SCOPE: CALIBRATED QUAD 12-BIT VOLTAGE-OUTPUT D/A CONVERTER

Device Type	Generic Number
01	MAX526CM(x)/883B
02	MAX526DM(x)/883B
03	MAX527CM(x)/883B
04	MAX527DM(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
YG	GDIP3-T24 or CDIP4-T24	24 LEAD Sidebraze	Y24

Absolute Maximum Ratings:

V_{DD} to AGND or DGND ..... -0.3V, +17V
V_{SS} to AGND or DGND ..... -7V, +0.3V
Digital Input Voltage to AGND or DGND ..... -0.3V, V_{DD} +0.3V
VREF to AGND or DGND ..... -0.3V, V_{DD} +0.3V
V_{OUT} to AGND or DGND ..... V_{DD}, V_{SS}
Maximum Current into Any Pin 50mA

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

Continuous Power Dissipation ..... T_A=+70°C
24 pin Sidebraze(derate 14.3mW/°C above +70°C) 1143mW
Junction Temperature T_J ..... +150°C
Thermal Resistance, Junction to Case, ΘJC
24 pin Sidebraze ..... 25°C/W
Thermal Resistance, Junction to Ambient, ΘJA:
24 pin Sidebraze ..... 70°C/W

Recommended Operating Conditions

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

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_{DD}=+15V, V_{SS}=-5V, VREF=10V, AGND=DGND=0V Unless otherwise specified	Group A Subgroup	Device type	Limits Min	Limits Max	Units
STATIC PERFORMANCE		Analog Section (RL=5kΩ, C_L=100pF)					
Resolution	N		1,2,3	All	12.0		Bits
Total Unadjusted Error	TUE		1,2,3	01 02	-3.0 -4.0	+3.0 +4.0	LSB
Integral Nonlinearity	INL		1,2,3	01,03 02,04	-0.5 -1.0	+0.5 +1.0	LSB
Differential Nonlinearity	DNL	Guaranteed monotonic	1,2,3	All	-1.0	+1.0	LSB
Offset Error			1 2,3	01	-1.0 -3.0	+1.0 +3.0	LSB
Offset Error			1 2,3	02	-2.0 -4.0	+2.0 +4.0	LSB
Offset Error			1 2,3	03	-3.0 -9.0	+3.0 +9.0	mV
Offset Error			1 2,3	04	-6.0 -15.0	+6.0 +15.0	mV
Gain Error			1,2,3	01,02 03,04	-2.0 -4.0	+2.0 +4.0	LSB
Power Supply Rejection	$\Delta Gain/\Delta V_{DD}$ $\Delta Gain/\Delta V_{SS}$ $\Delta Offset/\Delta V_{DD}$ $\Delta Offset/\Delta V_{SS}$	V_{DD} from +10.8V to +16.5V V_{SS} from -4.5 to -5.5V V_{DD} from +10.8V to +16.5V V_{SS} from -4.5V to -5.5V	1	01,02 01,02 01,02 01,02	-0.01 -0.01 -0.075 -0.03	+0.01 +0.01 +0.075 +0.03	LSB/%
Power Supply Rejection	$\Delta Gain/\Delta V_{DD}$ $\Delta Gain/\Delta V_{SS}$ $\Delta Offset/\Delta V_{DD}$ $\Delta Offset/\Delta V_{SS}$	V_{DD} from +4.5V to +5.5V V_{SS} from -4.5 to 5.5V V_{DD} from +4.5V to +5.5V V_{SS} from -4.5V to -5.5V	1	03,04 03,04 03,04 03,04	-0.02 -0.02 -0.05 -0.05	+0.02 +0.02 +0.05 +0.05	LSB/%
MATCHING PERFORMANCE							
Gain Error			1	All	-1.0	+1.0	LSB
REFERENCE INPUT							
Reference Input Range	REF		1,2,3	01,02 03,04	0 0	V_{DD}-4 V_{DD}-2.2	V
Reference Input Resistance	RREF		1,2,3	All	5.0		kΩ
DIGITAL INPUTS							
Input High Voltage	V_{IH}		1,2,3	All	2.4		V
Input Low Voltage	V_{IL}		1,2,3	All		0.8	V
Input Leakage Current	I_{IN}	V_{IN}=0V or V_{DD}	1,2,3	All		+1.0	µA
Input Capacitance	C_{IN}	NOTE 1		All		10.0	pF

TEST	Symbol	CONDITIONS -55 °C ≤T_A≤ +125°C V_{DD}=+15V, V_{SS}=-5V, VREF=10V, AGND=DGND=0V Unless otherwise specified	Group A Subgroup	Device type	Limits Min	Limits Max	Units
TIMING CHARACTERISTICS							
$\overline{CS}$ Pulse Width	t_{CS}		9,10,11	01,02 03,04	100 200		ns
$\overline{WR}$ Pulse Width	t_{WS}		9,10,11	01,02 03,04	100 200		ns
$\overline{CS}$ to $\overline{WR}$ Setup	t_{CWS}		9,10,11	All	0		ns
$\overline{CS}$ to $\overline{WR}$ Hold	t_{CWH}		9,10,11	All	0		ns
$\overline{WR}$ Data Valid to WR Setup Time	t_{DS}		9,10,11	All	75		ns
$\overline{WR}$ Data Valid to WR Hold Time	t_{DH}		9,10,11	01,02 03,04	10 0		ns
$\overline{LDAC}$ Pulse Width	t_{LDAC}		9,10,11	01,02 03,04	120 150		ns
Address to $\overline{WR}$ Setup	t_{AS}		9,10,11	All	25		ns
Address to $\overline{WR}$ Hold	t_{AH}		9,10,11	All	0		ns
POWER SUPPLIES							
Positive Supply Range	V_{DD}		1,2,3	01,02 03,04	10.8 4.75	16.5 5.5	V
Negative Supply Range	V_{SS}		1,2,3	All	-4.5	-5.5	V
Positive Supply Current	I_{DD}	NOTE 2	1 2,3	01,02		20 28	mA
			1 2,3	03,04		12 18	
Negative Supply Current	I_{SS}	NOTE 2	1 2,3	01,02		18 26	mA
			1 2,3	03,04		10 16	

NOTE 1: Guaranteed by design. Not production tested.
NOTE 2: Digital inputs at 2.4V; with digital inputs at 0V, I_{DD} decreases typically by 1.5mA at +25°C.

	Package	ORDERING INFORMATION:
01	24 pin Sidebraze	MAX526CMYG/883B
02	24 pin Sidebraze	MAX526DMYG/883B
03	24 pin Sidebraze	MAX527CMYG/883B
04	24 pin Sidebraze	MAX527DMYG/883B

TERMINAL CONNECTIONS:

Pin		Pin		Pin	
1	V_{OUTC}	9	D7	17	A1
2	V_{OUTB}	10	D6	18	A0
3	V_{OUTA}	11	D5	19	VREFCD
4	V_{SS}	12	D4	20	$\overline{WR}$
5	AGND	13	D11/D3	21	$\overline{CSLSB}$
6	VREFAB	14	D10/D2	22	$\overline{CSMSB}$
7	DGND	15	D9/D1	23	V_{DD}
8	$\overline{LDAC}$	16	D8/D0	24	V_{OUTD}

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, 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.