



3507J

3507J

2

OPERATIONAL AMPLIFIERS

Fast-Slewing OPERATIONAL AMPLIFIER

FEATURES

- 120V/ μ sec SLEW RATE
- 20MHz GAIN-BANDWIDTH PRODUCT
- INTERCHANGEABLE WITH 741 TYPES

DESCRIPTION

Burr-Brown model 3507J is intended for use in circuits requiring fast transient response-pulse amplifiers, D/A converters, comparators, fast followers, etc. Key parameters such as slew rate, settling time and bandwidth are orders of magnitude better than for most other IC op amps.

The 3507J is compensated to allow faster slewing and greater bandwidth for gains of 3 or more. For gains greater than 3, the gain rolloff is 6dB/octave. By use of a single external 20pF compensation capacitor the 3507J can be stabilized at all gains including unity. In addition, by use of an alternate compensation technique, it is possible to stabilize the 3507J at unity gain without sacrificing its faster slew rate.

The 3507J is pin-compatible with other standard IC op amps while offering greater speed and higher output current. It also is input-and output-protected to prevent damage if the output is shorted to common, or the input is shorted to supply voltage.

SPECIFICATIONS

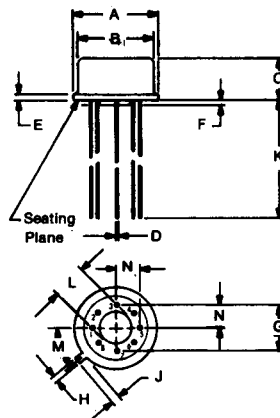
ELECTRICAL

Typical at $\pm 15\text{VDC}$ and $+25^\circ\text{C}$ unless otherwise noted.

MODEL	3507J	
	TYPICAL	GUARANTEED
OPEN-LOOP GAIN, DC		
No Load	90dB	
2k Ω Load	83dB	77dB
RATED OUTPUT		
Voltage (1k Ω load)	$\pm 12\text{V}$	$\pm 10\text{V}$
Current	$\pm 20\text{mA}$	$\pm 10\text{mA}$
DYNAMIC RESPONSE		
Small Signal Bandwidth (0dB)	—	—
Gain-Bandwidth Product ($A_{CL} = 10$)	20MHz	1.2MHz
Full Power Bandwidth	1.6MHz	80V/ μsec
Slew Rate	120V/ μsec	80V/ μsec
Settling Time (0.1%)	200nsec	50nsec
Rise Time (10-90%, small signal)	25nsec	50nsec
Overshoot	—	—
INPUT OFFSET VOLTAGE		
Initial (without adjust) at $+25^\circ\text{C}$	$\pm 5\text{mV}$	$\pm 10\text{mV}$
Over Temperature (avg. 0°C to $+70^\circ\text{C}$)	$\pm 30\mu\text{V}/^\circ\text{C}$	$\pm 14\text{mV}$
vs Supply Voltage	$\pm 30\mu\text{V}/\text{V}$	200 $\mu\text{V}/\text{V}$
vs Time	$\pm 50\mu\text{V}/\text{mo}$	
INPUT BIAS CURRENT		
Initial at $+25^\circ\text{C}$	$+50\text{nA}$	$+250\text{nA}$
Over Temperature (avg. 0°C to $+70^\circ\text{C}$)	$\pm 0.5\text{nA}/^\circ\text{C}$	$+500\text{nA}$
INPUT DIFFERENCE CURRENT		
Initial at $+25^\circ\text{C}$	$\pm 20\text{nA}$	$\pm 50\text{nA}$
Over Temperature (avg. 0°C to $+70^\circ\text{C}$)	$\pm 0.1\text{nA}/^\circ\text{C}$	$\pm 100\text{nA}$
INPUT IMPEDANCE		
Differential	100M Ω 3pF	40M Ω
Common-Mode	1000M Ω 3pF	
INPUT VOLTAGE RANGE		
Common-Mode (linear operation)	$\pm 12\text{V}$	$\pm 10\text{V}$
Differential (between inputs)	$\pm 15\text{V}$	$\pm 15\text{V}$
Absolute Max (either input)		$\pm \text{Supply}$
Common-Mode Rejection	90dB	74dB
POWER SUPPLY		
Rated Voltage		$\pm 15\text{VDC}$
Voltage Range, derated	$\pm 8\text{V}$ to $\pm 20\text{V}$	
Current, quiescent	$\pm 4\text{mA}$	$\pm 8\text{mA}$
TEMPERATURE RANGE		
Specifications		0°C to $+70^\circ\text{C}$
Operating		-25°C to $+85^\circ\text{C}$
Storage		-65°C to $+150^\circ\text{C}$

MECHANICAL

TO-99 PACKAGE



NOTE:
Leads in true position within 0.10" (0.25mm) R at MMC at seating plane.
Pin numbers shown for reference only.
Numbers may not be marked on package.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.335	.370	8.51	9.40
B	.306	.336	7.75	8.51
C	.165	.185	4.19	4.70
D	.018	.021	0.41	0.53
E	.010	.040	0.25	1.02
F	.010	.040	0.25	1.02
G	.200 BASIC		5.08 BASIC	
H	.028	.034	0.71	0.86
J	.029	.045	0.74	1.14
K	.500	—	12.7	—
L	.110	.160	2.79	4.06
M	.45° BASIC		.45° BASIC	
N	.095	.105	2.41	2.67

CONNECTION DIAGRAM

