

- ◆ 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



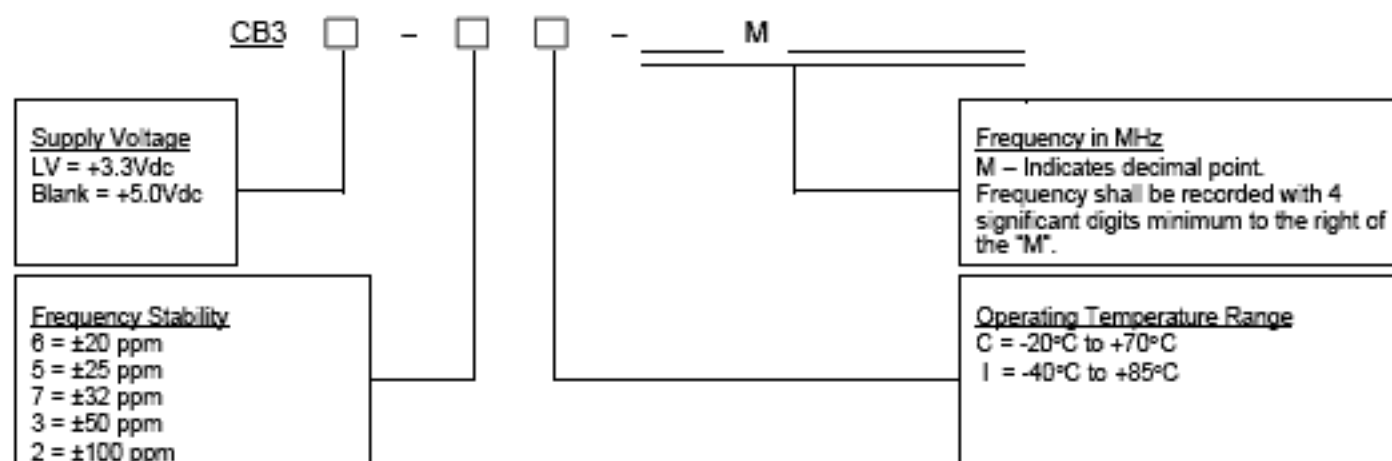
### Electrical Characteristics

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

#### Notes:

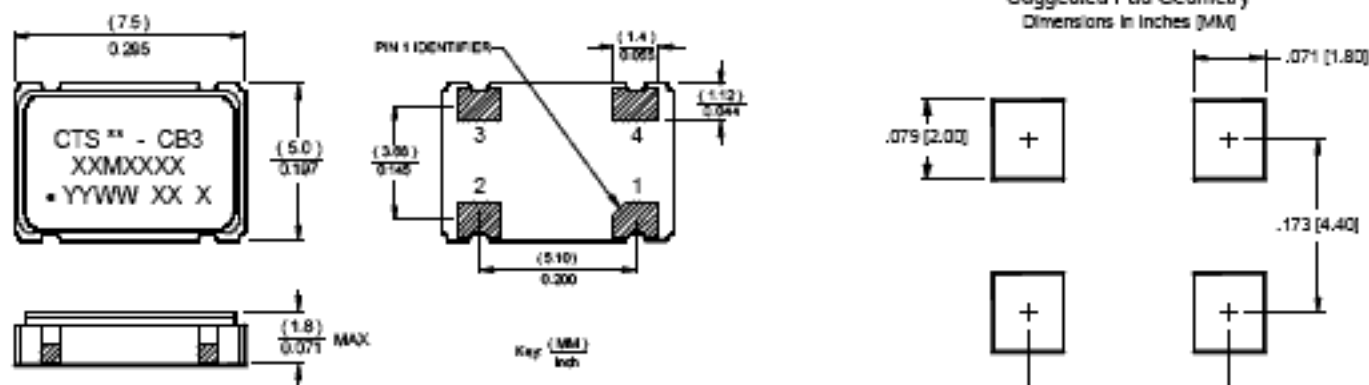
- Inclusive of initial tolerance at time of shipment, changes in supply voltage, load, temperature and first year aging at an average operating temperature of  $40^{\circ}\text{C}$ .
- Reference CTS Application Note 014-0002-0.

### ORDERING INFORMATION



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

### MECHANICAL SPECIFICATIONS



#### Marking Notes:

1. \*\* 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  $\mu$ 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

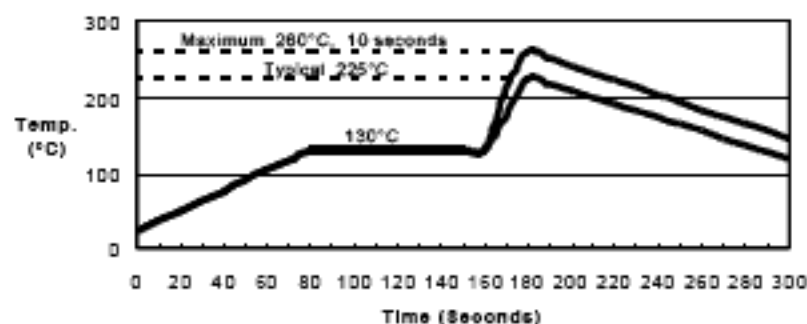
Quality Systems meet or exceed the requirements of ISO 9000: 2000 standards.

Reliability Audits are performed on this or similar products with results available upon request.

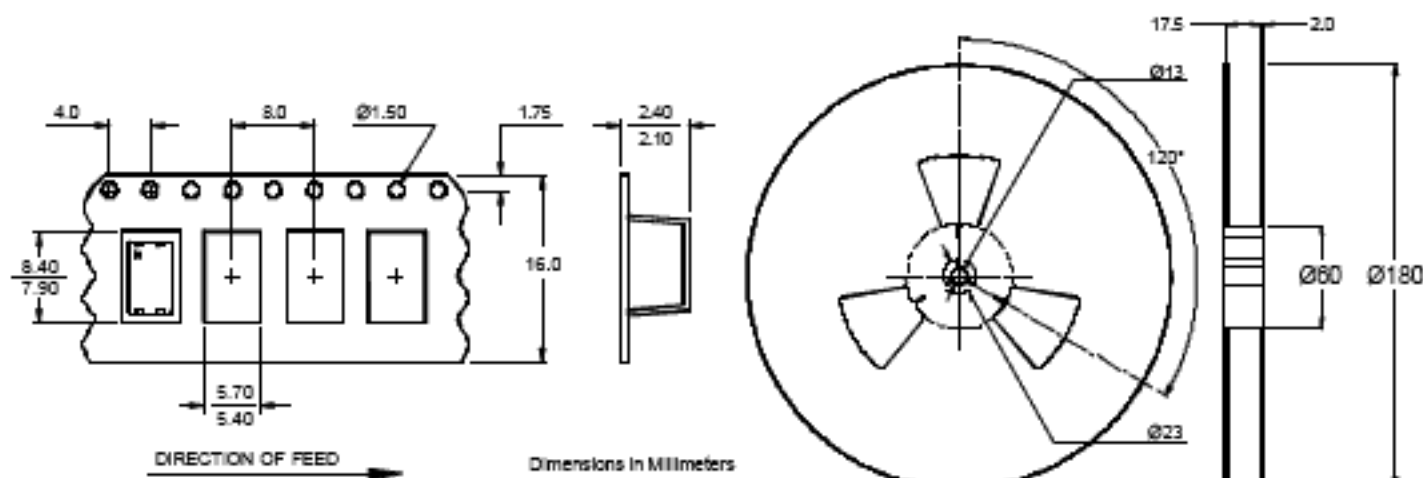
## ENVIRONMENTAL SPECIFICATIONS

- |                                    |                                                                                             |
|------------------------------------|---------------------------------------------------------------------------------------------|
| ▪ 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,<br>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             |
| ▪ 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.