

SCOPE: ADJUSTABLE INVERTING, CURRENT-MODE PWM REGULATOR

<u>Device Type</u>	<u>Generic Number</u>
01	MAX759M(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>
JD	GDIP1-T14 or CDIP2-T14	14 LEAD Cerdip	J14

Absolute Maximum Ratings

Supply Voltage (V^+ to GND) $\frac{1}{2}$ +15.5V, -0.3V
Maximum Input/Output Differential
(Non-bootstrapped) 22V
(Bootstrapped) 17V
Negative Drive Voltage (DRV^- to V^+) -17V +0.3V
Switch Voltage (LX to V^+) -22.5V, +0.3V
Feedback Voltage (V_{OUT} to GND) $\pm 50V$
Auxiliary Input Voltages: _____
SS, CC, SHDN to GND -0.3V to (V^+ +0.3V)
Peak Switch Current (I_{LX}) 2.5A
Reference Current (I_{REF}) 2.5mA

Lead Temperature (soldering, 10 seconds) +300°C
Storage Temperature -65°C to +150°C
Continuous Power Dissipation $T_A = +70^\circ C$
14 pin Cerdip (derate 9.1mW/°C above +70°C) 727mW
Junction Temperature T_J +150°C
Thermal Resistance, Junction to Case, θ_{JC} :
14 pin Cerdip 55°C/W
Thermal Resistance, Junction to Ambient, θ_{JA} :
14 pin Cerdip 110°C/W

Recommended Operating Conditions

Ambient Operating Range (T_A) -55°C to +125°C
Supply Voltage Range -15V to +15V

NOTE 1: Output voltages beyond -5V or bootstrapped operation reduce the allowable supply voltage.
See maximum input/output differential specifications.

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 Bootstrapped Mode, V ₊ = 5V, I _{LOAD} = 0mA, DRV = -V _{OUT} (-5V) Unless otherwise specified	Group A Subgroup	Device type	Limits Min	Limits Max	Units
BOOTSTRAPPED MODE							
Input Voltage Range	V _{INR}	DRV ≥ 5.25V	1,2,3	All	4.0	11.0	V
Output Voltage	V _{OUT}	V ₊ = 4.5V to 11V NOTES 2, 3	1,2,3	All	-4.775	-5.225	V
Output Current	I _{OUT}	V ₊ = 4.5V to 11V NOTE 2	1,2,3	All	200		mA
		V ₊ = 6.0V to 11V			250		
Supply Current	I _{CC}		1,2,3	All		4.0	mA
Standby Current	I _{SB}	V _{SHDN} = 0V NOTE 4	1,2,3	All		100	μA
SHDN Logic High Voltage	V _{OH}		1,2,3	All		V ₊ - 0.5	V
SHDN Logic Low Voltage	V _{OL}		1,2,3	All	0.25		V
SHDN Input Leakage Current	I _{S(SHDN)}		1,2,3	All		1.0	μA
Reference Voltage	V _{REF}	NOTE 3	1,2,3	All	1.16	1.30	V
Oscillator frequency	f _{OSC}		4,5,6	All	145	220	kHz
NON-BOOTSTRAPPED MODE							
Input Voltage Range	V _{INR}		1,2,3	All	4.0	15.0	V
Output Voltage, No Load	V _{OUT}	V ₊ = 4V to 15V NOTE 2	1,2,3	All	-4.775	-5.225	V
Supply Current, No Load	I _{CC}	V ₊ = 5V	1,2,3	All		4.0	mA

NOTE 2: Output voltage tests are performed using an external resistor divider to set the output voltage to -5V, R3=15kΩ, R4=3.69kΩ. See Figure 2.

NOTE 3: Output voltage tolerance is ±4.5% plus external feedback resistor tolerances.

NOTE 2: The standby supply-current specification is set at 100μA due to test method limitations rather than actual device performance. The two-sigma distribution of standby supply current is less than 10μA (over temperature).

ORDERING INFORMATION:	
Package	Part #
14 pin Cerdip	MAX759MJD/883B

TERMINAL CONNECTIONS

1	V ₊	8	V _{OUT}
2	SHDN	9	DRV-
3	V _{REF}	10	GND
4	NC	11	LX
5	SS	12	LX
6	NC	13	V ₊
7	CC	14	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, 4, 5, 6
Group A Test Requirements Method 5005	1, 2, 3, 4, 5, 6
Group C and D End-Point Electrical Parameters Method 5005	1

* PDA applies to Subgroup 1 only.