

**Features:**

- Standard miniature surface mount footprint
- Frequency range 1.5 to 125 MHz
- Frequency stability: 100 ppm standard; 50 ppm and 25 ppm available
- Low voltage option available
- CMOS/TTL compatible
- Tri-State Output standard
- Tape and reel packaging (16mm)
- PCMCIA Type II & III compatible
- Fibre Channel Compliant
- Gigabit Ethernet Compliant



The CTS CB3 is a ceramic packaged Clock oscillator offering reduced size and enhanced stability. The small size means it is perfect for any application. The enhanced stability means it is the perfect choice for today's communications applications that require tight frequency control. Low voltage options are also available. Tristate control is also standard.

**Specifications:**

| PARAMETER                   | SYMBOL                             | CONDITIONS   | MINIMUM                     | TYPICAL                    | MAXIMUM                | UNITS                      |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
|-----------------------------|------------------------------------|--|-----------------------------|----------------------------|------------------------|----------------------------|---------------------|-----------------------|------------------|-------------------|-------------------|-----------------|--|-----------------|---|--|-----------------------------------|----|
| Frequency Range             | F                                  |  | 1.5                         |                            | 125                    | MHz                        |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| Stability                   | $\Delta F/F$                       | Note 1   |                             |                            | 20,25,50, or 100       | ppm                        |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| Operating Temp.             | T <sub>A</sub>                     | Commercial<br>Industrial   | 0<br>-40                    |                            | +70<br>+85             | °C                         |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| Supply Voltage              | V <sub>CC</sub>                    | Operating Voltage Options  | 4.5<br>3.0                  | 5.0<br>3.3                 | 5.5<br>3.6             | V                          |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| Supply Current              | I <sub>CC</sub>                    | <table border="0"> <tr> <td>≤20.0 MHz</td> <td>5.0 Volt Supply</td> </tr> <tr> <td></td> <td>3.3 Volt Supply</td> </tr> <tr> <td>&gt;20.0 MHz to ≤80MHz</td> <td>5.0 Volt Supply</td> </tr> <tr> <td></td> <td>3.3 Volt Supply</td> </tr> <tr> <td>&gt;80 MHz to 125MHz</td> <td>5.0 Volt Supply</td> </tr> <tr> <td></td> <td>3.3 Volt Supply</td> </tr> </table> | ≤20.0 MHz                   | 5.0 Volt Supply            |                        | 3.3 Volt Supply            | >20.0 MHz to ≤80MHz | 5.0 Volt Supply       |                  | 3.3 Volt Supply   | >80 MHz to 125MHz | 5.0 Volt Supply |  | 3.3 Volt Supply |   |  | 25<br>12<br>50<br>40<br>100<br>60 | mA |
| ≤20.0 MHz                   | 5.0 Volt Supply                    |  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
|                             | 3.3 Volt Supply                    |  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| >20.0 MHz to ≤80MHz         | 5.0 Volt Supply                    |  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
|                             | 3.3 Volt Supply                    |  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| >80 MHz to 125MHz           | 5.0 Volt Supply                    |  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
|                             | 3.3 Volt Supply                    |  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| Output Load                 |                                    | <table border="0"> <tr> <td>1.5 MHz to 50.0 MHz</td> </tr> <tr> <td>50.1MHz to 80.0 MHz</td> </tr> <tr> <td>&gt; 80 MHz to 125.0 MHz</td> </tr> </table>   | 1.5 MHz to 50.0 MHz         | 50.1MHz to 80.0 MHz        | > 80 MHz to 125.0 MHz  |                            |                     | 50<br>30<br>15        | pF               |                   |                   |                 |  |                 |   |  |                                   |    |
| 1.5 MHz to 50.0 MHz         |                                    |  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| 50.1MHz to 80.0 MHz         |                                    |  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| > 80 MHz to 125.0 MHz       |                                    |  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| Output Voltage Level        | V <sub>OH</sub><br>V <sub>OL</sub> | <table border="0"> <tr> <td>CMOS Load</td> <td>V<sub>CC</sub>-0.5V</td> <td></td> </tr> <tr> <td>10`TTL Load</td> <td></td> <td>V<sub>CC</sub>-0.6V</td> </tr> <tr> <td>CMOS or TTL Load</td> <td></td> <td>0.4</td> </tr> </table>  | CMOS Load                   | V <sub>CC</sub> -0.5V      |                        | 10`TTL Load                |                     | V <sub>CC</sub> -0.6V | CMOS or TTL Load |                   | 0.4               |                 |  |                 | V |  |                                   |    |
| CMOS Load                   | V <sub>CC</sub> -0.5V              |  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| 10`TTL Load                 |                                    | V <sub>CC</sub> -0.6V  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| CMOS or TTL Load            |                                    | 0.4  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| Output Current              | I <sub>OH</sub><br>I <sub>OL</sub> | <table border="0"> <tr> <td>V<sub>OH</sub> = 3.9V/2.2V</td> <td>V<sub>DD</sub>=4.5V/3.0V</td> </tr> <tr> <td>V<sub>OL</sub> = 0.4V</td> <td>V<sub>DD</sub>=4.5V/3.0V</td> </tr> </table>   | V <sub>OH</sub> = 3.9V/2.2V | V <sub>DD</sub> =4.5V/3.0V | V <sub>OL</sub> = 0.4V | V <sub>DD</sub> =4.5V/3.0V |                     |                       | +16/+8<br>-16/-8 | mA<br>mA          |                   |                 |  |                 |   |  |                                   |    |
| V <sub>OH</sub> = 3.9V/2.2V | V <sub>DD</sub> =4.5V/3.0V         |  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| V <sub>OL</sub> = 0.4V      | V <sub>DD</sub> =4.5V/3.0V         |  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| Symmetry                    | Duty                               | 1.5 MHz to 125 MHz (50% of waveform)   | 45                          |                            | 55                     | %                          |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| Rise & Fall Time            | T <sub>r</sub> , T <sub>f</sub>    | <table border="0"> <tr> <td>≤20.0 MHz</td> <td rowspan="4">10%-90%<br/>of waveform</td> </tr> <tr> <td>&gt;20.0 MHz to &lt;50.0 MHz</td> </tr> <tr> <td>50.0 MHz to 80.0 MHz</td> </tr> <tr> <td>&gt;80 MHz to 125MHz</td> </tr> </table>  | ≤20.0 MHz                   | 10%-90%<br>of waveform     | >20.0 MHz to <50.0 MHz | 50.0 MHz to 80.0 MHz       | >80 MHz to 125MHz   |                       |                  | 10<br>8<br>5<br>4 | ns                |                 |  |                 |   |  |                                   |    |
| ≤20.0 MHz                   | 10%-90%<br>of waveform             |  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| >20.0 MHz to <50.0 MHz      |                                    |  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| 50.0 MHz to 80.0 MHz        |                                    |  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| >80 MHz to 125MHz           |                                    |  |                             |                            |                        |                            |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| Enable Input Voltage(or NC) | V <sub>IH</sub>                    |  | 2.0                         |                            |                        | V                          |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| Disable Input Voltage       | V <sub>IL</sub>                    |  |                             |                            | 0.8                    | V                          |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| Tristate Leakage Current    | I <sub>Z</sub>                     | V <sub>IL</sub> = 0.8V   |                             |                            | 0.05                   | mA                         |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |
| Waveform Jitter             | t <sub>jrms</sub>                  | BW=12KHz to 20MHz  |                             | <1                         |                        | pS RMS                     |                     |                       |                  |                   |                   |                 |  |                 |   |  |                                   |    |

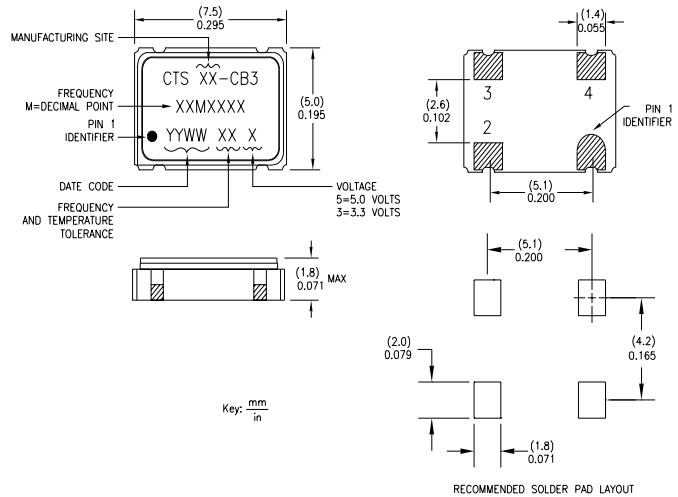
Note 1: Inclusive of initial tolerance at time of shipment, changes in supply voltage, load, temperature, and first year aging at an average operating temperature of 40 ° C

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**Pad Connections**

| PAD | FUNCTION      |
|-----|---------------|
| 1   | Output Enable |
| 2   | Cover/CKT GND |
| 3   | Output        |
| 4   | Vcc           |



**Tristate Truth Table**

| Pin 1 (Enable)        | Pin 3 (Output)        |
|-----------------------|-----------------------|
| Floating (No Connect) | Enabled (Oscillating) |
| Logic 1               | Enabled (Oscillating) |
| Logic 0               | Disabled (Tristate)   |

**Environmental Characteristics:**

Storage Temperature: ..... -55°C to +125°C  
 Temperature Cycle: ..... 25 cycles, -55°C to +125°C  
 per MIL-STD-883, Method 1010  
 Mechanical Shock ..... 1500g's, 0.5mS,  
 3 shocks per direction,  
 per MIL-STD-883, Method 2002  
 Sinusoidal Vibration: ..... 0.06" D.A., 10 to 55 Hz and  
 30g's, 55 to 2000 Hz,  
 3 cycles per direction,  
 per MIL-STD-883, Method 2007  
 Random Vibration: ..... 20G<sup>RMS</sup>, 20 to 2000 Hz,  
 per MIL-STD-883, Method 2026  
 Lead Integrity: ..... per MIL-STD-883,  
 Method 2004 conditions B1 and B2  
 Hermeticity: ..... 3 x 10<sup>-8</sup> ATM-cc/sec,  
 per MIL-STD-883,  
 Method 1014 conditions B1 and B2  
 Moisture Resistance: ..... 10 cycles, per MIL-STD-883,  
 Method 1014 with step 7 subcycle omitted

Corrosion Resistance: ..... 24 hours, per MIL-STD-883,  
 Method 1009 condition A  
 Solderability: ..... per MIL-STD-883,  
 Method 2003 or MIL-STD-202,  
 Method 208. Except 1 hr. Pre-conditioning  
 Quality: ..... In accordance with MIL-1-45208  
 Resistance to Soldering Heat: ..... per MIL-STD-202,  
 Method 210 conditions A and C  
 Marking Permanence: ..... per MIL-STD-883, Method 2015  
 Thermal Resistance: ..... per MIL-STD-883, Method 1012.1  
 Electrostatic Discharge Sensitivity: ..... per MIL-STD-883,  
 Method 3015 ECL output models-> 4KV  
 (Class 2- not sensitive)  
 CMOS output models-> 2KV  
 (Class 1 - not sensitive)  
 Steady-State Life: ... 1000 hrs. @ 125°C per MIL-STD-883,  
 Method 1005, disregarding frequency shift  
 Frequency Aging: ..... <10 ppm shift in 30 days  
 @ 85°C ambient

**Configuring The Part Number...**

