SCOPE: 5V, STEP-DOWN, CURRENT-MODE PWM DC-DC CONVERTER

Device Type	Generic Number
01	MAX738A(x)/883B

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

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

Absolute Maximum Ratings

V+ ..... +18V, -0.3V
LX ..... (V+ -21V) to (V+ +0.3V)
OUT..... ±25V

$\overline{SS}$, CC, $\overline{SHDN}$ ..... -0.3V to (V+ +0.3V)
Peak Switch Current (I_{LX}) 2A
Reference Current (I_{REF}) 2.5mA
Lead Temperature (soldering, 10 seconds) ..... +300°C
Storage Temperature ..... -65°C to +150°C

Continuous Power Dissipation ..... T_A=+70°C
8 pin CERDIP(derate 8.0mW/°C above +70°C) 640mW
Junction Temperature T_J ..... +150°C
Thermal Resistance, Junction to Case, ΘJC
8 pin CERDIP..... 55°C/W
Thermal Resistance, Junction to Ambient, ΘJA:
8 pin CERDIP..... 125°C/W

Recommended Operating Conditions

Ambient Operating Range (T_A) ..... -55°C to +125°C
Input Voltage Range ..... 6.0V to 16V

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:

TEST	Symbol	CONDITIONS -55 °C <=T_A<= +125°C V+=12V, I_{LOAD}=0mA Unless otherwise specified	Group A Subgroup	Device type	Limits Min	Limits Max	Units
Output Voltage NOTE 1	V_{OUT}	V+=16.0V, I_{LOAD}=0mA	1,2,3	All	4.75	5.25	V
		V+=6.0V, I_{LOAD}=0mA					
		V+=6.0V, I_{LOAD}=350mA					
		V+=10.2V, I_{LOAD}=750mA					
		V+=16.0V, I_{LOAD}=750mA					
Input Voltage Range	V_{IN}		1,2,3	All	6.0	16.0	V
Supply Current	I_S	Includes switch current	1,2,3	All		3.0	mA
Standby Current	I_{STDBY}	$\overline{SHDN}$ = 0V NOTE 2	1,2,3	All		100.0	µA
Shutdown input threshold	V_{SIT}	V_{IH}	1,2,3	All	2.0		V
		V_{IL}				0.25	
Shutdown input leakage current	I_{SIL}		1,2,3	All		1.0	µA
Under Voltage Lockout	V_{UL}		1,2,3	All		6.0	V
Reference Voltage	V_{REF}		1,2,3	All	1.15	1.30	V
Oscillator frequency	f_{OSC}	V_{IN}=0V, both inputs	1,2,3	All	130	190	kHz

NOTE 1: Line regulation and load regulation are inherently tested by input voltage and load current performed under the conditions and limits of the output voltage tests.

NOTE 2: The standby current typically settles to 25µA, (-55°C to +125°C), within 2 seconds; however to decrease test time, part is guaranteed at 100µA maximum value.

ORDERING INFORMATION:

Package	Device	Part #	SMD #
8 pin CERDIP	01	MAX738AMJA/883B	5962-9312101MPA

TERMINAL CONNECTIONS

1	$\overline{SHDN}$
2	V_{REF}
3	SS
4	CC
5	V_{OUT}
6	GND
7	LX
8	V+

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.