VC-801

CMOS Crystal Oscillator
Previous Vectron Model VCC4

Description

Vectron's VC-801 Crystal Oscillator (XO) is a quartz stabilized square wave generator with a CMOS output. The VC-801 uses fundamental or 3rd overtone crystals resulting in very low jitter performance, and a monolithic IC which improves reliability and reduces cost.

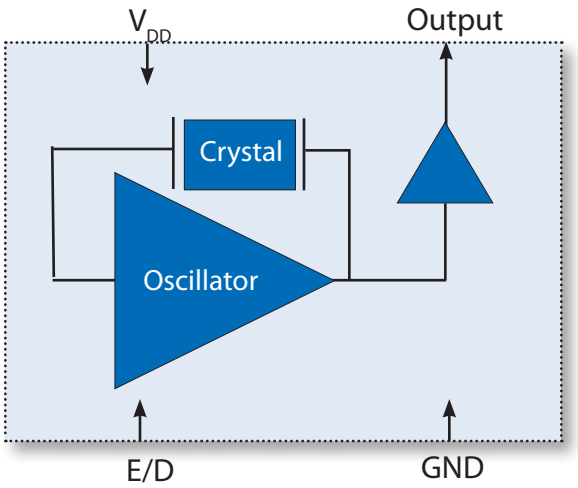
Features

- CMOS output XO
- Output Frequencies from 32.768kHz to 125.000MHz
- 5.0, 3.3, 2.5 or 1.8 V Operation
- Low Jitter Performance
- Output Disable Feature
- ±20ppm Frequency Stability Available
- Operating Temperature ranging from -55°C to +125°C
- Small Industry Standard Package, 3.2 x 5.0 x 1.3mm
- Product is compliant to RoHS directive and fully compatible with lead free assembly

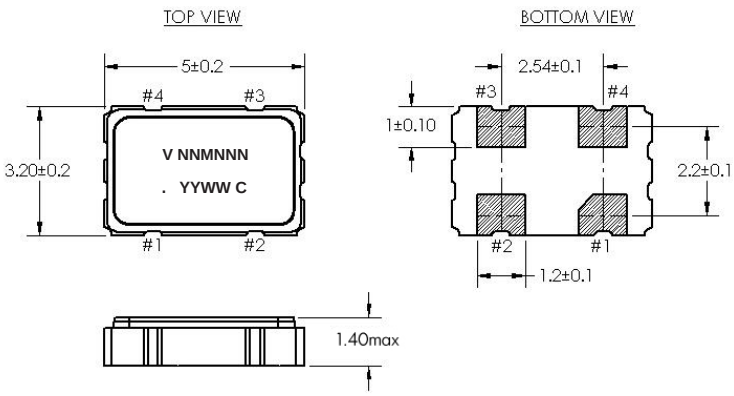
Applications

- SONET/SDH/DWDM
- Ethernet, GE, SynchE
- Storage Area Networking
- Fiber Channel
- Digital Video
- Broadband Access
- Base Stations, Picocells

Block Diagram



Outline Drawing & Pad Layout



All dimensions in mm

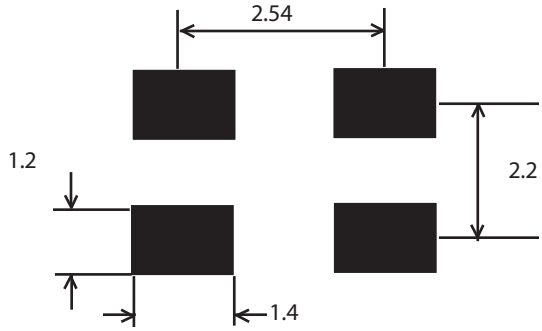


Table 5. Pin Out

Pin	Symbol	Function
1	E/D	Enable Disable
2	GND	Case and Electrical Ground
3	Output	Output
4	V_{DD}	Power Supply Voltage

Reliability

VI qualification includes aging at various extreme temperatures, shock and vibration, temperature cycling, and IR reflow simulation. The VC-801 family is capable of meeting the following qualification tests:

Table 6. Environmental Compliance

Parameter	Conditions
Mechanical Shock	MIL-STD-883, Method 2002
Mechanical Vibration	MIL-STD-883, Method 2007
Solderability	MIL-STD-883, Method 2003
Gross and Fine Leak	MIL-STD-883, Method 1014
Resistance to Solvents	MIL-STD-883, Method 2015
Moisture Sensitivity Level	MSL 1
Contact Pads	Gold over Nickel

Although ESD protection circuitry has been designed into the VC-801 proper precautions should be taken when handling and mounting. VI employs a human body model (HBM) and a charged device model (CDM) for ESD susceptibility testing and design protection evaluation.

Table 7. ESD Ratings

Model	Minimum	Conditions
Human Body Model	1500V	MIL-STD-883, Method 3015
Charged Device Model	1000V	JESD22-C101

Stresses in excess of the absolute maximum ratings can permanently damage the device. Functional operation is not implied at these or any other conditions in excess of conditions represented in the operational sections of this datasheet. Exposure to absolute maximum ratings for extended periods may adversely affect device reliability. Permanent damage is also possible if E/D is applied before V_{DD}.

Table 8. Absolute Maximum Ratings

Parameter	Symbol	Ratings	Unit
Storage Temperature	T_S	-55 to 125	°C
Soldering Temp/Time	T_{LS}	260 / 30	°C / sec