


DESCRIPTION

The RH118 is a precision, high speed operational amplifier which offers wide bandwidth and high slew rate. Unlike many wideband amplifiers, the RH118 is unity-gain stable and has a slew rate of 50V/ μ s.

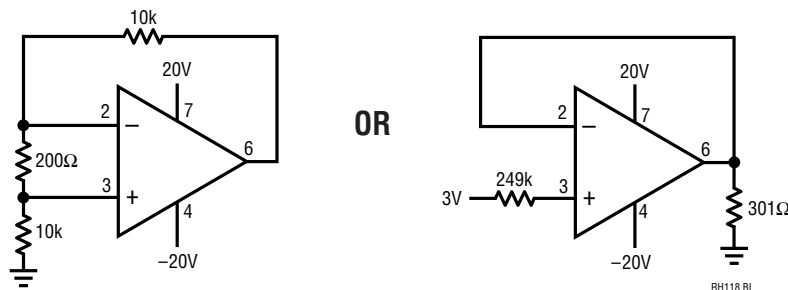
The wafer lots are processed to Linear Technology's in-house Class S flow to yield circuits usable in stringent military applications.

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ABSOLUTE MAXIMUM RATINGS

Supply Voltage	± 20 V
Differential Input Current (Note 1)	± 10 mA
Input Voltage (Note 2)	± 20 V
Output Short-Circuit Duration	Indefinite
Operating Temperature Range	-55°C to 125°C
Storage Temperature Range	-65°C to 150°C
Lead Temperature (Soldering, 10 sec)	300°C

BURN-IN CIRCUIT (Each Amplifier)



PACKAGE/ORDER INFORMATION

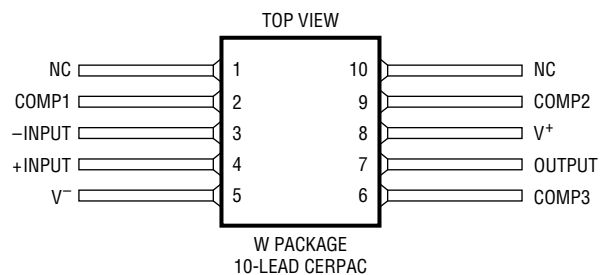
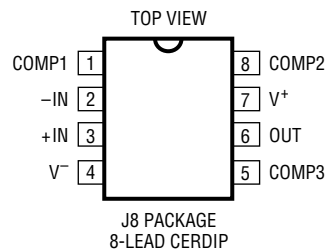
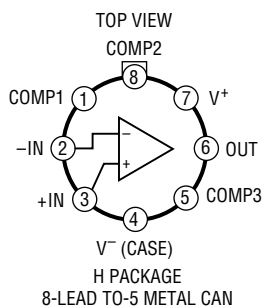


TABLE 1: ELECTRICAL CHARACTERISTICS (Preirradiation) (Note 3)

SYMBOL	PARAMETER	CONDITIONS	NOTES	$T_A = 25^\circ\text{C}$			SUB-GROUP	$-55^\circ\text{C} \leq T_A \leq 125^\circ\text{C}$			SUB-GROUP	UNITS
				MIN	TYP	MAX		MIN	TYP	MAX		
V_{OS}	Input Offset Voltage					4	1			6	2,3	mV
I_{OS}	Input Offset Current					50	1			100	2,3	nA
I_B	Input Bias Current					250	1			500	2,3	nA
R_{IN}	Input Resistance		4	1								$M\Omega$
A_V	Large-Signal Voltage Gain	$V_S = \pm 15\text{V}$, $V_{OUT} = \pm 10\text{V}$ $R_L \geq 2\text{k}$		50			1	25			2,3	V/mV
SR	Slew Rate	$V_S = \pm 15\text{V}$, $A_V = 1$	5	50								V/ μs
GBW	Gain Bandwidth Product	$V_S = \pm 15\text{V}$			15							MHz
	Output Voltage Swing	$V_S = \pm 15\text{V}$, $R_L = 2\text{k}$		± 12			4	± 12			5,6	V
	Input Voltage Range	$V_S = \pm 20\text{V}$		± 16.5			1	± 16.5			2,3	V
I_S	Supply Current					8	1					mA
		$T_A = 125^\circ\text{C}$								7	2	mA
CMRR	Common Mode Rejection Ratio			80			1	80			2,3	dB
PSRR	Power Supply Rejection Ratio			70			1	70			2,3	dB

TABLE 1A: ELECTRICAL CHARACTERISTICS (Postirradiation) (Note 6)

SYMBOL	PARAMETER	CONDITIONS	NOTES	10Krad(Si)		20Krad(Si)		50Krad(Si)		100Krad(Si)		200Krad(Si)		UNITS
				MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	
V_{OS}	Input Offset Voltage				4		4		4		4		10	mV
I_{OS}	Input Offset Current				50		50		50		50		100	nA
I_B	Input Bias Current				250		250		250		300		400	nA
R_{IN}	Input Resistance		4	1		1		1		0.5		0.5		$M\Omega$
A_V	Large-Signal Voltage Gain	$V_S = \pm 15\text{V}$, $V_{OUT} = \pm 10\text{V}$ $R_L \geq 2\text{k}$		50		50		50		50		25		V/mV
SR	Slew Rate	$V_S = \pm 15\text{V}$, $A_V = 1$	5	50		50		50		50		50		V/ μs
GBW	Gain Bandwidth Product	$V_S = \pm 15\text{V}$			15(Typ)		15(Typ)		15(Typ)		15(Typ)		15(Typ)	MHz
	Output Voltage Swing	$V_S = \pm 15\text{V}$, $R_L = 2\text{k}$		± 12		± 12		± 12		± 12		± 12		V
	Input Voltage Range			± 16.5		± 16.5		± 16.5		± 15		± 12		V
I_S	Supply Current				8		8		8		8		8	mA
CMRR	Common Mode Rejection Ratio			80		80		80		80		70		dB
PSRR	Power Supply Rejection Ratio			70		70		70		70		60		dB

ELECTRICAL CHARACTERISTICS (Continued)

Note 1: The inputs are shunted with back-to-back Zeners for overvoltage protection. Excessive current will flow if a differential voltage greater than 5V is applied to the inputs.

Note 2: For supply voltages less than ±15V, the maximum input voltage is equal to the supply voltage.

Note 3: These specifications apply for $\pm 5V \leq V_S \leq \pm 20V$. The power supplies must be bypassed with a 0.1µF or greater disc capacitor within four inches of the device.

Note 4: Guaranteed by design, characterization or correlation to other tested parameters.

Note 5: Slew rate is 100% tested at wafer probe testing. It is QA sample tested in finished package form.

Note 6: $T_A = 25^\circ C$, $V_S = \pm 20V$, $V_{CM} = 0V$, unless otherwise specified. Supply bypassed per Note 3.

TOTAL DOSE BIAS CIRCUIT

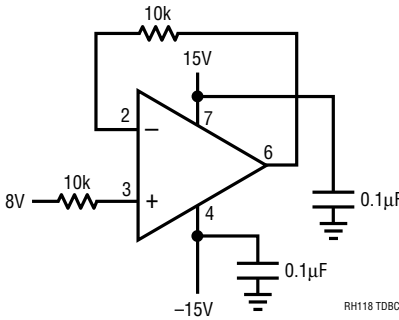


TABLE 2: ELECTRICAL TEST REQUIREMENTS

MIL-STD-883 TEST REQUIREMENTS	SUBGROUP
Final Electrical Test Requirements (Method 5004)	1*,2,3,4,5,6
Group A Test Requirements (Method 5005)	1,2,3,4,5,6
Group B and D End Point Electrical Parameters (Method 5005)	1,2,3

* PDA Applies to subgroup 1. See PDA Test Notes.

PDA Test Notes

The PDA is specified as 5% based on failures from group A, subgroup 1, tests after cooldown as the final electrical test in accordance with method 5004 of MIL-STD-883 Class B. The verified failures (including Delta parameters) of group A, subgroup 1, after burn-in divided by the total number of devices submitted for burn-in in that lot shall be used to determine the percent for the lot.

Linear Technology Corporation reserves the right to test to tighter limits than those given.

TYPICAL PERFORMANCE CHARACTERISTICS

