

## **POWER OPERATIONAL AMPLIFIER**

### **Applications:**

- Motor Drivers • Servo Amplifiers • Magnetic Deflection • Audio

### **Features:**

- 10A Peak Current
- Supply Range  $\pm 10V$  to  $\pm 40V$
- Programmable Current Limit
- Replacement for OPA541, OMA541, MSK541
- Wide Range of Available Packages
- Hermetic and Non-Hermetic Versions Available
- MIL-STD-883 Screening Available

### **Maximum Ratings:**

Supply Voltage, $V_s$	$\pm 40V$
Continuous Output Current	5A
Power Dissipation, Internal	125W
Case Operating Temperature Range	$-55^{\circ}C$ to $125^{\circ}C$
Storage Temperature Range	$-55^{\circ}C$ to $150^{\circ}C$
Junction Temperature	$150^{\circ}C$
Differential-Mode Input Voltage	$\pm V_s$
Common-Mode Input Voltage	$\pm V_s$

### **Electrical Characteristics:**

Characteristics	Symbol	Condition	Max.	Units
Max. Forward Voltage Drop	$V_{F1}$	@ 1A, Pulse, $T_J = 25^{\circ}C$	0.56	V
	$V_{F2}$	@ 1A, Pulse, $T_J = 125^{\circ}C$	0.51	V
Max. Reverse Current	$I_{R1}$	@ $V_R = 45V$ , Pulse, $T_J = 25^{\circ}C$	100	$\mu A$
	$I_{R2}$	@ $V_R = 45V$ , Pulse, $T_J = 125^{\circ}C$	4.5	mA
Max. Junction Capacitance	$C_T$	@ $V_R = 5V$ , $T_C = 25^{\circ}C$ , $f_{SIG} = 1MHz$ , $V_{SIG} = 50mV$ (p-p)	53	pF

**TECHNICAL DATA**

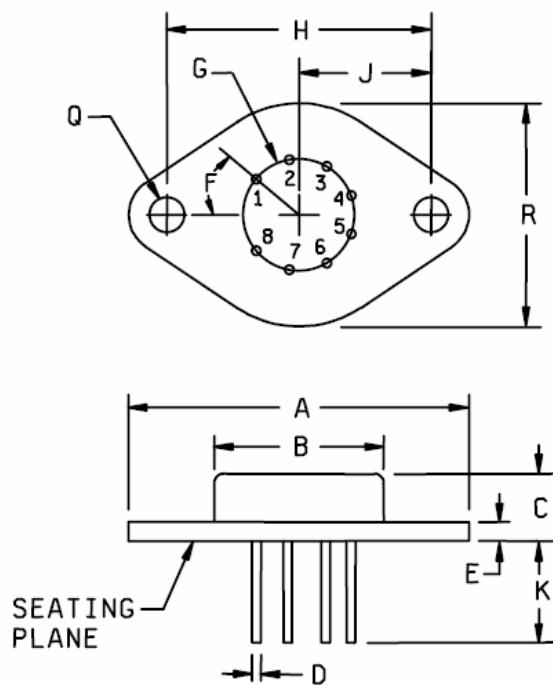
Characteristics	Symbol	Condition <sup>1</sup>	Grp. A	Min.	Max.	Units
Input offset voltage	V <sub>IO</sub>	T <sub>A</sub> = +25°C	1	-1	+1	mV
Input offset voltage drift	ΔV <sub>IO</sub> / ΔT	T <sub>A</sub> = -55°C and +125°C	2,3	-30	+30	μV/°C
Input bias current	±I <sub>IB</sub>		1	-50	+50	pA
			2,3	-50	+50	nA
Input offset current	I <sub>OS</sub>		1	-30	+30	pA
			2,3	-20	+20	nA
Power supply rejection ratio	+PSRR	-V <sub>CC</sub> = -34V dc, +V <sub>CC</sub> = +10 V to +40 V dc	1	-10	+10	μV/V
			2,3	-20	+20	
	-PSRR	+V <sub>CC</sub> = +34V dc, -V <sub>CC</sub> = -10 V to -40 V dc	1	-10	+10	μV/V
			2,3	-20	+20	
Common mode rejection ratio	CMRR	V <sub>CM</sub> = ±22 V dc, f = dc	1	95		dB
			2,3	90		
Supply currents	±I <sub>CC</sub>	V <sub>CM</sub> = 0 V, no load condition	1,2,3	-30	+30	mA
Output voltage peak	V <sub>OP</sub>	I <sub>O</sub> = 5 A peak, R <sub>L</sub> = 5.6Ω, 10 kHz sine wave, T <sub>A</sub> = +25°C	4	±28.0		V
		R <sub>L</sub> = 10Ω, 10 kHz sine wave, T <sub>A</sub> = -55°C and +125°C	5,6	±30		
Output current peak	I <sub>OP</sub>	R <sub>L</sub> = 5.6Ω, V <sub>OUT</sub> = ±28 V, T <sub>A</sub> = +25°C 2/	4	±5		A
		R <sub>L</sub> = 10Ω, V <sub>OUT</sub> = ±30 V T <sub>A</sub> = -55°C and +125°C 2/ 3/	5,6	±3		
Voltage gain	A <sub>VS</sub>	R <sub>L</sub> = 10 kΩ	4	95		dB
			5,6	86		
Slew rate	±SR	R <sub>L</sub> = 10.0Ω, T <sub>A</sub> = +25°C	7	±6		V/μs

<sup>1</sup> -55°C ≤ T<sub>A</sub> ≤ +125°C, ±V<sub>CC</sub> = ±34 V dc unless otherwise specified

<sup>2</sup> Internal current limit circuitry is controlled by a single external resistor, RCL. To calculate the value of the current limit resistor, use RCL = (0.809/ILIM) - 0.057, where ILIM is equal to the desired output current (IOP).

<sup>3</sup> Test can be performed using R<sub>L</sub> = 10 kΩ with a minimum limit of ±3 mA.

**TECHNICAL DATA**



Symbol	Inches		Millimeters	
	Min	Max	Min	Max
A	1.510	1.550	38.35	39.37
B	.745	.770	18.92	19.56
C	.260	.340	6.60	8.64
D	.038	.042	0.97	1.07
E	.080	.105	2.03	2.67
F	40° BSC		40° BSC	
G	.500 BSC		12.7 BSC	
H	1.186 BSC		30.12 BSC	
J	.593 BSC		15.06 BSC	
K	.400	.500	10.16	12.70
Q	.151	.161	3.84	4.09
R	.980	1.020	24.89	25.91

**\*OTHER PACKAGES ARE AVAILABLE. PLEASE CONSULT FACTORY.**

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