

### Introduction of Toshiba Bus Switch products

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

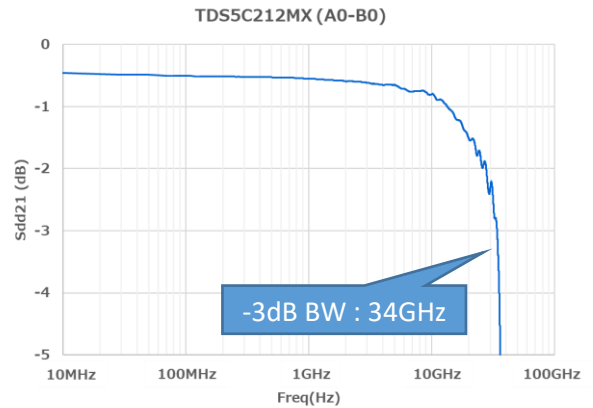
#### Wide range of support from general-purpose bus lines to high-speed bus lines!

Toshiba's bus switch IC is well suited for 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 a suitable bus switch product for your operating environment.

#### Good frequency characteristics!

Toshiba's latest high-speed bus switch has a wide Frequency characteristic (-3dB) high-quality design is facilitated by low signal attenuation when used in high-speed interfaces(See figure on the right).

■ Frequency Characteristics of Toshiba High-Speed Bus Switches (Toshiba TDS5C212MX)

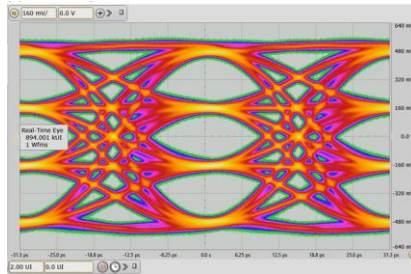


#### It is possible to transmit signals with high quality!

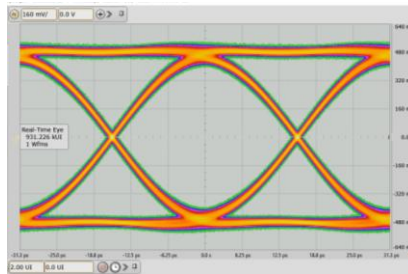
In addition to its frequency characteristics, Toshiba's bus switch has excellent signal quality. We have also verified the quality of high-speed signals, such as PCIe® Gen6, PCIe® Gen5, USB4®.

■ Signal quality test results by Eye- Pattern

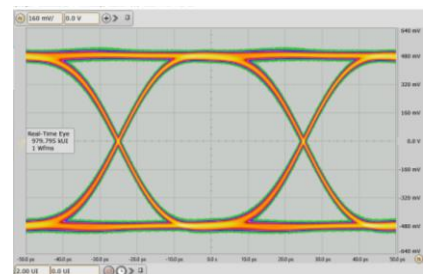
PCIe® Gen6: 64GT/s



PCIe® Gen5: 32Gbps

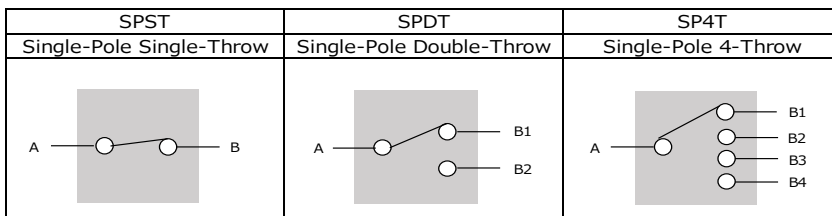


USB4® : 20Gbps



#### Switch-type

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



#### Main applications of each series

Series Name	Hightspeed bus switch		Hightspeed bus switch	Standard bus switch	Dual power supply level shift bus switch
	TDS5B, TDS5C,	TDS4A, TDS4B	TC7USB	TC7SB/SBL, WB/WBL, TC7MBL	TC7SPB/WPB/MPB
Main applications	High-speed signaling lines such as PCIe® Gen6, PCIe® Gen5, USB4®.		Signaling lines such as USB 2.0	5V/3.3V general-purpose signaling lines	Bus lines that require voltage conversion
Signaling rate	to 64GT/s	to 32Gbps	to 420Mbps	to 350Mbps	to 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(Ω) Typ.	Con(pF) Typ.	BW(-3dB) Typ.	Package	process	Purchase
High Speed Differential	SPDT	Dual	<a href="#">TDS5C212MX</a>	Low Active	1.6 to 3.6	8.5 (*)	-	34 GHz	XQFN16	TarfSOI™ (**)	<a href="#">Buy Online</a>
			<a href="#">TDS5B212MX</a>			8.5 (*)		29 GHz			<a href="#">Buy Online</a>
			<a href="#">TDS4B212MX</a>			7.9 (*)		27.5 GHz			<a href="#">Buy Online</a>
			<a href="#">TDS4A212MX</a>			8.4 (*)		26.2 GHz			<a href="#">Buy Online</a>
	Single	Low Active	2.3 to 4.3	<a href="#">TC7USB40MU</a>	5	4.5	5	1.5 GHz	UQFN10B	CMOS	<a href="#">Buy Online</a>
				<a href="#">TC7USB40FT</a>					TSSOP14	CMOS	<a href="#">Buy Online</a>
				<a href="#">TC7USB42MU</a>					UQFN10B	CMOS	<a href="#">Buy Online</a>
				<a href="#">TC7USB42FT</a>					TSSOP14	CMOS	<a href="#">Buy Online</a>
Low voltage Standard	SPST	Single	<a href="#">TC7SBL66CFU</a>	High Active	1.65 to 3.6	5.5	7	510 MHz	USV	CMOS	<a href="#">Buy Online</a>
			<a href="#">TC7SBL384CFU</a>	Low Active						CMOS	<a href="#">Buy Online</a>
		Dual	<a href="#">TC7WBL3305CFK</a>	High Active		6	7		US8	CMOS	<a href="#">Buy Online</a>
			<a href="#">TC7WBL3306CFK</a>	Low Active						CMOS	<a href="#">Buy Online</a>
	Quad	<a href="#">TC7MBL3125CFT</a>	Low Active	6.5		7.5	TSSOP14		CMOS	<a href="#">Buy Online</a>	
		<a href="#">TC7MBL3125CFK</a>	Low Active						US14	CMOS	<a href="#">Buy Online</a>
		<a href="#">TC7MBL3126CFT</a>	High Active						TSSOP14	CMOS	<a href="#">Buy Online</a>
		<a href="#">TC7MBL3126CFK</a>	High Active						US14	CMOS	<a href="#">Buy Online</a>
	Octal	<a href="#">TC7MBL3245CFT</a>	Low Active	6.5		7.5	TSSOP20		CMOS	<a href="#">Buy Online</a>	
		<a href="#">TC7MBL3245CFK</a>	Low Active				US20		CMOS	<a href="#">Buy Online</a>	
	SPDT	Quad	<a href="#">TC7MBL3257CFT</a>	Low Active		8.5	8		TSSOP16	CMOS	<a href="#">Buy Online</a>
			<a href="#">TC7MBL3257CFK</a>	Low Active					US16	CMOS	<a href="#">Buy Online</a>
	SP4T	Dual	<a href="#">TC7MBL3253CFT</a>	Low Active		9	13		TSSOP16	CMOS	<a href="#">Buy Online</a>
			<a href="#">TC7MBL3253CFK</a>	Low Active					US16	CMOS	<a href="#">Buy Online</a>
5V Standard	SPST	Single	<a href="#">TC7SB66CFU</a>	High Active	1.65 to 5.5	4	10	480 MHz	USV	CMOS	<a href="#">Buy Online</a>
			<a href="#">TC7SB67CFU</a>	Low Active						CMOS	<a href="#">Buy Online</a>
		Dual	<a href="#">TC7WB66CFK</a>	High Active		4	10		US8	CMOS	<a href="#">Buy Online</a>
			<a href="#">TC7WB67CFK</a>	Low Active						CMOS	<a href="#">Buy Online</a>
	SPDT	Single	<a href="#">TC7SB3157CFU</a>	-		4	15		US6	CMOS	<a href="#">Buy Online</a>
			<a href="#">TC7SB3157DL6X</a>	-		4	15		XSON6	CMOS	<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	CMOS	<a href="#">Buy Online</a>
			<a href="#">TC7SPB9307TU</a>	Low Active						CMOS	<a href="#">Buy Online</a>
		Dual	<a href="#">TC7WPB9306FK</a>	High Active		5	14		US8	CMOS	<a href="#">Buy Online</a>
			<a href="#">TC7WPB9307FK</a>	Low Active						CMOS	<a href="#">Buy Online</a>
		Quad	<a href="#">TC7QPB9306FT</a>	High Active		5	14		TSSOP14	CMOS	<a href="#">Buy Online</a>
			<a href="#">TC7QPB9306FK</a>	High Active						US14	CMOS
	<a href="#">TC7QPB9307FT</a>		Low Active	TSSOP14						CMOS	<a href="#">Buy Online</a>
	<a href="#">TC7QPB9307FK</a>		Low Active	US14						CMOS	<a href="#">Buy Online</a>
	Octal	<a href="#">TC7MPB9307FT</a>	High Active	5		14	TSSOP20		CMOS	<a href="#">Buy Online</a>	
		<a href="#">TC7MPB9307FK</a>	High Active				US20		CMOS	<a href="#">Buy Online</a>	
	SPDT	Dual	<a href="#">TC7MPB9326FT</a>	High Active		5	14		TSSOP14	CMOS	<a href="#">Buy Online</a>
			<a href="#">TC7MPB9326FK</a>	High Active					US14	CMOS	<a href="#">Buy Online</a>
<a href="#">TC7MPB9327FT</a>			Low Active	TSSOP14	CMOS			<a href="#">Buy Online</a>			
<a href="#">TC7MPB9327FK</a>			Low Active	US14	CMOS			<a href="#">Buy Online</a>			

\*:Maximum value

\*\* : TarfSOI™ process technology : Excellent high-frequency performance, well suited for high-speed differential signal interfaces.

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## Package lineup

USV(SOT-353)	XSON6(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	XQFN16	TSSOP14	US14	TSSOP16
				
W : 1.4 mm L : 1.8 mm H : 0.48mm	W : 2.4 mm L : 1.6 mm H : 0.4 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	W : 5.4 mm L : 6.4 mm H : 1.0 mm

US16	TSSOP20	US20
		
W : 4.0 mm L : 4.0 mm H : 0.8 mm	W : 6.5 mm L : 6.4 mm H : 1.0 mm	W : 5.0 mm L : 4.0 mm H : 0.8 mm

### Related LINK

- **Product Parametric Search**
- **Application Notes**
- **FAQ of General-purpose Logic ICs**
- **Online distribution purchase, inventory search pages**

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