

OA Type

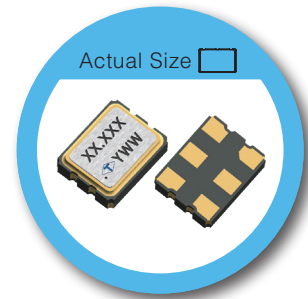
3.2 x 2.5 mm SMD LVPECL/LVDS/HCSL Crystal Oscillator

FEATURE

- Industry Standard 3.2 x 2.5 x 0.9 hermetically sealed ceramic package.
- Very low jitter performance: typical 0.1 pS RMS from 12 kHz - 20 MHz.
- Fundamental/3rd overtone crystal design.
- Output frequency up to 250 MHz.
- Tri-state enable/disable
- Up to 125°C operating temperature range.

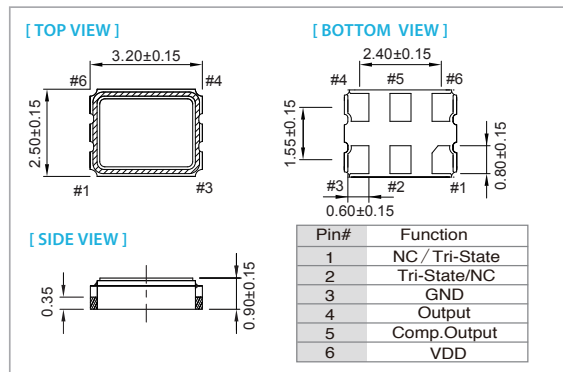
TYPICAL APPLICATION

- 10Gbit Ethernet, Fiber Channel, Storage Area Network, SONET
- Enterprise Servers, Reference clocks for ADC and DAC
- Telecom

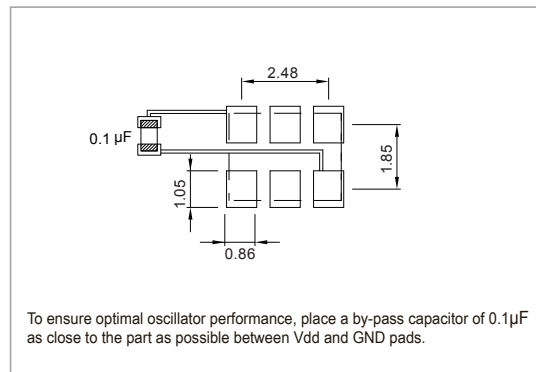


RoHS Compliant

DIMENSION (mm)



SOLDER PAD LAYOUT (mm)



ELECTRICAL SPECIFICATION

| Parameter | LVPECL | | | | LVDS | | | | unit |
|--|--|---------------------|------------------------------------|---------------------|------------------------------------|---------------------|------------------------------------|---------------------|--------|
| | 3.3 V | | 2.5 V | | 3.3 V | | 2.5 V | | |
| | Min. | Max. | Min. | Max. | Min. | Max. | Min. | Max. | |
| Supply Voltage Variation (V_{DD}) | V _{DD} -5% | V _{DD} +5% | V _{DD} -5% | V _{DD} +5% | V _{DD} -5% | V _{DD} +5% | V _{DD} -5% | V _{DD} +5% | V |
| Frequency Range | 10 | 250 | 10 | 250 | 10 | 250 | 10 | 250 | MHz |
| Standard Frequency | 25, 106.25, 125, 156.25, 161.1328, 212.5 | | | | | | | | |
| Supply Current | 10 MHz ≤ F _o < 160 MHz | | 160 MHz ≤ F _o < 250 MHz | | 10 MHz ≤ F _o < 160 MHz | | 160 MHz ≤ F _o < 250 MHz | | mA |
| Output Level | Output High | | Output Low | | Output High | | Output Low | | V |
| Transition Time: Rise/Fall Time* | - | | 1.0 | | - | | 1.0 | | nSec |
| Start Time | - | | 10 | | - | | 10 | | mSec |
| Tri-State(Input to Pin 2 or Pin 1) | Enable (High voltage or floating) | | Disable (Low voltage or GND) | | Enable (High voltage or floating) | | Disable (Low voltage or GND) | | V |
| RMS Phase Jitter (Integrated 12 KHz ~ 20 MHz) | F _o < 80 MHz | | 80 MHz ≤ F _o < 125 MHz | | 125 MHz ≤ F _o < 170 MHz | | 170 MHz ≤ F _o < 200 MHz | | pSec |
| | 200 MHz ≤ F _o | | - | | - | | - | | |
| | - | | - | | - | | - | | |
| | - | | - | | - | | - | | |
| Phase Noise@ 156.25 MHz | 100 Hz | | 1 kHz | | 100 Hz | | 1 kHz | | dBc/Hz |
| | 10 kHz | | - | | 10 kHz | | - | | |
| | - | | - | | - | | - | | |
| Aging (@ 25°C 1st year) | - | | ±3 | | - | | ±3 | | ppm |
| Storage Temp. Range | -55 | | 125 | | -55 | | 125 | | °C |

Note: not all combination of options are available. Other specifications may be available upon request.

Specifications subject to change without notice.

| Parameter | HCSL | | | | unit |
|--|--------|--------|--------|--------|------|
| | 3.3 V | | 2.5 V | | |
| | Min. | Max. | Min. | Max. | |
| Supply Voltage Variation (VDD) | VDD-5% | VDD+5% | VDD-5% | VDD+5% | V |
| Frequency Range | 25 | 175 | 25 | 175 | MHz |
| Standard Frequency | 100 | | | | |
| Supply Current 25 MHz ≤ Fo ≤ 175 MHz | – | 50 | – | 50 | mA |
| Output Level | | | | | V |
| Output High | 0.6 | – | 0.58 | – | |
| Output Low | – | 0.15 | – | 0.15 | |
| Transition Time: Rise/Fall Time+ | – | 0.5 | – | 0.5 | nSec |
| Start Time | – | 10 | – | 10 | mSec |
| Tri-State(Input to Pin 2 or Pin 1) | | | | | V |
| Enable | 0.7VDD | – | 0.7VDD | – | |
| Disable | – | 0.3VDD | – | 0.3VDD | |
| RMS Phase Jitter (Integrated 12 kHz ~ 20 MHz) | | | | | pSec |
| 25MHz ≤ Fo ≤ 175MHz | – | 0.5 | – | 0.5 | |
| Aging | – | ±3 | – | ±3 | ppm |
| Storage Temp. Range | -55 | 125 | -55 | 125 | °C |

Standard frequencies are frequencies which the crystal has been designed and does not imply a stock position.

+ Transition times are measured between 20% and 80% of VDD.

FREQ. STABILITY vs. TEMP. RANGE

| Temp. (°C) | ppm | ±25 | | ±50 | |
|------------|-----|-----|---|-----|---|
| | | ○ | ○ | ○ | ○ |
| -10 ~ +60 | | ○ | ○ | ○ | ○ |
| -20 ~ +70 | | ○ | ○ | ○ | ○ |
| -40 ~ +85 | | △ | ○ | ○ | ○ |
| -40 ~ +125 | | × | ○ | ○ | ○ |

* ○ : Available △:Conditional X: Not available

* Inclusive of calibration @ 25 °C, operating temperature range, input voltage variation, load variation, aging (1st year), shock, and vibration

Note: not all combination of options are available. Other specifications may be available upon request.