



Dual Comparator

**DESCRIPTION**

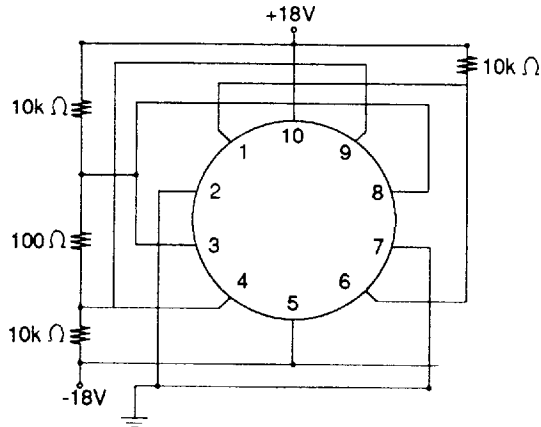
The LM119/883 is a precision high-speed dual comparator fabricated on a single monolithic chip. The uncommitted collector of the output stage makes the LM119/883 compatible with TTL. The LM119/883 features faster response than the LM111/883 at the expense of higher power dissipation.

This device is processed to the requirements of MIL-STD-883 Class B to yield circuits usable in precision military applications.

**ABSOLUTE MAXIMUM RATINGS**

Supply Voltage	36V
Output to Negative Supply Voltage	36V
Ground to Negative Supply Voltage	25V
Ground to Positive Supply Voltage	18V
Differential Input Voltage	±5V
Differential Input Current	±5mA
Input Voltage (See Note A)	
Output Short Circuit Duration	10 Sec.
Operating Temperature Range	-55°C to 125°C
Storage Temperature Range	-65°C to 150°C
Lead Temperature (Soldering, 10 sec.)	300°

**BURN-IN CIRCUIT**



**PACKAGE/ORDER INFORMATION**

<p>TOP VIEW V+ 10 9 -INPUT 2 8 +INPUT 2 7 GND 2 6 OUTPUT 2 5 V- H PACKAGE METAL CAN</p>	ORDER PART NUMBER
	LM119H/883
<p>TOP VIEW 14 NC 13 NC 12 OUTPUT 1 11 V+ 10 -INPUT 2 9 +INPUT 2 8 GND 2 7 6 5 4 3 2 1 NC NC GND 1 +INPUT 1 -INPUT 1 V- OUTPUT 2</p> <p>J PACKAGE 14 PIN HERMETIC</p>	ORDER PART NUMBER
	LM119J/883
<p>†</p>	PART MARKING†
	LM119H/883C
<p>†</p>	PART MARKING†
	LM119J/883C

† The suffix letter "C" of the part mark indicates compliance per MIL-STD-883C, para 1.2.1.1.



Information furnished by Linear Technology Corporation is believed to be accurate and reliable. However, no responsibility is assumed for its use. Linear Technology Corporation makes no representation that the interconnection of its circuits as described herein will not infringe on existing patent rights.

**TABLE 1: ELECTRICAL CHARACTERISTICS (Note B)**

SYM-BOL	PARAMETER	CONDITIONS	NOTES	T <sub>A</sub> = 25°C			SUB-GROUP	-55°C ≤ T <sub>A</sub> ≤ 125°C			SUB-GROUP	UNITS
				MIN	TYP	MAX		MIN	TYP	MAX		
V <sub>OS</sub>	Input Offset Voltage		C	0.7	4.0		1		7.0		2,3	mV
I <sub>OS</sub>	Input Offset Current		C	30	75		1		100		2,3	nA
I <sub>B</sub>	Input Bias Current		C	150	500		1		1000		2,3	nA
A <sub>v</sub>	Voltage Gain			10	40		4					V/mV
	Response Time		D		80							nS
V <sub>SAT</sub>	Saturation Voltage	V <sub>IN</sub> ≤ -5mV, I <sub>O</sub> = 25mA V* ≥ 4.5V, V <sup>-</sup> = 0V		0.75	1.5		1					V
		V <sub>IN</sub> ≤ -6mV, I <sub>SINK</sub> ≤ 3.2mA T <sub>A</sub> ≥ 0°C				0.4		0.23	0.4	2	V	
		T <sub>A</sub> ≤ 0°C							0.6	3	V	
	Output Leakage Current	V <sub>IN</sub> ≥ 5mV, V <sub>OUT</sub> = 35V		0.2	2		1	1	10	2,3	μA	
	Input Voltage Range	V <sub>S</sub> = ±15V V* = 5V, V <sup>-</sup> = 0		-12	±13	+12	1	-12	±13	+12	2,3	V
				1		3	1	1		3	2,3	V
	Differential Input Voltage				±5		1		±5	2,3	V	
I <sub>S</sub>	Supply Current	V* = 5V, V <sup>-</sup> = 0		4.3								mA
I <sub>S</sub>	Positive Supply Current	V <sub>S</sub> = ±15V		8	11.5		1					mA
I <sub>S</sub>	Negative Supply Current	V <sub>S</sub> = ±15V		3	4.5		1					mA

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

**Note B:** Unless otherwise noted, supply voltage equals ±15V and T<sub>A</sub> = 25°C. The ground pin is grounded. Note that the maximum voltage allowed between the ground pin and V\* is 18V. Do not tie the ground pin to V<sup>-</sup> when the power supply voltage exceeds ±9V. The offset voltage, offset current and bias current specifications apply for all supply voltages between ±15V and +5V unless otherwise specified.

**Note C:** The offset voltages and currents given are the maximum values required to drive the output within 1 volt of either supply with a 1mA load. Thus, these parameters define an error band and take into account the worst case effects of voltage gain and input impedance.

**Note D:** Response time specified is for a 100mV input step with 5mV overdrive.

**TABLE 2: ELECTRICAL TEST REQUIREMENTS**

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

\* 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 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.