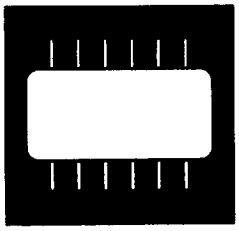
DUAL UNCOMMITTED POWER OPERATIONAL AMPLIFIER IN METAL DUAL IN-LINE PACKAGE



12-Pin, Power DIP, Dual Uncommitted
10 Amp Operational Amplifier

FEATURES (Per Amplifier)

- Isolated Hermetic DIP Package
- 10 Amp Peak Output Current
- Power Supplies to ±40V
- Programmable Current Limit
- FET Input
- Dual Version Of OMA541SD

DESCRIPTION

This unit contains two (2) uncommitted power operational amplifiers capable of operation from power supplies up to ±40V and continuous output current up to 5A. Internal current limit circuitry can be user-programmed with a single external resistor, protecting the amplifier and load from fault conditions. The dual in-line power package provides the optimum in thermal performance and ease of assembly. This device is ideally suited for Military motor driver, servo amplifier, synchro exertation as well as other power drive circuitry.

ABSOLUTE MAXIMUM RATINGS (Per Amplifier) @ 25°C

Supply Voltage, $+V_S$ to $-V_S$	80V
Output Current, Peak	10A
Output Current, Continuous	5A
Power Dissipation, Internal	125W
Operating Temperature Range	-55°C to 125°C
Storage Temperature Range	-55°C to 150°C
Maximum Junction Temperature	175°C
Lead Temperature (10 Sec. Soldering)	300°C

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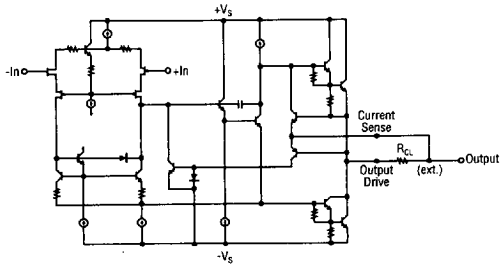
SCHEMATIC (Per Amplifier)



ELECTRICAL CHARACTERISTICS (T_C = 25°C; V_S = ±34 V_{DC} unless otherwise noted.)

Parameter	Conditions	Min.	Typ.	Max.	Units
Input Offset Voltage					
V_{OS}			±.01	±2	mV
vs Temperature	-25°C to +125°C		±15	±30	µV/°C
vs Temperature	-55°C to -25°C		±20	±40	µV/°C
vs Supply Voltage	V_S = ±10V to ± V_{MAX}		±2.5	±10	µV/V
vs Power			±20	±60	µV/W
Input Bias Current					
I_B			4	50	pA
Input Offset Current			±1	±30	pA
I_{OS}	Specified Temperature Range		±5	±20	nA
Input Characteristics					
Common-Mode Voltage Range	-55°C to +85°C	±(|V_S| - 6)	±(|V_S| - 3)		V
	+85°C to +125°C	±(|V_S| - 6.5)	±(|V_S| - 3.2)		V
Common-Mode Rejection	V_{CM} = ±(|V_S| - 6V)		113		dB
	V_{CM} = ±22V	95			dB
Input Capacitance*			5		pF
Input Capacitance, DC*			1		TΩ
Gain Characteristics					
Open Loop Gain at 10Hz	R_L = 10k	90	97		dB
Gain Bandwidth Product*			1.6		MHz
Output					
Voltage Swing	I_O = 5A, Continuous	±(|V_S| - 5.5)	±(|V_S| - 4.5)		V
	I_O = 2A	±(|V_S| - 4.5)	±(|V_S| - 3.6)		V
	I_O = 0.5A	±(|V_S| - 4)	±(|V_S| - 3.2)		V
Current Peak		9	10		A
AC Performance					
Slew Rate		6	10		V/µS
Power Bandwidth*	R_L = 8Ω, V_O = 20V_{rms}		55		KHz
Setting Time to 0.1%*	2V Step		2		µS
Capacitive Load*	Specified Temperature Range, G =1	3.3			A
	Specified Temperature Range, G >10			SOA	
Phase Margin*	Specified Temperature Range, R_L = 8Ω		40		Degrees
Power Supply					
Power Supply Voltage, ±V_S		±10	±35	±40	V
Current Quiescent			20	25	mA
	Specified Temperature Range		25	35	mA
Thermal Resistance					
θ_{JC} (Junction-to-Case)	AC Output f > 60Hz		1.00	1.20	°C/W
	DC Output		1.15	1.55	°C/W
θ_{JA} (Junction-to-Ambient)			30		°C/W

Notes: *Guaranteed - not tested 100%.

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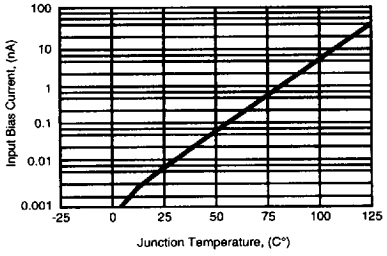
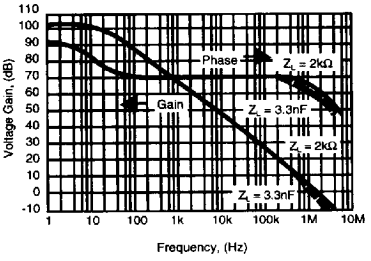
TYPICAL PERFORMANCE CURVES

T_A = +25°C, V_S = ±V_{DC} unless otherwise noted

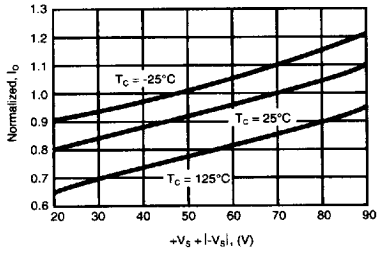
Input Bias Current VS Temperature



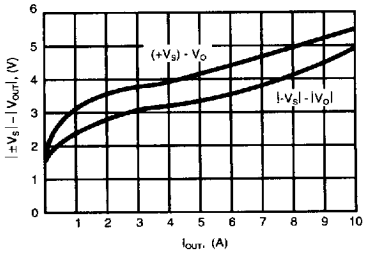
Open-Loop Gain and Phase VS Frequency



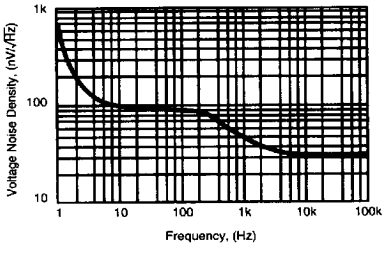
Normalized Quiescent Current VS Total Power Supply Voltage



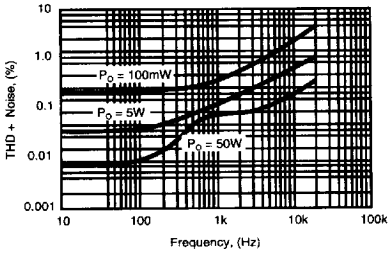
Output Voltage Swing VS Output Current



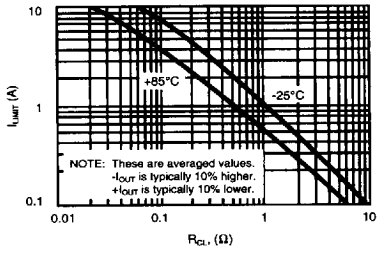
Voltage Noise Density VS Frequency



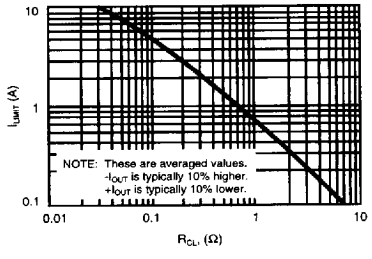
Total Harmonic Distortion VS Frequency



Current Limit VS Resistance Limit VS Temperature



Current Limit VS Resistance Limit VS Temperature



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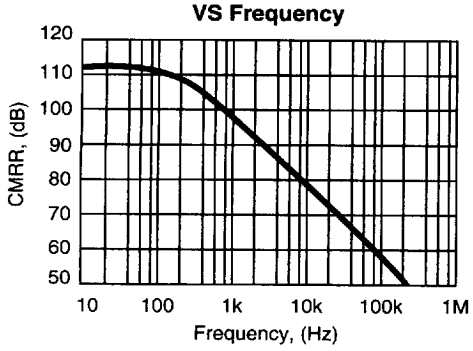
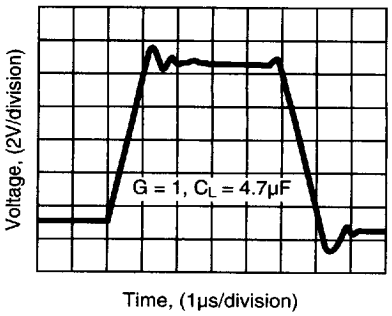
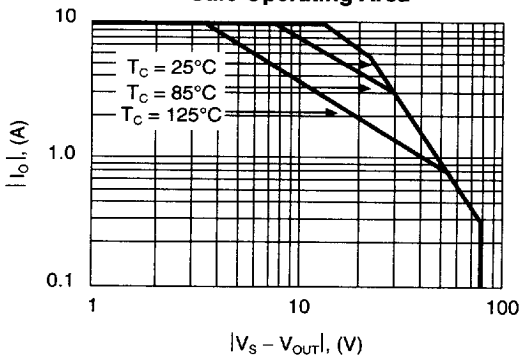
Common-Mode Rejection VS Frequency



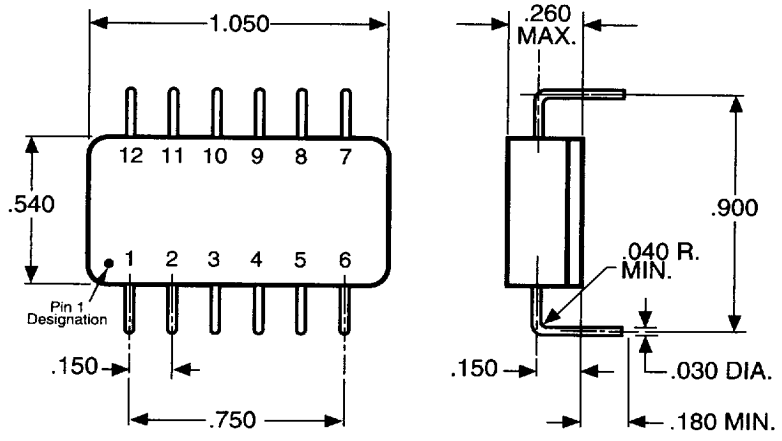
Dynamic Response



Safe Operating Area



MECHANICAL OUTLINE AND PIN CONNECTION



Pin 1: OUT_1
Pin 2: $+V_1$
Pin 3: $Sense_1$
Pin 4: $+IN_2$
Pin 5: $-IN_2$
Pin 6: $-V_2$
Pin 7: OUT_2
Pin 8: $+V_2$
Pin 9: $Sense_2$
Pin 10: $+IN_1$
Pin 11: $-IN_1$
Pin 12: $-V_1$

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Omnirel 205 Crawford Street, Leominster, MA 01453 USA (508) 534-5776 FAX (508) 537-4246