SCOPE: SWITCHED-CAPACITOR VOLTAGE CONVERTER

Device Type	Generic Number	SMD Number
01	ICL7660AM(x)/883B	5962-3870702

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
SMD	MAXIM			
GC	TV	MACY1-X8	8 LEAD CAN	TO99
PA	JA	GDIP1-T8 or CDIP2-T8	8 LEAD CERDIP	J8

Absolute Maximum Ratings

Supply Voltage (V^+ to GND, or GND to V_{OUT}) 10.5V
Input Voltage on N.C. Boost, LV, OSC 1/..... $-0.3V \le V_{IN} \le (V^+ + 0.3V)$
LV Input Current 1/..... 20µA
Output Short-Circuit Duration ($V^+ \le 5.5V$) ..... Continuous
Lead Temperature (soldering, 10 seconds) ..... +300°C
Storage Temperature ..... -65°C to +150°C

Continuous Power Dissipation ..... T_A=+70°C
8 lead CERDIP(derate 8.0mW/°C above +70°C) 640mW
8 lead CAN (derate 6.7mW/°C above +70°C) 533mW
Junction Temperature T_J ..... +150°C
Thermal Resistance, Junction to Case, ΘJC:
Case Outline 8 lead CERDIP..... 55°C/W
Case Outline 8 lead CAN..... 45°C/W
Thermal Resistance, Junction to Ambient, ΘJA:
Case Outline 8 lead CERDIP..... 125°C/W
Case Outline 8 lead CAN ..... 150°C/W

Recommended Operating Conditions.

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

NOTE 1: Connecting any input terminal to voltages greater than V+ or less than ground may cause latchup. Do not apply any inputs from sources operating from external supplies before device power-up.

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^+=+5.0V, LV pin=0V,I_{LOAD}=0mA Unless otherwise specified	Group A Subgroup	Device type	Limits Min	Limits Max	Units
SWITCH							
Supply Current	I+	RL=∞, Boost and OSC = no connection, LV open	1 2,3	All		175 250	µA
Supply Current 2/	I+	RL=∞, Boost and OSC = no connection, LV open, V^+=10.5V	1 2,3	All	3.5 2.0	5.5 7.5	mA
Supply Current 2/	I+	RL=∞, Boost and OSC = no connection, LV open, V^+=10V	1 2,3	All	3.0 2.0	5.0 7.0	mA
Supply Voltage Range 3/	V+	RL=10kΩ, LV open	1,2,3	All	3.0	10.0	V
Supply Voltage Range 3/	V+	RL=10kΩ, LV to GND	1,2,3	All	1.5	3.5	V
Output Resistance	R_{OUT}	I_L =20mA, f_{OSC}=5kHz, LV open	1 2,3	All		100 150	Ω
Output Resistance	R_{OUT}	I_L =3mA, f_{OSC}=2.7kHz, LV to GND V+=2V	1 2,3	All		250 400	Ω
Power Efficiency	P_{EFF}	R_L=5kΩ, f_{OSC}=5kHz, LV open	1	All	95		%
Voltage Conversion Efficiency	VC_{EFF}	RL=∞, LV open	1	All	99		%
Output Voltage 2/	V_{OUT}	V+=10V	1 2,3	All	-9.4 -9.0	-10 -10	V
LV pin Voltage 2/	V_{LV}	V+=10V	1 2,3	All	4.0 3.0	7.0 8.0	V

NOTE 2: Guaranteed if not tested to the limits in Table 1.

NOTE 3: ICL7660 can operate without an external output diode over the full temperature and voltage ranges. It can also be used with the external diode DX when replacing the Intersil ICL7660. Tests performed with DX out of circuit.

ORDERING	INFORMATION:			Terminal	ICL7660	ICL7660
SMD #	Maxim #	Pkg.		Number	J8	TO99
5962-3870702MPA	ICL7660AMJA/883B	J8		1	(NC) BOOST	(NC) BOOST
5962-3870702MGC	ICL7660AMTV/883B	TO99		2	CAP+	CAP+
				3	GND	GND
				4	CAP-	CAP-
				5	VOUT	VOUT
				6	LV	LV
				7	OSC	OSC
				8	V+	V+ and Case

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.