

TECHNICAL DATA
Preliminary Data Rev.-

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	μA
	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

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

¹ -55°C ≤ T_A ≤ +125°C, ±V_{CC} = ±34 V dc unless otherwise specified

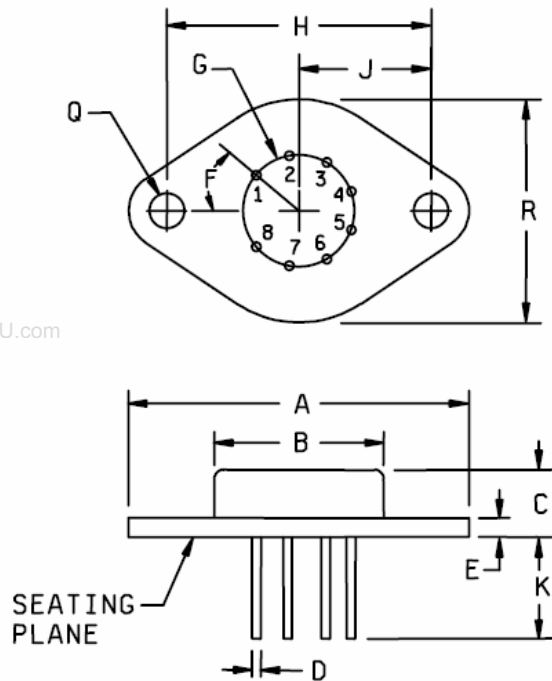
² Internal current limit circuitry is controlled by a single external resistor, R_{CL}. To calculate the value of the current limit resistor, use R_{CL}= (0.809/I_{LIM}) - 0.057, where I_{LIM} is equal to the desired output current (I_{OP}).

³ Test can be performed using R_L= 10 kΩ with a minimum limit of ±3 mA.

SENSITRON SEMICONDUCTOR

SEN-0541

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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

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