Oven Controlled Crystal Oscillators (OCXO's)

EX-380/385 (EMXO™) Type



Features

- Aging: <1x10⁻⁹ /day, <1x10⁻⁷ / year, <1x10⁻⁶ /10 years (@ 10 MHz)
- Temperature Stability: to ±7.5x10-8 over -20°C to 70°C
- Acceleration Sensitivity: <1x10⁻⁹ /g, Total Gamma
- Uses SC Family 3rd Overtone Crystal
- Low Power Consumption: <0.35 watts
- Frequencies: 10 to 20.48 MHz (additional frequencies available up to 80 MHz consult factory)
- Patented Techniques*
- U.S. Patent 5,917,272

Performance Characteristics

Parameter	Characteristics
Standard Frequencies	10, 10.23, 12.8, 13, 16.384, 19.44, 20 & 20.48 MHz
Package Size	See next page for Drawings and Dimensions
Supply Voltage	5 Vdc ±5%, 3.3Vdc ±5%
Supply Current (Steady State)	<70 mA @ +25°C with 5 Vdc supply <90 mA @ +25°C with 3.3 Vdc supply <120 mA @ -40°C with 5 Vdc supply <150 mA @ -40°C with 3.3 Vdc supply
Turn-on Current	300 mA max @ 5 Vdc / 450 mA max @ 3.3 Vdc
Output Type	HCMOS (+3 dBm Sinewave available with EX-385, consult factory)
Level "0" and "1"	<0.4 Volts, >0.9 Vdd
Rise/Fall Time (10-90%)	<7 ns
Symmetry (Duty Cycle)	50/50 ±10% (at 50% Vdd)
Temperature Stability: (Note: Tighter stabilities and wider temperature ranges are available, please consult factory.)	D-758 = ±0.075 ppm over -20°C to +70°C D-ST3 = Stratum 3 over -20°C to +70°C F-ST3 = Stratum 3 over -40°C to +85°C F-107 = ±0.1 ppm over -40°C to +85°C x-ST3 = Stratum 3 Holdover stability per GR-1244-CORE Table 3-1 as described in Sections 5.2 and 9.1
Aging (10MHz Typical)	<1x10 ⁻⁹ /day average, <1x10 ⁻⁷ first year, <1x10 ⁻⁶ /10 years
Short Term Stability (Allan Deviation)	<5x10 ⁻¹⁰ , 0.1 seconds to 10 seconds
Phase Noise (typical at 10 MHz, Static Condition)	Offset Phase Noise 10 Hz -100 dBc/Hz 100 Hz -130 dBc/Hz 1 kHz -140 dBc/Hz 10 kHz -145 dBc/Hz 100 kHz -150 dBc/Hz
Frequency vs. Supply	<2.5x10 ⁻⁹ per percent change
Warm-up (Restabilization) (frequency relative to that 1 hour after turn-on, following 24 hours off time, at +25°C)	Standard Optional (consult factory) <±1x10 ⁻⁶ 60 seconds 45 seconds <±1x10 ⁻⁷ 120 seconds 90 seconds
Electrical Frequency Adjust	>± 1ppm range with 0 to Vdd input voltage
Acceleration Sensitivity (10 MHz)	1x10 ⁻⁹ /g total Gamma, standard 5x10 ⁻¹⁰ /g available at 10 MHz (Consult factory for tighter specification.)

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380 Package Outline Drawing 385 Package Outline Drawing Marking (36 MOD) 5.08 MIN (.20 MIN) 4PLACES ·福田郡 0.457 DIÁ (.018 DIA) **Function** Pin **Function** Pin Frequency Control ₇Φ (50) Frequency Control 2 GND, Case $\frac{7.63}{(.30)}$ GND, Case 3 Output 8 Output Supply 4 OCXO 14 Supply Pin numbers are for reference only, Pin numbers are for reference, only, they do not appear on unit they do not appear on unit. mm (in.) **Recommended Reflow Profile Block Diagram** +Vcc Convection Reflow Profile Power Transisto Oven Voltage Control Regulato Circuitry $\hat{\circ}$ 。) Thermistor Temperature 160 +Vcc Output Buffer Output 25 Upper Substrat warm-up 60 to 90 sec 40 to 60 sec. @ 140°C to 160°C @ >183°C 10MHz 3rd OT Lower Substrate **Ordering Information** EX 380 D Α F Т 3 Α 12.800 MHz EX = EMXO**Output Frequencies** <u>Package</u> 10.000 MHz 16.384 MHz 380 = Thru hole 10.230 MHz 19.440 MHz 385 = SMT 12.800 MHz 20.000 MHz 13.000 MHz 20.480 MHz Supply Voltage $C = 5.0 \text{ Vdc } \pm 5\%$ Other Options $D = 3.3 \text{ Vdc } \pm 5\%$ A = Electrical Frequency Adjust (standard) **Output F** = Fixed Frequency, No Frequency Adjust, A = HCMOSInitial Accuracy 25°C is ±1.5 ppm **Temperature & Stability D-758** = ± 0.075 ppm over -20°C to +70°C **D-ST3** = Stratum 3 over -20°C to +70°C **F-ST3** = Stratum 3 over -40°C to +85°C $F-107 = \pm 0.1 \text{ ppm}$ over -40°C to +85°C Note: Tighter stabilities and wider temperature

ranges are available, please consult the factory.