

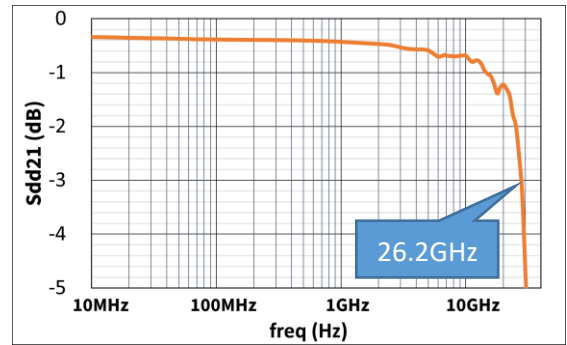
Introduction of Toshiba Bus Switch products

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.

Frequency Characteristics of Toshiba High-Speed Bus Switches (Toshiba TDS4A212MX)



Good frequency characteristics over 26GHz!

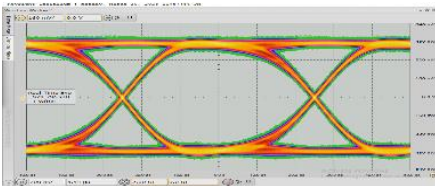
Toshiba's latest high-speed bus switch has a wide Frequency characteristic (-3dB) of 26.2GHz high-quality design is facilitated by low signal attenuation when used in high-speed interfaces(See figure on the right).

It is possible to transmit signals with high quality!

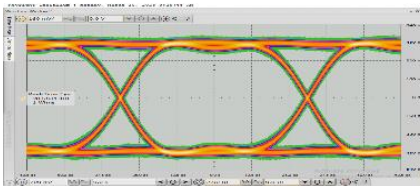
In addition to its frequency characteristics, Toshiba's bus switch has excellent signal quality. The results of eye-pattern comparisons also show superior signal-quality compared to competitor's same kind products(**). We have also verified the quality of high-speed signals, such as USB4®, PCIe® Gen4 and USB3.2 Gen2x2.

Signal quality test results by Eye- Pattern

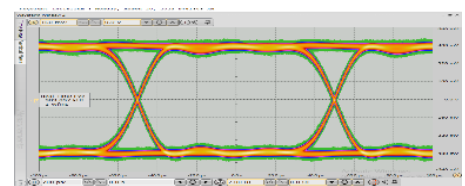
USB4® : 20Gbps



PCIe® Gen4: 16Gbps

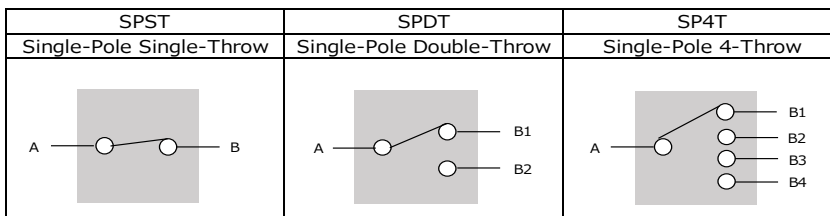


USB3.2 Gen2x2: 10Gbps



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
		TDS4A, TDS4B	TC7PCI, TC7USB	TC7SB/SBL, WB/WBL, TC7MBL
Main applications	High-speed signaling lines such as USB4® PCIe® Gen4	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	1Gbps to 32Gbps	500Mbps to 10Gbps	Less than 350Mbps	Less than 20Mbps






Features of each series

You can easily select from the list of characteristics.




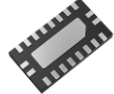
Series	Switch type	Num of Circuit	Product Name	Control	Vcc(V)	Ron(Ω)	Con(pF)	BW(-3dB)	Package Name	ご購入			
						(typ.)	(typ.)	(typ.)					
High Speed Differential	SPDT	Dual	TDS4A212MX	Low Active	1.6 to 3.6	8.4 (*)	-	26.2GHz	XQFN16	Buy Online			
			TDS4B212MX	Low Active		7.9(*)		27.5GHz		Buy Online			
	SPDT	Dual	TC7PCI3212MT	Low Active	2.7 to 3.6	7.5	1.5	11.5GHz	TQFN20	Buy Online			
			TC7PCI3215MT	Low Active						Buy Online			
		Single	TC7USB40MU	Low Active	2.3 to 4.3	4.5	5	1.5GHz	UQFN10B	Buy Online			
			TC7USB40FT	Low Active					TSSOP14	Buy Online			
			TC7USB42MU	Low Active					UQFN10B	Buy Online			
			TC7USB42FT	Low Active					TSSOP14	Buy Online			
	Low voltage Standard	SPST	Single	TC7SBL66CFU	High Active	1.65 to 3.6	5.5	7	510MHz	USV	Buy Online		
				TC7SBL384CFU	Low Active					Buy Online			
Dual			TC7WBL3305CFK	High Active	6		7	US8		Buy Online			
			TC7WBL3306CFK	Low Active				Buy Online					
Quad			TC7MBL3125CFT	Low Active	6.5		7.5	TSSOP14		Buy Online			
			TC7MBL3125CFK	Low Active				US14		Buy Online			
			TC7MBL3126CFT	High Active				TSSOP14		Buy Online			
			TC7MBL3126CFK	High Active				US14		Buy Online			
Octal			TC7MBL3245CFT	Low Active	6.5		7.5	TSSOP20		Buy Online			
			TC7MBL3245CFK	Low Active				US20		Buy Online			
SPDT		Quad	TC7MBL3257CFT	Low Active	8.5		8	TSSOP16		Buy Online			
			TC7MBL3257CFK	Low Active				US16		Buy Online			
SP4T		Dual	TC7MBL3253CFT	Low Active	9		13	TSSOP16		Buy Online			
			TC7MBL3253CFK	Low Active				US16		Buy Online			
5V Standard		SPST	Single	TC7SB66CFU	High Active		1.65 to 5.5	4		10	480MHz	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	TC7QPB9306FT	High Active		5	14		TSSOP14	Buy Online			
			TC7QPB9306FK	High Active					US14	Buy Online			
			TC7QPB9307FT	Low Active					TSSOP14	Buy Online			
			TC7QPB9307FK	Low Active					US14	Buy Online			
		Octal	TC7MPB9307FT	High Active		5	14		TSSOP20	Buy Online			
			TC7MPB9307FK	High Active					US20	Buy Online			
	SPDT	Dual	TC7MPB9326FT	High Active		5	14		TSSOP14	Buy Online			
			TC7MPB9326FK	High Active					US14	Buy Online			
		Dual	TC7MPB9327FT	Low Active		5	14		TSSOP14	Buy Online			
			TC7MPB9327FK	Low Active					US14	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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