

SCOPE: QUAD SPST CMOS ANALOG SWITCHES

<u>Device Type</u>	<u>Generic Number</u>
01	HI(x)-201A/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>
1	GDIP1-T16 or CDIP2-T16	16 LEAD CERDIP	J16
4	CQCC1-N20	20-Pin Ceramic LCC	L20

Absolute Maximum Ratings

Supply Voltage (Between V ⁺ and V ⁻)	44V
V ⁺ to Ground	22V
Digital Input Overvoltage Range	V ⁺ Supply +4V V ⁻ Supply -4V
Analog Input Voltage (one switch).....	V ⁺ Supply +2V V ⁻ Supply -2V
Continuous Current, Any terminal except S or D <u>1</u> /.....	30mA
Peak Current, S or D(Pulsed at 1ms, 10% duty cycle max) <u>1</u> /.....	80mA
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 10mW/°C above +70°C)	800mW
20-Pin LCC (derate 9.1mW/°C above +70°C)	727mW
Junction Temperature T _J	+150°C
Thermal Resistance, Junction to Case, Θ _{JC} :	
Case Outline 16 lead CERDIP.....	50°C/W
Case Outline 20-Pin LCC	20°C/W
Thermal Resistance, Junction to Ambient, Θ _{JA} :	
Case Outline 16 lead CERDIP.....	100°C/W
Case Outline 20-Pin 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
Minimum Digital High Level Input Voltage (V _{IH})	+2.4V
Maximum Digital Low Level Input Voltage (V _{IL})	+0.8V

NOTE 1: Signals on S_X, D_X, or IN_X exceeding V⁺ or V⁻ are clamped by internal diodes, and are also internally current limited to 25mA.

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 Unless otherwise specified	Group A Subgroup	Device type	Limits Min	Limits Max	Units
SWITCH							
Analog-Signal Range	V _{ANALOG}	V _S =±15V NOTE 2	1,2,3	All	-15	15	V
Drain-Source On Resistance	r _{DS(ON)}	I _S =-1mA, V _D =±10V, V _{IN} =0.8V	1,2 3	All		70 100	Ω
Source Off Leakage Current	I _{S(OFF)}	V _S =14V, V _D =-/±14V, V _{IN} =2.4V	1 2,3	All	-2 -100	2 100	nA
Drain Off Leakage Current	I _{D(OFF)}	V _S =14V, V _D =-/±14V, V _{IN} =2.4V	1 2,3	All	-2 -100	2 100	nA
Channel On Leakage Current	I _{D(ON)} + I _{S(ON)}	V _D =V _S =+14V, V _{IN} =0.8V	1 2,3	All	-2 -100	2 100	nA
		V _D =V _S =-14V, V _{IN} =0.8V	1 2,3	All	-2 -200	2 200	
INPUT							
Input Current with Voltage High	I _{INH}	V _{IN} =2.4V	1 2,3	All	-0.5 -1.0		μA
		V _{IN} =15V	1 2,3	All		0.5 1.0	
Input Current with Voltage Low	I _{INL}	V _{IN} =0.8V	1 2,3	All	-0.5 -1.0		μA
SUPPLY							
Positive Supply Current	I+	All channels on or off	1,2 3	All		1.5 2.0	mA
Negative Supply Current	I-	All channels on or off	1,2 3	All	-1.5 -2.0		mA
DYNAMIC							
Turn-On time	t _{ON}	Figure 1	9 10,11	All		600 800	ns
Turn-Off time	t _{OFF}	Figure 1	9 10,11	All		500 650	ns

NOTE 2: V_{REF} may be left open.

FIGURE 1: Switching Time Test Circuit. See commercial datasheet.

TRUTH TABLE

TERMINAL CONNECTION

			Terminal NUMBER	J16	L20
Device Type	Logic	Switch	1	A ₁	NC
HIx-201	0	ON	2	OUT ₁	A ₁
	1	OFF	3	IN ₁	OUT ₁
			4	V-	IN ₁
			5	GND	V-
			6	IN ₄	NC
			7	OUT ₄	GND
			8	A ₄	IN ₄
			9	A ₃	OUT ₄
			10	OUT ₃	A ₄
			11	IN ₃	NC
			12	V _{REF}	A3
ORDERING	INFORMATION		13	V+	OUT ₃
	Maxim #	Pkg.	14	IN ₂	IN ₃
	HI1-201/883B	J16	15	OUT ₂	V _{REF}
	HI4-201/883B	L20	16	A ₂	NC
			17		V+
			18		IN ₂
			19		OUT ₂
			20		A ₂

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
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.