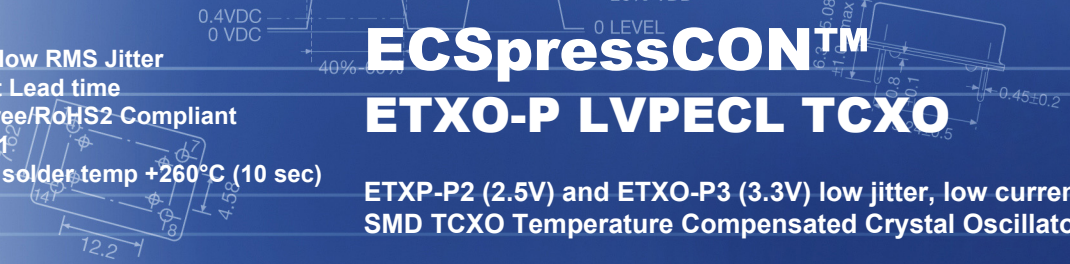




- ▶ Very low RMS Jitter
- ▶ Short Lead time
- ▶ Pb Free/RoHS2 Compliant
- ▶ MSL 1
- ▶ Peak solder temp +260°C (10 sec)



ECSpressCON™ ETXO-P LVPECL TCXO

ETXP-P2 (2.5V) and ETXP-P3 (3.3V) low jitter, low current SMD TCXO Temperature Compensated Crystal Oscillator.

OPERATING CONDITIONS / ELECTRICAL CHARACTERISTICS

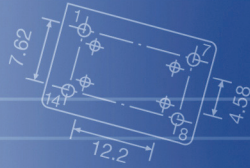
| PARAMETERS | CONDITIONS | ETXO-P2 (+2.5V) | | | ETXO-P3 (+3.3V) | | | UNITS |
|-------------------------------|-----------------------------|------------------------|------|-----------------------|------------------------|------|-----------------------|-------|
| | | MIN | TYP | MAX | MIN | TYP | MAX | |
| Frequency Range | | 10.0 | | 1500.0 | 10.0 | | 1500.0 | MHz |
| Operating Temperature | Standard (L Option) | -30 | | +85 | -30 | | +85 | °C |
| | Extended (N Option) | -40 | | +85 | -40 | | +85 | °C |
| Storage Temperature | | -55 | | +125 | -55 | | +125 | °C |
| Supply Voltage | VDD | +2.375 | +2.5 | +2.625 | +3.135 | +3.3 | +3.465 | VDC |
| Frequency Stability * | Option A | | | ± 2.5 | | | ± 2.5 | ppm |
| | Option B* | | | ± 1.0 | | | ± 1.0 | ppm |
| Initial Calibration Tolerance | @ +25°C ±2°C | | | ±1.0 | | | ± 1.0 | ppm |
| Current with output disabled | | | 18 | | | 18 | | mA |
| Input Current | 10.0 to 156.0 | | | 36 | | | 40 | mA |
| | 156.1 to 600.0 | | | 40 | | | 45 | mA |
| | 600.1 to 800.0 | | | 46 | | | 48 | mA |
| | 800.1 to 1500.0 | | | 50 | | | 52 | mA |
| Duty Output Symmetry | @ 50% V _{cc} level | | | 45/55 | | | 45/55 | % |
| Output Load | Differential | | | | | | | |
| Output Enable | Pin 1 ** | 0.7% | | | 0.7% | | | Vdd |
| Output Disable | Pin 1 | | | 0.3% | | | 0.3% | Vdd |
| Disable Current | | | 16 | | | 16 | | mA |
| Output Enable Time | | | | 200 | | | 200 | ns |
| Output Disable Time | Pin 1 = VIL | | | 50 | | | 50 | ns |
| "0" level | VOL | V _{dd} -1.85V | | V _{dd} -1.6V | V _{dd} -1.85V | | V _{dd} -1.6V | V |
| "1" level | VOH | V _{dd} -1.03V | | V _{dd} -0.6V | V _{dd} -1.03V | | V _{dd} -0.6V | V |
| Rise and Fall Times | 10% VDD to 90% level | 150 | | 250 | 150 | | 250 | pS |
| Aging | @ +25°C (first year) | | | ±2 | | | ±2 | ppm |
| Start-up Time | @ +25°C (first year) | | | 10 | | | 10 | ms |
| Phase Jitter, rms | 12 KHz to 20 MHz band | | 1.0 | | | 1.0 | | pS |
| Absolute Voltage Range | | | | +3.63 | | | +3.63 | VDC |
| Moisture Sensitivity Level | | | | 1 | | | | |
| Termination Finish | | | | Au | | | | |
| ESD Sensitivity | Human Body Model | | | 3 kV Max. | | | | |

* Note: Consult ECS for availability.

**Note: Internal pull-up resistor allows active output in pin 2 is left open.

| Part Number Guide | | | | | |
|---------------------------|------------------------|------------------|-------------------------------|---|-----------------------------------|
| Series | Voltage | Package | Stability | Operating Temperature | Frequency |
| ETXO-P (LVPECL Output) | 2 = +2.5V 3 = +3.3V | 3 = 3.2 x 2.5 mm | B = ±1.0 ppm* C = ±2.5 ppm | L = -30 ~ +85°C M = -20 ~ +70°C N = -40 ~ +85°C | - - - Customer Specified |

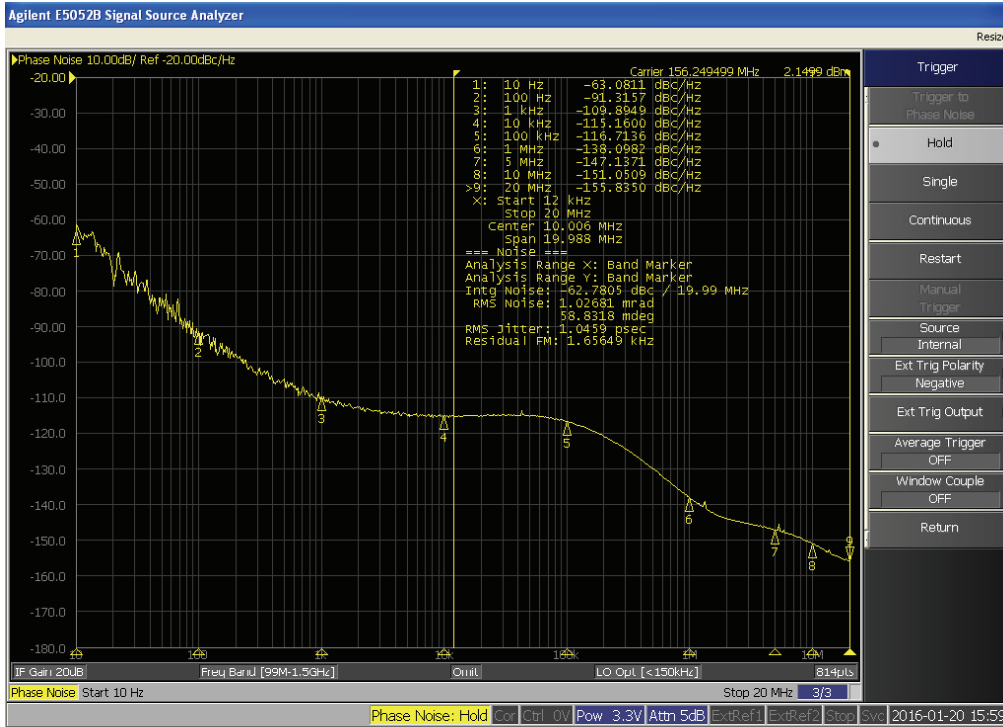
Example ETXO-P33CL-156.250



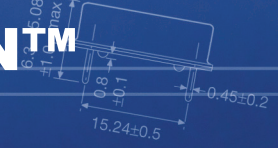
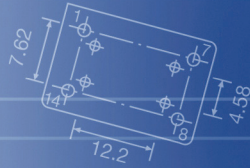
Phase Noise and Jitter Data (typical)

| SSB Phase Noise Data (dBc/Hz typical) | Frequency (offset) | 77.760 | 122.880 | 125.000 | 156.250 | 212.5 |
|---|--------------------|--------|---------|---------|---------|-------|
| | 10 Hz | -64 | -68 | -63 | -63 | -62 |
| | 100 Hz | -84 | -99 | -94 | -91 | -93 |
| | 1 KHz | -118 | -113 | -113 | -109 | -105 |
| | 10 KHz | -128 | -119 | -118 | -115 | -113 |
| | 100 KHz | -137 | -120 | -119 | -116 | -115 |
| | 1 MHz | -145 | -140 | -137 | -138 | -135 |
| 5 MHz | -152 | -142 | -146 | -147 | -143 | |
| Phase Jitter pS 12 KHz ~ 20 MHz, RMS | | 0.9 | 0.8 | 1.1 | 1.0 | 1.0 |

Phase Noise Plot of ETXO-P33CL-156.250 (typical)



| Package Data | |
|--------------|---------------------------|
| Item | Description |
| Lid | Metal |
| Base | Ceramic |
| Plating | Gold/Nickel Surface/Under |



Dimensions (mm)

3 = 3.2x2.5 Package

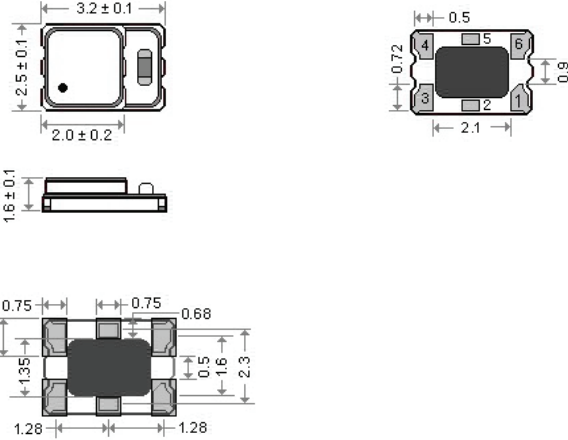


Figure 1) Top, Side, Bottom & Land

| Pin Connections | |
|-----------------|----------------------|
| Pin # | Function |
| 1 | No Connect |
| 2 | Output Enable |
| 3 | Ground |
| 4 | Differential Output |
| 5 | Complementary Output |
| 6 | Supply Voltage |