

SCOPE: **FIXED +5V CMOS, STEP-UP SWITCHING REGULATOR**

<u>Device Type</u>	<u>Generic Number</u>
01	MAX630M(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>
MAXIM SMD			
JA P	GDIP1-T8 or CDIP2-T8	8 LEAD CERDIP	J8
FB X	GDFP3-F10	10 LEAD FLATPACK	F10

Absolute Maximum Ratings

Supply Voltage $+V_S$ to GND .....	+18V
Output Voltage, $L_X$ and LBD .....	+18V
Input Voltage, Pins 1,2,6,7 .....	-0.3V to $+V_S+0.3V$
$L_X$ Output Current .....	525 mA Peak
LBD Output Current .....	50mA

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

Continuous Power Dissipation .....	$T_A=+70^\circ\text{C}$
8 lead CERDIP(derate 8.0mW/°C above +70°C) .....	640mW
10 lead FLATPACK(derate 5.3mW/°C above +70°C) .....	421mW
Junction Temperature $T_J$ .....	+150°C
Thermal Resistance, Junction to Case	
8 lead CERDIP, $\theta_{JC}$ : .....	55°C/W
10 lead FLATPACK, $\theta_{JC}$ : .....	85°C/W
Thermal Resistance, Junction to Ambient	
8 lead CERDIP, $\theta_{JA}$ : .....	125°C/W
10 lead FLATPACK, $\theta_{JA}$ : .....	190°C/W

Recommended Operating Conditions.

Ambient Operating Range ( $T_A$ ) .....	-55°C to +125°C
Supply Voltage Range, $V_{OUT}=+5V(+V_S)$ .....	5.0V to 16.5V
Supply Voltage Range, Adjustable Mode ( $+V_S$ ) .....	2.6V to 16.5V

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> = +5V Unless otherwise specified	Group A Subgroup	Device type	Limits Min	Limits Max	Units
Supply Voltage	+V <sub>S</sub>	Start-up	1	All	1.8		V
Internal Reference Voltage	VREF		1 2,3	All	1.29 1.25	1.33 1.37	V
Switch Current	I <sub>SW</sub>	V <sub>LX</sub> =400mV  V <sub>LX</sub> =1.0V	1	All	75 100		mA
Supply Current	I <sub>S</sub>	I <sub>LX</sub> =0mA	1 2,3	All		125 200	μA
Output Voltage	V <sub>OUT</sub>	R1=533kΩ, R2=51kΩ NOTE 1	1 2,3	All	14.3 14.0	15.7 16.0	V
Line Regulation	VR <sub>LINE</sub>	R1=533kΩ, R2=51kΩ NOTE 1 5V < V <sub>S</sub> < 10V	1,2,3	All	-1.0	+1.0	%/V <sub>OUT</sub>
Load Regulation	VR <sub>LOAD</sub>	R1=533kΩ, R2=51kΩ I <sub>L</sub> =1mA to 10mA	1,2,3	All	-0.2	+0.2	%/V <sub>OUT</sub>
Reference set internal pull-down resistance	R <sub>IC</sub>	V <sub>IC</sub> =V <sub>S</sub>	1 2,3	All	0.5 0.3	10 10	mΩ
Reference set internal voltage threshold	V <sub>IC</sub>		1,2,3	All	0.2	1.3	V
Switch Leakage Current pull-down resistance	ICO	V <sub>LX</sub> =16.5V	1 2,3	All		1.0 30	μA
Supply Current (Shut down)	ISO		1 2,3	All		1.0 10	μA
Low-Battery Bias Current	I <sub>LBR</sub>		1	All		10	nA
Low-Battery Detector Output Current	I <sub>LBD</sub>	V <sub>LBD</sub> =0.4V, V <sub>LBR</sub> =1.1V	1,2,3	All	250		μA
Low-Battery Detector Output Leakage	I <sub>LBDO</sub>	V <sub>LBD</sub> =16.5V, V <sub>LBR</sub> =1.4V	1	All		5.0	μA
VFB Input Bias Current	I <sub>FB</sub>		1	All		10	nA

NOTE 1: R1 and R2 give a nominal output voltage of 15V.

ORDERING INFORMATION	MAXIM PART NUMBER	SMD NUMBER
8 LEAD CERDIP	MAX630MJA/883B	5962-9454001MPA
10 LEAD FLATPACK	MAX630MFB/883B	5962-9454001MXC

TERMINAL NUMBER	8 LEAD CERDIP	10 LEAD FLATPACK
1	LBR	NC
2	C <sub>X</sub>	LBR
3	L <sub>X</sub>	C <sub>X</sub>
4	GND	L <sub>X</sub>
5	+VS	GND
6	I <sub>C</sub>	NC
7	V <sub>FB</sub>	+VS
8	LBD	I <sub>C</sub>
9		V <sub>FB</sub>
10		LBD

## 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.