



Quad, SPST, CMOS RF/Video Analog Switch

IH5352/883B

1.0 SCOPE

- 1.1 This specification covers the detail requirements for a quad, SPST, CMOS switch. This circuit is processed in accordance with MIL-STD-883 and is fully compliant to paragraph 1.2.1.

It is highly recommended that this data sheet be used as a baseline for new military or aerospace source control drawings.

For typical applications and operating characteristics, consult Maxim's data books.

1.2 Part Numbers

Device	Part Number
-1	IH5352M(X)/883B

1.3 Package

(X)	Package	Description
JE	J-16	16-Pin Ceramic Dual-In-Line Package (CERDIP)

Note: See *Package Information* section for package drawing and dimensions.

1.4 Absolute Maximum Ratings

($T_A = +25^\circ\text{C}$, unless otherwise noted.)

V_+ to GND	18V
V_- to GND	-18V
V_L to GND	V_+ to V_-
Logic Control Voltage	V_+ to V_-
Analog Input Voltage	V_+ to V_-
Current, Any Terminal	50mA
Power Dissipation ($T_j = +150^\circ\text{C}$)	
up to $+70^\circ\text{C}$	800mW
derate above $+70^\circ\text{C}$	10mW/ $^\circ\text{C}$
Operating Temperature Range	-55°C to $+125^\circ\text{C}$
Storage Temperature Range	-65°C to $+150^\circ\text{C}$
Lead Temperature (soldering, 10 sec)	$+300^\circ\text{C}$

- 1.5 Thermal Resistance $\Theta_{JC} = 50^\circ\text{C/W}$
 $\Theta_{JA} = 100^\circ\text{C/W}$

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2.0 REQUIREMENTS

2.1 Electrical performance characteristics are specified in Table 1 and apply over the full ambient operating temperature range, unless otherwise specified.

TABLE 1. ELECTRICAL PERFORMANCE CHARACTERISTICS (Note 1)

CHARACTERISTICS	SYMBOL	CONDITIONS		DEVICE TYPES	GROUP A SUB-GROUPS	LIMITS		UNITS
						MIN	MAX	
Input Logic Current High	I _{INH}	V _{IN} ≥ 2.4V		All	1, 3	±1		μA
					2	±10		
Input Logic Current Low	I _{INL}	V _{IN} = 0V		All	1, 3	±1		μA
					2	±10		
Switch On Resistance	r _{DS(ON)}	I _S = 10mA, V _{IN} ≥ 2.4V (Note 2)	V _D = ±5V	All	1, 3	75		Ω
			V _D = ±10V		2	100		
					1, 3	125		
					2	175		
		I _S = 10mA, V _{IN} = 3V, V _D = ±3V, V ₋ = -5V, V ₊ = V _L = 5V	1, 3		250			
			2		350			
Switch-Off Leakage Current	I _{D(OFF)}	V _D = ±5V, V _S = ∓5V	V _{IN} ≤ 0.8V	All	1	±1.0		nA
	I _{S(OFF)}	V _D = ±14V, V _S = ∓14V			2	50		
		1			±1.0			
		2			50			
Switch-On Leakage Current	I _{D(ON)} + I _{S(ON)}	V _D = V _S = ±5V	V _{IN} ≥ 2.4V	All	1	±1		nA
		V _D = V _S = ±14V			2	50		
					1	±1		
					2	100		
Positive Supply Quiescent Current	I ₊	V _{IN} = 0V or 5V		All	1, 3	1		μA
					2	10		
Negative Supply Quiescent Current	I ₋	V _{IN} = 0V or 5V		All	1, 3	1		μA
					2	10		
Logic Supply Quiescent Current	I _L	V _{IN} = 0V or 5V		All	1, 3	1		μA
					2	10		
Switch-On Time	t _{ON}	Figure 1		All	9, 10, 11	300		ns
Switch-Off Time	t _{OFF}	Figure 1		All	9, 10, 11	150		ns

Note 1: $V_+ = 15V, V_- = -15V, V_L = +5V$, unless otherwise noted.

Note 2: Some channels are turned off by high (1) logic inputs and other channels by low (0) inputs; however, 0.8V and 2.4V describe the minimum range for proper switching. Refer to logic diagrams for logical input value for on or off states.

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3.0 QUALITY ASSURANCE

- 3.1** Sampling and inspection procedures shall be in accordance with MIL-M-38510 and, to the extent specified, with MIL-STD-883.
- 3.2** 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) $T_A = +125^{\circ}\text{C}$, minimum.
 - (3) Interim and final electrical test requirements shall be as specified in Table 2.
- 3.3** 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.
- 3.4** Groups 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, or D.
 - (2) $T_A = +125^{\circ}\text{C}$, 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 Electrical Parameters (Method 5004)	1
Final Electrical Parameters (Method 5004)	1, * 2, 3, 9
Group A Test Requirements (Method 5005)	1, 2, 3, 9, 10, ** 11**
Groups 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 in Table 1.

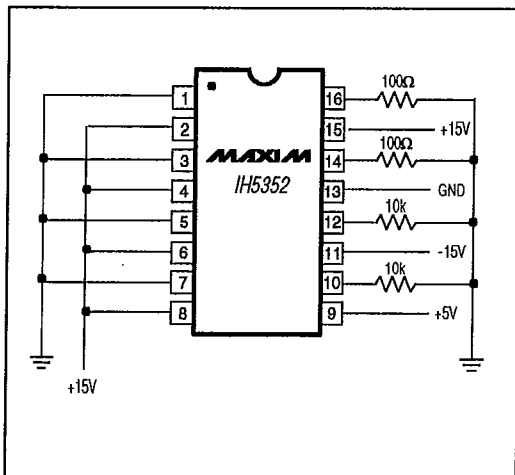
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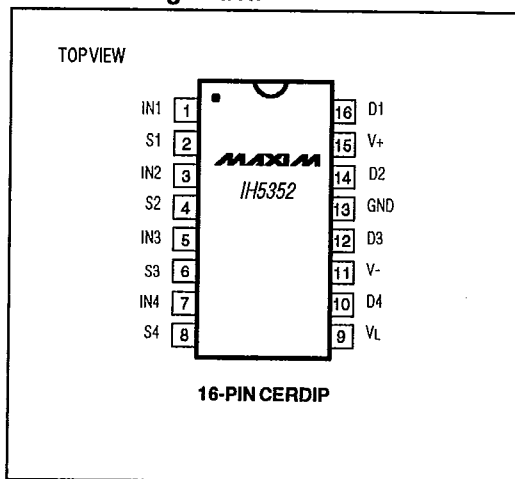
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4.0 Life Test/Burn-In Circuit



4.1 Pin Configuration



4.2 Timing Diagrams

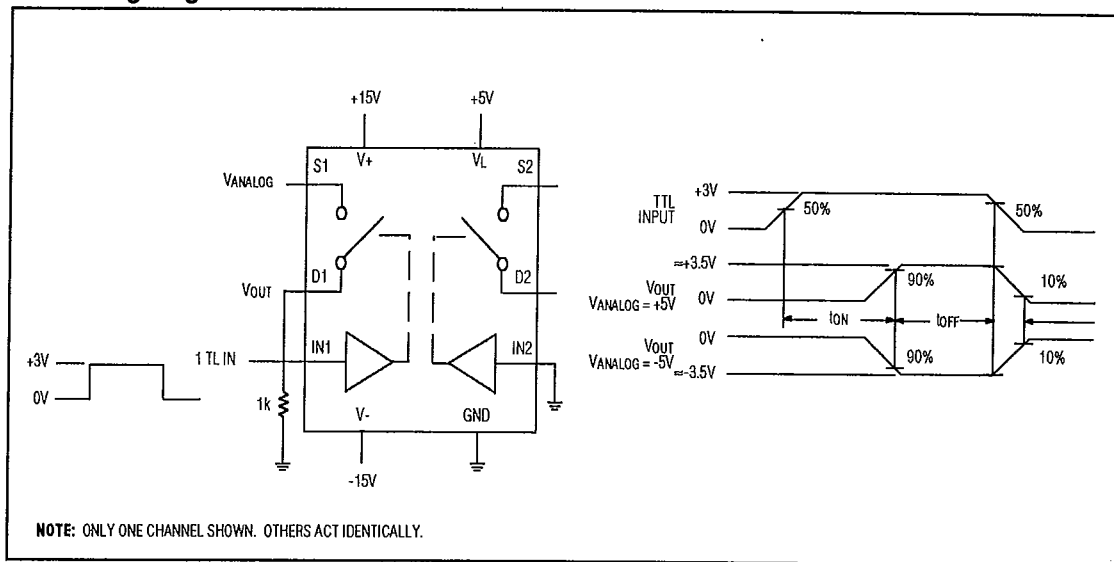


Figure 1. Switching-Time Test Circuit and Waveforms

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