4 Channel 2:1 Switch BL3257

Description

BL3257 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.

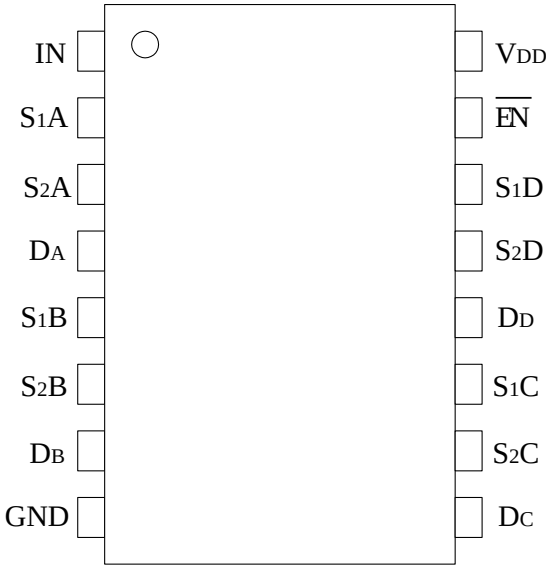
Applications

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

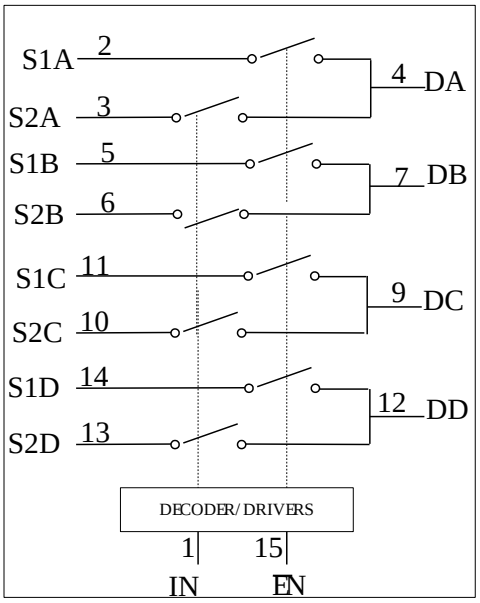
Features

1、VCC：4.0V-5.5V
2、Low On-Resistance: 5Ω
3、Fast switching: 10.0ns (VDD=5V)
4、Low crosstalk: -70dB (VDD = 5V)
6、Packaging(Pb-free & Green Available):
SOP-16 、SSOP-16
6、ESD：>4000V HBM

Pin Configuration



Block Diagram



Order Information

Part Number	Package	shipping
BL3257SO	SOP16	Tube
BL3257SS	SSOP16	5000 pcs / Tape & Reel

Pin Description

Pin Name	Description
V_{DD}	Power
GND	Ground
D_A, D_B, D_C, D_D	Analog Video I/O
S_1A, S_1B, S_1C, S_1D	Analog Video 1 I/O
S_2A, S_2B, S_2C, S_2D	Analog Video 2 I/O
IN	Select Input
ENN	Enable

Function Table

ENN	S	ON SWITCH
0	1	S_2 (S_2A, S_2B, S_2C, S_2D)
0	0	S1 (S_1A, S_1B, S_1C, S_1D)
1	X	Disabled

ELECTRICAL CHARACTERISTICS

1 ABSOLUTE MAXIMUM RATINGS

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

Maximum ratings are those values beyond which device damage can occur. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

2 RECOMMENDED OPERATING CONDITIONS

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

3 ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
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	Ω
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} = S.5V, V_{IN} = GND			±1	μA
Switch output leakage current	Io	0 ⩽ S1, S2, or D ⩽ VDD, Switch OFF			±1	μA
Switch short circuit current	Ios			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}	VIN = 0V, f = 1MHz		5		pF
Off state input capacitance	C_{OFF}	VIN = 0V, f = 1MHz		10		pF
On state input capacitance	C_{ON}	VIN = 0V, f = 1MHz		15		pF
POWER SUPPLY CHARACTERISTICS						
Quiescent supply current	I_{DD}	V_{DD} = +5.5V, IN = GND or 5V		0.1	10.0	μA
Supply current change when changing input	Δ I_{DD}	V_{DD} = +5.5V, IN = 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 SETUP CIRCUITS

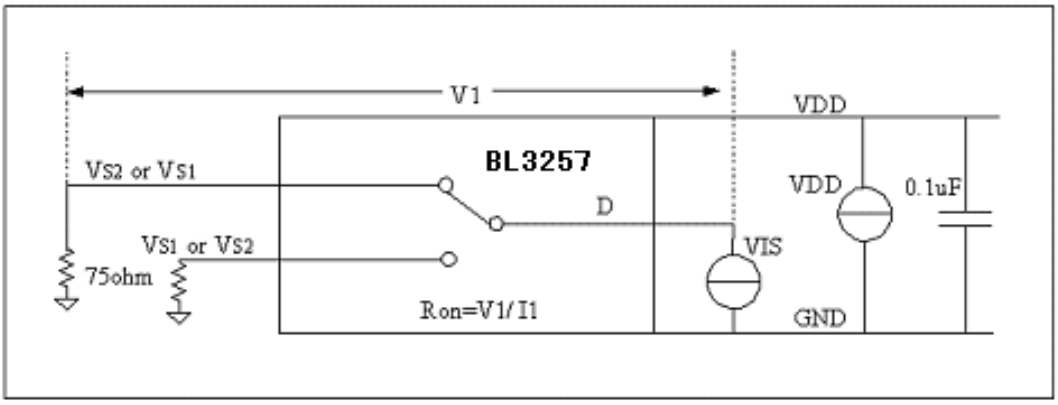
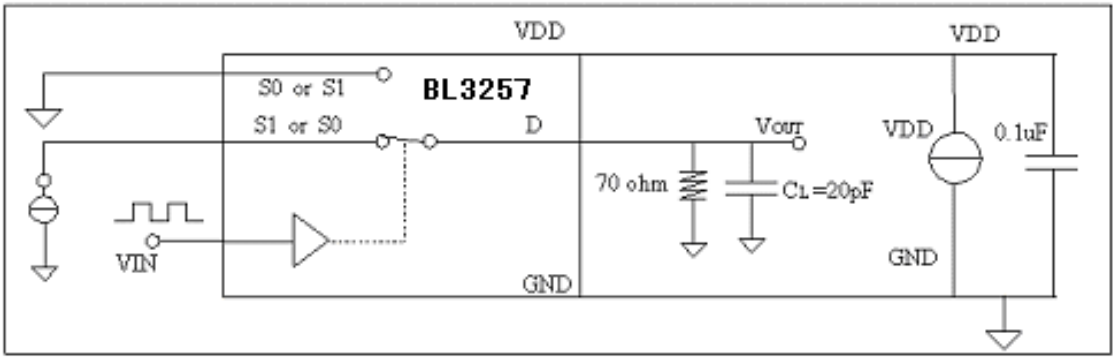


Figure1. Test Circuit for On Resistance



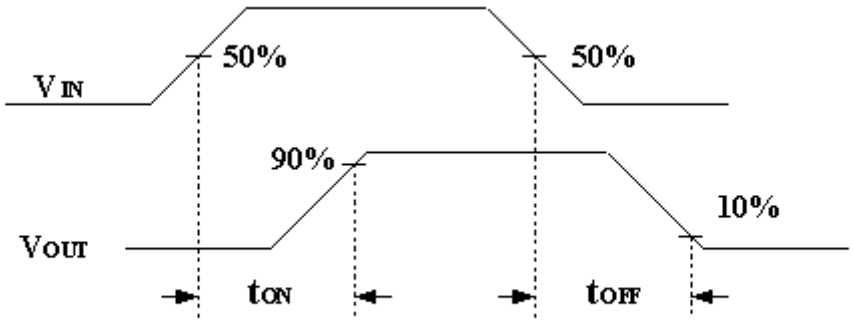
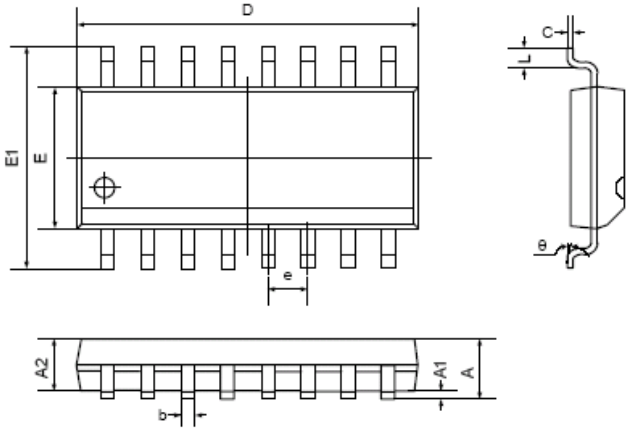


Figure2. Test Circuit for Bandwidth

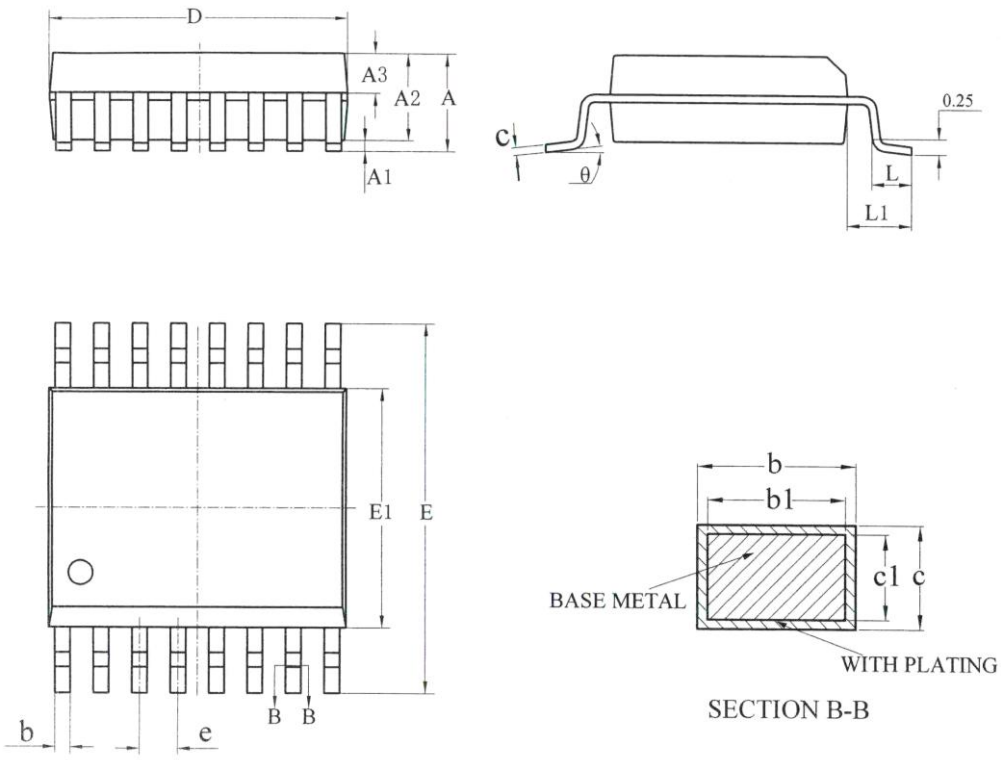
PACKAGE OUTLINE DIMENSIONS

SOP16



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	9.800	10.20	0.386	0.402
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 (BSC)		0.050 (BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

SSOP16



SYMBOL	MILLIMETER		
	MIN	NOM	MAX
A	—	—	1.75
A1	0.10	0.18	0.25
A2	1.35	1.40	1.45
A3	0.50	0.60	0.70
b	0.24	—	0.30
b1	0.23	0.254	0.28
c	0.20	—	0.25
c1	0.19	0.20	0.21
D	4.80	4.90	5.00
E	5.80	6.00	6.20
E1	3.80	—	4.00
e	0.635BSC		
L	0.50	0.65	0.80
L1	1.05BSC		
θ	0	—	8°
L/F载体尺寸 (mil)	93*92 100*160		