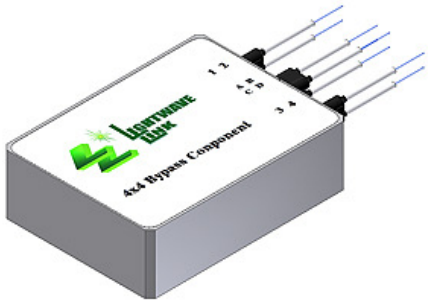
4x4 Optical BypassSwitch Component

Product Description

The 4x4 Optical Bypass Switch Component utilizes fiber-to-fiber technology over an angled surface to achieve ultra low losses and crosstalk. It is suitable for all bi-directional protection switching applications where premise-side connectivity is not required in the bypass state. Compact and competitive cost, this optical switch provides excellent performance on your network. Lightwave Link 4x4 optical bypass switch fully complies with RoHS Directive 2002/95/EC (2008/385/EC).



Features

- Compact Format
- Low Return-Loss
- Available in Multi Mode
- PCB Mountable
- Latching Type or Non-Latching Type

Applications

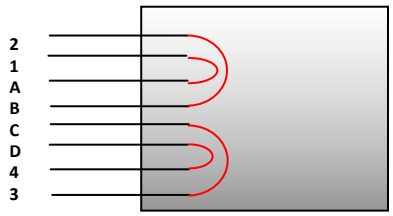
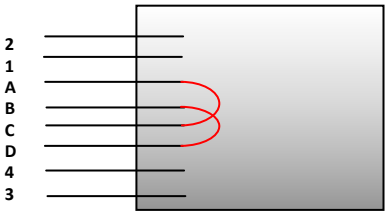
- Node Bypass Protection

Performance Specification

Parameter	50μm or 62.5μm Core Multi Mode			Unit
	Min.	Typ.	Max.	
Wavelength Range [1]		850/1300		nm
Straight Insertion Loss [2]		0.8	1.0	dB
Bypass Insertion Loss[2]		0.8	1.0	
Return Loss				dB
PDL				dB
WDL			0.2	dB
Crosstalk			-80	dB
Repeatability			±0.1	dB
Switching Time [3]			5	ms
Absolute Optical Input Power			500	mW
Operating Voltage	4.5	5.0	5.5	VDC
Power Consumption		Latching: 200±10% / Non-Latching: 140±10%		mW
Switching Life Expectancy	$3x10^7$			Cycles
Operation Temperature-Normal	-5		70	℃
Operation Temperature-Special	-20		70	℃
Storage Temperature	-40		85	℃
Operation Humidity	5		85	%RH
Storage Humidity	5		85	%RH
Dimension (H*W*L)		12×30×40		mm
Weight [4]		18		g

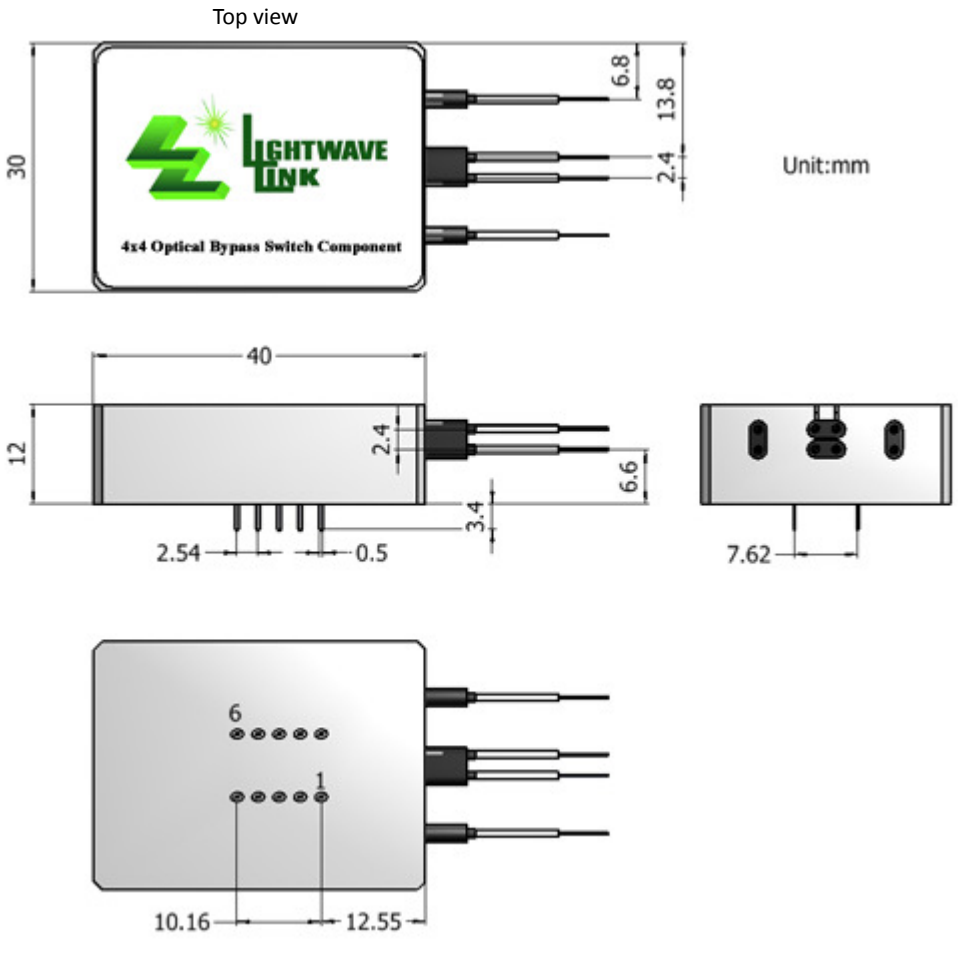
1.Special wavelength would be upon request.
2.Optical parameters excluded connectors.
3.A minimum ≧20ms pulse is recommended for latching type of switch.
4. The product weight excluded optical connectors.

Function Diagram

OSW Mode	Optical Path	
Normal Mode	A→1	
	B→2	
	C→3	
	D→4	
Bypass Mode	A→C	
	B→D	

Physical Dimension

Top view



Unit:mm

Bottom view

PIN Description

Pin Number	Latching Pin Function	Non-Latching Pin Function
1	Normal mode activation terminal(+)	N/C
2	Bypass mode Monitor	Bypass mode Monitor
3	Monitor Common	Monitor Common
4	Normal mode Monitor	Normal mode Monitor
5	Normal mode activation terminal(-)	Bypass mode activation terminal(+)
6	Bypass mode activation terminal(-)	Bypass mode activation terminal(-)
7	Normal mode Monitor	Normal mode Monitor
8	Monitor Common	Monitor Common
9	Bypass mode Monitor	Bypass mode Monitor
10	Bypass mode activation terminal(+)	N/C

Operation of the Optical Switch

Relay Type	PIN / OSW State	1	5	6	10	PIN Connection	Remark
Latching Type	Normal Mode	H	L	-	-	3 , 4 pin closed ; 2 , 3 pin open 7 , 8 pin closed ; 8 , 9 pin open	
	Bypass Mode	-	-	L	H	2 , 3 pin closed ; 3 , 4 pin open 8 , 9 pin closed ; 7 , 8 pin open	
Non-Latching Type	Normal Mode	-	-	-	-	3 , 4 pin closed ; 2 , 3 pin open 7 , 8 pin closed ; 8 , 9 pin open	Default
	Bypass Mode	-	H	L	-	2 , 3 pin closed ; 3 , 4 pin open 8 , 9 pin closed ; 7 , 8 pin open	

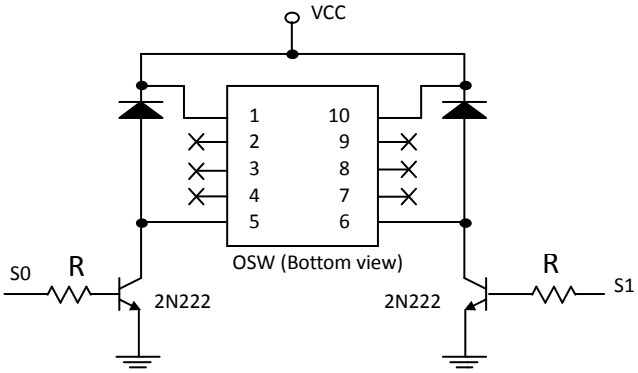
Ordering Information

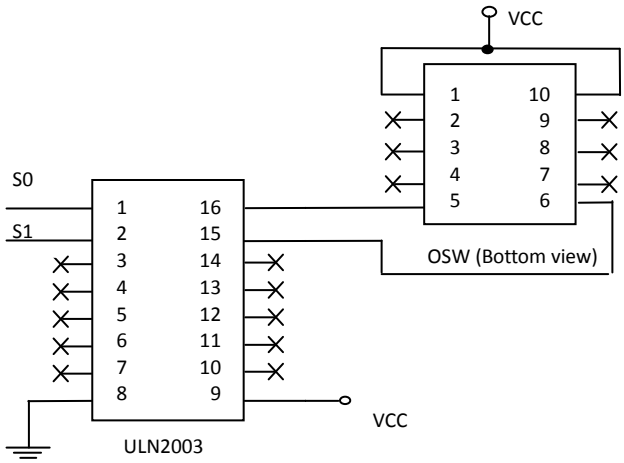
FOBWA - 4 - 4- □ – □ – □ – □

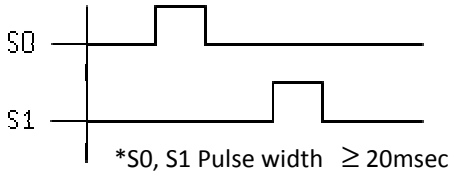
Product Version	Input	Output	Operation Function	Fiber Type	Fiber Cabling	Connector Type	
	No. of Input	No. of Output	L: Latching N: Non-Latching	50: 50/125µm 62: 62.5/125µm	B: Bare fiber L: 900µm loose tube	1: None 2: FC/PC 3: FC/APC 4: SC/APC 5: SC/PC 6: MU/PC 7: ST/PC	8: LC/PC 9: SC/UPC A: MT/RJ B: MU/UPC C: FC/UPC D: LC/APC E: LC/UPC

Application Circuitry for Latching Type

To provide sufficient power to switch, two application circuits using 2N2222 BJT and ULN2003 Darlington pair IC are showed below.

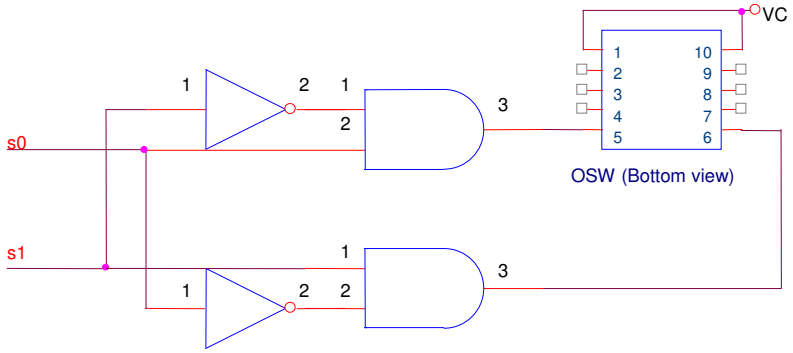






S0 = High, S1 = Low. To change the OSW state to ON state.
S0 = Low, S1 = High. To change the OSW state to OFF state.

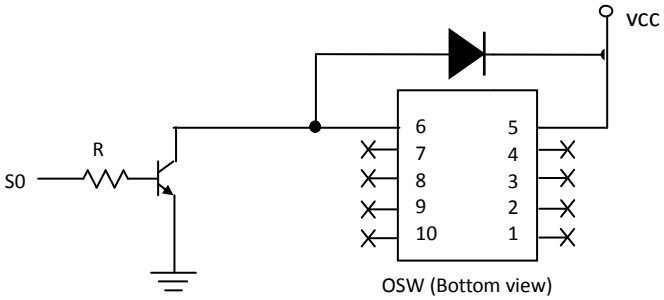
The Recommend Circuitry for So and S1 Stand High Level Simultaneously

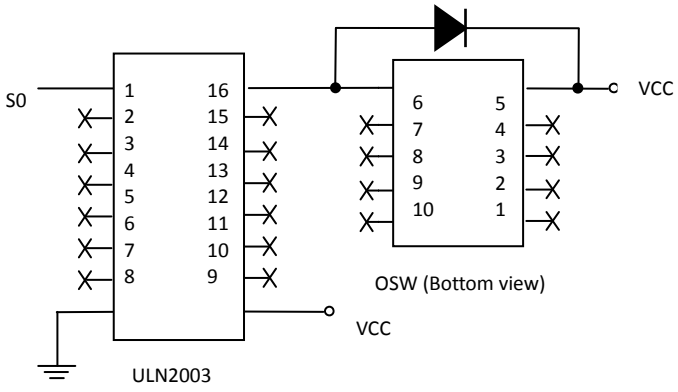


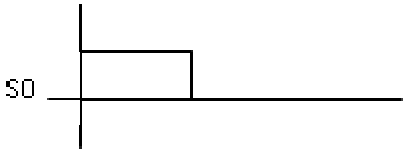
S0 = High, S1 = High.
The OSW maintains on the last changed state.

Application Circuitry for Non-Latching Type

To provide sufficient power to switch, two application circuits using 2N2222 BJT and ULN2003 Darlington pair IC are showed below.







S0 = Low. To change the OSW state to default mode(CH1).
S0 = High. To change the OSW state to CH2.