

# CRYSTAL CONTROLLED OSCILLATORS

## 5.0V SURFACE MOUNT PECL CLOCK



FPHA554G

### ABSOLUTE MAXIMUM RATINGS

TABLE 1.0

| PARAMETER           | UNITS | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|---------------------|-------|---------|---------|---------|-------|------|
| Storage Temperature |       | -40     | -       | 85      | °C    |      |
| Supply Voltage      | (Vcc) | -0.5    | -       | 7.0     | Vdc   |      |

### OPERATING SPECIFICATIONS

TABLE 2.0

| PARAMETER                       |       | MINIMUM | NOMINAL | MAXIMUM | UNITS  | NOTE |
|---------------------------------|-------|---------|---------|---------|--------|------|
| Center Frequency                | (Fo)  | 44.736  | -       | 200     | MHz    |      |
| Total Frequency Tolerance       |       | -15     | -       | 15      | ppm    | 1    |
| Operating Temperature Range     |       | 0       | -       | 70      | °C     |      |
| Supply Voltage                  | (Vcc) | 4.75    | 5.0     | 5.25    | Vdc    |      |
| Supply Current                  | (Icc) | -       | -       | 70      | mA     |      |
| Jitter (BW=10Hz to 20MHz)       |       | -       | -       | 5       | pS RMS |      |
| Jitter (BW=12kHz to 20MHz)      |       | -       | -       | 1       | pS RMS |      |
| SSB Phase Noise at 10Hz offset  |       | -       | -60     | -       | dBc/Hz |      |
| SSB Phase Noise at 100Hz offset |       | -       | -90     | -       | dBc/Hz |      |
| SSB Phase Noise at 1KHz offset  |       | -       | -100    | -       | dBc/Hz |      |
| SSB Phase Noise at 10KHz offset |       | -       | -125    | -       | dBc/Hz |      |
| SSB Phase Noise at 10KHz offset |       | -       | -135    | -       | dBc/Hz |      |

### INPUT CHARACTERISTICS

TABLE 3.0

| PARAMETER                    |       | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|------------------------------|-------|---------|---------|---------|-------|------|
| Disable Input Voltage (High) | (Vih) | 3.96    | -       | -       | Vdc   | 2    |
| Enable Input Voltage (Low)   | (Vil) | -       | -       | 3.40    | Vdc   | 2    |

### PECL OUTPUT CHARACTERISTICS

TABLE 4.0

| PARAMETER                   |       | MINIMUM | NOMINAL | MAXIMUM | UNITS | NOTE |
|-----------------------------|-------|---------|---------|---------|-------|------|
| LOAD                        |       | -       | -       | 50      | Ohms  | 3    |
| Voltage (High)              | (Voh) | 3.96    | -       | -       | Vdc   |      |
| Voltage (Low)               | (Vol) | -       | -       | 3.40    | Vdc   |      |
| Duty Cycle                  |       | 45      | 50      | 55      | %     | 4    |
| Rise / Fall Time 20% to 80% |       | -       | -       | 1       | nS    |      |

### PACKAGE CHARACTERISTICS

TABLE 5.0

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

### PROCESS RECOMMENDATIONS

TABLE 6.0

|               |   |
|---------------|---|
| Solder Reflow | See solder profile page 2.              |
| Wash          | Ultrasonic cleaning is not recommended. |

#### Notes

- Includes initial tolerance, deviation over temperature, supply and load variations, shock, vibration and 10 years aging.
- When the oscillator is disabled, the true output is in a low state (Vol) and the complementary output is in the high state (Voh).
- Output must be terminated into 50 ohms to Vcc - 2V or Thevenin equivalent.
- Duty Cycle measured at 3.67V

### DESCRIPTION

The Connor-Winfield FPHA554G is a fixed frequency surface mount Crystal Controlled Oscillator (XO) designed for applications requiring low jitter and tight frequency stability. Operating at 5.0V supply voltage, the FPHA554G provides PECL Differential Outputs with an enable/disable function.

### FEATURES

5.0V OPERATION

LOW JITTER <1ps RMS

OVERALL FREQUENCY TOLERANCE: ±15ppm

TEMPERATURE RANGE: 0 to 70°C

PECL DIFFERENTIAL OUTPUTS

ENABLE / DISABLE

SURFACE MOUNT PACKAGE

TAPE AND REEL PACKAGING

RoHS COMPLIANT / LEAD FREE

### ORDERING INFORMATION

FPHA554G - 155.52M

PECL  
SERIES

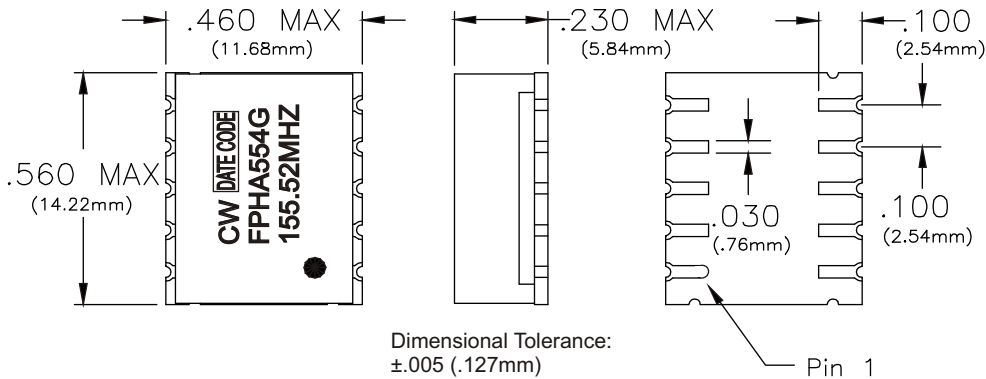
CENTER  
FREQUENCY

Specifications subject to change without notice.

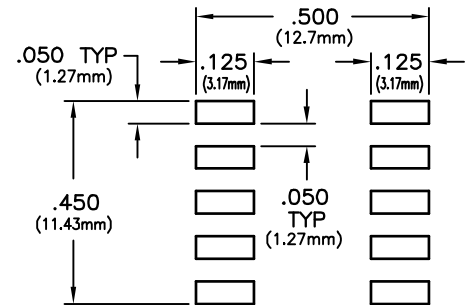
PRODUCT DATA SHEET

CRYSTAL CONTROLLED OSCILLATORS

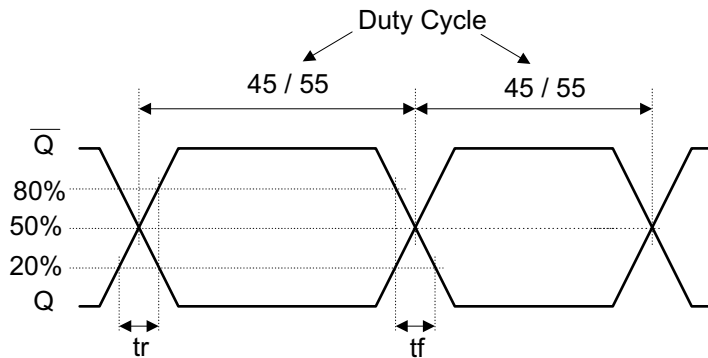
Package Layout



Suggested Pad Layout



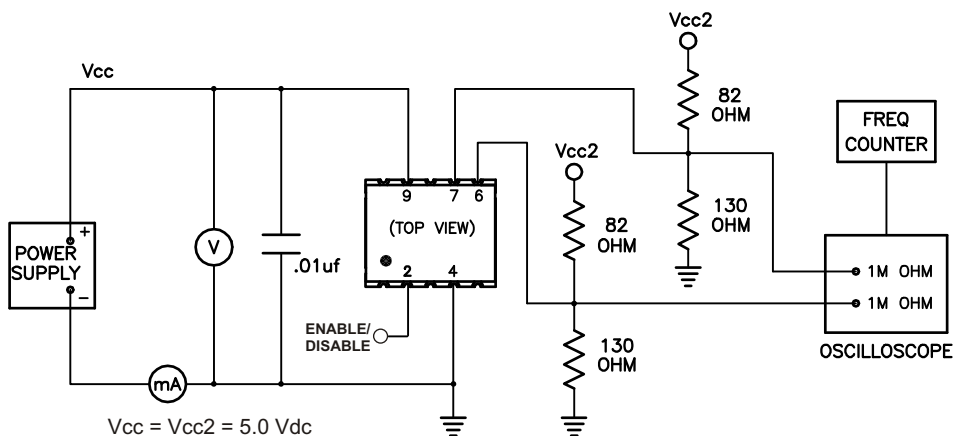
Output Waveform



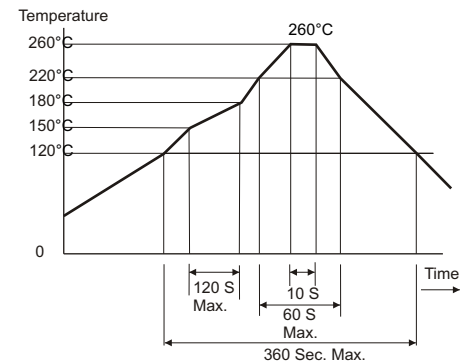
Pin Connections

| Pin | Connection       |
|-----|------------------|
| 1   | N/C              |
| 2   | Enable / Disable |
| 3   | N/C              |
| 4   | Ground           |
| 5   | N/C              |
| 6   | Q-bar Output     |
| 7   | Q Output         |
| 8   | N/C              |
| 9   | Vcc              |
| 10  | N/C              |

Test Circuit



Solder Profile



Specifications subject to change without notice.