

# Oven Controlled Crystal Oscillators (OCXO's)

## OC-290



### Description:

Small SMD OCXO with tight stability.  
AT and SC-cut versions available.

### Features

- 5 MHz, 10 MHz, 13 MHz standard.  
Other frequencies available from 2 to 80 MHz
- Stability as low as  $\pm 5 \times 10^{-8}$  over 0°C to 50°C
- Aging:  $1 \times 10^{-9}$  per day
- Package: 25.4 x 22 x 10.5 mm
- Supply voltage: +3.3 or +5.0 V

### Performance Characteristics

| Parameter                    | Characteristic   |
|------------------------------|--|
| Frequency:                   | 10, 12.8, 16.384, 19.44, 20, 24.576, 20.48, 32.768, 38.88, 40 and 77.76 MHz<br>Available from 2 MHz to 80 MHz  |
| Package Size:                | 25.4 x 22.0 x 10.5 mm (1.0" x 0.9" x 0.42")  |
| Supply Voltage (Vdd):        | <b>C</b> = 5 Vdc $\pm 5\%$ <b>D</b> = 3.3 Vdc $\pm 5\%$<br>(Other supply voltages are available upon request)  |
| Supply Current:              | <5W peak at turn-on, <1.25W stabilized @ 25°C (Temp Range <b>B</b> & <b>D</b> )<br><5W peak at turn-on, <1.5W stabilized @ 25°C (Temp Range <b>F</b> )   |
| Output Type:                 | HCMOS, LVHCMOS<br>Sinewave +0 dBm / 50 ohm<br>10 TTL   |
| Standard Stability Options:  | <p><b>B - 508</b> = <math>\pm 5 \times 10^{-8}</math> over 0°C to +50°C<br/> <b>B - 758</b> = <math>\pm 7.5 \times 10^{-8}</math> over 0°C to +50°C<br/> <b>*B - ST3</b> = Stratum 3 over 0°C to +50°C<br/> <b>D - 758</b> = <math>\pm 7.5 \times 10^{-8}</math> over -20°C to +70°C<br/> <b>D - 107</b> = <math>\pm 1.0 \times 10^{-7}</math> over -20°C to +70°C<br/> <b>*D - ST3</b> = Stratum 3 over -20°C to +70°C<br/> <b>F - 107</b> = <math>\pm 1.0 \times 10^{-7}</math> over -40°C to +85°C<br/> <b>*F - ST3</b> = Stratum 3 over -40°C to +85°C<br/> <b>F - 507</b> = <math>\pm 5.0 \times 10^{-7}</math> over -40°C to +85°C</p> <p><b>*STRATUM 3 per GR-1244-CORE Table 3-1</b><br/>                     Total Stability: &lt;math&gt;4.6 \times 10^{-6}&lt;/math&gt; for all causes and 10 years<br/>                     vs. Holdover: &lt;math&gt;3.2 \times 10^{-7}&lt;/math&gt; for all causes and 24 hours<br/>                     vs. Temperature: &lt;math&gt;2.8 \times 10^{-7}&lt;/math&gt; peak to peak</p> |
| Note:                        | Not all stabilities are available with all frequency/output combinations. Please consult factory.  |
| Stability vs. Supply:        | <5 pb for a 1% change in Supply Voltage  |
| Aging:                       | <p><b>A:</b> <math>1 \times 10^{-8}</math>/day, <math>2 \times 10^{-6}</math>/year                      <b>C:</b> <math>1 \times 10^{-9}</math>/day, <math>3 \times 10^{-7}</math>/year<br/> <b>B:</b> <math>3 \times 10^{-9}</math>/day, <math>1 \times 10^{-6}</math>/year                      <b>N:</b> PTR Stratum 3</p>  |
| Electrical Frequency Adjust: | <p><math>10 \times 10^{-6}</math> typical range (with Aging <b>A</b> or <b>B</b>)<br/> <math>2 \times 10^{-6}</math> typical range (with Aging <b>C</b>) (with <b>F</b>; no frequency adjustment)</p>  |
| Initial Accuracy @ +25°C:    | $\pm 1.5$ ppm max after reflow   |

# Oven Controlled Crystal Oscillators (OCXO's)

## OC-290

### Outline Drawing



### Pad Layout



### Pin Out Information

|   |                               |
|---|-------------------------------|
| 1 | Control voltage VC            |
| 2 | Reference voltage output VREF |
| 3 | Supply voltage VB             |
| 4 | RF-output                     |
| 5 | Ground, case                  |

### Recommended Soldering Profile



### Ordering Information

**OC - 290 - C A C - 508 C A - 10.0 MHz**

**Product Family**  
OC = OCXO

**Package**  
290 = 25.4X22 mm SMD package

**Input**  
C = 5.0V ±5%  
D = 3.3V ±5%

**Output**  
A = HCMOS, LVHCMOS  
B = 10 TTL  
G = Sinewave

**Temperature Range**  
B - 508 = ±5x10<sup>-8</sup> over 0°C to +50°C  
B - 758 = ±7.5x10<sup>-8</sup> over 0°C to +50°C  
\*B - ST3 = Stratum 3 over 0°C to +50°C  
D - 758 = ±7.5x10<sup>-8</sup> over -20°C to +70°C  
D - 107 = ±1.0x10<sup>-7</sup> over -20°C to +70°C  
\*D - ST3 = Stratum 3 over -20°C to +70°C  
F -107 = ±1.0x10<sup>-7</sup> over -40°C to +85°C  
\*F -ST3 = Stratum 3 over -40°C to +85°C  
F -507 = ±5.0x10<sup>-7</sup> over -40°C to +85°C

**Frequency**  
2 MHz to 80 MHz

**Electrical Frequency Adjust**  
A: 10 x 10<sup>-6</sup> typical range (with Aging A or B) or 2 x 10<sup>-6</sup> typical range (with Aging C)  
F: Fixed frequency. See initial accuracy.

**Aging**  
A = 1 x 10<sup>-8</sup>/day, 2 x 10<sup>-6</sup>/year  
B = 3 x 10<sup>-9</sup>/day, 1 x 10<sup>-6</sup>/year  
C = 1 x 10<sup>-9</sup>/day, 3 x 10<sup>-7</sup>/year  
N = PTR Stratum 3