SCOPE: LOW POWER FAST CMOS ANALOG SWITCHES

Device Type	Generic Number	Circuit Function
01	IH5148M(x)/883B	Two-channel, 30Ω, SPST switch
02	IH5149M(x)/883B	Two-channel, 30Ω, DPST switch
03	IH5150M(x)/883B	One-channel, 30Ω, SPDT switch
04	IH5151M(x)/883B	Two-channel, 30Ω, SPDT switch

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
JE	GDIP1-T16 or CDIP2-T16	16 LEAD CERDIP	J16

Absolute Maximum Ratings:

V^+ to V^- 33V
V^+ to V_D 30V
V_D to V^- 30V
V_D to V_S ..... ±22V
V_L to V^- 33V
V_L to V_{IN} 30V
V_L to GND 20V
V_{IN} to GND 20V
V_R to V- 33V
V_R to V_{IN} 2V
Continuous Current, Any terminal (except S or D) 30mA
Peak Current, S or D (Pulsed at 1ms, 10% duty cycle max) 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 10.0mW/°C above +70°C) 800mW
Junction Temperature T_J ..... +150°C
Thermal Resistance, Junction to Case, ΘJC:
Case Outline 16 lead CERDIP..... 50°C/W
Thermal Resistance, Junction to Ambient, ΘJA:
Case Outline 16 lead CERDIP..... 100°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_R 0V
V_L 5V

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_{AH}=2.4V, V_{AL}=0.8V, V_L=5V Unless otherwise specified	Group A Subgroup	Device type	Limits Min	Limits Max	Units
INPUT							
Input Current, Input Voltage High	I_{IH}	V_{IN}=2.4V, 5V	1,3 2	All	-1 -1	1 10	µA
Input Current, Input Voltage Low	I_{IL}	V_{IN}=0.0V	1,3 2	All	-1 -10	1 1	µA
SWITCH							
Drain-Source ON Resistance	$r_{DS(ON)}$	I_S =±10mA, V_S=±10V,	1,3 2	All		45 50	Ω 1/
Drain-Source ON Resistance	$r_{DS(ON)}$	I_S =±10mA, V_D=±7.5V, NOTE 2 V_{CC}=±10V	1,3 2	All		75 150	Ω
Source- OFF Leakage Current	$I_{S(OFF)}$	V_S=±10V, V_D=±10V, V_{IN}=3/	1 2,3	All		±1 ±100	nA
Drain- OFF Leakage Current	$I_{D(OFF)}$	V_S=±10V, V_D=±10V, V_{IN}=3/	1 2,3	All		±1 ±100	nA
Channel-On Leakage Current	$I_{D(ON)}$	V_D=V_S=±10V, V_{IN}=3/	1 2,3	All		±2 ±200	nA
SUPPLY							
Positive Supply Current	I+	V_{IN}=0V, 5V	1 2,3	All		200 300	µA
Negative Supply Current	I-	V_{IN}=0V, 5V	1 2,3	All	-200 -300		µA
Logic Supply Current	I_L+	V_{IN}=0V, 5V	1 2,3	All		-200 -300	µA
Reference Supply Current	I_R	V_{IN}=0V, 5V	1 2,3	All	-200 -300		µA
Turn-On Time	t_{ON}	Figure 1	9 10 11	All		500 800 450	ns
Turn-Off Time	t_{OFF}	Figure 1	9 10 11	All		450 600 350	ns
Single channel Isolation	V_{ISO}	R_L=100Ω, f=100kHz, V_{IN}=2Vp-p, CL=5pF, NOTE 2	9	All	60		dB
Crosstalk between channel	V_{CT}	R_L=100Ω, f=100kHz, V_{IN}=2Vp-p, CL=5pF, NOTE 2	9	All	60		dB
Charge Transfer Error	VCTE	V_{IN}=0V, C_L=10nF, NOTE 2	9	All		30	mV
Driver Input Capacitance	CA	V_{IN}=0V, NOTE 2	9	All		45	pF
Switch Input Capacitance	CIS	Switch Off, NOTE 2	9	All		60	pF
Switch Output Capacitance	COS	Switch Off, NOTE 2	9	All		60	pF

NOTE 1: The listed resistance limits correspond to the following voltage values:
45Ω and 75Ω = ±9.25V, ±6.75V
50Ω and 150Ω = ±8.55V, ±6.0V
NOTE 2: Guaranteed if not tested to the limits specified.
NOTE 3:

Device Types	**V_{IN}**	**Channels ON**	**Channels OFF**
01	2.4V 0.8V	1, 2 3, 4	3, 4 1, 2
03	2.4V 0.8V	2, 3 1, 4	1,4 2,3
02, 04	2.4V 0.8V	1, 2, 3, 4	 1, 2, 3, 4

Figure 1. Switching Time: See Commercial Data Sheet.

TERMINAL CONNECTIONS

TERMINAL NUMBER	**03 IH5150**	**04 IH5151**	**02 IH5149**	**01 IH5148**
0	J16	J16	J16	J16
1	D1	D1	D1	D1
2				
3	D2	D3	D3	
4	S2	S3	S3	
5		S4	S4	
6		D4	D4	
7				
8		D2	D2	D2
9		S2	S2	S2
10		IN2	IN2	IN2
11	V+	V+	V+	V+
12	VL	VL	VL	VL
13	VR	VR	VR	VR
14	V-	V-	V-	V-
15	IN	IN1	IN1	IN1
16	S1	S1	S1	S1

ORDERING INFORMATION

Device Type	**Generic Number**	**Circuit Function**
01	IH5148MJE/883B	Two Channel, 30Ω SPST
02	IH5149MJE/883B	Two Channel, 30Ω DPST
03	IH5150MJE/883B	One Channel, 30Ω SPDT
04	IH5151MJE/883B	Two Channel, 30Ω Dual SPDT

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, 9, 10, 11
Group C and D End-Point Electrical Parameters Method 5005	1

* PDA applies to Subgroup 1 only.