

- ◆ Stability to  $\pm 20$  PPM
- ◆ +3.3Vdc or +5.0Vdc Operation
- ◆ CMOS/TTL Compatible
- ◆ Operating Temperature to  $-40^{\circ}\text{C}$  to  $+85^{\circ}\text{C}$
- ◆ Output Enable Standard
- ◆ Tape & Reel Packaging



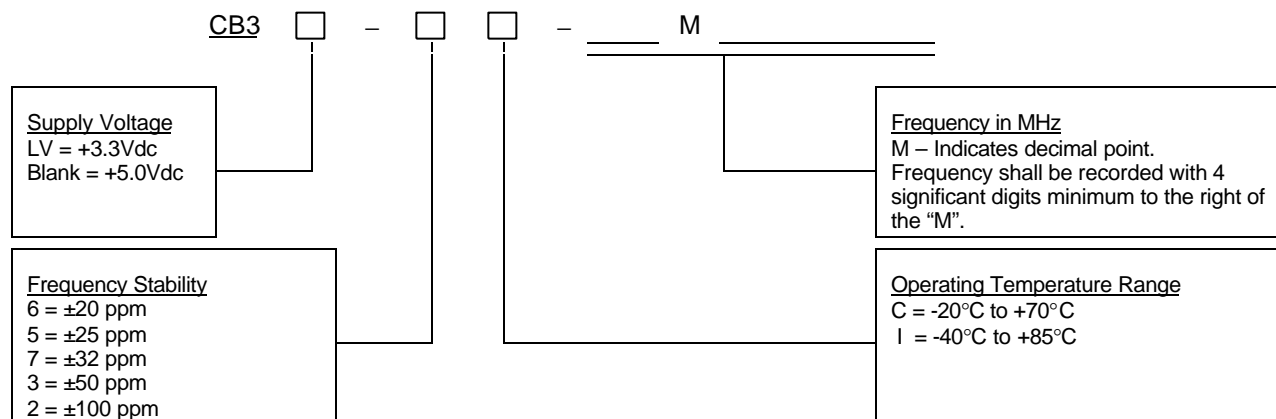
**Electrical Characteristics**

Parameter	Symbol	Conditions	Min	Typical	Max	Unit
Output Frequency Range	$f_o$					
CB3		-	1.5	-	133.333	MHz
CB3LV		-	1.5	-	133.333	MHz
Stability (Note 1) (See Ordering Information)	$\Delta f/f$	-	-	-	20,25,32, 50 or 100	ppm
Supply Voltage	$V_{cc}$					
CB3		-	4.5	5.0	5.5	V
CB3LV		-	3.0	3.3	3.6	V
Operating Supply Current	$I_{cc}$					
CB3		1.5 MHz to 20 MHz $C_L=50\text{pF}$ 20.1 MHz to 80 MHz $C_L=50\text{pF}$ 80.1 MHz to 133.333 MHz $C_L=15\text{pF}$	- - -	10 30 40	25 50 100	mA
CB3LV		1.5 MHz to 20 MHz $C_L=15\text{pF}$ 20.1 MHz to 80 MHz $C_L=15\text{pF}$ 80.1 MHz to 133.333 MHz $C_L=15\text{pF}$	- - -	7 20 30	12 40 60	mA
Output Load	$C_L$					
		1.5 MHz to 50 MHz 50.1 MHz to 80 MHz 80.1 MHz to 133.333 MHz	- - -	- - -	50 30 15	pF
Output Voltage Levels						
Logic '1' Level	$V_{OH}$	CMOS Load	$V_{cc}-0.5V$	-	-	V
Logic '0' Level	$V_{OL}$	10 TTL Load CMOS or TTL Load	- -	$V_{cc}-0.6V$ -	- 0.4	V
Output Current	$I_{OH}$ $I_{OL}$	$V_{OH} = 3.9V/2.2V$ $V_{CC} = 4.5V/3.0V$ $V_{OL} = 0.4V$ $V_{CC} = 4.5V/3.0V$	- -	- -	-16/-8 +16/+8	mA
Output Duty Cycle (50% Level)	SYM		45	-	55	%
Rise & Fall Time (10% - 90% Level)	$t_R, t_F$					
CB3		1.5 MHz to 20 MHz $C_L=50\text{pF}$ 20.1 MHz to 80 MHz $C_L=50\text{pF}$ 80.1 MHz to 133.333 MHz $C_L=15\text{pF}$	- - -	8 4 2.5	10 8 5	nS
CB3LV		1.5 MHz to 20 MHz $C_L=15\text{pF}$ 20.1 MHz to 80 MHz $C_L=15\text{pF}$ 80.1 MHz to 133.333 MHz $C_L=15\text{pF}$	- - -	6 3 1.5	8 4 3	nS
Start Up Time	-		-	-	10	mS
Enable Function (Note 2)	-	See 'Enable Truth Table' on Page 2	-	-	-	-
Phase Jitter	$t_{jms}$	(Bandwidth 12 KHz – 20 MHz)	-	< 1	-	pS RMS

Notes:

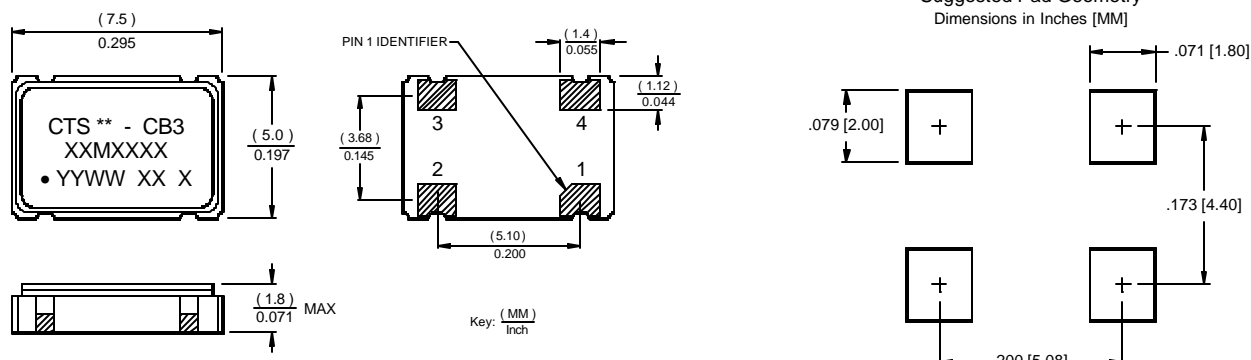
1. Inclusive of initial tolerance at time of shipment, changes in supply voltage, load, temperature and first year aging at an average operating temperature of  $40^{\circ}\text{C}$ .
2. Reference CTS Application Note 014-0002-0.

**ORDERING INFORMATION**



Example P/N: CB3LV – 3I – 32M7680 or CB3 – 3I – 32M7680

**MECHANICAL SPECIFICATIONS**



**Marking Notes:**

- \*\* Manufacturing Site Code.
- Frequency marked with 4 significant digits after the “M”.
- XX – stability/temp. code.
- X – voltage code.

Terminations plated with 0.3 – 1.0 um gold (Au).

Pin	Symbol	Functional Description
1	EOH	Enable
2	GND	Circuit and Package Ground
3	Output	RF Output
4	Vcc	Supply Voltage

**Enable Truth Table**

Pin 1	Pin 3
“1”	Output
“0”	High Imp.
Open	Output

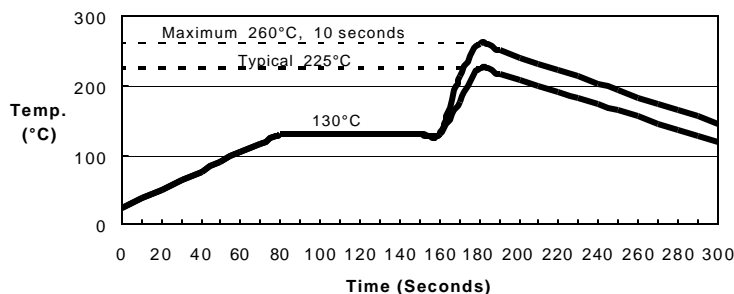
**QUALITY AND RELIABILITY**

Quality Systems meet or exceed the requirements of ISO 9000: 2000 standards. Reliability Audits are performed on this or similar products with results available upon request.

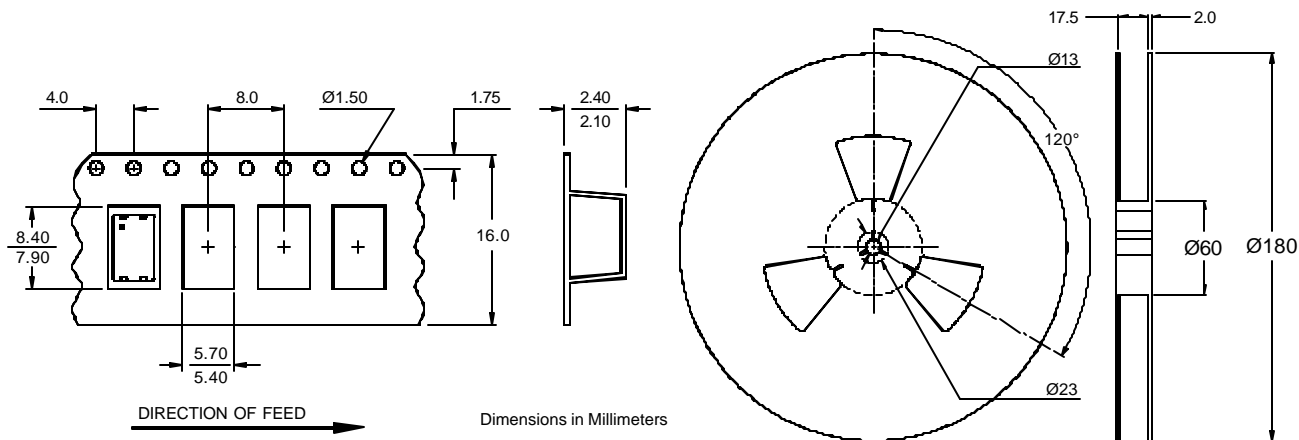
**ENVIRONMENTAL SPECIFICATIONS**

- Storage Temperature: -55°C to +125°C
- Temperature Cycle: 400 cycles, -55°C to +125°C, 10 min dwell, 1 min transfer
- Mechanical Shock: 1,500g's, 0.5mS, ½ sinewave, 3 shocks each direction, in 3 planes
- Sinusoidal Vibration: 0.06" D.A., 10 to 55 Hz and 20g's, 55 to 2,000 Hz, 3 cycles per plane
- Gross Leak: No leak shall appear while immersed in an FC40 or equivalent liquid at 125°C for 20 seconds
- Fine Leak: Mass spectrometer leak rates less than  $2 \times 10^{-8}$  cc/sec air equivalent maximum
- Resistance to Soldering Heat: Product must survive 3 reflows of 260°C peak, 10 seconds maximum
- High Temperature Operating Bias: 2,000 hours at 125°C, disregarding frequency shift
- Frequency Aging: < 5 ppm shift in 1,000 hours at 85°C

Suggested Reflow Profile



**TAPE AND REEL INFORMATION**



Device quantity shall be 1,000 pieces on a 180mm reel.