

**SCOPE: MICROPOWER INVERTING SWITCHING REGULATOR**

<u>Device Type</u>	<u>Generic Number</u>
01	MAX634M(x)/883B

Case Outline(s). The case outlines shall be designated in Mil-Std-1835 and as follows:

<u>Outline Letter</u>	<u>Mil-Std-1835</u>	<u>Case Outline</u>	<u>Package Code</u>
JA	GDIP1-T8 or CDIP2-T8	8 LEAD CERDIP	J8

Absolute Maximum Ratings

Supply Voltage, +V <sub>S</sub> to GND 1/	..... +18V
Input Voltage, C <sub>X</sub> , LBR, VFB 2/	..... -0.3V to(+V <sub>S</sub> +0.3V)
L <sub>X</sub> Output Current	..... 525mA Peak
LBO Output Current	..... 50mA

Lead Temperature (soldering, 10 seconds)	..... +300°C
Storage Temperature	..... -65°C to +150°C

Continuous Power Dissipation	..... T <sub>A</sub> =+70°C
8 lead CERDIP(derate 8.0mW/°C above +70°C)	..... 640mW
Junction Temperature T <sub>J</sub>	..... +150°C
Thermal Resistance, Junction to Case	
8 lead CERDIP, ΘJC:	..... 55°C/W
Thermal Resistance, Junction to Ambient	
8 lead CERDIP. ΘJA:	..... 125°C/W

Recommended Operating Conditions.

Ambient Operating Range (T <sub>A</sub> )	..... -55°C to +125°C
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ORDERING INFORMATION	MAXIM PART NUMBER	SMD NUMBER
01	MAX634MJA/883B	5962-9212401MPA

TERMINAL NUMBER	8 LEAD CERDIP
1	LBR
2	LBO
3	C <sub>X</sub>
4	GND
5	L <sub>X</sub>
6	V <sub>S+</sub>
7	VREF
8	VFB

NOTE 1: In addition to the absolute maximum rating of +18V, the input voltage must not exceed 24V- | - V<sub>OUT</sub> |.

NOTE 2: The input rating may be exceeded if the input current is limited to 1mA or less.

Stresses beyond those listed under “Absolute Maximum Ratings” may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

TABLE 1 ELECTRICAL TESTS

PARAMETER	Symbol	CONDITIONS -55 °C ≤ T <sub>A</sub> ≤ +125°C +V <sub>S</sub> =+5.0V, GND=0V Unless otherwise specified	Group A Subgroup	Device type	Limits Min 3/	Limits Max 3/	Units
Operating Voltage	+V <sub>S</sub>	Voltage at V <sub>OUT</sub>	1 2,3	All	2.3 2.6	16.5 16.5	V
Supply Current	I <sub>IN</sub>	+V <sub>S</sub> =5.0V, No ext load, L <sub>X</sub> off  +V <sub>S</sub> =15V, No ext load, L <sub>X</sub> off	1,2,3	All		150 50	μA
Reference Voltage	VREF		1 2,3	All	1.22 1.18	1.28 1.32	V
Output Voltage	V <sub>OUT</sub>	R1=300kΩ, R2=75kΩ, R1 and R2 give a nominal output voltage of -5V.	1 2,3	All	-5.20 -5.25	-4.80 -4.75	V
		R1=900kΩ, R2=75kΩ, R1 and R2 give a nominal output voltage of -15V.	1 2,3		-15.70 -16.00	-14.30 -14.00	
Efficiency		NOTE 5	1	All	80		%
Line Regulation	VR <sub>LINE</sub>	V <sub>S</sub> =5V to 15V, R1=300kΩ, 4/ R2=75kΩ. R1 and R2 give a nominal output voltage of -5V.	1 2,3	All	-2.0 -3.0	2.0 3.0	%/V <sub>OUT</sub>
Load Regulation	VR <sub>LOAD</sub>	I <sub>L</sub> =1mA to 15mA, R1=300kΩ, 4/ R2=75kΩ. R1 and R2 give a nominal output voltage of -5V.	1 2,3	All		0.4 0.5	%/V <sub>OUT</sub>
Operating Frequency Range	f <sub>O</sub>	NOTE 5	1	All	0.1	75	kHz
LX On Resistance	R <sub>ON</sub>	I <sub>X</sub> =100mA	1	All		16	Ω
LX Leakage Current	I <sub>LX</sub>	V <sub>LX</sub> =-18V	1 2,3	All		1.0 20	μA
Low Battery Input Threshold	V <sub>LRB</sub>		1,2,3	All	1.15	1.35	V
LowBattery Input Bias Current	I <sub>LRB</sub>		1	All		10	nA
Feedback Input Bias Current	I <sub>FB</sub>		1	All		10	nA
Low Battery Output Current	I <sub>LBO</sub>	V <sub>LBO</sub> =0.4V, V <sub>LBR</sub> =1.15V	1,2,3	All	500		μA
Low Battery Output Leakage Current	I <sub>LBOL</sub>	V <sub>LBO</sub> =16.5V, V <sub>LBR</sub> =+1.35V	1,2,3	All		3.0	μA

NOTE 3: The algebraic convention, whereby the most negative value is a minimum and the most positive a maximum, is used in this table. Negative current shall be defined as conventional current flow out of a device terminal.

NOTE 4: Guaranteed by correlation with dc pulse measurements.

NOTE 5: The parameter is guaranteed by design, but not tested.

## QUALITY ASSURANCE

Sampling and inspection procedures shall be in accordance with MIL-Prf-38535, Appendix A as specified in Mil-Std-883.

Screening shall be in accordance with Method 5004 of Mil-Std-883. Burn-in test Method 1015:

1. Test Condition, A, B, C, or D.
2. TA = +125°C minimum.
3. Interim and final electrical test requirements shall be specified in Table 2.

Quality conformance inspection shall be in accordance with Method 5005 of Mil-Std-883, including Groups A, B, C, and D inspection.

Group A inspection:

1. Tests as specified in Table 2.
2. Selected subgroups in Table 1, Method 5005 of Mil-Std-883 shall be omitted.

Group C and D inspections:

- a. End-point electrical parameters shall be specified in Table 1.
- b. Steady-state life test, Method 1005 of Mil-Std-883:
  1. Test condition A, B, C, D.
  2. TA = +125°C, minimum.
  3. Test duration, 1000 hours, except as permitted by Method 1005 of Mil-Std-883.

**TABLE 2. ELECTRICAL TEST REQUIREMENTS**

Mil-Std-883 Test Requirements	Subgroups per Method 5005, Table 1
Interim Electric Parameters Method 5004	1
Final Electrical Parameters Method 5005	1*, 2, 3
Group A Test Requirements Method 5005	1, 2, 3
Group C and D End-Point Electrical Parameters Method 5005	1

\* PDA applies to Subgroup 1 only.