MEMS Timing Solutions for 100G/200G/400G/800G Optical Modules

SiTime MEMS timing benefits

**Complete MEMS XO portfolio**
- 70 fs and 200 fs jitter grades
- 2016, 2520, 3225 packages
- LVPECL, LVDS, HCSL, Low-power HCSL, FlexSwing™

**Most robust in real world conditions**
- Immunity to supply noise
- 105°C, resistant to heat
- No activity or frequency jumps

**Integrated MEMS, easy to use**
- 50% smaller
- On-chip LDO reducing BOM
- No quartz reliability issues

Smallest package and integrated resistors – 50% less area

Quartz 2.5 x 2.0 mm, plus LVPECL bias resistors

SiT9501 2.0 x 1.6 mm, integrated LVPECL bias resistors

FlexSwing delivers 30% power savings vs. LVPECL, enables chipset flexibility

Differential-voltage swing diagrams

LVPECL

1.2 V to 1.9 V

FlexSwing

Independently Programmable

Complies with any input-voltage swing requirement

Ultra-low jitter offering down to 70 fsec

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<th>Applications</th>
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<th>Jitter Grade</th>
<th>Function</th>
<th>Key Features</th>
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<td>QSFP-DD,</td>
<td><strong>SiT9501</strong></td>
<td>70 fsec</td>
<td>Reference clock for high-speed</td>
<td>14 standard frequencies, 105°C, 2016/2520/3225 pkgs.</td>
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<td>QSFP28,</td>
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<td>PHYs</td>
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<td>OSFP, QSFP</td>
<td><strong>SiT9375</strong></td>
<td>200 fsec</td>
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<td>31 standard frequencies, 105°C, 2016/2520/3225 pkgs.</td>
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<td><strong>SiT9365/6/7</strong></td>
<td>230 fsec</td>
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<td>1 to 725 MHz, 105°C, 3225/5032/7050 pkgs.</td>
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MEMS Timing Outperforms Quartz

Ultra-Low Phase Noise, 156.25 MHz

Ultra-Low Phase Noise, 644.53125 MHz

Excellent Stability

Better PSNR (Power Supply Noise Rejection)

Higher Reliability

Smallest Packages

Learn more about SiTime's Optical Module timing solutions

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