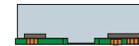


# CRYSTAL CONTROLLED OSCILLATORS

## SURFACE MOUNT 3.3V HCMOS STRATUM 3 OCXO with HCMOS TRI-STATE OUTPUT



FSOF3S3

### ABSOLUTE MAXIMUM RATINGS

TABLE 1.0

| PARAMETER           | UNITS | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|---------------------|-------|---------|---------|---------|-------|------|
| Storage Temperature |       | -40     | -       | 85      | °C    |      |
| Supply Voltage      | (Vcc) | -0.5    | -       | 4.5     | Vdc   |      |

### OPERATING SPECIFICATIONS

TABLE 2.0

| PARAMETER                         |       | MINIMUM | NOMINAL   | MAXIMUM | UNITS   | NOTE |
|-----------------------------------|-------|---------|-----------|---------|---------|------|
| Center Frequency                  | (Fo)  | 1.544   | -         | 20.0    | MHz     |      |
| Frequency Calibration             |       | -1.5    | -         | 1.5     | ppm     | 1,4  |
| Frequency Stability               |       | -0.25   | -         | 0.25    | ppm     | 2    |
| Total Frequency Tolerance         |       | -4.6    | -         | 4.6     | ppm     | 3    |
| Aging (Daily)                     |       | -3.0    | -         | 3.0     | ppb     | 4    |
| Aging (20 years)                  |       | -3.0    | -         | 3.0     | ppm     |      |
| Operating Temperature Range       |       | 0       | -         | 70      | °C      |      |
| Supply Voltage                    | (Vcc) | 3.135   | 3.3       | 3.465   | Vdc     |      |
| Supply Current                    | (Icc) | -       | -         | 450     | mA      |      |
| Phase Jitter (BW =12KHz to 20MHz) |       | -       | -         | 1       | pS RMS  |      |
| Phase Jitter (BW =10Hz to 20MHz)  |       | -       | -         | 3       | pS RMS  |      |
| Period Jitter                     |       | -       | -         | 3       | pS RMS  |      |
| Allan Variance (1 Second)         |       | -       | 5.00 E-10 | -       |         |      |
| SSB Phase Noise at 10Hz offset    |       | -       | -90       | -       | dBc/Hz  |      |
| SSB Phase Noise at 10KHz offset   |       | -       | -130      | -       | dBc/Hz  |      |
| Start-Up Time: Oscillator         |       | -       | -         | 10      | mS      |      |
| Warm Up Time                      |       | -       | -         | 5       | Minutes | 5    |
| TDEV at 1.0 seconds               |       | -       | -         | 1       | nS      |      |
| TDEV at 4.0 seconds               |       | -       | -         | 2       | nS      |      |

### INPUT CHARACTERISTICS

TABLE 3.0

| PARAMETER             | UNITS | MINIMUM   | NOMINAL | MAXIMUM   | UNITS | NOTE |
|-----------------------|-------|-----------|---------|-----------|-------|------|
| Enable Voltage (High) | (Vih) | = 70% Vdd | -       | -         | Vdc   | 6    |
| Disable Voltage (Low) | (Vil) | -         | -       | = 30% Vdd | Vdc   |      |

### HCMOS OUTPUT CHARACTERISTICS

TABLE 4.0

| PARAMETER                   |       | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|-----------------------------|-------|---------|---------|---------|-------|------|
| LOAD                        |       | -       | -       | 15      | pF    |      |
| Voltage (High)              | (Voh) | 2.6     | -       | -       | Vdc   |      |
| (Low)                       | (Vol) | -       | -       | 0.4     | Vdc   |      |
| Current (High)              | (Ioh) | -4      | -       | -       | mA    |      |
| (Low)                       | (Iol) | -       | -       | 4       | mA    |      |
| Duty Cycle at 50% of Vcc    |       | 45      | 50      | 55      | %     |      |
| Rise / Fall Time 10% to 90% |       | -       | -       | 6       | nS    |      |

### PACKAGE CHARACTERISTICS

TABLE 5.0

|         |  |
|---------|--|
| Package | Surface Mount, Non-hermetic package consisting of an FR4 subst rate with grounded metal cover. |
|---------|--|

### PROCESS RECOMMENDATIONS

TABLE 6.0

|               |  |
|---------------|--|
| Solder Reflow | The component solder used internal to this device has a melting point of 221°C. The peak temperature inside the device should be less than or equal to 220°C for a maximum of 10 seconds |
| Wash          | Ultrasonic cleaning is not recommended   |

#### Notes:

- 1) Initial calibration @ 25°C
- 2) Frequency vs. temperature stability
- 3) Inclusive of calibration, operating temperature range, supply voltage change, shock and vibration and aging (20 years).
- 4) Specifications at time of shipment after 48 hours of operation.
- 5) Measured @ 25°C, within 5 minutes, the unit will be within +/-0.1ppm of its reference frequency, measured after 30 minutes of continuous operation at a stable 25°C.
- 6) Oscillator output is enabled with no connection on pad 6

### DESCRIPTION

The Connor-Winfield FSOF3S3 is a true Surface Mount 3.3V Oven Controlled Crystal Oscillator (OCXO) with an HCMOS output and Enable/Disable function. The FSOF3S3 is designed for Stratum 3 applications requiring tight frequency stability and low jitter.

### FEATURES

FIXED FREQUENCY

3.3V OPERATION

LOW JITTER <1pS RMS

FREQUENCY STABILITY: ±0.25ppm

TEMPERATURE RANGE: 0 to 70°C

FREQUENCY TOLERANCE OF ±4.6ppm OVER TWENTY YEARS

ENABLE / DISABLE FUNCTION

SURFACE MOUNT PACKAGE

TAPE AND REEL PACKAGING

### ORDERING INFORMATION

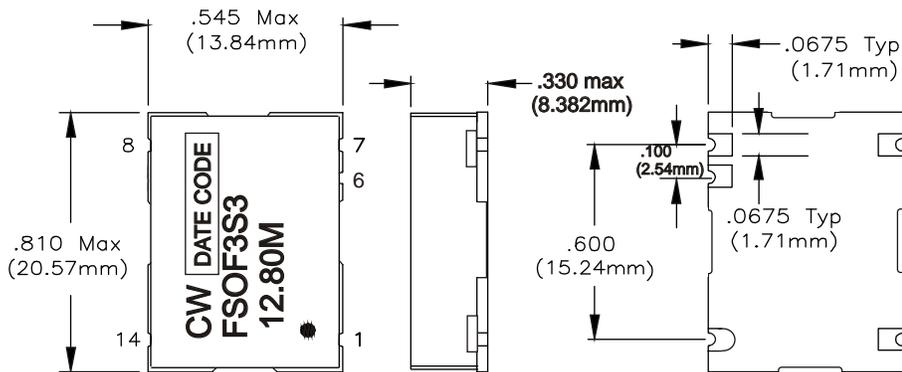
FSOF3S3 - 12.80MHz

OCXO  
SERIES

CENTER  
FREQUENCY

Specifications subject to change without notice.

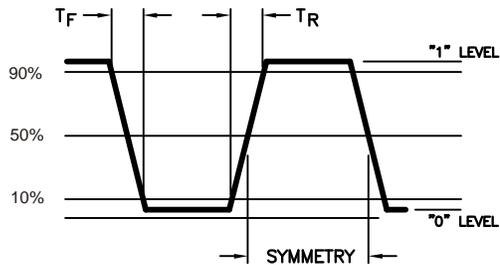
CRYSTAL CONTROLLED OSCILLATORS



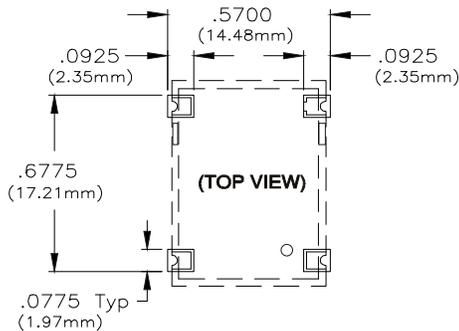
| Pin | Function         |
|-----|------------------|
| 1   | N/C              |
| 6   | Enable / Disable |
| 7   | Ground (Case)    |
| 8   | Output           |
| 14  | Vcc              |

Dimensional Tolerance:  
±.005 (.127mm)

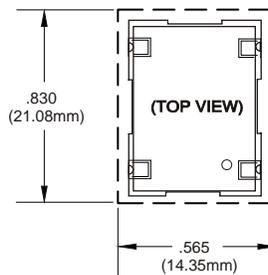
OUTPUT WAVEFORM



SUGGESTED PAD LAYOUT



KEEP OUT AREA



TEST DIAGRAM

