



PC Card (PCMCIA) Dual Interface Switch

FEATURES

- Single SO-16 Package
- CMOS Logic Compatible Inputs
- Smart Switching
- Slow V_{CC} Ramp Times
- Extremely Low R_{ON}
- Supports Dual PC Card Slots
- Reverse Blocking Switches
- Low Power Consumption
- Safe Power-Up

DESCRIPTION

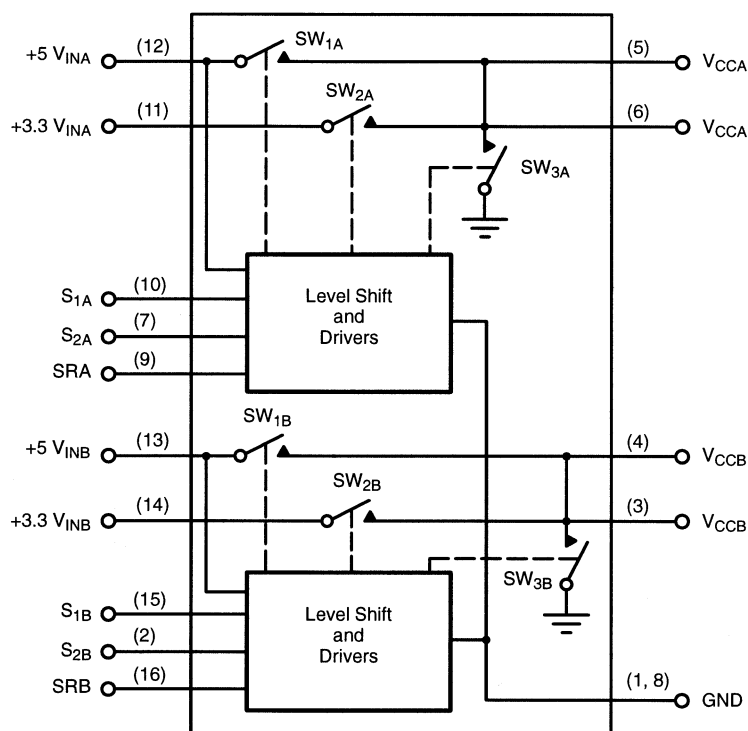
The Si9707DY offers an integrated solution for dual PC Card power interfaces that require only V_{CC} switching. This part is ideal for systems that operate at 5 V and provide V_{PP} from the main supply, or from a dedicated Flash RAM 12-V supply.

The Si9707DY operates off the 5-V supply with built-in level shifting. The V_{CC} outputs function independently and internal logic protects each slot against a control logic error that would

short 5 V to the 3.3-V supply. This protection logic also allows the Si9707DY to be configured for positive or negative control logic for compatibility with a variety of PC Card controllers. These control inputs are CMOS logic compatible and can be driven to 3.3 V or 5 V.

The PC Card Dual Interface Switch is available in a SO-16 narrow-body package and is rated over the industrial temperature range of -40 to 85°C.

FUNCTIONAL BLOCK DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Voltages Referenced to Ground

+5 V _{INA} , +5 V _{INB}	7 V
+3.3 V _{INA} , +3.3 V _{INB}	7 V
S _{1A} and S _{2A} , S _{1B} , S _{2B} (CMOS Inputs)	7 V
All Pins	-0.5 V
I _{OUT} V _{CCA} ^a , I _{OUT} V _{CCB} ^b	4 A
PD Max ^c : (T _A = 25°C)	1.65 W
(T _A = 85°C)	0.65 W

Junction Temperature 125°C |Thermal Ratings: R_{ΘJA}^c 60°C/W |

Notes

a. Pins 5, 6 connected together externally.

b. Pins 3, 4 connected together externally.

c. Mounted on 1-IN², FR4 PC Board.**RECOMMENDED OPERATING CONDITIONS**

+5 V _{INA} , +5 V _{INB} (must be present)	5 V ±10%
+3.3 V _{INA} , +3.3 V _{INB}	3.3 V ±10%
C _{SRA} , C _{SRB}	33 nF
I _{OUT} V _{CCA} ^a , I _{OUT} V _{CCB} ^b	2 A

V_{CC} Load Capacitance 150 μF Max |

Notes

a. Pins 5, 6 connected together externally.

b. Pins 3, 4 connected together externally.

SPECIFICATIONS							
Parameter	Symbol	Test Conditions Unless Otherwise Specified C _{SR} = 33 nF, +5 V _{IN} = 5 V +3.3 V _{IN} = 3.3 V, Low ≤ 0.8 V, High ≥ 2.2 V		Limits -40 to 85°C			Unit
				Min ^a	Typ	Max ^a	
Switch SW _{1A} , SW _{1B}							
On-Resistance	R _{ON}	I = 500 mA, S ₁ = High S ₂ = Low	T _A = 25°C		58	70	mΩ
			T _A = 85°C		73	90	
Off Current (V _{CC})	I _{OFF}	+5 V _{IN} = 5.5 V, V _{CC} = 0 V S ₁ = S ₂ = Low	T _A = 25°C			1	μA
			T _A = 85°C			10	
Rise Time	t _{S1(on)}	S ₂ = Low, See Figure 1.		0.2	1.7	5	ms
Fall Time	t _{S1(off)}			10	30	50	
Switch SW _{2A} , SW _{2B}							
On-Resistance	R _{ON}	I = 500 mA, S ₂ = High S ₁ = Low	T _A = 25°C		44	55	mΩ
			T _A = 85°C		55	70	
Off Current (+3.3 V _{IN})	I _{OFF}	+3.3 V _{IN} = 3.6 V, V _{CC} = 0 V S ₁ = S ₂ = Low	T _A = 25°C			1	μA
			T _A = 85°C			10	
Rise Time	t _{S2(on)}	S ₁ = Low, See Figure 1.		0.1	0.9	5	ms
Fall Time	t _{S2(off)}			5	20	40	
Switch SW _{3A} , SW _{3B}							
On-Resistance	R _{ON}	I = 2 mA, S ₁ = S ₂ = Low	T _A = 25°C		140	400	Ω
			T _A = 85°C		200	500	
Power Supply							
+5 V _{IN} Current Input (on)	I _{+5VIN(1)}	S ₁ = 0 V, S ₂ = 3 V			20	50	μA
	I _{+5VIN(2)}	S ₁ = 3 V, S ₂ = 0V			20	50	
+5 V _{IN} Current Input (off)	I _{+5VIN(3)}	S ₁ = S ₂ = 0 V			<1	10	
Switch Control Inputs S _{1X} , S _{2X}							
Input Voltage High	V _{I(H)}	+5 V _{INX} = 5.5 V	2.2	1.8			V
		+5 V _{INX} = 4.5 V	2.2	1.6			
Input Voltage Low	V _{I(L)}	+5 V _{INX} = 5.5 V		1.6	0.8		
		+5 V _{INX} = 4.5 V		1.4	0.8		
Input Current High	I _{I(H)}	S _{1X} , S _{2X} = 5 V			1.0		μA
Input Current Low	I _{I(L)}	S _{1X} , S _{2X} = GND	-1.0				

Notes

a. The algebraic convention whereby the most negative value is a minimum and the most positive a maximum.

TIMING WAVEFORMS

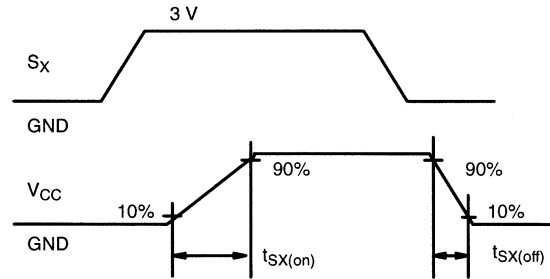
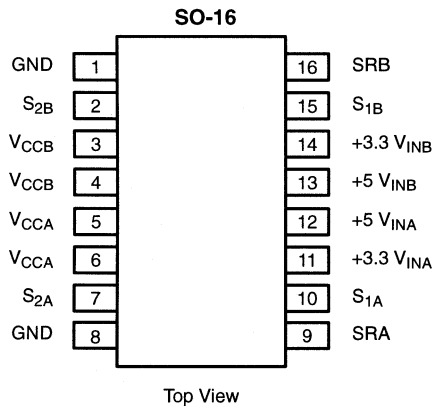


FIGURE 1. Switch Ramp Time

PIN CONFIGURATION AND DESCRIPTION



PIN DESCRIPTION		
Function	Pin Number	Description
S_{1A}	10	Control input for selecting +5 V_{INA} to V_{CCA} .
S_{1B}	15	Control input for selecting +5 V_{INB} to V_{CCB} .
S_{2A}	7	Control input for selecting +3.3 V_{INA} to V_{CCA} .
S_{2B}	2	Control input for selecting +3.3 V_{INB} to V_{CCB} .
GND	1, 8	Ground connection.
V_{CCA}	5, 6	Supply voltage to slot.
V_{CCB}	3, 4	Supply voltage to slot.
+3.3 V_{INA}	11	+3.3-V supply.
+3.3 V_{INB}	14	+3.3-V supply.
+5 V_{INA}	12	+5-V supply.
+5 V_{INB}	13	+5-V supply.
SRA	9	Slew rate control pin.
SRB	16	Slew rate control pin.

TRUTH TABLE				
S_1X	S_2X	Switch 1X	Switch 2X	Switch 3X
0	0	Off	Off	On
0	1	Off	On	Off
1	0	On	Off	Off
1	1	Off	Off	On

Notes

- a. The smart switching of the Si9707 avoids potential host damage by defaulting to off during error conditions.

TYPICAL CHARACTERISTICS (25°C UNLESS OTHERWISE NOTED)

