



DESCRIPTION

A4757 is a quad single pole/double throw high-speed CMOS TTL-compatible bus switch. The low on resistance of the switch allows inputs to be connected to outputs without adding propagation delay or generating additional ground bounce noise. Also this device has exceptionally high current capability, which is far greater than most analog switches offered today. A single 5V supply is all that is required for operation.

The A4757 is available in SOP16 and SSOP16 packages.

FEATURES

- V_{CC}: 4.0V-5.5V
- Low On-Resistance: 5Ω
- Fast switching: 10.0ns (V_{DD} = 5V)
- Low crosstalk: -70dB (V_{DD} = 5V)
- ESD: >4000V HBM
- Available in SOP16 and SSOP16 Packages

APPLICATION

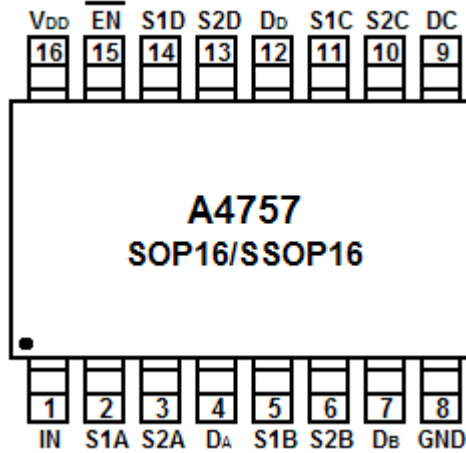
- Set Top Boxes
- Flat Panel Displays
- CRT Displays
- DVD - RW

ORDERING INFORMATION

Package Type	Part Number	
SOP16	M16	A4757M16R
		A4757M16VR
		A4757M16U
		A4757M16VU
SSOP16	MX16	A4757MX16R
		A4757MX16VR
		A4757MX16U
		A4757MX16VU
Note	R: Tape & Reel, U: Tube V: Green Package	
AiT provides all Pb free products Suffix " V " means Green Package		



PIN DESCRIPTION



Top View

Pin #	Symbol	Function
1	IN	Select Input
2	S1A	Analog Video 1 I/O
3	S2A	Analog Video 2 I/O
4	DA	Analog Video I/O
5	S1B	Analog Video 1 I/O
6	S2B	Analog Video 2 I/O
7	DB	Analog Video I/O
8	GND	Ground
9	Dc	Analog Video I/O
10	S2C	Analog Video 2 I/O
11	S1C	Analog Video 1 I/O
12	Dd	Analog Video I/O
13	S2D	Analog Video 2 I/O
14	S1D	Analog Video 1 I/O
15	/EN	Enable
16	VDD	Power

FUNCTION TABLE

ENN	S	ON SWITCH
0	1	S2 (S2A, S2B, S2C, S2D)
0	0	S1 (S1A, S1B, S1C, S1D)
1	X	Disabled



ABSOLUTE MAXIMUM RATINGS

V_{DD} , Supply Voltage	-0.5 to +6.0V
V_{IS} , Analog Input Voltage (V_{S1} , V_{S2} , or V_D)	-0.5 to +6.0V
V_S , V_{ENN} , Digital Select Input Voltage	-0.5 to +6.0V
I_{anII} , Continuous DC Current from D to S1/S2	±200mA

Stress beyond above listed "Absolute Maximum Ratings" may lead permanent damage to the device. These are stress ratings only and operations of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	MIN	MAX	Units
Supply Voltage	V_{DD}	4.0	5.5	V
Analog Input Voltage (V_{S1} , V_{S2} , or V_D)	V_{IS}	0	2	V
Digital Select Input Voltage	V_S , V_{ENN}	0	V_{DD}	V
Operation Temperature	T_A	-40	85	°C



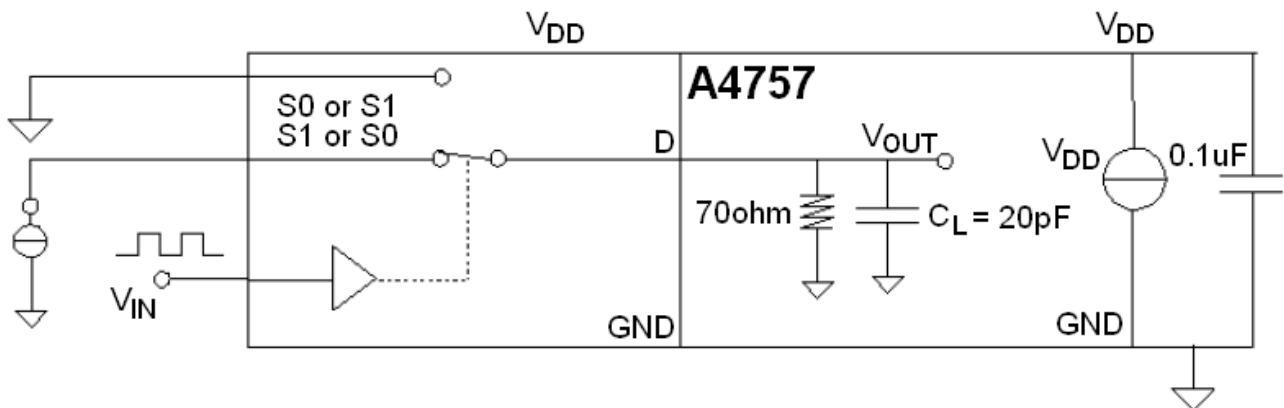
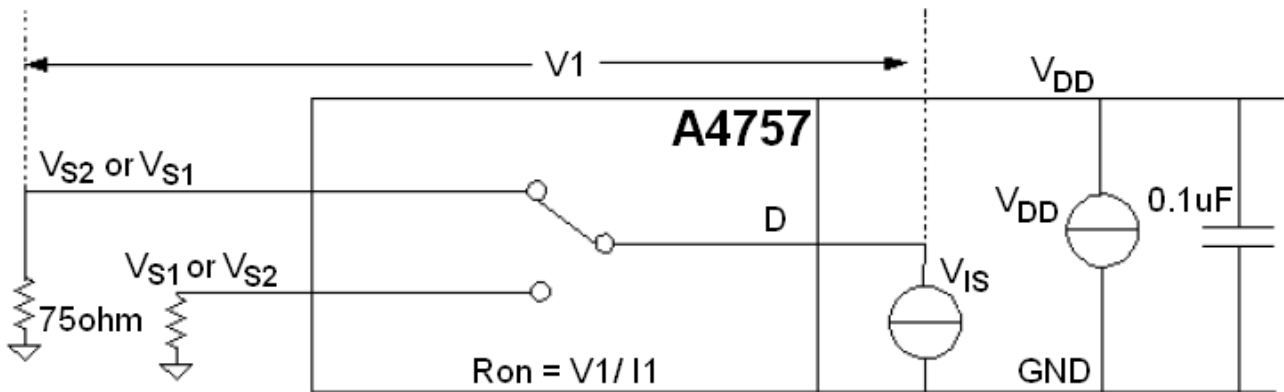
ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
DC ELECTRICAL CHARACTERISTICS						
Switch On Resistance	R _{ON}	V _{DD} = 4.5V, V _{IS} = 1.0V, R _L = 75Ω, I _{IS} = 13mA	-	5	7	Ω
		V _{DD} = 4.5V, V _{IS} = 2.0V, R _L = 75Ω, I _{IS} = 26mA	-	7.5	10	
HIGH Level Input Voltage	V _{IH}	Guaranteed Logic HIGH Level	2.0	-	-	V
LOW Level Input Voltage	V _{IL}	Guaranteed Logic LOW Level	-0.5	-	0.8	V
Input high current	I _{IH}	V _{DD} = 5.5V, V _{IN} = V _{DD}	-	-	±1	μA
Input low current	I _{IL}	V _{DD} = 5.5V, V _{IN} = GND	-	-	±1	μA
Switch output leakage current	I _o	0 ≤ S1, S2, or D ≤ V _{DD} , Switch OFF	-	-	±1	μA
Switch short circuit current	I _{os}		-	230	-	mA
Clamping diode voltage	V _{IK}	V _{DD} = 4.5V, I _{IN} = -18mA	-	-0.9	-	V
Input hysteresis	V _H		-	200	-	mV
AC ELECTRICAL CHARACTERISTICS						
Turn-On time	T _{ON}	R _L = 70Ω, C _L = 20pF	-	8	15	ns
Turn-Off time	T _{OFF}	R _L = 70Ω, C _L = 20pF	-	4	8	ns
Cross talk	X _{TALK}	R _{IN} = 10Ω, R _L = 150Ω, f = 10MHz	-	-70	-	dB
Enable input capacitance	C _{IN}	V _{IN} = 0V, f = 1MHz	-	5	-	pF
Off state input capacitance	C _{OFF}	V _{IN} = 0V, f = 1MHz	-	10	-	pF
On state input capacitance	C _{ON}	V _{IN} = 0V, f = 1MHz		15		pF
POWER SUPPLY CHARACTERISTICS						
Quiescent supply current	I _{DD}	V _{DD} = +5.5V, I _N = GND or 5V	-	0.1	10.0	μA
Supply current change when changing input	ΔI _{DD}	V _{DD} = +5.5V, I _N = 3.4V	-	-	300	μA
Supply current when toggle input	I _{DDD}	V _{DD} = +5.5V, S1, S2 and D Pins Open ENN = GND Control Input Toggling 50% Duty Cycle	-	-	0.1	mA/MHz

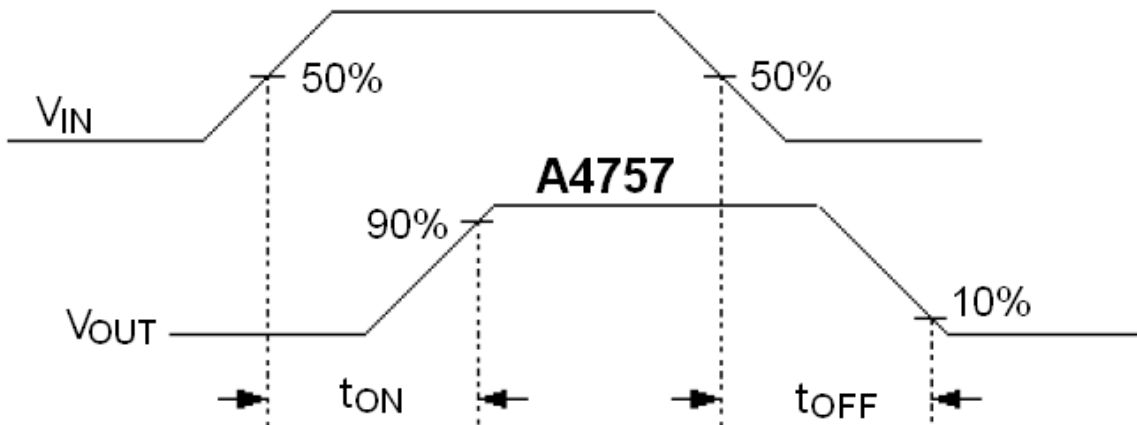


TEST CIRCUIT

1. Test Circuit for On Resistor

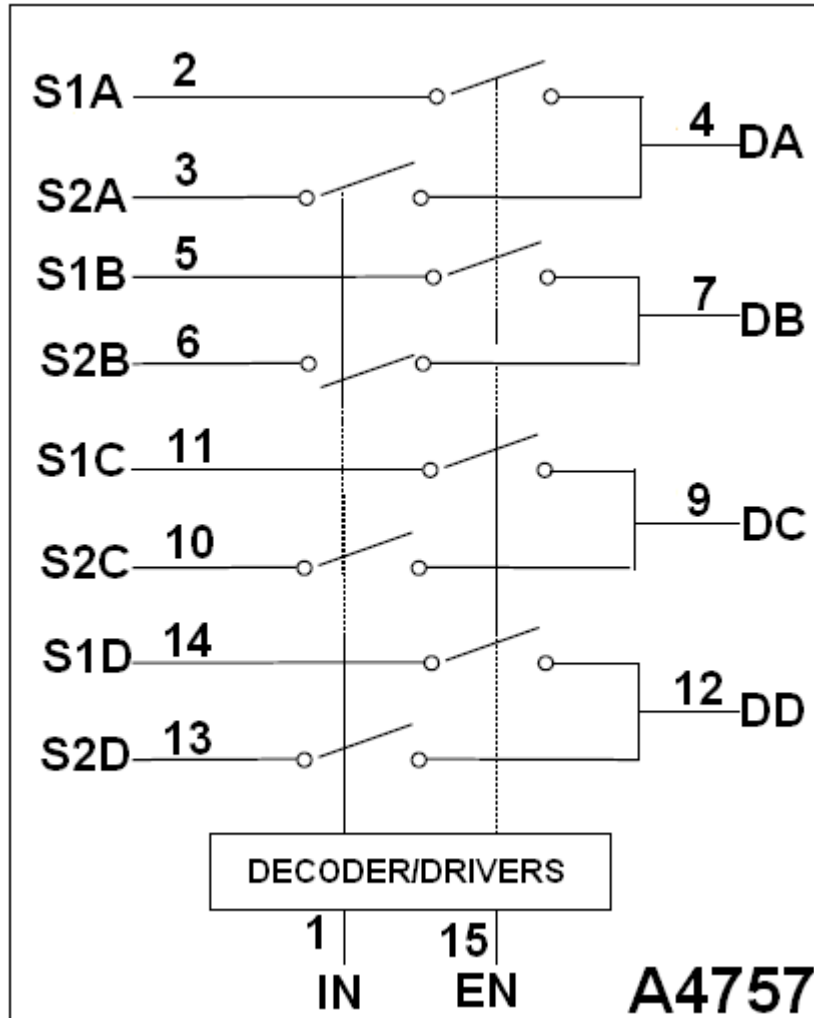


2. Test Circuit for Bandwidth





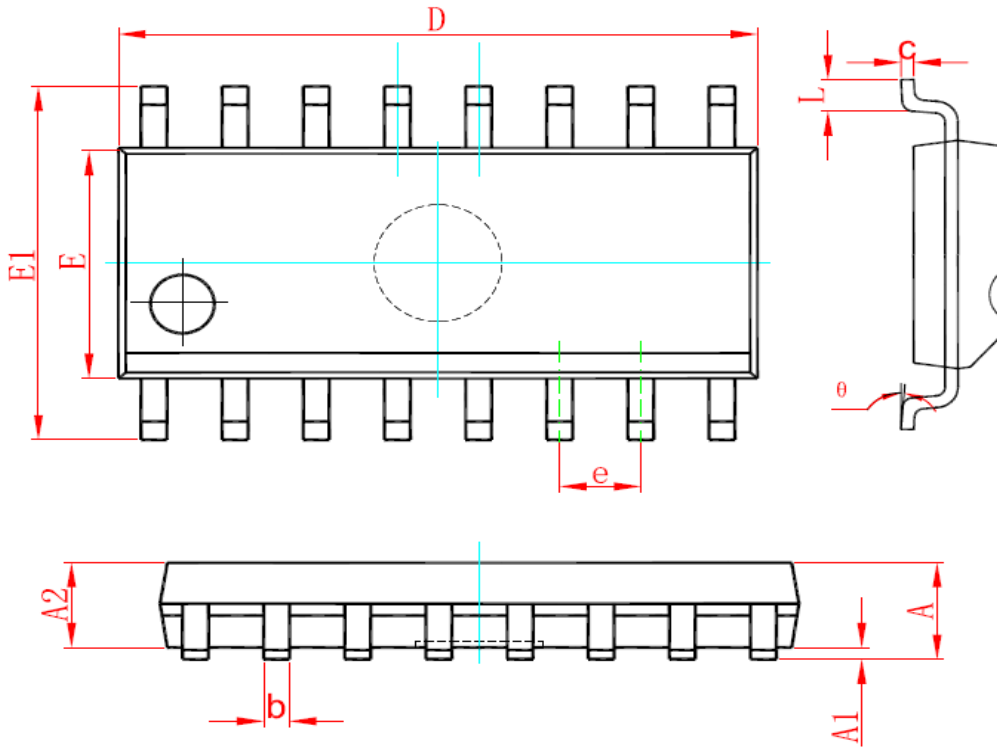
BLOCK DIAGRAM





PACKAGE INFORMATION

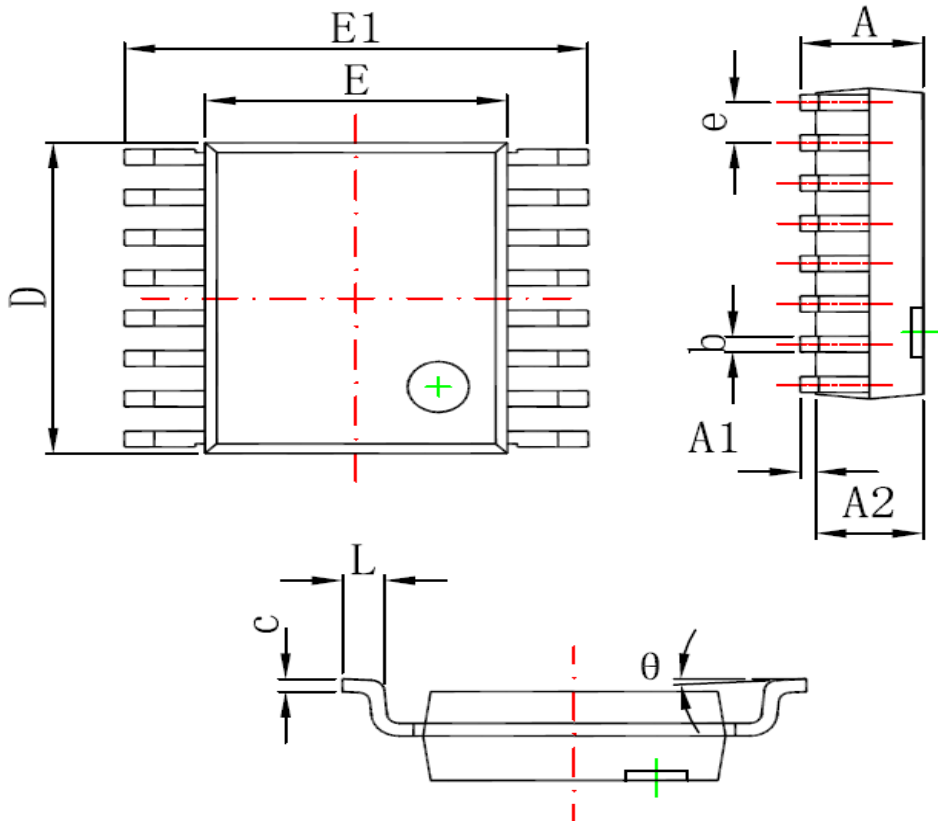
Dimension in SOP16 (Unit: mm)



Symbol	Min	Max
A	1.350	1.750
A1	0.100	0.250
A2	1.350	1.550
b	0.330	0.510
c	0.170	0.250
D	9.800	10.200
E	3.800	4.000
E1	5.800	6.200
e	1.270(BSC)	
L	0.400	1.270
θ	0°	8°



Dimension in SSOP16 (Unit: mm)



Symbol	Min	Max
A	1.350	1.750
A1	0.100	0.250
A2	1.350	1.550
b	0.200	0.300
c	0.170	0.250
D	4.700	5.100
E	3.800	4.000
E1	5.800	6.200
e	0.635 (BSC)	
L	0.400	1.270
θ	0°	8°



IMPORTANT NOTICE

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