

MV-VD230-3225G is a Voltage Controlled Crystal Oscillator (VCXO) . This VCXO provide low phase noise and jitter performance over a wide operating temperature range, LVDS output and comes in a Hermetic Ceramic 3.2x2.5mm package.

The device is qualified to meet the JEDEC standard for Pb-Free assembly and compliant to the RoHS directive.

**Electrical Performance**

| Parameter                             | Min       | Typ                      | Max       | Units  |
|---------------------------------------|-----------|--------------------------|-----------|--------|
| <b>General</b>                        |           |                          |           |        |
| Output Frequency                      | 60        |                          | 200       | MHz    |
| Operating Temperature                 |           | -10/+70 -40/+85 -40/+105 |           | °C     |
| Stability Over Temperature            |           | ±50 ±25 ±20              |           | ppm    |
| Start Up Time                         |           |                          | 10        | ms     |
| Package Size                          |           | 3.2 x 2.5 x 1.2          |           | mm     |
| <b>Supply</b>                         |           |                          |           |        |
| Supply Voltage (Vdd)                  | 3.14      | 3.3                      | 3.47      | V      |
| Supply Current                        |           |                          |           |        |
| ≤ 170 MHz                             |           | 21                       | 33        | mA     |
| > 170 MHz                             |           | 24                       | 36        | mA     |
| Supply Voltage (Vdd)                  | 2.38      | 2.5                      | 2.63      | V      |
| Supply Current                        |           |                          |           |        |
| < 100 MHz                             |           | 16                       | 23        | mA     |
| 100 MHz to 170 MHz                    |           | 20                       | 28        | mA     |
| Current, Output Disabled              |           | 2.1                      | 5         | mA     |
| <b>Tuning</b>                         |           |                          |           |        |
| Absolute Pull Range                   |           | ±25 ±50                  |           | ppm    |
| Control Voltage to reach Pull Range   | 0         |                          | Vdd       | V      |
| Control Voltage Impedance             | 10        |                          |           | MΩ     |
| Control Voltage Modulation BW         | 20        | 50                       |           | kHz    |
| <b>Output</b>                         |           |                          |           |        |
| Output Signal                         |           | LVDS                     |           |        |
| Output Logic Level                    |           |                          |           |        |
| Output Level - Logic High             |           | 1.43                     | 1.60      | V      |
| Output Level - Logic Low              | 0.90      | 1.10                     |           | V      |
| Output Load                           |           | 100 Ω                    |           |        |
| Output Rise and Fall Time             |           | 0.4                      | 0.7       | ns     |
| Duty Cycle                            | 45        |                          | 55        | %      |
| <b>Enable / Disable</b>               |           |                          |           |        |
| Output Enable / Disable               |           |                          |           |        |
| Output Enabled                        | Vdd x 0.7 |                          |           | V      |
| Output Disabled                       |           |                          | Vdd x 0.3 | V      |
| <b>Phase Noise &amp; Jitter</b>       |           |                          |           |        |
| Phase Noise: (125 MHz)                |           |                          |           |        |
| 10 Hz offset                          |           | -70                      |           | dBc/Hz |
| 100 Hz offset                         |           | -104                     |           | dBc/Hz |
| 1kHz offset                           |           | -128                     |           | dBc/Hz |
| 10kHz offset                          |           | -146                     |           | dBc/Hz |
| 100kHz offset                         |           | -156                     |           | dBc/Hz |
| 1MHz offset                           |           | -156                     |           | dBc/Hz |
| 10MHz offset                          |           | -163                     |           | dBc/Hz |
| Jitter                                |           |                          |           |        |
| RMS Jitter: (12kHz - 20MHz) - 125 MHz |           | 0.07                     |           | ps     |

**Notes:**

- 1 Pull Range tested with Vc = 0V to 3.0V
- 2 Rise and Fall times measured from 20% to 80% of a full output swing
- 3 Power Supply pin should be filtered. e.g. 0.1µF or 0.01 µF Capacitor for optimal performance.
- 4 The Output is Enabled if the Enable/Disable is left open.

**Maximum Ratings**

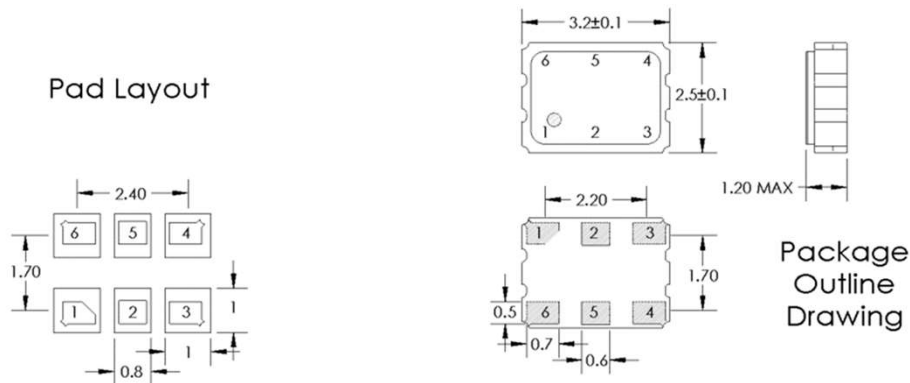
|                        |                   |
|------------------------|-------------------|
| Storage Temp           | -55°C to 125°C    |
| Supply Voltage         | -0.3V to +5.0V    |
| Control Voltage        | -0.3V to Vdd+0.3V |
| Enable/Disable Voltage | -0.3V to Vdd+0.3V |
| Junction Temperature   | +125 °C           |

**Maximum Ratings Notes:**

- 1 Stresses in excess of the absolute maximum ratings can permanently damage the device.
- 2 Exposure to absolute maximum ratings for extended periods may adversely affect device reliability.

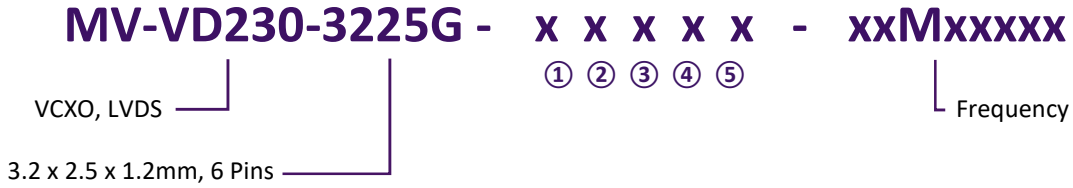
**Package Information**

| Pin # | Function                     |
|-------|------------------------------|
| Pin 1 | Vc = Control Voltage or NC   |
| Pin 2 | E/D = Enable / Disable       |
| Pin 3 | GND = Ground                 |
| Pin 4 | OUT = Output                 |
| Pin 5 | C-OUT = Complimentary Output |
| Pin 6 | Vdd = Supply Voltage         |


**Handling and Construction**

|                          |                  |
|--------------------------|------------------|
| Package Construction     | Hermetic Ceramic |
| Contact Pads             | Gold over Nickle |
| Moisture Sensivity Level | MSL 1            |
| ESD, Human Body Model    | 500V             |
| ESD, Charge Device Model | 500V             |

Ordering Information



|                  |                     |                         |                              |                      |
|------------------|---------------------|-------------------------|------------------------------|----------------------|
| <u>① Voltage</u> | <u>② Temp Range</u> | <u>③ Temp Stability</u> | <u>④ Absolute Pull Range</u> | <u>⑤ Enable</u>      |
| B: 3.3 V         | J: -10/+70 °C       | C: ±50 ppm              | E: ±25 ppm                   | O: No Enable Disable |
| D: 2.5 V         | K: -40/+85 °C       | E: ±25 ppm              | C: ±50 ppm                   | H: Enable High       |
|                  | L: -40/+105 °C      | F: ±20 ppm              |                              | L: Enable Low        |

**Part Number Configuration Notes:**  
 1 2.5 V only available up to 170MHZ