

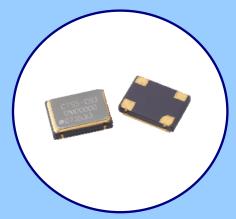
# MODEL CB3 & CB3LV

## HCMOS/TTL CLOCK OSCILLATOR



## **FEATURES**

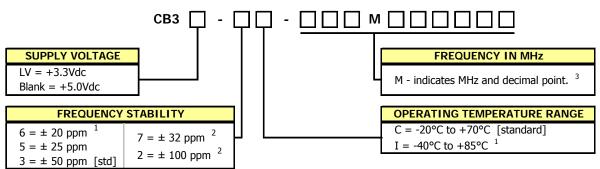
- Standard 7.0mm x 5.0mm 4-Pad Surface Mount Package
- HCMOS/TTL Compatible Output
- Fundamental and 3<sup>rd</sup> Overtone Crystal Designs
- Frequency Range 1 200 MHz
- Frequency Stability ±50 ppm Standard, ±25 ppm and ±20 ppm Available
- Operating Voltages +5.0Vdc or +3.3Vdc
- Operating Temperature to -40°C to +85°C
- Output Enable Standard
- Tape & Reel Packaging
- RoHS/Green Compliant (6/6)



## **APPLICATIONS**

Applications for Model CB3 and CB3LV include digital video, networking equipment, wireless communications, broadband access, Ethernet/Gigabit Ethernet, microprocessors/DSP/FPGA, storage area networks, fiber channel, computers and peripherals, test and measurement, SONET/SDH/DWDM, base stations and Pico cells.

### ORDERING INFORMATION

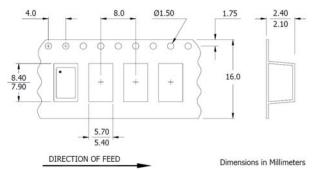


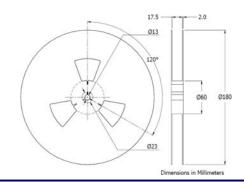
- 1] 6I Stability/Temperature combination is not available.
- 2] These stabilities are not recommended for new designs.
- 3] Frequency is recorded with only leading significant digits before the 'M' and 4 6 significant digits after the 'M' (including zeros). [Ex. 3.579545 MHz, code as 3M579545; 14.31818 MHz, code as 14M31818; 125 MHz, code as 125M0000]
- 4] CTS Distributors may add a -T or -1 at the end of the part number to indicate Tape and Reel packaging.

Not all performance combinations and frequencies may be available. Contact your local CTS Representative or CTS Customer Service for availability.

## PACKAGING INFORMATION [reference]

Device quantity is 1,000 pieces maximum per reel.





## MODEL CB3 & CB3LV 7.0mm x 5.0mm Low Cost HCMOS/TTL CLOCK OSCILLATOR

## **ELECTRICAL CHARACTERISTICS**

	PARAMETER	SYMBOL	CONDITIONS	MIN	TYP	MAX	UNIT	
	Maximum Supply Voltage	$V_{CC}$	-	-0.5	-	+7.0	V	
_	Storage Temperature	T <sub>STG</sub>	-	-40	-	+100	°C	
	Frequency Range							
	CB3 f <sub>0</sub>		-	1.5	_	107	MHz	
			-	1.5	_	200		
-	Frequency Stability	Δf/f <sub>O</sub>	See Note 1 and Ordering Information	-	-	20,25,50 or 100	± ppm	
	Aging	Δf	First year	-	3	5	± ppm	
	Operating Temperature		•					
	Commercial T <sub>A</sub> Industrial		-	-20	25	+70	°C	
-				-40	25	+85		
	Supply Voltage CB3 V <sub>CC</sub> CB3LV		±10%	4.5	F 0		V	
			±10%	4.5 3.0	5.0 3.3	5.5 3.6	v	
-	Supply Current		Frequency Range	3.0	3.3	5.0		
	,		Tested load condition noted for typical values.					
	CB3		1.5MHz to 20MHz $C_L=50pF$	-	10	25		
		$I_{CC}$	20.001MHz to 80MHz	-	30	50	mA -	
-	000111	100	80.001MHz to 107MHz C <sub>L</sub> =15pF	-	40	80		
	CB3LV		1.5MHz to 20MHz $C_L=15pF$	-	7	12		
			20.001MHz to 80MHz	-	20	40		
S			80.001MHz to 200MHz	-	30	60		
변	Output Load	$C_L$	50.001MHz to 80MHz	_	-	50 30	pF	
빌			80.001MHz to 200MHz	_	]	15	þι	
Z I	Output Voltage Levels		00.00111112 00 20011112			1		
PA	Logic '1' Level	V <sub>OH</sub>	CMOS Load	90%V <sub>CC</sub>				
A			10 TTL LOAD	V <sub>CC</sub> -0.6V	-	-	V	
2	Logic '0' Level		CMOS			10%V <sub>CC</sub>		
ELECTRICAL PARAMETERS		V <sub>OL</sub>	TTL Load	-	-	0.4		
E	Output Current							
ш	Logic '1' Level	$I_{OH}$	$V_{OH} = 3.9V/2.2V$ $V_{CC} = 4.5V/3.0V$	-	-	-16/-8	mA	
	Logic '0' Level	$I_{OL}$	$V_{OL} = 0.4V$ $V_{CC} = 4.5V/3.0V$	-	-	+16/+8		
	Output Duty Cycle	SYM	@ 50% Level	45	-	55	%	
	Rise and Fall Time		@ 10% - 90% Levels					
	CD2		Tested load condition noted for typical values.			4.0		
	CB3		1.5MHz to 20MHz C <sub>L</sub> =50pF	-	8	10		
		T <sub>R</sub> , T <sub>F</sub>	20.001MHz to 80MHz C <sub>L</sub> =50pF	-	5	8	ns	
	CB3LV		80.001MHz to 200MHz	-	2.5	5		
			1.5MHz to 20MHz $C_L = 15pF$ 20.001MHz to 80MHz $C_L = 15pF$	-	6	8		
			20.001MHz to 80MHz $C_L=15pF$ 80.001MHz to 200MHz $C_L=15pF$	_	3 1.5	5 3		
-	Start Up Time	T <sub>S</sub>	Application of $V_{CC}$	-	1.5	10	mc	
_	Enable Function	ış	, ppcation or *()	+ -		10	ms	
		V	Pin 1 Logic '1', Output Enabled	2.0			V	
	Enable Input Voltage	V <sub>IH</sub>		2.0	_		٧	
	Disable Input Voltage	V <sub>IL</sub>	Pin 1 Logic '0', Output Disabled	_	_	0.8		
	Enable Time	T <sub>PLZ</sub>	Pin 1 Logic '1'	_	_	200	ns	
	Standby Current	I <sub>ST</sub>	Pin 1 Logic '0', Output Disabled	-	-	10	μA	
	Period Jitter, Pk-Pk	-	-	1 -	-	50		
						_		
	Period Jitter, RMS Phase Jitter, RMS	-	- Bandwidth 12kHz - 20MHz	-	-	5 1	ps	

1. Inclusive of initial tolerance at time of shipment, changes in supply voltage, load, temperature and 1st year aging.

## MODEL CB3 & CB3LV 7.0MM X 5.0MM LOW COST HCMOS/TTL CLOCK OSCILLATOR

## **ELECTRICAL CHARACTERISTICS**

# LVCMOS OUTPUT WAVEFORM Vон 90%, 80%, 2.4V 50%, 1.5V 10%, 20%, 0.5V VOL

PERIOD (T) DUTY CYCLE = t/T x 100 (%)

# **TEST CIRCUIT, CMOS LOAD** mΑ lacksquare0.01uF VM D.U.T. Including probe capacitance.

Enable Input

### **ENABLE TRUTH TABLE**

UPTIME (t)

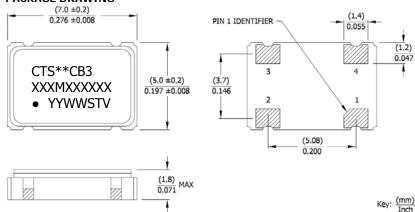
PIN 1	PIN 3		
Logic '1'	Output		
Open	Output		
Logic '0'	High Imp.		

## D.U.T. PIN ASSIGNMENTS

PIN	SYMBOL	DESCRIPTION
1	EOH	Enable
2	GND	Circuit & Package Ground
3	Output	RF Output
4	V <sub>CC</sub>	Supply Voltage

## MECHANICAL SPECIFICATIONS

#### PACKAGE DRAWING



SUGGESTED SOLDER PAD GEOMETRY

 $C_{BYPASS}$  should be  $\geq 0.01$  uF. - .071 [1.80] .079 [2.00] C BYPASS + 3 .165 [4.20] 2 .200 [5.08]

#### MARKING INFORMATION

- 1. \*\* Manufacturing Site Code. [Note a dash may follow the site code and is acceptable.]
- 2. XXXMXXXXXX Frequency is marked with only leading significant digits before the 'M' and
  - 4-6 digits after the 'M' (including zeros).
  - Ex. XMXXXXXX [3M579545] XXMXXXXX [14M31818] XXXMXXXX [125M0000]
- YYWW Date code, YY year, WW week.
   ST Frequency stability/temperature code. [Refer to Ordering Information.]
- 5. V Voltage code. 3 = 3.3V, 5 = 5.0V.

#### **NOTES**

- Termination pads [e4]. Barrier-plating is nickel [Ni] with gold [Au] flash plate.
- Reflow conditions per JEDEC J-STD-020, 260°C
- 3. Moisture Sensitivity Level 1 per JEDEC J-STD-020.

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