

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 $T_a = 125^\circ\text{C}$

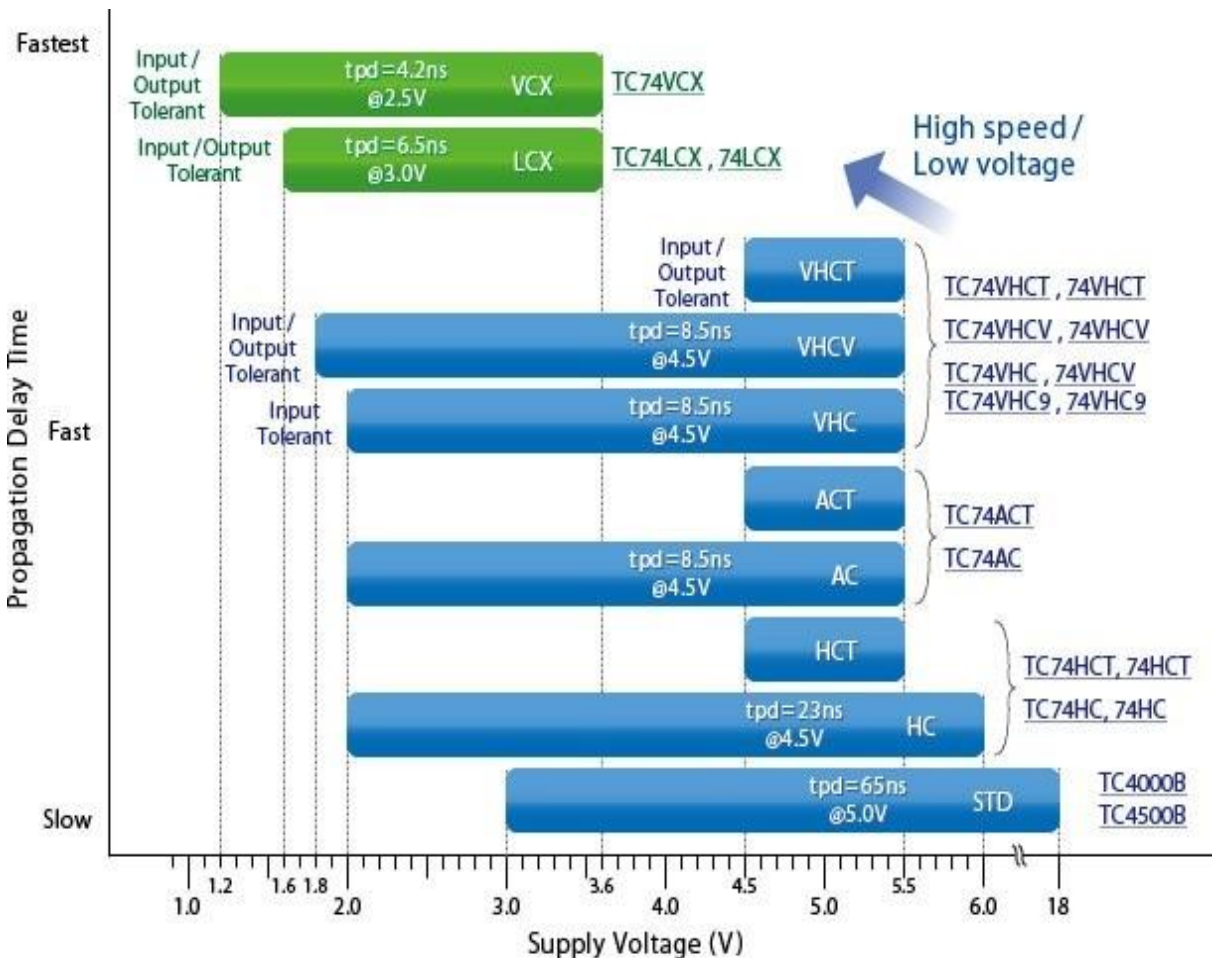
• Approximately 50 years of CMOS logic and one-gate logic production results

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	—	3~18	65 (@5.0V)	±0.51 (@5.0V)	—	—	DIP14,16 SOP14,16 TSSOP14		
	High-speed	TC74HC	○	2~6	23 (@4.5V)	±4.0 or ±6.0 (@4.5V)	—	—	DIP14,16,20 SOP14,16,20 SOIC14,16,20 TSSOP14,16		
		74HC	○								
		TC74HCT	—	4.5~5.5							
		74HCT	○								
	Advanced	TC74AC	○	2~5.5	8.5 (@4.5V)	±24 (@4.5V)	—	—	DIP14,16,20 SOP14,16,20 TSSOP14,16,20		
		TC74ACT	○	4.5~5.5							
	Very High-speed	74VHC	○	2~5.5	8.5 (@4.5V)	±8.0 (@4.5V)	0~5.5	—	DIP14,20 SOP14,16,20 TSSOP14,16,20 US14,16,20		
		74VHCT	○	4.5~5.5						0~5.5	
		74VHCV	○	1.8~5.5							
Compatible with low-voltage systems	Low-voltage	TC74LCX	○	1.65~3.6	6.5 (@3.0V)	±24 (@3.0V)	0~5.5	0~5.5	SOP14,16,20 TSSOP14,16,20		
		74LCX	○						,48 US14,16,20		
	Very Low-voltage	TC74VCX	○	1.2~3.6	4.2 (@2.3V)	±24 (@3.0V)	0~3.6	0~3.6	TSSOP14,16,20 ,48 US14,16,20		




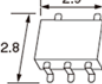
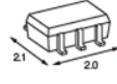
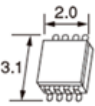
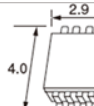
•Lineup of One-Gate logic products

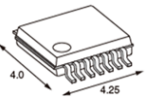
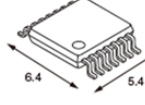
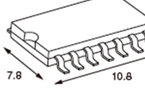
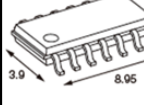
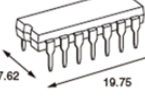
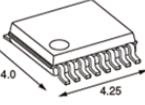
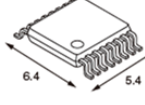
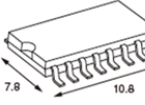
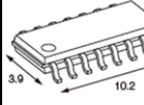
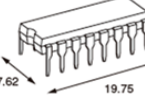
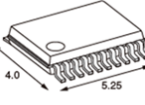
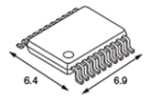
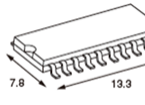
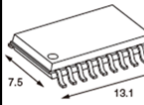
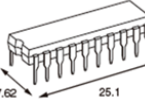
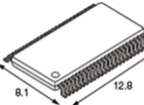
Type	Series	Product Number	Temperature-expanded products ○: existence —: nonexistence	Operating voltage range (V)	Propagation delay (ns)	Output current (mA)	Input tolerance (V)	Output power-down protection (V)	Package	(Note) Where to buy
Compatibility with 5 V Systems	Very High-speed	TC7SH	○	2~5.5	9 (@4.5V)	±8.0 (@4.5V)	0~5.5	—	USV,SMV	
		TC7WH	○						SM8,US8	
		TC7SET	○	4.5~5.5	12 (@4.5V)				USV,SMV	
Compatible with low-voltage systems	Low-voltage	TC7SZ	○	1.8~5.5	4.5 (@3.0V)	±24 (@3.0V)	0~5.5	0~5.5	USV,SMV,E SV,fSV	
		TC7PZ	○						US6,	
		TC7WZ	○						US8,SM8	
	LVP	LVP	7UL1G	○	0.9~3.6	2.5 (@3.0V)	±8.0 (@4.5V)	0~3.6	0~3.6	USV,fSV
7UL2G			○	US8						
7UL1T		○	2.3~3.6	3.6 (@3.0V)	USV,fSV					
7UL2T		—			US8					

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

Type	Surface mount type					Through-hole type
	0.5mm	0.5mm	0.65mm	1.27mm	1.27mm	2.54mm
14pin						
	US14		TSSOP14	SOP14	SOIC14	DIP14
16pin						
	US16		TSSOP16	SOP16	SOIC16	DIP16
20pin						
	US20		TSSOP20	SOP20	SOIC20	DIP20
48pin						
		TSSOP48				
Package symbol	FK	FT	FT	F	D	P
Third-party packages symbol	-	DCG, DCG,MTD, DT	PW, MTC,DT	NS, T, SJ, F	D, DW	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	—	3~18	65 (@5.0V)	±0.51 (@5.0V)	-	-	CD4000B, HEF4000, MC14000	Buy Online
	High-speed	TC74HC ^(Note1)	○	2~6	23 (@4.5V)	±4.0 or ±6.0 (@4.5V)	-	-	SN74HC, MM74HC, MC74HC	Buy Online
		74HC	○						SN74HCT, MM74HCT, MC74HCT	Buy Online
		TC74HCT	—	4.5~5.5					SN74HCT, MM74HCT, MC74HCT	Buy Online
		74HCT ^(Note1)	○	SN74AC, 74AC, MC74AC					Buy Online	
	Advanced	TC74AC	○	2~5.5	8.5 (@4.5V)	±24 (@4.5V)	-	-	SN74ACT, 74ACT, MC74ACT	Buy Online
		TC74ACT	○	4.5~5.5					SN74AHC, 74AHC, MC74VHC	Buy Online
	Very High-speed	TC74VHC	—	2~5.5	8.5 (@4.5V)	±8.0 (@4.5V)	0~5.5	0~5.5	SN74AHC, 74AHC, MC74VHC	Buy Online
		74VHC	○	4.5~5.5					SN74AHCT, 74AHCT, MC74VHCT	Buy Online
		TC74VHCT	—	1.8~5.5					SN74LV-A	Buy Online
		74VHCT	○	SN74LVC, 74LVC, MC74LCX					Buy Online	
		TC74VHCV	—	SN74ALVC/ALVT, 74ALVC/ALVT					Buy Online	
	74VHCV	○								
Compatible with low-voltage systems	Low-voltage	TC74LCX	○	1.65~3.6	6.5 (@3.0V)	±24 (@3.0V)	0~5.5	0~5.5	SN74LVC, 74LVC, MC74LCX	Buy Online
		74LCX	○							
	Very Low-voltage	TC74VCX	○	1.2~3.6	4.2 (@2.3V)	±24 (@3.0V)	0~3.6	0~3.6	SN74ALVC/ALVT, 74ALVC/ALVT	Buy Online

(Note1): 74HC/HCT is a lineup of TSSOP and SOIC 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) (typ.)	Con(pF) (typ.)	Package	Where to buy
Low Voltage	SPST	1	TC7SBL66CFU	-40 to 125	1.65 to 3.6	5.5	7.0	USV	
			TC7SBL384CFU						
		2	TC7WBL3305CFK	-40 to 125		6	7.0	US8	
			TC7WBL3306CFK						
	4	TC7MBL3125CFT	-40 to 125	6.5		7.5	TSSOP 14		
		TC7MBL3126CFT							
	8	TC7MBL3245CFT	-40 to 125	6.5		7.5	TSSOP 20		
SPDT	4	TC7MBL3257CFT	-40 to 125	8.5	8.0	TSSOP 16			
SP4T	2	TC7MBL3253CFT	-40 to 125	9.0	13.0	TSSOP 16			
5V System	SPST	1	TC7SB66CFU	-40 to 125	1.65 to 5.5	4.0	10.0	USV	
			TC7SB67CFU						
	2	TC7WB66CFK	-40 to 125	4.0		10.0	US8		
TC7WB67CFK									
SPDT	1	TC7SB3157CFU	-40 to 125	4.0	15	US6			
Level Translation	SPST	1	TC7SPB9306TU	-40 to 85	VCCA= 1.65 to 5.0	5.0	14.0	UF6	
			TC7SPB9307TU						
		2	TC7WPB9306FK	-40 to 125		5.0	14.0	US8	
			TC7WPB9307FK						
	4	TC7QPB9306FT	-40 to 125	5.0		14.0	TSSOP 14		
		TC7QPB9307FT							
8	TC7MPB9307FT	-40 to 125	VCCB= 2.3 to 5.5	5.0	14.0	TSSOP 20			
SPDT	2	TC7MPB9326FT	-40 to 125	5.0	14.0	TSSOP 14			
		TC7MPB9327FT							

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](#)

● FAQs of Logic ICs [Click](#)

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