

Introduction of Toshiba Bus Switch products

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

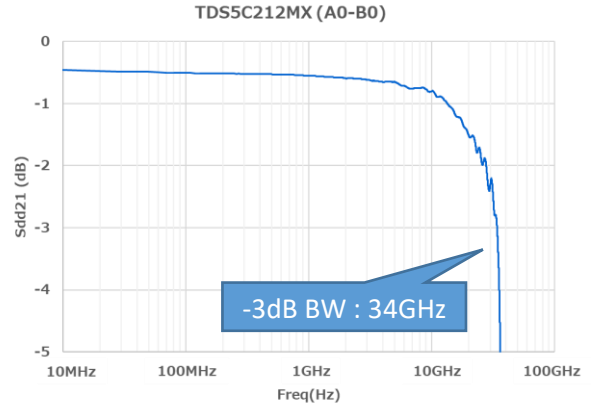
Wide range of support from general-purpose bus lines to high-speed bus lines!

Toshiba's bus switch IC is 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!

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)

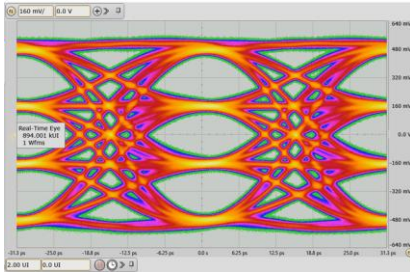


It is possible to transmit signals with high quality!

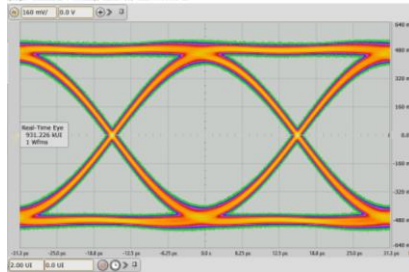
In addition to its frequency characteristics, Toshiba's bus switch has excellent signal quality. The results of eye-pattern comparisons also show superior signal-quality compared to competitor's same kind products(**). We have also verified the quality of high-speed signals, such as PCIe® Gen6, PCIe® Gen5, USB4®.

Signal quality test results by Eye- Pattern

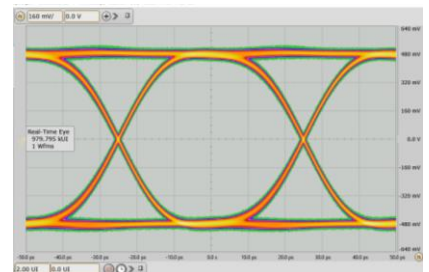
PCIe® Gen6: 64GT/s



PCIe® Gen5: 32Gbps

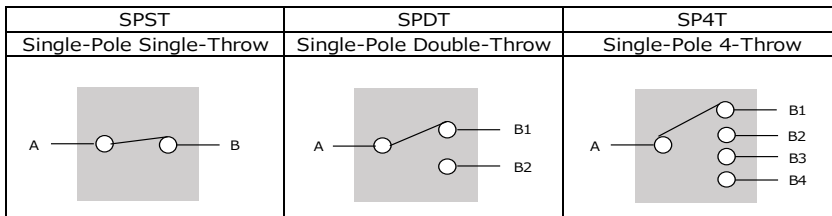


USB4® : 20Gbps



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	Highspeed bus switch		Highspeed 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.




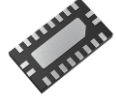
Series	Switch type	Num of Circuit	Product Name	Control	Vcc(V)	Ron(Ω) Typ.	Con(pF) Typ.	BW(-3dB) Typ.	Package	Purchase				
High Speed Differential	SPDT	Dual	TDS5C212MX	Low Active	1.6 to 3.6	8.5 (*)	-	34 GHz	XQFN16	Buy Online				
			TDS5B212MX			8.5 (*)		29 GHz		Buy Online				
			TDS4B212MX			7.9 (*)		27.5 GHz		Buy Online				
			TDS4A212MX			8.4 (*)		26.2 GHz		Buy Online				
		Dual	TC7PCI3212MT	Low Active	2.7 to 3.6	7.5	1.5	11.5 GHz	TQFN20	Buy Online				
			TC7PCI3215MT							Buy Online				
		Single	Low Active	2.3 to 4.3	4.5	5	1.5 GHz	UQFN10B	TC7USB40MU	Buy Online				
									TC7USB40FT	Buy Online				
	TC7USB42MU								Buy Online					
	TC7USB42FT								Buy Online					
	Low voltage Standard	SPST	Single	TC7SBL66CFU	High Active	1.65 to 3.6	5.5	7	510 MHz	USV	Buy Online			
				TC7SBL384CFU	Low Active						Buy Online			
Dual			TC7WBL3305CFK	High Active	6		7	US8		Buy Online				
			TC7WBL3306CFK	Low Active						Buy Online				
Quad			Low Active	TC7MBL3125CFT	6.5		7.5	TSSOP14		Buy Online				
				TC7MBL3125CFK						Buy Online				
		High Active	TC7MBL3126CFT	6.5	7.5	TSSOP14	Buy Online							
			TC7MBL3126CFK				Buy Online							
Octal		Low Active	TC7MBL3245CFT	6.5	7.5	TSSOP20	Buy Online							
			TC7MBL3245CFK				Buy Online							
SPDT		Quad	TC7MBL3257CFT	Low Active	8.5	8	TSSOP16	Buy Online						
			TC7MBL3257CFK					Buy Online						
SP4T		Dual	TC7MBL3253CFT	Low Active	9	13	TSSOP16	Buy Online						
			TC7MBL3253CFK					Buy Online						
5V Standard		SPST	Single	TC7SB66CFU	High Active	1.65 to 5.5	4	10	480 MHz	USV	Buy Online			
				TC7SB67CFU	Low Active						Buy Online			
			Dual	TC7WB66CFK	High Active		4	10		US8	Buy Online			
				TC7WB67CFK	Low Active						Buy Online			
	SPDT	Single	TC7SB3157CFU	-	4		15	US6		Buy Online				
			TC7SB3157DL6X	-	4		15	XSON6		Buy Online				
Level Shift	SPST	Single	TC7SPB9306TU	High Active	VccA: 1.65 to 5.0 VccB: 2.3 to 5.5	5	14	-	UF6	Buy Online				
			TC7SPB9307TU	Low Active						Buy Online				
			Dual	TC7WPB9306FK						High Active	5	14	US8	Buy Online
				TC7WPB9307FK						Low Active				Buy Online
		Quad	High Active	TC7QP89306FT		5	14		TSSOP14	Buy Online				
				TC7QP89306FK						Buy Online				
			Low Active	TC7QP89307FT		5	14		TSSOP14	Buy Online				
				TC7QP89307FK						Buy Online				
	Octal	High Active	TC7MPB9307FT	5		14	TSSOP20		Buy Online					
			TC7MPB9307FK						Buy Online					
	SPDT	Dual	TC7MPB9326FT	High Active		5	14		TSSOP14	Buy Online				
			TC7MPB9326FK	High Active						Buy Online				
TC7MPB9327FT			Low Active	5	14			TSSOP14		Buy Online				
TC7MPB9327FK										Buy Online				

*:Maximum value

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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