



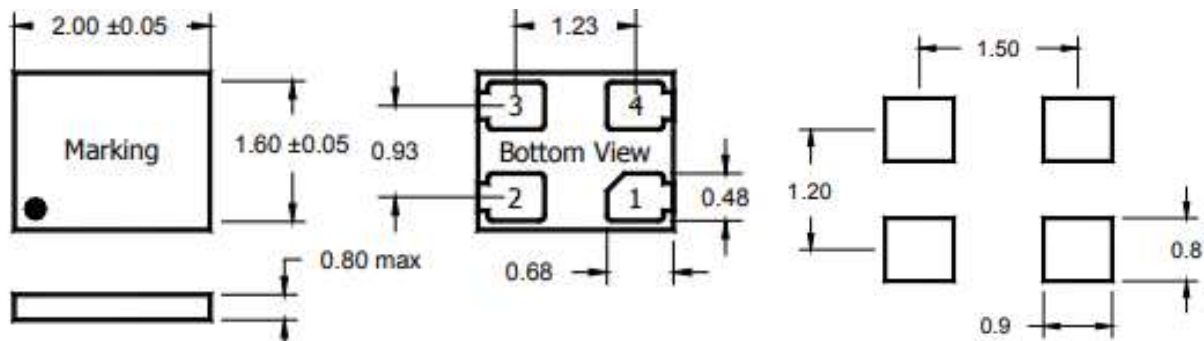
QMEM1 Series

SMD MEMS Oscillator, 2.0x1.6mm, LVCMOS

| | | | | |
|---|---|--------------------------------|------------|------|
| Supply Voltage (V _{DD}) | 1.8V | 2.5V | 2.8V | 3.3V |
| Frequency | 1.000000 MHz to 110.000000 MHz | | | |
| Output Voltage Logic | Logic "1" = 90% V _{DD} Min Logic "0" = 10% V _{DD} Max | | | |
| Duty Cycle | Measured at 50% of waveform, 50 ±5% | | | |
| Rise / Fall Time (20% to 80% of waveform) | 1.3 nSec typical, 2.5 nSec max | 1.0 nSec typical, 2.0 nSec max | | |
| Load Drive Capability | 15pF max | | | |
| Frequency Stability | See Frequency Stability Table in Part Number Guide (Note 1) | | | |
| Standby Terminal Function (Pin 1) | 0.7 V _{DD} min = Output enable 0.3 V _{DD} max = Oscillation stop and High impedance output | | | |
| Current | | | | |
| During Standby | 1.3 µA max | 2.5 µA max | 4.3 µA max | |
| During Operation (No load condition, F=20MHz) | 4.1 mA max | 4.2 mA max | 4.5 mA max | |
| Temperature Range | | | | |
| Operating | See Operating Temperature Table in Part Number Guide | | | |
| Storage | -65°C to +150°C | | | |
| Period Jitter (RMS) (F=75Mhz) | 1.8 pSec typ, 3.0 pSec max | | | |
| RMS Phase Jitter (F=75Mhz) (Fj=900kHz to 7.5MHz: Random) | 0.5 pSec typ, 1 pSec max | | | |
| RMS Phase Jitter (F=75Mhz) (Fj=12kHz to 20MHz: Random) | 1.5 pSec typ, 2.0 pSec max | | | |
| Notes: | Above specifications are typical values are at 25 °C and nominal supply voltage. | | | |

| Part Number Guide | | Sample Part Number: QMEM1-1A2T-3.579545 | | | |
|-------------------|----------------|---|--------------------|--------------|--------------------|
| Package | Supply Voltage | Operating Temperature | Stability (in ppm) | Function | Frequency (in MHz) |
| QMEM1 | 1 = +1.8V | A = 0°C to +70°C | 2 = ±50 | T = Tristate | 3.579545 |
| | 2 = +2.5V | B = -20°C to +70°C | 3 = ±25 | S = Standby | |
| | 3 = +3.3V | E = -40°C to +85°C | 4 = ±20 | N = N/C | |
| | 8 = +2.8V | | 5 = ±10 | | |

Suggested Pad Layout



Dot to Denote Pin 1

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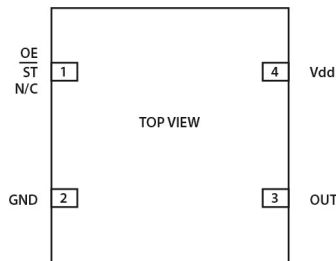
email: sales@qvstech.com

Specifications subject to change without notice.

| Pin Description | | | |
|-----------------|-----------------|------------|--|
| Pin No | Symbol | | Functionality |
| 1 | OE | Tri-state | High or Open =specified frequency output. Low = Output is high impedance, only output is disabled. |
| | ST | Standby | High or Open =specified frequency output Low = Output is low. Device goes to sleep mode. Supply current reduces to standby current. |
| | N/C | No Connect | Any voltage between 0.0V to V _{DD} or Open = specified frequency output. Pin 1 has no function. |
| 2 | GND | Power | Electrical ground |
| 3 | Out | Output | Oscillator output |
| 4 | V _{DD} | Power | Power supply voltage |

Notes:

- In OE or ST mode, a pull-up resistor of 10.0 kΩ or less is recommended if Pin 1 is not externally driven; If Pin 1 needs to be left floating, use the N/C option.
- A capacitor of value 0.1 μF or higher between Pin 4 (V_{DD}) and Pin 1 (GND) is required.



Pin 1 Configuration Options (OE, ST or N/C)

Pin 1 of the QMEM1 Series can be factory programmed to support three modes: Output Enable (OE), Standby (ST) or No Connect (NC).

Output Enable Mode (OE)

In the OE mode, applying logic low to the OE pin only disables the output driver and puts it in Hi-Z mode. The core of the device continues to operate normally. Power consumption is reduced due to the inactivity of the output. When OE pin is pulled High, the output is typically enabled in <1 μSec.

Standby Mode (ST)

In the ST mode, a device enters into the standby mode when Pin 1 is pulled Low. All internal circuits of the device are turned off. The current is reduced to a standby current, typically in the range of a few μA. When ST is pulled High, the device goes through the “resume” process which can take up to 5mSec.

No Connect Mode (N/C)

In the N/C mode, the device always operates in its normal mode and outputs the specified frequency regardless of the logic level on Pin 1.

| Key parameters in the operation of the device in OE, ST or N/C mode | | | |
|---|----------|---------------------|--------|
| Parameters | OE | ST | N/C |
| Active current 20.0MHz (max +1.80VDC) | 4.1 mA | 4.1 mA | 4.1 mA |
| OE disable current (max +1.80VDC) | 4.0 mA | N/A | N/A |
| Standby current (typical +1.80VDC) | N/A | 0.6 μA | N/A |
| OE enable time at 20.0 MHz (max) | 200 nSec | N/A | N/A |
| Resume time from standby (max all frequencies) | N/A | 5 mSec | N/A |
| Output driver in OE disable/standby mode | High Z | Pulled to Logic Low | N/A |