

### Introduction of Toshiba Bus Switch products

Lineup of bus switches to meet various low-speed to ultra-high-speed interface

#### Wide range of support from general-purpose bus

Toshiba's bus switch IC is the most suitable switch for high-speed switching and disconnection of bus lines. In addition to 3V, 5V products with low on-resistance, we are also offering a range of level shift types that can accommodate different power supply systems. We also provide high-quality products centered on production in Japan and Thailand. The bus switch can be selected from a variety of characteristics, so you can choose the most suitable bus switch product for your operating environment.

#### Good frequency characteristics over 10 GHz!

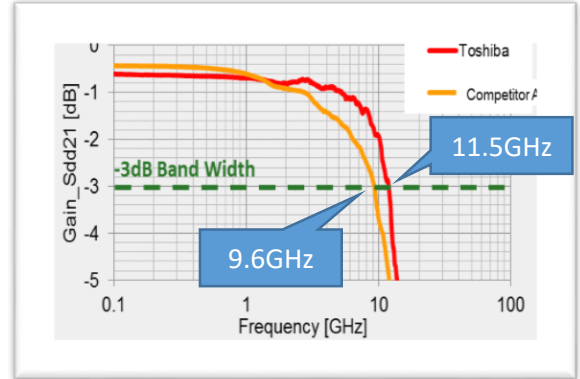
Toshiba's latest high-speed bus switch has a wide Frequency characteristic (-3dB) of 11.5GHz high-quality design is facilitated by low signal attenuation when used in high-speed interfaces.

#### It is possible to transmit signals with higher quality than ever before!

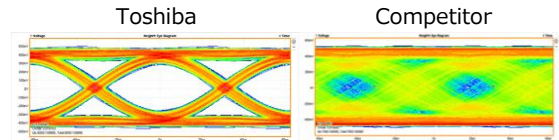
In addition to its frequency characteristics, Toshiba's bus switch has excellent signal quality. The results of eye-pattern comparisons also show superior signal-quality compared to competitor's same kind products(\*\*). We have also verified the quality of high-speed signals, such as USB 3.1, PCIe® Gen3 and MIPI® M-Phy. This is a switch product that can be used with greater peace of mind than ever before.

\*\* Based on our survey as of today.

#### Frequency Characteristics of Toshiba High-Speed Bus Switches (Toshiba TC7PCI3212MT)

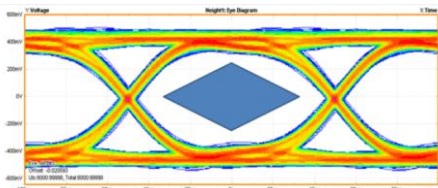


#### Signal-quality testing comparisons (16 Gbps Eye-pattern)

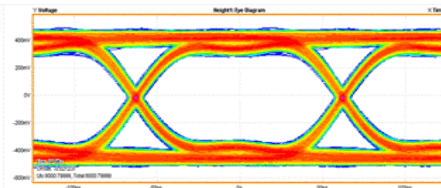


\*Compared to same kind products based on our survey as of today.

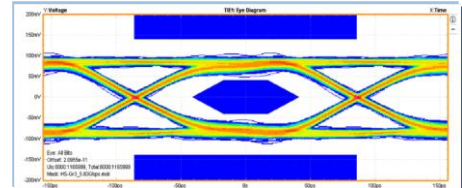
#### Signal quality test results by Eye- Pattern USB 3.1: 10Gbps



#### PCIe® Gen3: 8Gbps



#### MIPI® M-Phy: 5.83Gbps



#### Switch-type

This line includes a switch (SPST) for disconnecting the bus line, and a multiplexer (SPDT,SP4T) for switching the bus line.

SPST	SPDT	SP4T
Single-Pole Single-Throw	Single-Pole Double-Throw	Single-Pole 4-Throw






#### Main applications of each series






Series Name	Highspeed bus switch	Standard bus switch	Dual power supply level shift bus switch
		TC7PCI, TC7USB	TC7SB/SBL, WB/WBL, TC7MBL
Main applications	High-speed signaling lines such as USB 2/3 PCIe® Gen3	5V/3.3Vgeneral-purpose signaling lines	Bus lines that require voltage conversion
Signaling rate	500Mbps~10Gbps	Less than 350Mbps	Less than 20Mbps





## Features of each series

You can easily select from the list of characteristics.

Series	Switch type	Num of Circuit	Product Name	Control	Vcc(V)	Ron( $\Omega$ )	Con(pF)	BW(-3dB)	Package Name	ご購入				
						(typ.)	(typ.)	(typ.)						
High Speed Differential	SPDT	Dual	<a href="#">TC7PCI3212MT</a>	Low Active	2.7 to 3.6	7.5	1.5	11.5GHz	TQFN20	<a href="#">Buy Online</a>				
			<a href="#">TC7PCI3215MT</a>	Low Active						<a href="#">Buy Online</a>				
			<a href="#">TC7USB3212WBG</a>	Low Active	1.65 to 1.95	4.5	2	8GHz	WCSP20	<a href="#">Buy Online</a>				
	Single	Low Active	2.3 to 4.3	<a href="#">TC7USB40MU</a>	Low Active	4.5	5	1.5GHz	UQFN10B	<a href="#">Buy Online</a>				
				<a href="#">TC7USB40FT</a>					TSSOP14	<a href="#">Buy Online</a>				
				<a href="#">TC7USB42MU</a>	Low Active	UQFN10B	<a href="#">Buy Online</a>							
				<a href="#">TC7USB42FT</a>	Low Active	TSSOP14	<a href="#">Buy Online</a>							
Low voltage Standard	SPST	Single	<a href="#">TC7SBL66CFU</a>	High Active	1.65 to 3.6	5.5	7	510MHz	USV	<a href="#">Buy Online</a>				
			<a href="#">TC7SBL384CFU</a>	Low Active						<a href="#">Buy Online</a>				
		Dual	<a href="#">TC7WBL3305CFK</a>	High Active					6	7	US8	<a href="#">Buy Online</a>		
			<a href="#">TC7WBL3306CFK</a>	Low Active								<a href="#">Buy Online</a>		
		Quad	Low Active	<a href="#">TC7MBL3125CFT</a>					Low Active	6.5	7.5	TSSOP14	<a href="#">Buy Online</a>	
				<a href="#">TC7MBL3125CFK</a>									<a href="#">Buy Online</a>	
	High Active		<a href="#">TC7MBL3126CFT</a>	High Active	6.5	7.5	TSSOP14	<a href="#">Buy Online</a>						
			<a href="#">TC7MBL3126CFK</a>					<a href="#">Buy Online</a>						
	Octal	Low Active	<a href="#">TC7MBL3245CFT</a>	Low Active	6.5	7.5	TSSOP20	<a href="#">Buy Online</a>						
			<a href="#">TC7MBL3245CFK</a>					<a href="#">Buy Online</a>						
	SPDT	Quad	<a href="#">TC7MBL3257CFT</a>	Low Active	8.5	8	TSSOP16	<a href="#">Buy Online</a>						
			<a href="#">TC7MBL3257CFK</a>					<a href="#">Buy Online</a>						
	SP4T	Dual	<a href="#">TC7MBL3253CFT</a>	Low Active	9	13	TSSOP16	<a href="#">Buy Online</a>						
			<a href="#">TC7MBL3253CFK</a>					<a href="#">Buy Online</a>						
5V Standard	SPST	Single	<a href="#">TC7SB66CFU</a>	High Active	1.65 to 5.5	4	10	480MHz	USV	<a href="#">Buy Online</a>				
			<a href="#">TC7SB67CFU</a>	Low Active						<a href="#">Buy Online</a>				
		Dual	<a href="#">TC7WB66CFK</a>	High Active					4	10	US8	<a href="#">Buy Online</a>		
			<a href="#">TC7WB67CFK</a>	Low Active								<a href="#">Buy Online</a>		
	SPDT	Single	<a href="#">TC7SB3157CFU</a>	-					4	15	US6	<a href="#">Buy Online</a>		
<a href="#">TC7SB3157DL6X</a>			-	4	15	MP6D	<a href="#">Buy Online</a>							
Level Shift	SPST	Single	<a href="#">TC7SPB9306TU</a>	High Active	VccA: 1.65 to 5.0 VccB: 2.3 to 5.5	5	14	-	UF6	<a href="#">Buy Online</a>				
			<a href="#">TC7SPB9307TU</a>	Low Active						<a href="#">Buy Online</a>				
		Dual	<a href="#">TC7WPB9306FK</a>	High Active					5	14	US8	<a href="#">Buy Online</a>		
			<a href="#">TC7WPB9307FK</a>	Low Active								<a href="#">Buy Online</a>		
		Quad	High Active	<a href="#">TC7QPB9306FT</a>					High Active	5	14	TSSOP14	<a href="#">Buy Online</a>	
				<a href="#">TC7QPB9306FK</a>									<a href="#">Buy Online</a>	
			Low Active	<a href="#">TC7QPB9307FT</a>					Low Active				TSSOP14	<a href="#">Buy Online</a>
				<a href="#">TC7QPB9307FK</a>										<a href="#">Buy Online</a>
	Octal	High Active	<a href="#">TC7MPB9307FT</a>	High Active	5	14	TSSOP20	<a href="#">Buy Online</a>						
			<a href="#">TC7MPB9307FK</a>					<a href="#">Buy Online</a>						
	SPDT	Dual	<a href="#">TC7MPB9326FT</a>	High Active	5	14	TSSOP14	<a href="#">Buy Online</a>						
			<a href="#">TC7MPB9326FK</a>					<a href="#">Buy Online</a>						
			Low Active	<a href="#">TC7MPB9327FT</a>				Low Active	TSSOP14	<a href="#">Buy Online</a>				
<a href="#">TC7MPB9327FK</a>				<a href="#">Buy Online</a>										

USV(SOT-353)	MP6D	US6(SOT-363)	UF6(SOT-363F)	US8(SOT-765)
				
W : 2.0 mm L : 2.1 mm H : 0.9 mm	W : 1.45 mm L : 1.0 mm H : 0.48 mm	W : 2.0 mm L : 2.1 mm H : 0.9 mm	W : 2.0 mm L : 2.1 mm H : 0.7 mm	W : 2.0 mm L : 3.1 mm H : 0.7 mm

UQFN10B	TSSOP14	US14	TSSOP16	US16
				
W : 1.4 mm L : 1.8 mm H : 0.48mm	W : 5.4 mm L : 6.4 mm H : 1.0 mm	W : 4.0 mm L : 4.0 mm H : 0.8 mm	W : 5.4 mm L : 6.4 mm H : 1.0 mm	W : 4.0 mm L : 4.0 mm H : 0.8 mm

TSSOP20	US20	WCSP20	TQFN20
			
W : 6.5 mm L : 6.4 mm H : 1.0 mm	W : 5.0 mm L : 4.0 mm H : 0.8 mm	W : 2.0 mm L : 1.6 mm H : 0.64 mm	W : 4.5 mm L : 2.5 mm H : 0.55 mm

## Related LINK

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