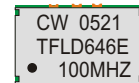


CRYSTAL CONTROLLED OSCILLATORS

3.3V SURFACE MOUNT HCMOS TCXO WITH TRI-STATE ENABLE / DISABLE



TFLD646E

ABSOLUTE MAXIMUM RATINGS

TABLE 1.0

| PARAMETER | UNITS | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|---------------------|-------|---------|---------|---------|-------|------|
| Storage Temperature | | -40 | - | 85 | °C | |
| Supply Voltage | (Vcc) | -0.6 | - | 6 | Vdc | |
| Input Voltage | | -0.5 | - | Vcc+0.5 | Vdc | |

OPERATING SPECIFICATIONS

TABLE 2.0

| PARAMETER | | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|-----------------------------|-------|---------|---------|---------|--------|------|
| Frequency Range | (Fo) | 12.80 | - | 156.25 | MHz | |
| Frequency Stability | | -1.5 | - | 1.5 | ppm | |
| Total Frequency Tolerance | | -4.6 | - | 4.6 | ppm | 1 |
| Operating Temperature Range | | -40 | - | 85 | °C | |
| Supply Voltage | (Vcc) | 3.135 | 3.3 | 3.465 | Vdc | |
| Supply Current | (Icc) | - | 9 | 25 | mA | |
| Jitter (BW=10Hz to 20MHz) | | - | - | 5 | ps rms | |
| Jitter (BW=12kHz to 20MHz) | | - | - | 1 | ps rms | |

PHASE NOISE CHARACTERISTICS

TABLE 3.0

| Typical Phase Noise Measurements @ | | 12.8 | 77.76 | 155.52 | MHz | |
|------------------------------------|--|------|-------|--------|--------|--|
| SSB Phase Noise at 10Hz offset | | -60 | -60 | -50 | dBc/Hz | |
| SSB Phase Noise at 100Hz offset | | -90 | -90 | -80 | dBc/Hz | |
| SSB Phase Noise at 1KHz offset | | -120 | -120 | -115 | dBc/Hz | |
| SSB Phase Noise at 10KHz offset | | -135 | -135 | -130 | dBc/Hz | |
| SSB Phase Noise at 100KHz offset | | -145 | -145 | -140 | dBc/Hz | |

INPUT CHARACTERISTICS

TABLE 4.0

| Enable Voltage (High) | (Vih) | 70% Vcc | - | - | Vdc | 2 |
|-----------------------|-------|---------|---|---------|-----|---|
| Disable Voltage (Low) | (Vil) | - | - | 30% Vcc | Vdc | |

HCMOS OUTPUT CHARACTERISTICS

TABLE 5.0

| PARAMETER | | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|-----------------------------|-------|---------|---------|---------|-------|------|
| LOAD | | - | - | 15 | pF | |
| Voltage (High) | (Voh) | 2.0 | - | - | 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% | | | 3 | 5 | nS | |

PACKAGE CHARACTERISTICS

TABLE 6.0

| | |
|---------|--|
| Package | Non-hermetic package consisting of an FR4 substrate with grounded metal cover. |
|---------|--|

PROCESS RECOMMENDATIONS

TABLE 7.0

| | |
|-------------------|---|
| Soldering Process | See solder profile page 2. |
| Wash | Ultrasonic cleaning is not recommended. |

Note:

- Inclusive of calibration, frequency vs. temperature stability, supply voltage change, load change, shock and vibration, 20 years aging.
- Oscillator output is enabled with no connection on pad 1. Output is at high impedance when disabled.

DESCRIPTION

The Connor Winfield TFLD646E is a Surface Mount Fixed Frequency Temperature Compensated Crystal Oscillator (TCXO). Operating at 3.3Vdc, the TFLD646E will maintain ± 4.6 ppm frequency tolerance for 20 years over the Industrial Temperature Range. The TFLD646E is offered in a surface mount package for automated assembly.

FEATURES

3.3V OPERATION

OVERALL FREQUENCY TOLERANCE: ± 4.6 ppm OVER 20 YEARS.

TEMPERATURE RANGE: -40 to 85°C

LOW JITTER <1ps RMS

TRI-STATE ENABLE / DISABLE FUNCTION

SURFACE MOUNT PACKAGE

TAPE AND REEL PACKAGING

RoHS COMPLIANT / LEAD FREE

ORDERING INFORMATION

TFLD646E - 100.0MHz

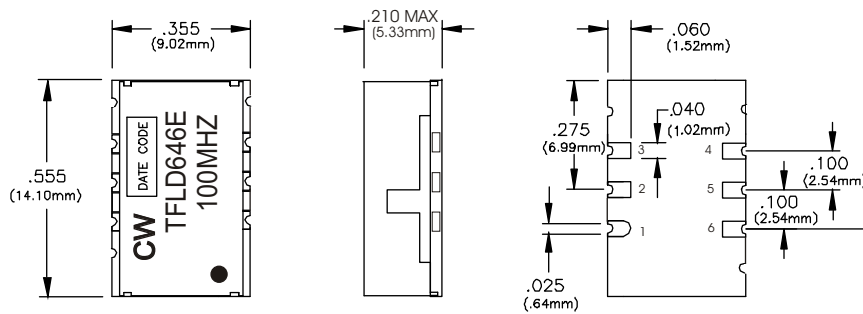


Specifications subject to change without notice.

PRODUCT DATA SHEET

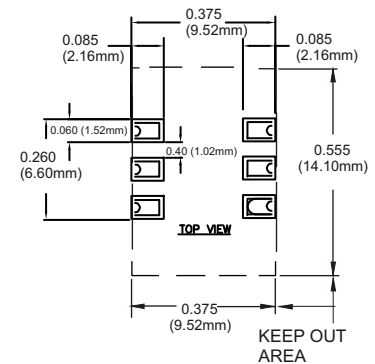
CRYSTAL CONTROLLED OSCILLATORS

Package Layout

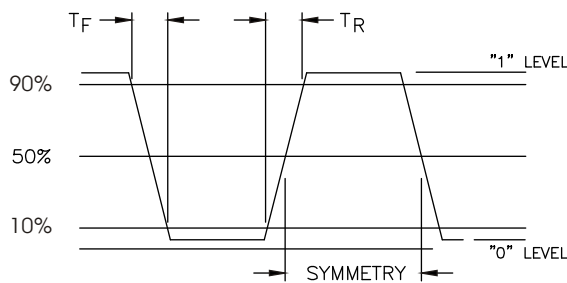


Dimensional Tolerance:
±.005 (.127mm)

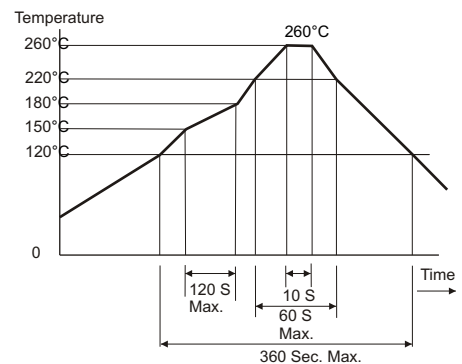
Suggested Pad Layout



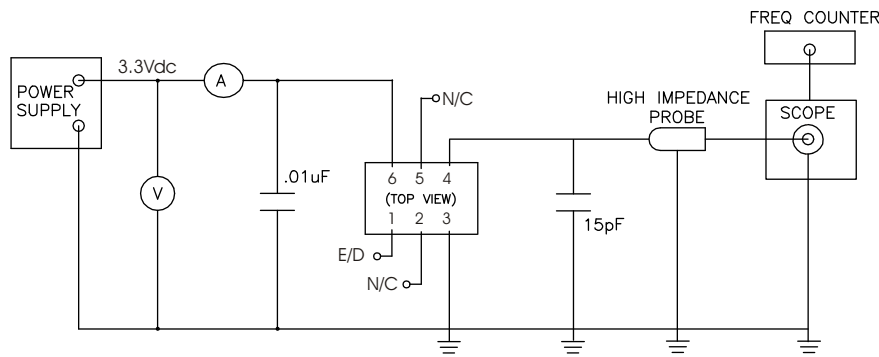
Output Waveform



Solder Profile



Test Circuit



Pin Connections

TABLE 8.0

| Pin | Connection |
|-----|------------------|
| 1 | Enable / Disable |
| 2 | N/C |
| 3 | Ground |
| 4 | Output |
| 5 | N/C |
| 6 | Vcc |