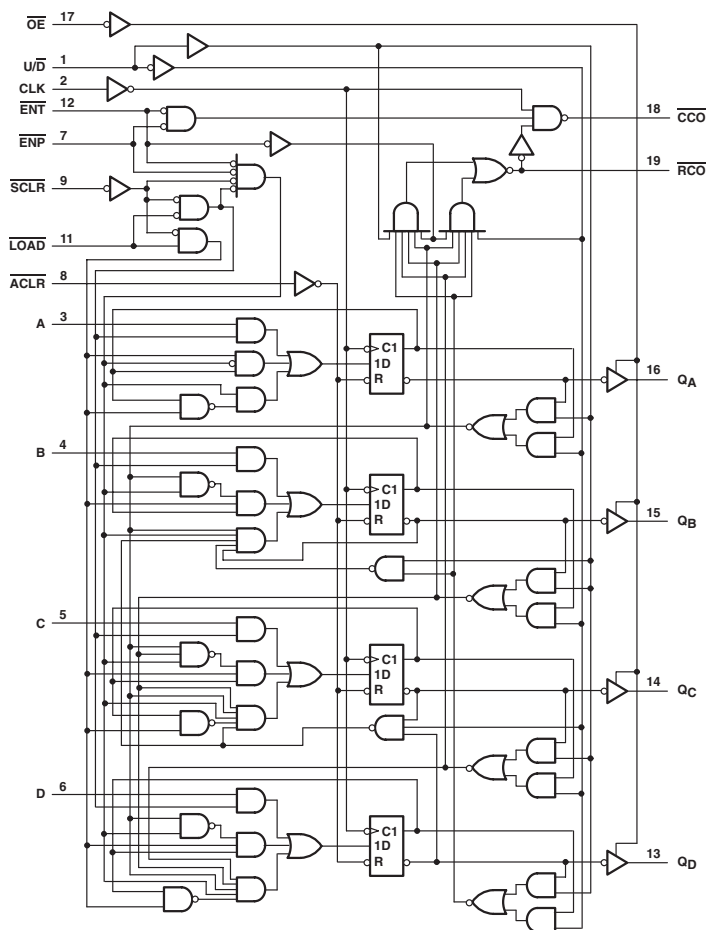


SYNCHRONOUS 4-BIT UP/DOWN BINARY COUNTERS WITH 3-STATE OUTPUTS

- 3-State Q Outputs Drive Bus Lines Directly
- Fully Synchronous Clear, Count, and Load
- Asynchronous Clear Is Also Provided
- Fully Cascadable

Logic Diagram



FUNCTION TABLE

INPUTS									OPERATION
OE	ACLR	SCLR	LOAD	ENT	ENP	U/D	CLK		
H	X	X	X	X	X	X	X	X	Q outputs disabled
L	L	X	X	X	X	X	X	X	Asynchronous clear
L	H	L	X	X	X	X	↑	↑	Synchronous clear
L	H	H	L	X	X	X	↑	↑	Load
L	H	H	H	L	L	H	↑	↑	Count up
L	H	H	H	L	L	L	↑	↑	Count down
L	H	H	H	H	X	X	X	X	Inhibit count
L	H	H	H	X	H	X	X	X	Inhibit count

ELECTRICAL CHARACTERISTICS AND RECOMMENDED OPERATING CONDITIONS

PARAMETER		MAX or MIN	ALS	UNIT
I _{CC}		MAX	32	mA
I _{OH}	OUTPUT Q	MAX	-2.6	mA
	CCO & RCO		-0.4	mA
I _{OL}	OUTPUT Q	MAX	24	mA
	CCO & RCO		8	mA

TIMING REQUIREMENTS AND SWITCHING CHARACTERISTICS

PARAMETER		INPUT	OUTPUT	MAX or MIN	ALS
fmax				MIN	30
tw	ACLR, LOAD			MIN	15
	CLK "H"				16.5
	CLK "L"				16.5
tsu	Data at A, B, C, D			MIN	20
	ENP, ENT	High			30
		Low			20
	SCLR	High			15
		Low			30
	LOAD	High			15
		Low			30
	UD				30
	ACLR				10
	th				MIN
tPLH		CLK	ANY Q	MAX	13
tPHL					16
tPLH		CLK	RCO	MAX	28
tPHL					19
tPLH		ENT	RCO	MAX	15
tPHL					13
tPHL		ACLR	Q	MAX	20
tPZH		OE	Q	MAX	18
tPZL		OE	Q	MAX	24
tPHZ					10
tPLZ					13

 UNIT f_{max} : MHz, other : ns