

## DESCRIPTION

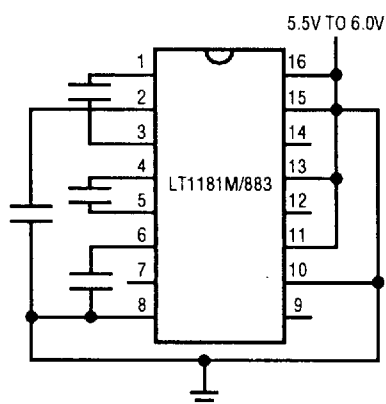
The LT1181M/883 is a dual RS232 driver/receiver which includes a capacitive voltage generator to supply RS232 voltage levels from a single 5V power supply. Each receiver will accept up to  $\pm 30\text{V}$  input and can drive either TTL or CMOS logic. The RS232 drivers accept logic inputs and output RS232 voltage levels. The driver outputs are fully protected against overload and can be shorted to ground or up to  $\pm 30\text{V}$  without damage. Bipolar circuitry makes this driver/receiver exceptionally rugged against overloads or ESD damage.

The devices are processed to the requirements of MIL-STD-883 Class B to yield circuits usable in precision military applications.

## ABSOLUTE MAXIMUM RATINGS

Supply Voltage ( $V_{CC}$ )	6V
$V^+$	13.2V
$V^-$	-13.2V
Input Voltage	
Driver	$V^-$ to $V^+$
Receiver	-30V to 30V
Output Voltage	
Driver	$V^- + 30\text{V}$ to $V^+ - 30\text{V}$
Receiver	-0.3V to $V_{CC} + 0.3\text{V}$
Short Circuit Duration	
$V^+$	30 sec
$V^-$	30 sec
Driver Output	Indefinite
Receiver Output	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

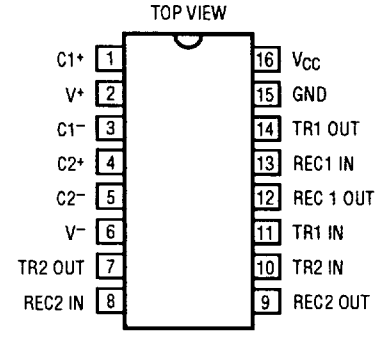


1181M BI

## PACKAGE/ORDER INFORMATION

ORDER PART NUMBER	
LT1181M/883	
PART MARKINGS†	
LT1181MJ/883C	

TOP VIEW



J PACKAGE  
16-LEAD CERAMIC DIP

C1+	1	16	$V_{CC}$
$V^+$	2	15	GND
C1-	3	14	TR1 OUT
C2+	4	13	REC1 IN
C2-	5	12	REC1 OUT
$V^-$	6	11	TR1 IN
TR2 OUT	7	10	TR2 IN
REC2 IN	8	9	REC2 OUT

† The suffix letter "C" of the part mark indicates compliance per MIL-STD 883, para 1.2.1.

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

PARAMETER	CONDITIONS	NOTES	T <sub>A</sub> = 25°C		SUB-GROUP	-55°C ≤ T <sub>A</sub> ≤ 125°C		SUB-GROUP	UNITS
			MIN	MAX		MIN	MAX		
Driver									
Output Voltage Swing	Load = 3k to GND Both Outputs Positive Negative		5.0 -5.0		1 1	5.0 -5.0		2,3 2,3	V V
Logic Input Voltage Level	Input Low Level (V <sub>OUT</sub> = High) Input High Level (V <sub>OUT</sub> = Low)			0.8 2.0	1 1		0.8 2.0	2,3 2,3	V V
Logic Input Current	V <sub>IN</sub> ≥ 2.0V V <sub>IN</sub> ≤ 0.8V			20 20	1 1		20 20	2,3 2,3	μA μA
Output Short-Circuit Current	Sourcing Current, V <sub>OUT</sub> = 0V Sinking Current, V <sub>OUT</sub> = 0V		7 -7		1 1				mA mA
Slew Rate	R <sub>L</sub> = 3kΩ, C <sub>L</sub> = 51pF		4	30	4				V/μs
Receiver									
Input Voltage Thresholds	Input Low Threshold (V <sub>OUT</sub> = High) Input High Threshold (V <sub>OUT</sub> = Low)		0.2 3.0		1 1	0.2 3.0		2,3 2,3	V V
Hysteresis			0.1	1.0	1	0.1	1.0	2,3	V
Input Resistance			3	7	1				kΩ
Output Voltage	Output Low, I <sub>OUT</sub> = -1.6mA Output High, I <sub>OUT</sub> = 160μA (V <sub>CC</sub> = 5V)			0.4 3.5	1 1		0.4 3.5	2,3 2,3	V V
Output Short-Circuit Current	Sinking Current, V <sub>OUT</sub> = V <sub>CC</sub> Sourcing Current, V <sub>OUT</sub> = 0V		-10.0 0.6		1 1				mA mA
Power Supply Generator (Note 2)									
Supply Current				22	1		22 30	3 2	mA mA

**Note 1:** These parameters apply for V<sub>CC</sub> = 5V and C = 0.1μF unless otherwise specified.

**Note 2:** Unless otherwise specified, V<sub>CC</sub> = 5V, external loading of V<sup>+</sup> and V<sup>-</sup> equals zero and the driver outputs are low (inputs high).

**TABLE 2: ELECTRICAL TEST REQUIREMENTS**

MIL-STD-883 TEST REQUIREMENTS	SUBGROUP
Final Electrical Test Requirements (Method 5004)	1*,2,3
Group A Test Requirements (Method 5005)	1,2,3
Group C 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 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.