LOW POWER OPERATIONAL AMPLIFIER IN LOW PROFILE DUAL IN-LINE PACKAGE APPROVED TO DESC DRAWING 5962-94520

Monolithic Operational Amplifier In Isolated Flat Packs

FEATURES

- Approved to DESC 5962-94520
- Similar To OPA541
- Isolated Hermetic Dual In-Line Package
- Low Profile
- Surface Mount Lead Form Available
- FET Input
- Power Supplies To ±40V

DESCRIPTION

These devices are designed specifically for electronic assemblies requiring low profile package types. The OMA541SF is a monolithic operational amplifier capable of operating from power supplies up to ±40V and peak currents of up to 2 amps. The packaging provides the ultimate in size, thermal performance and ease of assembly. It is ideally suited for high density electronic assemblies and is approved to DESC drawing 5962-94520.

ABSOLUTE MAXIMUM RATINGS @ 25°C

Supply Voltage, $+V_S$ to $-V_S$	80V
Output Current, Peak	2.0A
Output Current, Continuous	.5A
Power Dissipation, Internal	25W
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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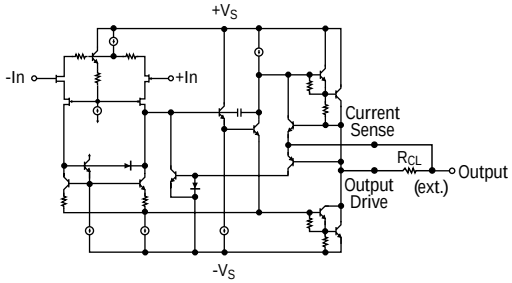
SCHEMATIC



ELECTRICAL CHARACTERISTICS (At T_C = 25°C; V_S = ±34V_{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					
I_{OS}			±1	±30	pA
	Specified Temperature Range		±5	±20	nA
Input Characteristics					
Common-Mode Voltage Range	-55°C to +85°C	±(œV_Sœ- 6)	±(œV_Sœ- 3)		V
	+85°C to +125°C	±(œV_Sœ- 6.5)	±(œV_Sœ- 3.2)		V
Common-Mode Rejection	V_{CM} = ±(œV_Sœ- 6V)		113		dB
	V_{CM} =±22V	96			dB
Input Capacitance*			5		pF
Input Capacitance, DC*			1		T
Gain Characteristics					
Open Loop Gain at 10Hz	R_L = 10k	90	97		dB
Gain-Bandwidth Product*			1.6		MHz
Output					
Voltage Swing	I_O = 2A	±(œV_Sœ- 4.5)	±(œV_Sœ- 3.6)		V
	I_O = .25A	±(œV_Sœ- 4)	±(œV_Sœ- 3.2)		V
Current, Peak (1)					A
		1.5	2.0		A
AC Performance					
Slew Rate		6	10		V/µs
Power Supply					
Power Supply Voltage, ±V_S		±10	±35	±40	V
Current, Quiescent			20	25	mA
	Specified Temperature Range		25	35	mA
Thermal Resistance					
q_{jc} (Junction-to-Case)	AC Output > 60Hz		1.65	2.00	°C/W
q_{jc} (Junction-to-Case)	DC Output		1.85	2.50	°C/W
q_{JA} (Junction-to-Ambient)			50		°C/W

NOTES: (1) Power dissipation, Internal: 25W Max.

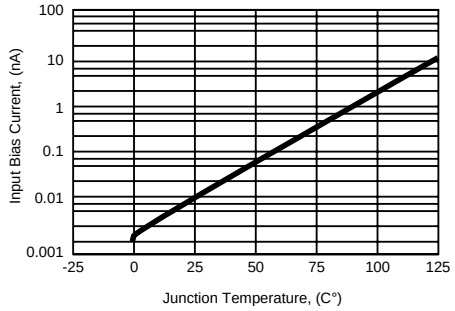
* Guaranteed - not tested 100%.

Part Number Designator		
Standard Military Drawing Number 5962-94520 01XX	Omnirel Part Number OMA541SFB	Package F-14L

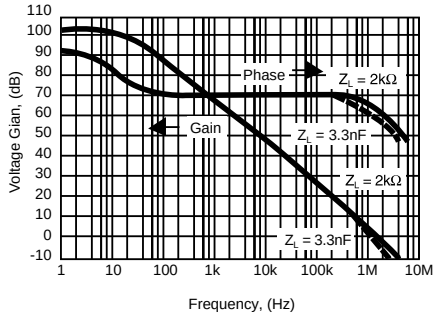
TYPICAL PERFORMANCE CURVES

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

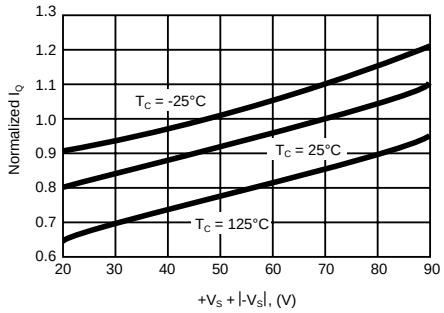
Input Bias Current VS Temperature



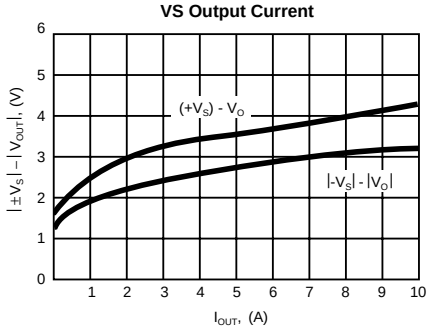
Open-Loop Gain and Phase VS Frequency



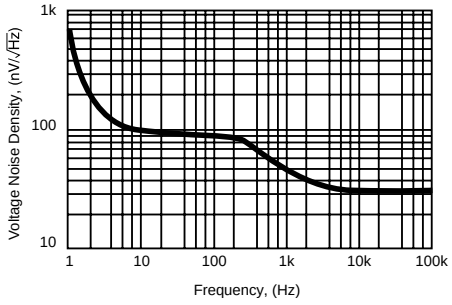
Normalized Quiescent Current VS Total Power Supply Voltage



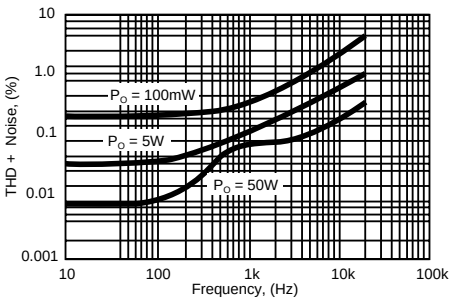
Output Voltage Swing VS Output Current



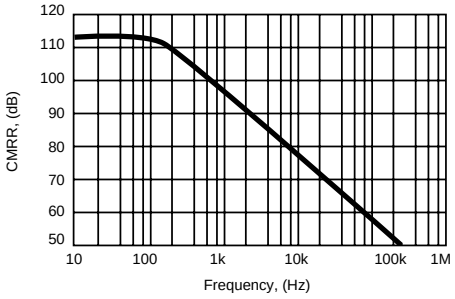
Voltage Noise Density VS Frequency



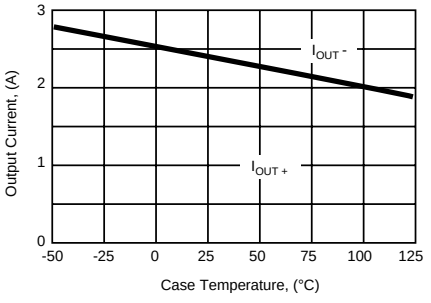
Total Harmonic Distortion VS Frequency



Typical Common-Mode Rejection VS Frequency (Case Dependent)



Typical Output Current VS Temperature (Case Dependent)



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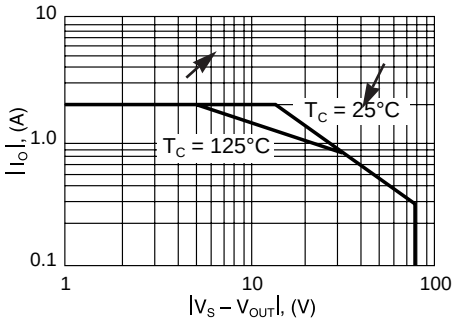
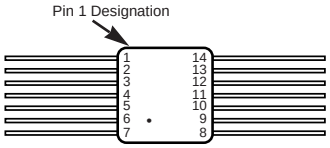
Omnirel

Safe Operating Area
OMA541SF



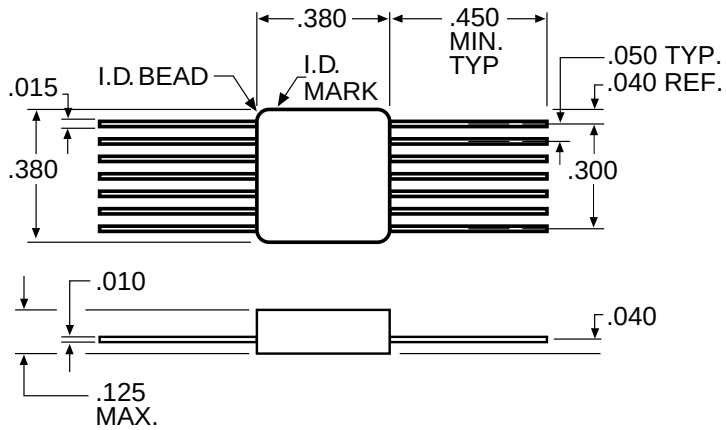
PIN CONNECTION

F-14L



Pin 1: $+V_{CC}$	Pin 6: +IN	Pin 11: V_{OUT}
Pin 2: $+V_{CC}$	Pin 7: $-V_{CC}$	Pin 12: $+V_{CC}$
Pin 3: V_{OUT}	Pin 8: $-V_{CC}$	Pin 13: $+V_{CC}$
Pin 4: V_{OUT}	Pin 9: $-V_{CC}$	Pin 14: Current Sense
Pin 5: -IN	Pin 10: V_{OUT}	

MECHANICAL OUTLINE



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