SCOPE: DUAL, SPST, HIGH-SPEED CHANNEL ANALOG SWITCHES

Device Type	Generic Number	SMD Number
01	DG403A(x)/883B	5962-89763

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			
E	K	GDIP1-T16 or CDIP2-T16	16 LEAD	J16
2	Z	CQCC1-N20	20-Pin Ceramic LCC	L20

Absolute Maximum Ratings

Voltage Referenced to V^-

V^+ to V^- 44V
V^+ to GND 25V
V_L ..... (GND-0.3V) to V^+ +0.3V)
Digital Inputs, V_S, V_D 1/ ..... .(V^- -2V) to (V^+ +2V)
or 30mA whichever occurs first.
Current, Any terminal 30mA
Peak Current, S or D (Pulsed at 1ms, 10% duty cycle max) 100mA
Lead Temperature (soldering, 10 seconds) ..... +300°C
Storage Temperature ..... -65°C to +150°C

Continuous Power Dissipation ..... T_A=+70°C
16 lead CERDIP(derate 10.0mW/°C above +70°C) 800mW
20 lead LCC (derate 9.1 mW/°C above +70°C) 727mW
Junction Temperature T_J ..... +150°C
Thermal Resistance, Junction to Case, ΘJC:
Case Outline 16 lead CERDIP..... 50°C/W
Case Outline 20 lead LCC ..... 20°C/W
Thermal Resistance, Junction to Ambient, ΘJA:
Case Outline 16 lead CERDIP..... 100°C/W
Case Outline 20 lead LCC ..... 110°C/W

Recommended Operating Conditions

Ambient Operating Range (T_A) ..... -55°C to +125°C
Positive Supply Voltage (V^+) ..... +15V
Negative Supply Voltage (V^-) ..... -15V
V_{INL} (max) 0.8V
V_{INH} (min) 2.4V
Logic Supply Voltage (V_L) ..... +5V
Charge Injection 60pC
Crosstalk (channel-to-channel) 2/ 90dB

1/ Signals on S_X, D_X or IN_X exceeding V^+ or V^- are clamped by internal diodes. Limit forward current to maximum current ratings.
2/ Crosstalk performance is improved with case outline for 20LCC.

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^+=+15V, V^-=-15V, GND=0V V_{INH}=2.4V, V_{INL}=0.8V, V_L=5V Unless otherwise specified	Group A Subgroup	Device type	Limits Min	Limits Max	Units
SWITCH							
Analog-Signal Range	V_{ANALOG}		1,2,3	All	-15	15	V
Drain-Source ON Resistance	$r_{DS(ON)}$	V^+=+13.5V, V^-=-13.5V, I_S=-10mA, V_D=±10V, V_{INH}=2.4V, V_{INL}=0.8V	1 2,3	All		30 45	Ω
Drain-Source ON Resistance Matching between Channels	Δr_{DS} (ON)	V^+=+16.5V, V^-=-16.5V, I_S=-10mA, V_D=+5V, 0V, -5V	1 2,3	All		3.0 5.0	Ω
Switch-OFF Leakage Current	$I_{S(OFF)}$	V^+=+16.5V, V^-=-16.5V, V_D=±15.5V, V_S=±15.5V	1 2	All	-0.25 -20	0.25 20	nA
Drain-OFF Leakage Current	$I_{D(OFF)}$	V^+=+16.5V, V^-=-16.5V, V_D=±15.5V, V_S=±15.5V	1 2	All	-0.25 -20	0.25 20	nA
Drain-ON Leakage Current	$I_{D(ON)}$ or $I_{S(ON)}$	V^+=+16.5V, V^-=-16.5V, V_D=±15.5V, V_S=±15.5V	1 2	All	0.4 40	0.4 40	nA
INPUT							
Input Current/Voltage High	I_{INH}	V_{IN}= 2.4V, all others = 0.8V	1,2	All	-1.0	1.0	µA
Input Current/Voltage Low	I_{INL}	V_{IN}= 0.8V, all others = 2.4V	1,2	All	-1.0	1.0	µA
SUPPLY							
Power-Supply Range					±4.5	±20	V
Positive Supply Current	I+	All channels on or off, V^+=+16.5V, V^-=-16.5V, V_{IN}=0V or 5V	1 2,3	All	-1.0 -5.0	1.0 5.0	µA
Negative Supply Current	I-	All channels on or off, V^+=+16.5V, V^-=-16.5V, V_{IN}=0V or 5V	1 2,3	All	-1.0 -5.0	1.0 5.0	µA
Logic Supply Current	I_L	All channels on or off, V^+=+16.5V, V^-=-16.5V, V_{IN}=0V or 5V	1 2,3	All	-1.0 -5.0	1.0 5.0	µA
Ground Current	I_{GND}	All channels on or off, V^+=+16.5V, V^-=-16.5V, V_{IN}=0V or 5V	1 2,3	All	-1.0 -5.0	1.0 5.0	µA
DYNAMIC							
Turn-On Time	t_{ON}	R_L=300Ω, CL=35pF, Figure 1	9 10,11	All		150 275	ns
Turn-Off Time	t_{OFF}	R_L=300Ω, CL=35pF, Figure 2	9 10 11	All		100 250 175	ns
Break-Before-Make Delay	t_D	R_L=300Ω, CL=35pF, Figure 3	9	All	10	150	ns

FIGURE 1: SWITCHING TIME TEST CIRCUIT: See Commercial Data Sheet
FIGURE 2: SWITCHING TIME TEST CIRCUIT: See Commercial Data Sheet
FIGURE 3: BREAK-BEFORE-MAKE INTERVAL: See Commercial Data Sheet

ORDERING INFORMATION:	**SMD Number**
DG403AK/883B 16 CDIP	5962-8976301MEA
DG403AZ/883B 20 LCC	5962-8976301M2C

TRUTH TABLES:

DG403	DG403	DG403
LOGIC	SWITCHES 1, 2	SWITCHES 3,4
0	OFF	ON
1	ON	OFF

TERMINAL CONNECTIONS:

	DG403	DG403
	J16	LCC20
1	D1	NC
2	NC	D1
3	D3	NC
4	S3	D3
5	S4	S3
6	D4	NC
7	NC	S4
8	D2	D4
9	S2	NC
10	IN2	D2
11	V+	NC
12	V_L	S2
13	GND	IN2
14	V-	V+
15	IN1	V_L
16	S1	NC
17		GND
18		V-
19		IN1
20		S1

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.
** Subgroups 10 and 11 if not tested shall be guaranteed to the limits specified in Table 1.