

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 $\pm 40V$

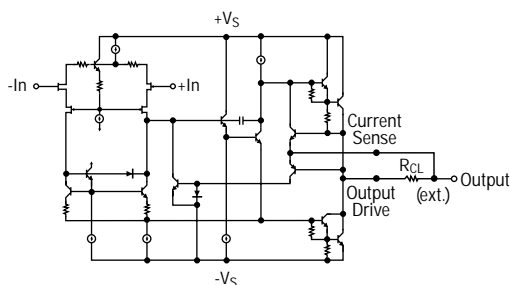
DESCRIPTION

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 $\pm 40V$ 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 |

SCHEMATIC



3.4

OMA541SFB

ELECTRICAL CHARACTERISTICS (At $T_C = 25^\circ\text{C}$; $V_S = \pm 34V_{DC}$ unless otherwise noted.)

| Parameter | Conditions | Min. | Typ. | Max. | Units |
|---|---|----------------------------|----------------------------|----------|------------------------------|
| Input Offset Voltage V_{OS} | | | ± 0.1 | ± 2 | mV |
| vs Temperature | -25°C to $+125^\circ\text{C}$ | | ± 15 | ± 30 | $\mu\text{V}/^\circ\text{C}$ |
| vs Temperature | -55°C to -25°C | | ± 20 | ± 40 | $\mu\text{V}/^\circ\text{C}$ |
| vs Supply Voltage | $V_S = \pm 10\text{V}$ to $\pm V_{MAX}$ | | ± 2.5 | ± 10 | $\mu\text{V}/\text{V}$ |
| vs Power | | | ± 20 | ± 60 | $\mu\text{V}/\text{W}$ |
| 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 $+85^\circ\text{C}$ | $\pm(\alpha V_{SE} - 6)$ | $\pm(\alpha V_{SE} - 3)$ | | V |
| | $+85^\circ\text{C}$ to $+125^\circ\text{C}$ | $\pm(\alpha V_{SE} - 6.5)$ | $\pm(\alpha V_{SE} - 3.2)$ | | V |
| Common-Mode Rejection | $V_{CM} = \pm(\alpha V_{SE} - 6\text{V})$ | | 113 | | dB |
| | $V_{CM} = \pm 22\text{V}$ | 96 | | | dB |
| Input Capacitance* | | | 5 | | pF |
| Input Capacitance, DC* | | | 1 | | T |
| Gain Characteristics | | | | | |
| Open Loop Gain at 10Hz | $R_L = 10\text{k}$ | 90 | 97 | | dB |
| Gain-Bandwidth Product* | | | 1.6 | | MHz |
| Output | | | | | |
| Voltage Swing | $I_O = 2\text{A}$ | $\pm(\alpha V_{SE} - 4.5)$ | $\pm(\alpha V_{SE} - 3.6)$ | | V |
| | $I_O = .25\text{A}$ | $\pm(\alpha V_{SE} - 4)$ | $\pm(\alpha V_{SE} - 3.2)$ | | V |
| Current, Peak ⁽¹⁾ | | 1.5 | 2.0 | | A |
| AC Performance | | | | | |
| Slew Rate | | 6 | 10 | | V/ μs |
| Power Supply | | | | | |
| Power Supply Voltage, $\pm V_S$ | | ± 10 | ± 35 | ± 40 | V |
| Current, Quiescent | | | 20 | 25 | mA |
| | Specified Temperature Range | | 25 | 35 | mA |
| Thermal Resistance | | | | | |
| θ_{JC} (Junction-to-Case) | AC Output > 60Hz | | 1.65 | 2.00 | $^\circ\text{C}/\text{W}$ |
| θ_{JC} (Junction-to-Case) | DC Output | | 1.85 | 2.50 | $^\circ\text{C}/\text{W}$ |
| θ_{JA} (Junction-to-Ambient) | | | 50 | | $^\circ\text{C}/\text{W}$ |

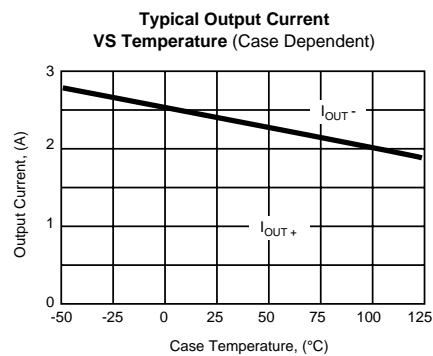
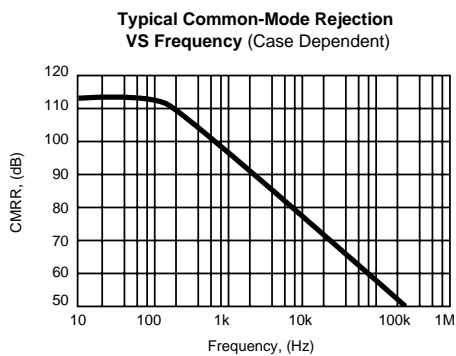
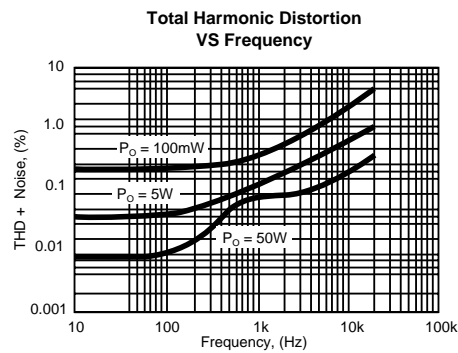
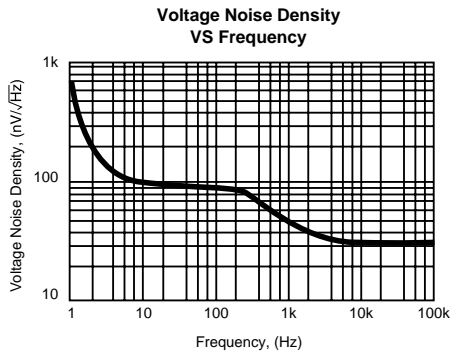
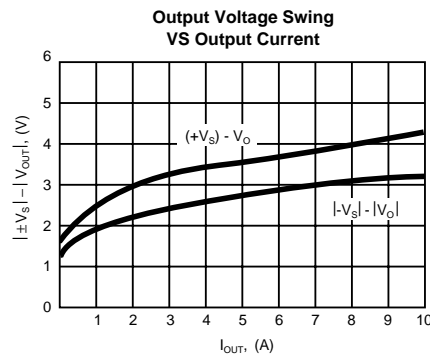
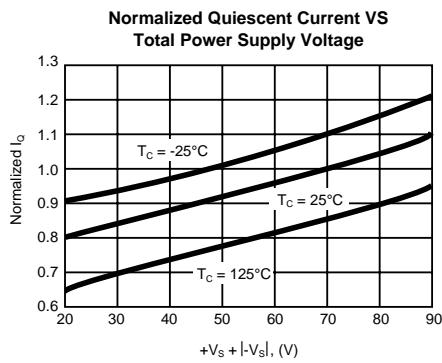
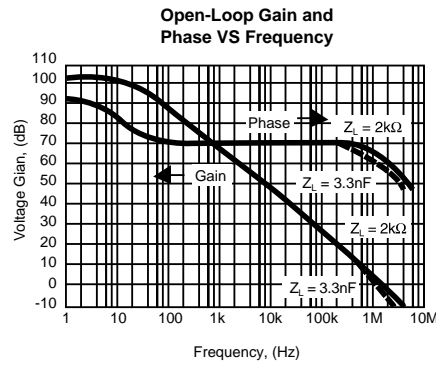
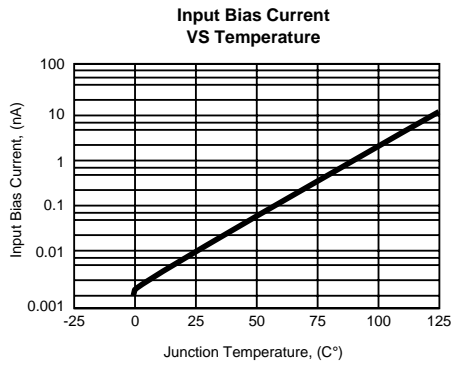
NOTES: (1) Power dissipation, Internal: 25W Max.

* Guaranteed - not tested 100%.

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

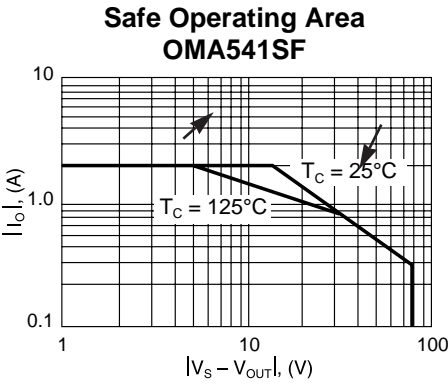
TYPICAL PERFORMANCE CURVES

$T_A = +25^\circ\text{C}$, $V_S = \pm V_{DC}$ unless otherwise noted

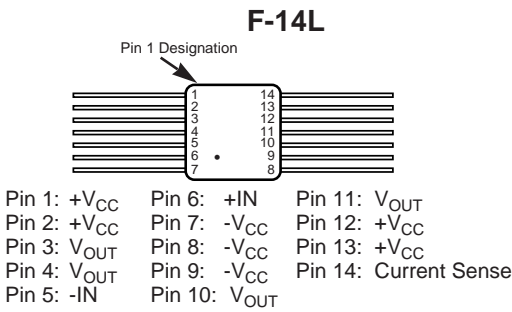


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OMA541SFB



PIN CONNECTION



MECHANICAL OUTLINE

