

Dual/Quad RF/Video Switches

ABSOLUTE MAXIMUM RATINGS

Supply Voltages V ⁺ and V ⁻	±17V
Current in Terminal	50mA
Analog Input Voltage	V ⁺
Operational Temperature Range	±30V
(M Version)	-55°C to +125°C
(E Version)	-40°C to +85°C
(C Version)	0°C to +70°C

Continuous Power Dissipation (T _A = +70°C)	
14-Pin Plastic DIP (derate 10.00mW/°C above +70°C)	800mW
16-Pin Plastic DIP (derate 10.53mW/°C above +70°C)	842mW
16-Pin Wide SO (derate 9.52mW/°C above +70°C)	762mW
10-Pin TO-100 (derate 6.67mW/°C above +70°C)	533mW
Storage Temperature Range	-65°C to +150°C
Logic Control Voltage	V ⁺ to V ⁻
Voltage on VL Pin	V ⁺ to V ⁻
Lead Temperature (Soldering, 10sec)	+300°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.

ELECTRICAL CHARACTERISTICS

(V⁺ = +15V, V_L = +5V, V⁻ = -15V, T_A = 25°C unless otherwise specified)

PARAMETER	SYMBOL	CONDITIONS	TYP (Note 1)	M GRADE DEVICE			I/C GRADE DEVICE			UNITS
				-55°C	+25°C	+125°C	-40/-20/ 0°C	+25°C	+85/ +70°C	
Supply Voltage Ranges Positive Supply Logic Supply Negative Supply	V ⁺ V _L V ⁻	(Note 3)	4.5 > 16 4.5 > V ⁺ -4 > -16		5 to 15 5 to V ⁺ -5 to -15			5 to 15 5 to V ⁺ -5 to -15		V
Switch "ON" Resistance (Note 4)	r _{ds(ON)}	V _D = -5V to +5V I _S = 10 mA, V _{IN} = 2.4V V _D = -10V to +10V		75	75	100	75	75	100	Ω
Switch "ON" Resistance	r _{ds(ON)}	V = V _L = 5V, V _{IN} = 3V V ⁻ = -5V, V _D = ±3V		250	250	350	300	300	350	
On Resistance Match		I _S = 10mA, V _D = ±5V	5							
Switch "OFF" Leakage (Notes 2 and 4)	I _{D(OFF)} or I _{S(OFF)}	V _{S/D} = +5V to -5V V _{IN} = 0.8V V _{S/D} = +14V to -14V			±1	50		±2	100	nA
Switch "ON" Leakage	I _{D(ON)} + I _{S(ON)}	V _D = +5V or -5V V _{IN} = 2.4V V _D = +14V to -14V			±1	100		±2	100	
Input Logic Current	I _{IN}	V _{IN} > 2.4V or < 0	0.001	1	1	10	1	1	10	
Positive Supply Quiescent Current	I ⁺	V _{IN} = 0V or +5V (Note 5)	0.01	1	1	10	1	1	10	μA
Negative Supply Quiescent Current	I ⁻	V _{IN} = 0V or +5V (Note 5)	0.01	1	1	10	1	1	10	
Logic Supply Quiescent Current	I _L	V _{IN} = 0V or +5V (Note 5)	0.01	1	1	10	1	1	10	

AC ELECTRICAL CHARACTERISTICS

V⁺ = +15V, V_L = +5V, V⁻ = 0V, T_A = +25°C

PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNITS
Switch "ON" Time	t _{ON}	See Figure 1		160	300	ns
Switch "OFF" Time	t _{OFF}	See Figure 1		70	150	
"OFF" Isolation Rejection Ratio	OIRR	See Figure 2 (Note 6)	70	80		dB
Cross Coupling Rejection Ratio	CCRR	Figure 3 (Note 6)	70 66	80 72		
Frequency where r _{DS(ON)} = 0.7 × DC		(Note 6)	100			MHz

Note 1: Typical values are not tested in production. They are given as a design aid only.

Note 2: Positive and negative voltages applied to opposite sides of switch, in both directions successively.

Note 3: These are the operating voltages at which the other parameters are tested, and are not directly tested.

Note 4: The logic inputs are either greater than or equal to 2.4V or less than or equal to 0.8V, as required, for this test.

Note 5: Maximum values shown are for the dual (IH5341). They are doubled for the quad (IH5352).

Note 6: All AC parameters are sample tested only. Test circuits should be built on copper clad ground plane board, with correctly terminated coax leads, etc.

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Test Circuits

IH5341/IH5352

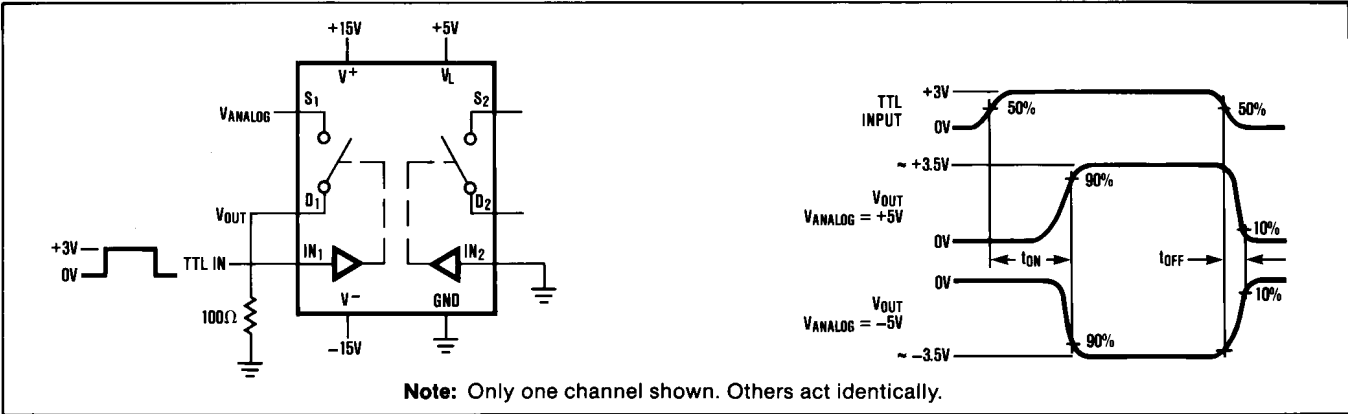


Figure 1. Switching Time Test Circuit and Waveforms

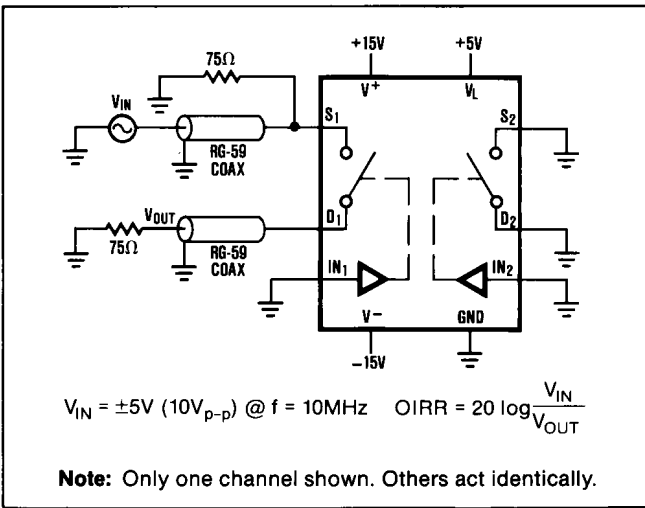


Figure 2. OFF Isolation Test Circuit

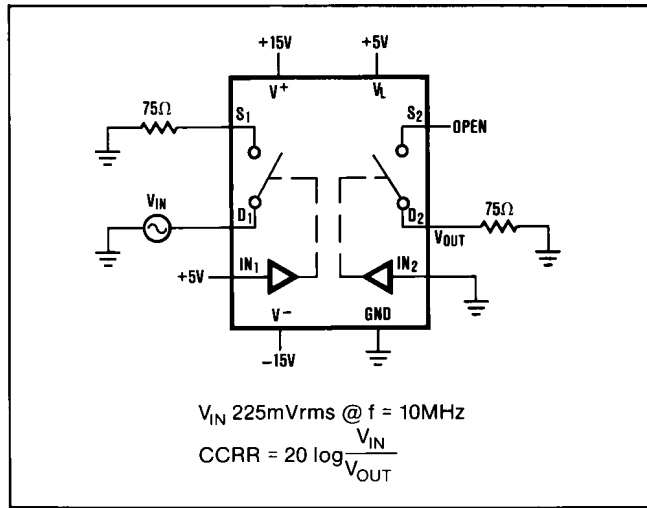
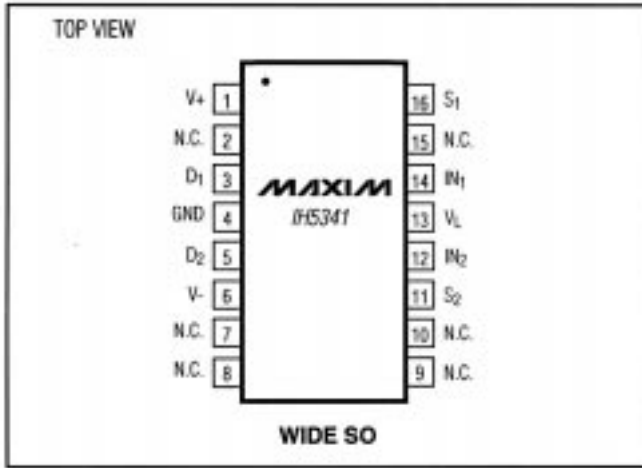


Figure 3. Cross-Coupling Rejection Test Circuit

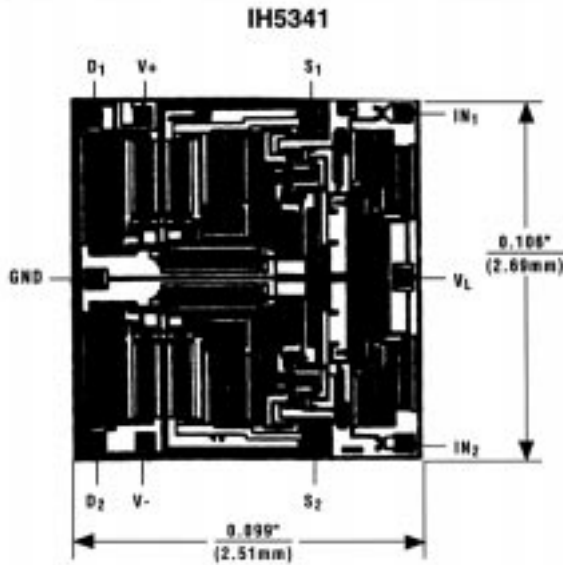
Dual/Quad RF/Video Switches

IH5341/IH5352

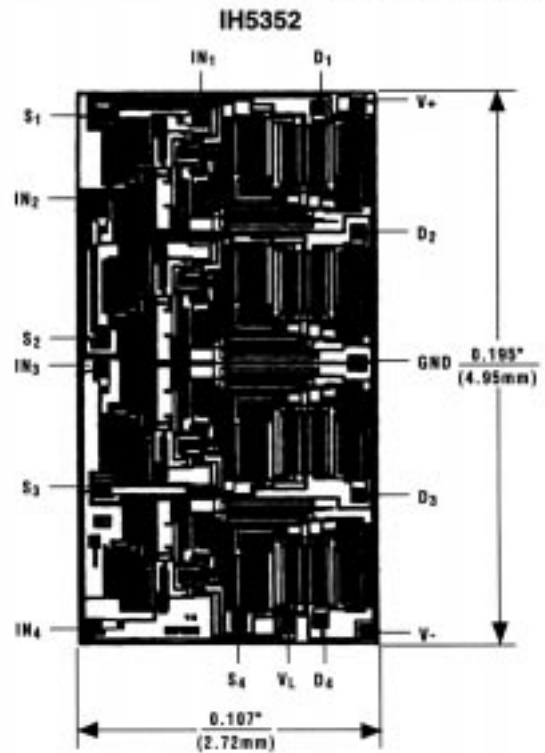
Pin Configurations (continued)



Chip Topographies



TRANSISTOR COUNT: 72
SUBSTRATED CONNECTED TO V+



TRANSISTOR COUNT: 144
SUBSTRATED CONNECTED TO V+

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