

Introduction of Toshiba Bus Switch products

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

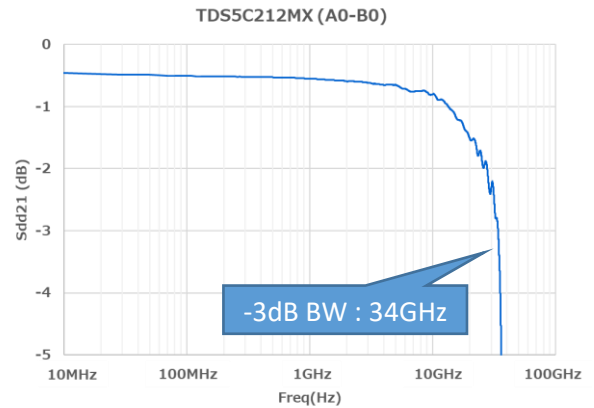
Wide range of support from general-purpose bus lines to high-speed bus lines!

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)

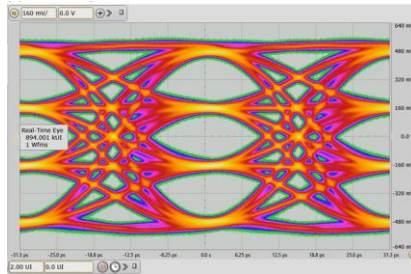


It is possible to transmit signals with high quality!

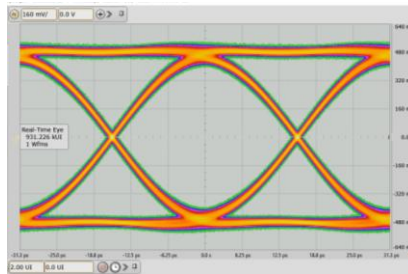
In addition to its frequency characteristics, Toshiba's bus switch has excellent signal quality. We have also verified the quality of high-speed signals, such as PCIe® Gen6, PCIe® Gen5, USB4®.

■ Signal quality test results by Eye- Pattern

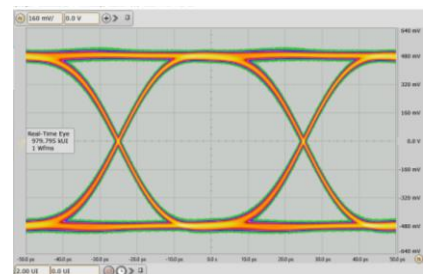
PCIe® Gen6: 64GT/s



PCIe® Gen5: 32Gbps

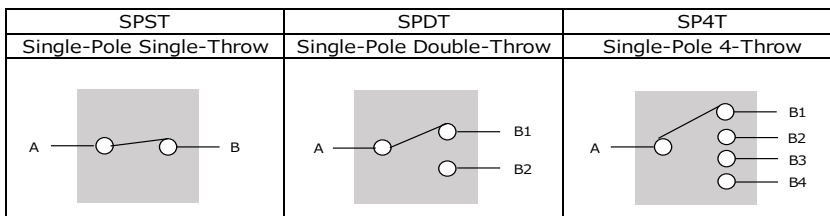


USB4® : 20Gbps



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	TC7PCI, TC7USB	TC7SB/SBL, WB/WBL, TC7MBL	TC7SPB/WPB/MPB
Main applications	High-speed signaling lines such as PCIe® Gen6, PCIe® Gen5, USB4®.		High-speed signaling lines such as USB 2/3.2 Gen1, PCIe® Gen3	5V/3.3V general-purpose signaling lines	Bus lines that require voltage conversion
Signaling rate	to 64GT/s	to 32Gbps	to 10Gbps	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	TDS5C212MX	Low Active	1.6 to 3.6	8.5 (*)	-	34 GHz	XQFN16	TarFSOI™ (**)	Buy Online	
			TDS5B212MX			8.5 (*)		29 GHz			Buy Online	
			TDS4B212MX			7.9 (*)		27.5 GHz			Buy Online	
			TDS4A212MX			8.4 (*)		26.2 GHz			Buy Online	
	Single	Low Active	2.3 to 4.3	TC7USB40MU	5	1.5 GHz	4.5	5	1.5 GHz	UQFN10B	CMOS	Buy Online
				TC7USB40FT						TSSOP14	CMOS	Buy Online
				TC7USB42MU						UQFN10B	CMOS	Buy Online
				TC7USB42FT						TSSOP14	CMOS	Buy Online
Low voltage Standard	SPST	Single	TC7SBL66CFU	High Active	1.65 to 3.6	5.5	7	510 MHz	USV	CMOS	Buy Online	
			TC7SBL384CFU	Low Active						CMOS	Buy Online	
		Dual	TC7WBL3305CFK	High Active		6	7		US8	CMOS	Buy Online	
			TC7WBL3306CFK	Low Active						CMOS	Buy Online	
		Quad	TC7MBL3125CFT	Low Active		6.5	7.5		TSSOP14	CMOS	Buy Online	
			TC7MBL3125CFK	Low Active						US14	CMOS	Buy Online
			TC7MBL3126CFT	High Active						TSSOP14	CMOS	Buy Online
			TC7MBL3126CFK	High Active						US14	CMOS	Buy Online
	Octal	TC7MBL3245CFT	Low Active	6.5	7.5	TSSOP20	CMOS	Buy Online				
		TC7MBL3245CFK	Low Active			US20	CMOS	Buy Online				
	SPDT	Quad	TC7MBL3257CFT	Low Active	8.5	8	TSSOP16	CMOS	Buy Online			
			TC7MBL3257CFK	Low Active			US16	CMOS	Buy Online			
	SP4T	Dual	TC7MBL3253CFT	Low Active	9	13	TSSOP16	CMOS	Buy Online			
			TC7MBL3253CFK	Low Active			US16	CMOS	Buy Online			
	5V Standard	SPST	Single	TC7SB66CFU	High Active	1.65 to 5.5	4	10	480 MHz	USV	CMOS	Buy Online
				TC7SB67CFU	Low Active						CMOS	Buy Online
Dual			TC7WB66CFK	High Active	4		10	US8		CMOS	Buy Online	
			TC7WB67CFK	Low Active						CMOS	Buy Online	
SPDT		Single	TC7SB3157CFU	-	4		15	US6		CMOS	Buy Online	
			TC7SB3157DL6X	-	4		15	XSON6		CMOS	Buy Online	
Level Shift	SPST	Single	TC7SPB9306TU	High Active	VccA: 1.65 to 5.0 VccB: 2.3 to 5.5	5	14	-	UF6	CMOS	Buy Online	
			TC7SPB9307TU	Low Active						CMOS	Buy Online	
		Dual	TC7WPB9306FK	High Active		5	14		US8	CMOS	Buy Online	
			TC7WPB9307FK	Low Active						CMOS	Buy Online	
		Quad	TC7QPB9306FT	High Active		5	14		TSSOP14	CMOS	Buy Online	
			TC7QPB9306FK	High Active						US14	CMOS	Buy Online
			TC7QPB9307FT	Low Active						TSSOP14	CMOS	Buy Online
			TC7QPB9307FK	Low Active						US14	CMOS	Buy Online
	Octal	TC7MPB9307FT	High Active	5		14	TSSOP20		CMOS	Buy Online		
		TC7MPB9307FK	High Active				US20		CMOS	Buy Online		
	SPDT	Dual	TC7MPB9326FT	High Active		5	14		TSSOP14	CMOS	Buy Online	
			TC7MPB9326FK	High Active					US14	CMOS	Buy Online	
			TC7MPB9327FT	Low Active					TSSOP14	CMOS	Buy Online	
			TC7MPB9327FK	Low Active					US14	CMOS	Buy Online	

*:Maximum value




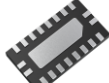
** : TarFSOI™ process technology : Excellent high-frequency performance, well suited for high-speed differential signal interfaces.

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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	TQFN20
			
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	W : 4.5 mm L : 2.5 mm H : 0.55 mm

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