input offset currents and low input offset voltages as well as common mode rejection ratios typically greater than 90 dB.

The AM-460 devices are bipolar operational amplifiers with very high impedance differential inputs, making them particularly well suited to applications as high speed comparators, wideband active filters and low distortion oscillators.

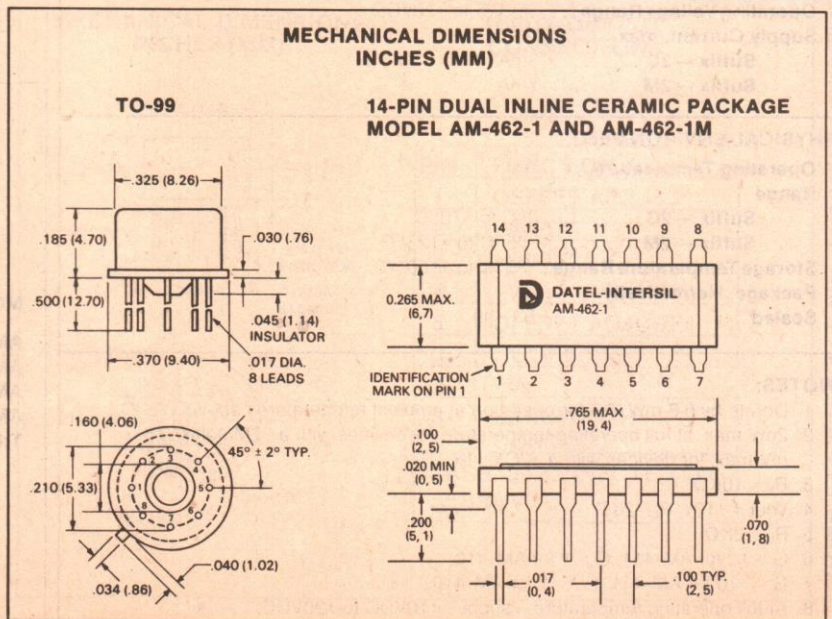
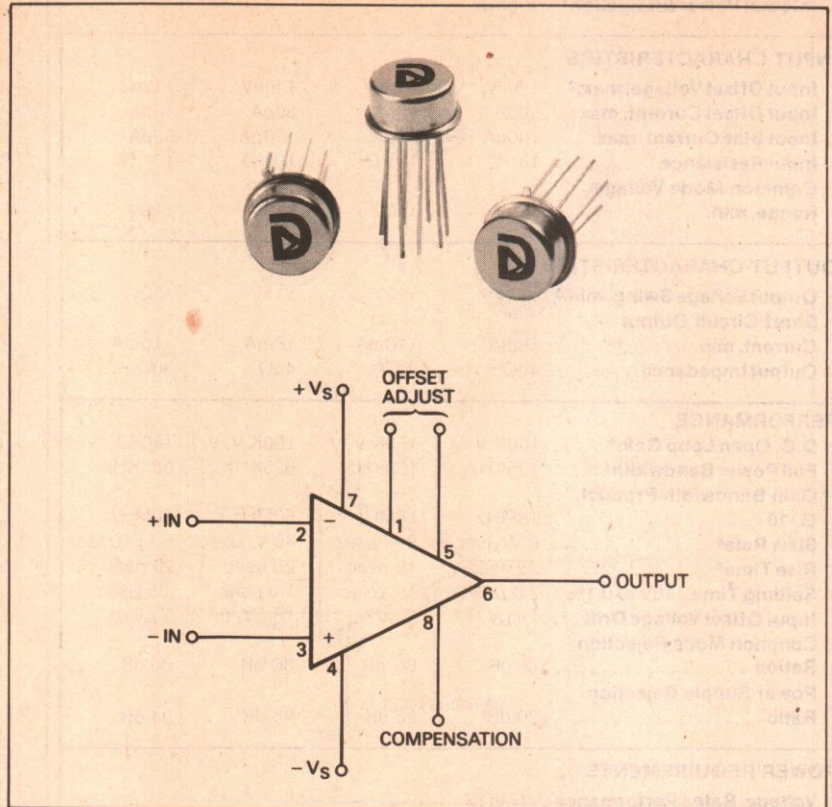
Both AM-450 and the AM-460 series units find many applications as fast acquisition sample and hold amplifiers, D/A output amplifiers, A/D input buffer amplifiers, pulse amplifiers, and fast integrators.

The AM-462-1 and AM-462-1M are packaged in a 14 pin ceramic DIP. All other models are packaged in an 8 lead, hermetically sealed TO-99 package with standard pin out, allowing them to be used easily as pin for pin replacements for general purpose IC operational amplifiers.

All models are available in 0°C to +70°C operating temperature range or in -55°C to +125°C for suffix M models.

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SPECIFICATIONS, AM-450 AND AM-460 SERIES
(Typical @ +25°C, ±15 VDC Supplies, R. + 2K, Unless Otherwise Noted)

	AM-450	AM-452	AM-460	AM-462
MAXIMUM RATINGS				
Power Supply Voltage	±20V	±20V	±22.5V	±22.5V
Differential Input Voltage	±15V	±15V	±12V	±12V
Peak Output Current	50 mA	50 mA	S.C. Prot.	S.C. Prot.
INPUT CHARACTERISTICS				
Common Mode Voltage Range ¹ , min... ..	±10V	±10V	±11V	±11V
Input Resistance	50 Meg	100 Meg	300 Meg	300 Meg
Input Resistance, min.	20 Meg	20 Meg	40 Meg	40 Meg
Input Offset Voltage	±4 mV	±5 mV	±3 mV	±3 mV
Input Offset Current, typ.	20 nA	20 nA	5 nA	5 nA
max.	50 nA	50 nA	25 nA	25 nA
Input Bias Current, typ.	125 nA	125 nA	5 nA ⁶	5 nA
max.	250 nA	250 nA	25 nA	25 nA
OUTPUT CHARACTERISTICS				
Output Voltage, min.	±10V	±10V	±10V	±10V
Output Current, min. ⁷	±10 mA	±10 mA	±10 mA	±10 mA
PERFORMANCE				
DC Open Loop Gain ²	25K V/V	15K V/V	150K V/V	150K V/V
Full Power Bandwidth ²	500 KHz	1600 KHz	75 KHz	600 KHz
Gain Bandwidth Product	12 MHz	20 MHz	12 MHz	100 MHz
Slew Rate	30V/μsec	120V/μsec	7V/μsec	35V/μsec
Settling Time, 10V to 0.1%	330 nsec ³	200 nsec ³	1.5μsec ⁴	1.0 μsec
Common Mode Rejection Ratio ⁵ , typ... ..	90 dB	90 dB	100 dB	100 dB
max.	74 dB	74dB	74 dB	74 dB
Input Offset Voltage Drift	20 μV/°C	30 μV/°C	10 μV/°C	15 μV/°C
External Compensation Required	None	Gains <3	Gains <3	Gains <5
Power Supply Rejection Ratio	90 dB	90 dB	90 dB	90 dB
POWER REQUIREMENTS				
Voltage, Rated Performance	±15 VDC	±15 VDC	±15 VDC	±15 VDC
Operating Voltage Range, min.	±10V	±10V	±5V	±5V
max.	±20V	±20V	±22.5V	±22.5V
Supply Current, max.	6 mA	6 mA	4 mA	4 mA
PHYSICAL-ENVIRONMENTAL				
Oper. Temp. Range, -1 & -2 Models	0°C to +70°C			
-1M & -2M Models	-55°C to +125°C			
Storage Temp. Range	-65°C to +150°C			
Package Type, -2 & -2M Models	TO-99			
-1 & -1M Models	14 Pin Ceramic DIP			
NOTES:		ORDERING INFORMATION		
1. At Full Temperature		MODEL		
2. V _{OUT} = ±10V		OPERATING TEMP. RANGE		
3. C _L 50 pF		AM-450-2 0°C to +70°C		
4. C _L = 100 pF		AM-450-2M -55°C to +125°C		
5. For ±5V Common Mode Range		AM-452-2 0°C to +70°C		
6. 15nA typ. for AM-460-2M only		AM-452-2M -55° to +125°C		
7. AM-460 and AM-462 outputs are short circuit protected		AM-460-2 0°C to +70°C		
		AM-460-2M -55° to +125°C		
		AM-462-1, 2 0°C to +70°C		
		AM-462-1M, 2M -55° to +125°C		
		Trimming Potentiometers: TP100K, TP20K		
		THESE AMPLIFIERS ARE COVERED BY GSA CONTRACT		

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