SCOPE: **5V or ADJUSTABLE, HIGH EFFICIENCY, LOW IQ, STEP-DOWN DC-DC CONTROLLER**

Device Type	Generic Number	Circuit Function
01	MAX649MJA/883B	BiCMOS, step-down DC-DC switching controller

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
J	GDIP1-T8 or CDIP2-T8	8-Pin CERDIP	J8

Absolute Maximum Ratings

Supply Voltage, V+ to GND ..... -0.3V, +17V
REF, SHDN, FB, CS, EXT, OUT ..... -0.3V, (V+ +0.3V)

Lead Temperature (soldering, 60 seconds) ..... +300°C
Storage Temperature ..... -65°C to +160°C

Continuous Power Dissipation .....T_A=70°C
8-Pin CERDIP (derate 8.00mW/°C above +70°C) 640mW
Junction Temperature T_J ..... +150°C
Thermal Resistance, Junction to Case, ΘJC:
Case Outline 8-Pin CERDIP ..... 55°C/W
Thermal Resistance, Junction to Case, ΘJA:
Case Outline 8-Pin CERDIP ..... 125°C/W

Recommended Operating Conditions.
Ambient Operating Range (T_A) ..... -55°C to 125°C

Ordering Information. PKG.Code

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NOTE 1: Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to 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.

TEST	Symbol	CONDITIONS -55 °C <=T_A<= +125°C, V+=5V Unless otherwise specified	Group A Subgroup	Device type	Limits Min	Limits Max	Units
V+ Input Voltage Range	V+		1,2,3	01	4.0	16.5	V
Supply Current	I_Q	V+=16.5V, SHDN≤0.4V(operating, switch off)	1,2,3	01		100	µA
		V+=10V, SHDN≥1.6V(shutdown)				5	
FB Trip Point			1,2,3	01	1.455	1.545	V
FB Input Current	I_{FB}		1,2,3	01		±90	nA
Output Voltage	V_{OUT}	V+=6V to 16.5V	1,2,3	01	4.80	5.20	V
Reference Voltage	V_{REF}	I_{REF}=0µA	1,2,3	01	1.455	1.545	V
REF Load Regulation	V_{REF}	0µA≤I_{REF}≤100µA, sourcing only	1,2,3	01		15	mV
REF Line Regulation		4V≤V+≤16.5V	1,2,3	01		100	µV/V
SHDN Input Current		V+=16.5V, SHDN=0V or V+	1,2,3	01		1	µA
SHDN Input Voltage High	V_{IH}	4V≤V+≤16.5V	1,2,3	01	1.6		V
SHDN Input Voltage Low	V_{IL}	4V≤V+≤16.5V	1,2,3	01		0.4	V
Current-Limit Trip Level (V+ to CS)	V_{CS}	4V≤V+≤16.5V	1,2,3	01	160	260	mV
CS Input Current		4V≤V+≤16.5V	1,2,3	01		±1	µA
Switch Maximum On-Time	tON (max)	V+=12V	9,10,11	01	12	20	µs
Switch Minimum Off-Time	tOFF (min)	V+=12V	9,10,11	01	1.8	2.8	µs

Pin Description

PIN	NAME	FUNCTION
1	OUT	Sense input for fixed 5V, 3.3V, or 3V output operation. OUT is internally connected to the on-chip voltage divider. Although it is connected to the output of the circuit, the OUT pin does not supply current.
2	FB	Feedback input. Connect to GND for fixed-output operation. Connect a resistor divider between OUT, FB, and GND for adjustable-output operation.
3	SHDN	Active-high TTL/CMOS logic level input. Part is placed in shutdown when SHDN is driven high. In shutdown mode the reference and the external MOSFET are turned off, and OUT=0V. Connect to GND for normal operation.
4	REF	1.5V reference output that can source 100 µA. Bypass with 0.1µF.
5	V+	Positive power-supply input.
6	CS	Current-sense input. Connect current-sense resistor between V+ and CS. When the voltage across the resistor equals the current-limit trip level, the external MOSFET is turned off.
7	EXT	Gate drive for external P-channel MOSFET. EXT swings between V+ and GND.
8	GND	Ground

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 = +125C 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 = +125C, 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, 9, 10, 11
Group A Test Requirements Method 5005	1, 2, 3, 9, 10, 11
Group C and D End-Point Electrical Parameters Method 5005	1**

* PDA applies to Subgroup 1 only.