

3.3V PECL Ultra Low Jitter 156.25MHz XO

UX7040GE01



7.0 x 5.0mm Ceramic SMD

ASSP XO™ for 40Gb Ethernet



Product Features

- 3.3V, 156.25MHz
- Ultra low phase jitter (RMS)- 0.2ps max. (10kHz ~ 1MHz)
- Pb-free & RoHS compliant
- Industrial temperature range

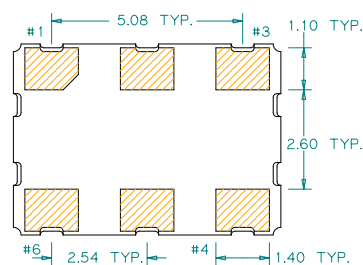
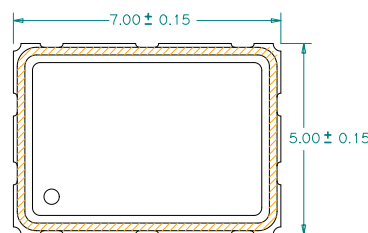
Product Description

The UX7040GE01 is a crystal oscillator that achieves superb low jitter for 40GbE applications. The output clock signal, generated internally with a patented oscillator design, is compatible with LVPECL logic levels. The device, available on tape and reel, is contained in a 7.0 x 5.0mm surface-mount ceramic package.

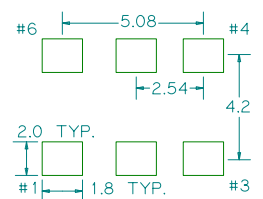
Applications

- 40 Gigabit Ethernet Switches / Routers
- 40 Gigabit Ethernet Data Center

Package: (Scale: none; dimensions are in mm)



Recommended Land Pattern:



Pin Functions:

| Pin | Function |
|-----|------------------|
| 1 | OE |
| 2 | NC |
| 3 | V _{EE} |
| 4 | Q Output |
| 5 | \bar{Q} Output |
| 6 | V _{CC} |

*Extended high frequency power decoupling is recommended (see test circuit for minimum recommendation). To ensure optimal performance, do not route RF traces beneath the package.

Part Ordering Information:

UX7040GE01



Electrical Performance

| Parameter | Min. | Typ. | Max. | Units | Notes |
|---------------------------------|-----------------------------|--------|-------------------------|-------|---------------------------------|
| Output Frequency | | 156.25 | | MHz | |
| Supply Voltage | 2.97 | 3.30 | 3.63 | V | |
| Supply Current, Output Enabled | | 60 | 75 | mA | |
| Supply Current, Output Disabled | | | 25 | mA | |
| Frequency Stability | | | ±50 | ppm | See Note 1 below |
| Operating Temperature Range | -40 | | +85 | °C | Industrial |
| Output Logic 0, VOL | | | V _{CC} - 1.620 | V | 0 to +85°C |
| | | | V _{CC} - 1.555 | V | -40 to 0°C |
| Output Logic 1, VOH | V _{CC} - 1.025 | | | V | 0 to +85°C |
| | V _{CC} - 1.085 | | | V | -40 to +0°C |
| Output Load | 50Ω to V _{CC} - 2V | | | | output requires termination |
| Duty Cycle | 45 | | 55 | % | Measured 50% V _{DD} |
| Rise and Fall Time | | 0.5 | 0.85 | ns | Measured 20/80% of waveform |
| Jitter, Phase RMS (1-σ) | | 0.2 | 0.3 | ps | 12 kHz to 20 MHz frequency band |
| | | 0.1 | 0.2 | | 10 kHz to 1 MHz frequency band |
| Jitter, pk-pk | | 25 | 40 | ps | 100,000 random periods |

Notes:

- Stability includes all combinations of operating temperature, load changes, rated input (supply) voltage changes, initial calibration tolerance (25°C), aging (5 year at 40°C average effective ambient temperature), shock and vibration.
- For specifications other than those listed, please contact sales.

Output Enable / Disable Function

| Parameter | Min. | Typ. | Max. | Units | Notes |
|---|------|------|------|-------|--------------------------|
| Input Voltage (pin 1), Output Enable | 2.2 | | | V | or open |
| Input Voltage (pin 1), Output Disable (low power standby) | | | 0.8 | V | Outputs disabled to Hi-Z |
| Internal Pullup Resistance | 50 | | | kΩ | |
| Output Disable Delay | | | 200 | ns | |
| Output Enable Delay | | | 10 | ms | |

Absolute Maximum Ratings

| Parameter | Min. | Typ. | Max. | Units | Notes |
|---------------------|------|------|------|-------|-------|
| Storage Temperature | -55 | | +125 | °C | |

For the latest product information visit: <http://www.pericom.com/products/crystals-and-crystal-oscillators/assp-xo/?part=UX7040GE01>

For test circuit go to: http://www.pericom.com/assets/sre/tc_pecl.pdf

For soldering reflow profile and reliability test ratings go to: <http://www.pericom.com/assets/sre/reflow.pdf>

For typical phase noise go to: http://www.pericom.com/assets/sre/pn_UX7040GE01.pdf

For tape and reel information go to: http://www.pericom.com/assets/sre/tr_7050_xo.pdf