

Toshiba General Purpose CMOS Logic / One-gate Logic IC

The CMOS logic IC / one-gate logic IC with production results for about half a century!
 New lineup of CMOS Logic products with extended operating temperature range up to $T_a = 125^\circ\text{C}$

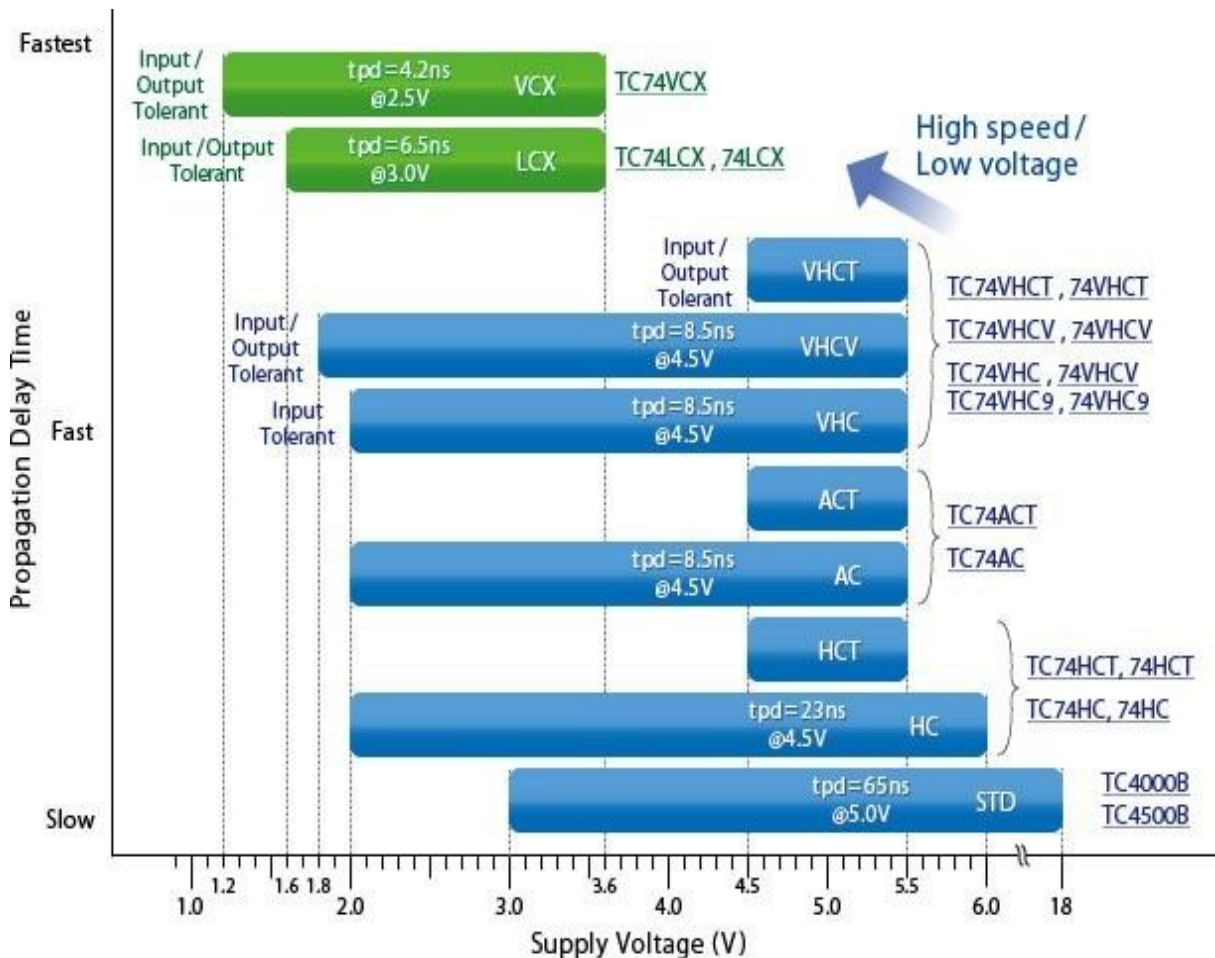
•Approximately 50 years of CMOS logic and one-gate logic production results

Toshiba's CMOS Logic Products began production in the 1970s, and we are continuing to supply high-quality products through our production bases in Japan and the Philippines, while developing series and packages.

We will continue to supply high-quality, long-term CMOS logic ICs and one-gate logic (LMOS) products so that everyone can use our products with peace of mind.

•Comprehensive lineup

Almost all of Toshiba's mass-produced lineup can be selected. It is especially recommended for users who are considering the future and those who are already using it but want to proceed with the 2nd source review. We would like to ask you to review the package lineup and cross-references of other companies according to characteristics so that you can select them more easily.



- **Extended of the lineup of CMOS Logic and One-gate Logic products with extended operating temperature range up to $T_a = 125\text{ }^\circ\text{C}$**

Although some products are already compatible with the operating temperature range $T_a = -40\text{ }^\circ\text{C}$, to $125\text{ }^\circ\text{C}$, we will expand the products for temperature expansion to meet the customer's temperature expansion requirements.

In addition, Toshiba plans to increase not only general-purpose CMOS logic products but also high-temperature guaranteed One-gate Logic(L-MOS), bus switch, Level-shifter products.

This expands the range of Toshiba's general-purpose CMOS logic products that you can adopt without worrying about temperature conditions when you consider adopting it.

•Lineup of CMOS Logic products

You can easily select from the list of characteristics.

Type	Series	Product Number	Temperature-expanded products ○: existence —: nonexistence	Operating voltage range (V)	Propagation delay (ns)	Output current (mA)	Input tolerance (V)	Output power-down protection (V)	Package	(Note) Where to buy
Compatibility with 5 V Systems	Standard	TC4000B	—	3 to 18	65 (@5.0V)	±0.51 (@5.0V)	—	—	DIP14,16 SOP14,16 TSSOP14	Buy Online
	High-speed	TC74HC	○	2 to 6	23 (@4.5V)	±4.0 or ±6.0 (@4.5V)	—	—	DIP14,16,20 SOP14,16,20 TSSOP14,16	Buy Online
		74HC	○							Buy Online
		TC74HCT	—	4.5 to 5.5						Buy Online
		74HCT	○	5.5						Buy Online
	Advanced	TC74AC	○	2 to 5.5	8.5 (@4.5V)	±24 (@4.5V)	—	—	DIP14,16,20 SOP14,16,20 TSSOP14,16,20	Buy Online
		TC74ACT	○	4.5 to 5.5						Buy Online
	Very High-speed	74VHC	○	2 to 5.5	8.5 (@4.5V)	±8.0 (@4.5V)	0 to 5.5	—	DIP14,20 SOP14,16,20 TSSOP14,16,20 US14,16,20	Buy Online
		74VHCT	○	4.5 to 5.5						Buy Online
		74VHCV	○	1.8 to 5.5						±16 (@4.5V)
Compatible with low-voltage systems	Low-voltage	TC74LCX	○	1.65 to 3.6	6.5 (@3.0V)	±24 (@3.0V)	0 to 5.5	0 to 5.5	SOP14,16,20 TSSOP14,16,20 ,48,US14,16,20	Buy Online
		74LCX	○	3.6					Buy Online	
	Very Low-voltage	TC74VCX	○	1.2 to 3.6	4.2 (@2.3V)	±24 (@3.0V)	0 to 3.6	0 to 3.6	TSSOP14,16,20 ,48 US14,16,20	Buy Online





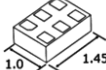



•Lineup of One-Gate logic products

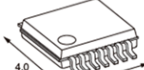
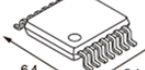
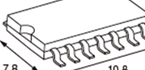

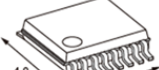


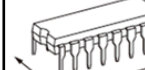
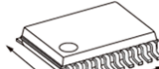
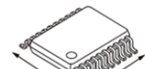



Type	Series	Product Number	Temperature-expanded products ○: existence —: nonexistence	Operating voltage range (V)	Propagation delay (ns)	Output current (mA)	Input tolerance (V)	Output power-down protection (V)	Package	(Note) Where to buy
Compatibility with 5 V Systems	Very High-speed	TC7SH	○	2 to 5.5	9 (@4.5V)	±8.0 (@4.5V)	0 to 5.5	—	USV,SMV	Buy Online
		TC7WH	○						SM8,US8	Buy Online
		TC7SET	○	4.5 to 5.5	12 (@4.5V)				USV,SMV	Buy Online
Compatible with low-voltage systems	Low-voltage	TC7SZ	○	1.8 to 5.5	4.5 (@3.0V)	±24 (@3.0V)	0 to 5.5	0 to 5.5	USV,SMV,E SV,fSV	Buy Online
		TC7PZ	○						US6,	Buy Online
		TC7WZ	○						US8,SM8	Buy Online
	Very Low-voltage	7UL1G	○	0.9 to 3.6	2.5 (@3.0V)	±8.0 (@4.5V)	0 to 3.6	0 to 3.6	USV,fSV, XSON6	Buy Online
		7UL2G	○						US8	Buy Online
		7UL3G	○	US8					Buy Online	
		7UL1T	○	USV,fSV, XSON6					Buy Online	
		7UL2T	○	US8					Buy Online	
		7UL3T	○	US8					Buy Online	

(Note): These items are for sale by an online distributor. They includes operating temperature ranges from -40 °C to + 85 °C.

Package lineup

If you click an image for each package, the image is linked to the corresponding product.

















Type	Surface Mount			
Pin Pitch	0.35mm	0.5mm	0.65mm	0.95mm
5pin				
	fSV(SOT-953)	ESV(SOT-553)	USV(SOT-353)	SMV(SOT-25)
6pin				
		XSON6	US6(SOT-363)	
8pin				
		US8(SOT-765)	SM8(SOT-505)	
Code	FS	5pin:FE 6pin:NX 8pin:FK	FU	F

Type	Surface mount type				Through-hole type
Pin pitch	0.5mm	0.5mm	0.65mm	1.27mm	2.54mm
14pin					
		US14		TSSOP14	SOP14
16pin					
		US16		TSSOP16	SOP16
20pin					
		US20		TSSOP20	SOP20
48pin					
		TSSOP48			
Package symbol	FK	FT	FT	F	P
Third-party packages symbol	-	DCG, DCG,MTD, DT	PW, MTC,DT	NS, T, SJ, F	N, P

Features of each series and quick cross reference

You can easily select from the characteristic list. To search from other companies' standard logic ICs, refer to the column for other companies' compatible series names.

Standard Logic

Type	Series	Product Number	Temperature-expanded products ○: existence —: nonexistence	Operating voltage range (V)	Propagation delay (ns)	Output current (mA)	Input tolerance (V)	Output power-down protection (V)	Other companies compatible series name	(Note2) Where to buy		
Compatibility with 5 V Systems	Standard	TC4000B	—	3 to 18	65 (@5.0V)	±0.51 (@5.0V)	-	-	CD4000B, HEF4000, MC14000			
	High-speed	TC74HC	○	2 to 6	23 (@4.5V)	±4.0 or ±6.0 (@4.5V)	-	-	SN74HC, MM74HC, MC74HC			
		74HC (Note1)	○									
		TC74HCT	—	4.5 to 5.5					SN74HCT, MM74HCT, MC74HCT			
		74HCT (Note1)	○									
	Advanced	TC74AC	○	2 to 5.5	8.5 (@4.5V)	±24 (@4.5V)	-	-	SN74AC, 74AC, MC74AC			
		TC74ACT	○	4.5 to 5.5					SN74ACT, 74ACT, MC74ACT			
	Very High-speed	TC74VHC	—	2 to 5.5	8.5 (@4.5V)	±8.0 (@4.5V)	0 to 5.5	0 to 5.5	SN74AHC 74AHC			
		74VHC	○									
		TC74VHCT	—	4.5 to 5.5					SN74AHCT, 74AHCT, MC74VHCT			
		74VHCT	○									
		TC74VHCV	—	1.8 to 5.5					±16 (@4.5V)	SN74LV-A		
74VHCV		○										
Compatible with low-voltage systems	Low-voltage	TC74LCX	○	1.65 to 3.6	6.5 (@3.0V)	±24 (@3.0V)	0 to 5.5	0 to 5.5			SN74LVC, 74LVC, MC74LCX	
		74LCX	○									
	Very Low-voltage	TC74VCX	○	1.2 to 3.6	4.2 (@2.3V)	±24 (@3.0V)	0 to 3.6	0 to 3.6			SN74ALVC/ALVT, 74ALVC/ALVT	

(Note1): 74HC/HCT is a lineup of TSSOP only.

(Note2): These items are for sale by an online distributor. They includes operating temperature ranges from -40 ° C to + 85 ° C.

Lineup of Bus Switch

Type	Function	Number of circuits	Product number	Operating temperature range (°C)	Vcc(V)	Ron(Ω)	Con(pF)	BW(-3dB)	Package	Where to buy			
						(typ.)	(typ.)	(typ.)	Name				
High Speed Differential	SPDT	Dual	TDS5C212MX	-40 to 125	1.6 to 3.6	8.5(※)	-	34GHz	XQFN16	Buy Online			
			TDS5B212MX			8.5(※)		29GHz		Buy Online			
			TDS4B212MX	-40 to 105	1.6 to 3.6	7.9(※)	-	27.5GHz		Buy Online			
			TDS4A212MX			8.4(※)		26.2GHz		Buy Online			
		Single	TC7USB40MU	-40 to 85	2.3 to 4.3	4.5	5	1.5GHz	UQFN10B	Buy Online			
			TC7USB40FT						TSSOP14	Buy Online			
			TC7USB42MU	-40 to 85	UQFN10B	Buy Online							
			TC7USB42FT	TSSOP14	Buy Online								
	SPST	Single	TC7SBL66CFU	-40 to 125	1.65 to 3.6	5.5	7	510MHz	USV	Buy Online			
			TC7SBL384CFU						US8	Buy Online			
		Dual	TC7WBL3305CFK	-40 to 125					6	7	Buy Online		
			TC7WBL3306CFK						Buy Online				
			Quad	TC7MBL3125CFT					-40 to 125	6.5	7.5	TSSOP14	Buy Online
				TC7MBL3125CFK					-40 to 85	Buy Online			
		Octal	TC7MBL3126CFT	-40 to 125					6.5	7.5	TSSOP14	Buy Online	
			TC7MBL3126CFK	-40 to 85							US14	Buy Online	
TC7MBL3245CFT			-40 to 125	TSSOP20							Buy Online		
TC7MBL3245CFK			-40 to 85	US20							Buy Online		
SPDT		Quad	TC7MBL3257CFT	-40 to 125					8.5	8	TSSOP16	Buy Online	
			TC7MBL3257CFK	-40 to 85							US16	Buy Online	
SP4T	Dual	TC7MBL3253CFT	-40 to 125	9	13	TSSOP16	Buy Online						
		TC7MBL3253CFK	-40 to 85			US16	Buy Online						
5V Standard	SPST	Single	TC7SB66CFU	-40 to 125	1.65 to 5.5	4	10	480MHz	USV	Buy Online			
			TC7SB67CFU						Buy Online				
		Dual	TC7WB66CFK	-40 to 125					4	10	US8	Buy Online	
			TC7WB67CFK						Buy Online				
	SPDT	Single	TC7SB3157CFU	-40 to 85					4	15	US6	Buy Online	
			TC7SB3157DL6X	-40 to 125					4	15	XSON6	Buy Online	
Level Shift	SPST	Single	TC7SPB9306TU	-40 to 85	VccA: 1.65 to 5.0 VccB: 2.3 to 5.5	5	14	-	UF6	Buy Online			
			TC7SPB9307TU						Buy Online				
		Dual	TC7WPB9306FK	-40 to 125					5	14	US8	Buy Online	
			TC7WPB9307FK						Buy Online				
		Quad	TC7QPB9306FT	-40 to 125					5	14	TSSOP14	Buy Online	
			TC7QPB9306FK	-40 to 85							US14	Buy Online	
			TC7QPB9307FT	-40 to 125							TSSOP14	Buy Online	
			TC7QPB9307FK	-40 to 85							US14	Buy Online	
	Octal	TC7MPB9307FT	-40 to 125	5					14	TSSOP20	Buy Online		
		TC7MPB9307FK	-40 to 85							US20	Buy Online		
	SPDT	Dual	TC7MPB9326FT	-40 to 125					5	14	TSSOP14	Buy Online	
			TC7MPB9326FK	-40 to 85							US14	Buy Online	
			TC7MPB9327FT	-40 to 125							TSSOP14	Buy Online	
			TC7MPB9327FK	-40 to 85							US14	Buy Online	

※ : Maximum value

Please also refer to the following documents for related explanations.

● To perform a parametric search of Logic ICs :

- CMOS logic ICs [Click](#)
- One-Gate logic ICs [Click](#)
- Bus Switches [Click](#)

● Application notes [Click](#)

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