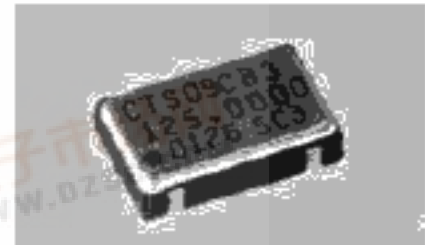


CTS

COMMUNICATIONS COMPONENTS, INC.

CB3/CB3LV
7x5mm Low Cost
Clock Oscillator

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

**Electrical Characteristics**

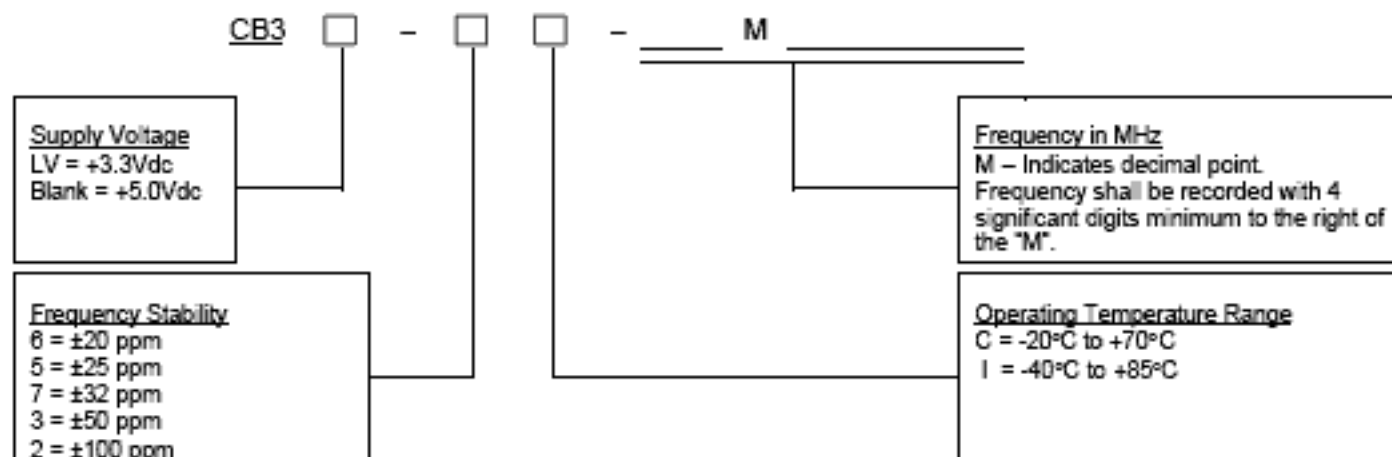
Parameter	Symbol	Conditions	Min	Typical	Max	Unit
Output Frequency Range CB3 CB3LV	f_o	- -	1.5 1.5	- -	133.333 133.333	MHz
Stability (Note 1) (See Ordering Information)	$\Delta f/f$	-	-	-	20, 25, 32, 50 or 100	ppm
Supply Voltage CB3 CB3LV	V_{cc}	- -	4.5 3.0	5.0 3.3	5.5 3.6	V
Operating Supply Current CB3	I_{cc}	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	Q_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 Logic '0' Level	V_{OH} V_{OH} V_{OL}	CMOS Load 10 TTL Load CMOS or TTL Load	$V_{cc}-0.5\text{V}$ - -	- $V_{cc}-0.6\text{V}$ -	- - 0.4	V
Output Current	I_{OH} I_{OL}	$V_{OH} = 3.9\text{V}/2.2\text{V}$ $V_{cc} = 4.5\text{V}/3.0\text{V}$ $V_{OL} = 0.4\text{V}$ $V_{cc} = 4.5\text{V}/3.0\text{V}$	- -	- -	-16/-8 +16/+8	mA
Output Duty Cycle (50% Level)	SYM		45	-	55	%
Rise & Fall Time (10% - 90% Level) CB3	t_R, t_F	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°C .
2. Reference CTS Application Note 014-0002-0.

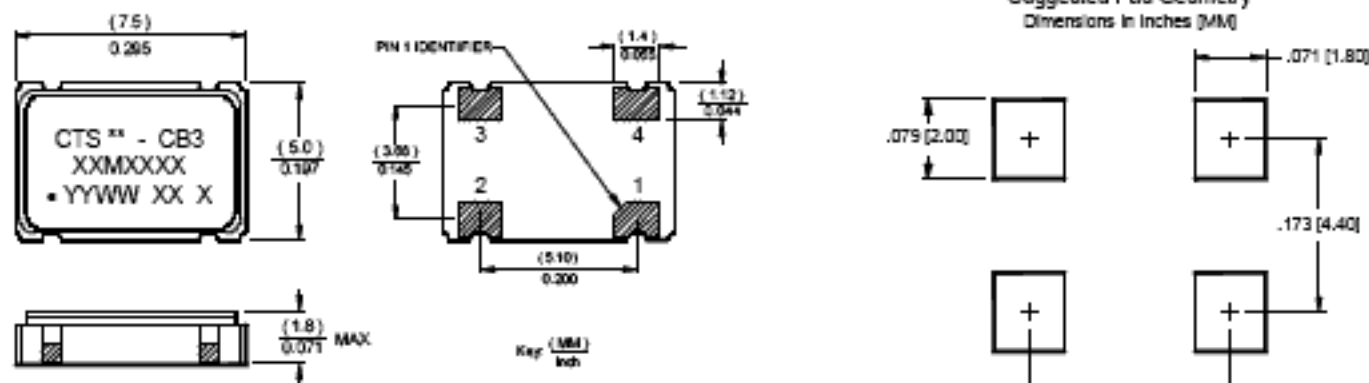


ORDERING INFORMATION



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

MECHANICAL SPECIFICATIONS



Marking Notes:

1. "M" Manufacturing Site Code.
2. Frequency marked with 4 significant digits after the "M".
3. XX - stability/temp. code.
4. X - voltage code.

Terminations plated with 0.3 - 1.0 μ m 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

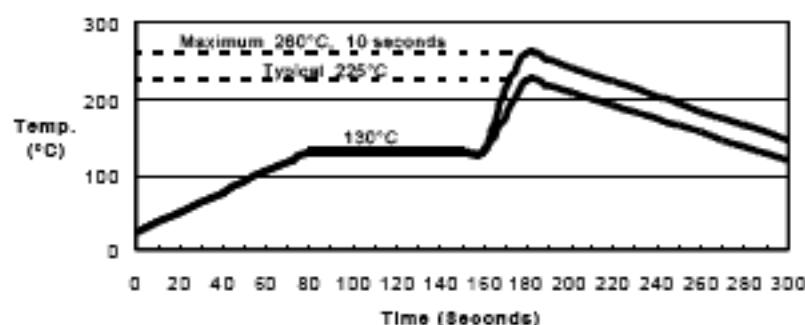
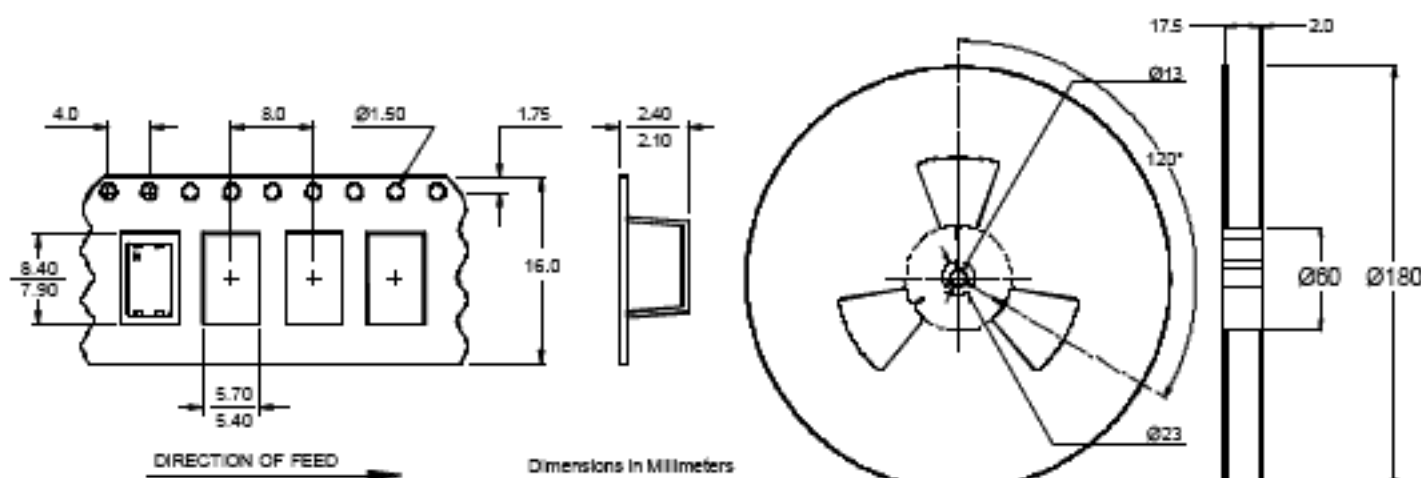
Quality Systems meet or exceed the requirements of ISO 9000: 2000 standards.

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 2×10^{-8} cc/sec air equivalent
- 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.