JDS Uniphase

Product Bulletin

VM10CDS Series
10 Gb/s
Clock Delay Shifter

These devices are used for electronically delaying sinusoidal “clock” waveforms for data re-timing in high quality digital fiber optic telecom systems. These devices will provide a voltage adjustable phase shift (time delay) with 180° (half clock cycle) or 360° (one clock cycle) range depending upon the model chosen.

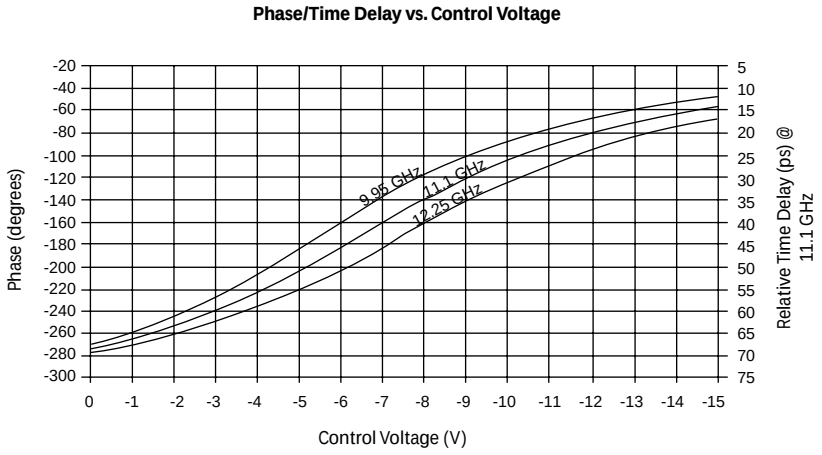
The RF output signal is constant over the variable delay. Once set, the time delay is stable to typically ±3 ps over any 25°C temperature change and ±3 ps for any 3 dB input level change. The phase shifter is constructed with rugged COPLANAR thin film technology. Optionally, the phase shifter may be screened to JDS Uniphase levels I or II for high reliability applications.

This product is shipped with individual phase shift versus control voltage (1 V increments) measured at 9.95 GHz and 12.25 GHz. Optionally, the phase shift or the time delay can be measured at a customer specified frequency.

Key features
- Operating frequency 9.95 to 12.25 GHz
- 180° or 360° variable phase shift range
- 1.5 Vpp constant output voltage
- Stable time delay over temperature and RF input voltage
- Low output harmonics
- Internal DC regulation
- Small package
- High-reliability screening option

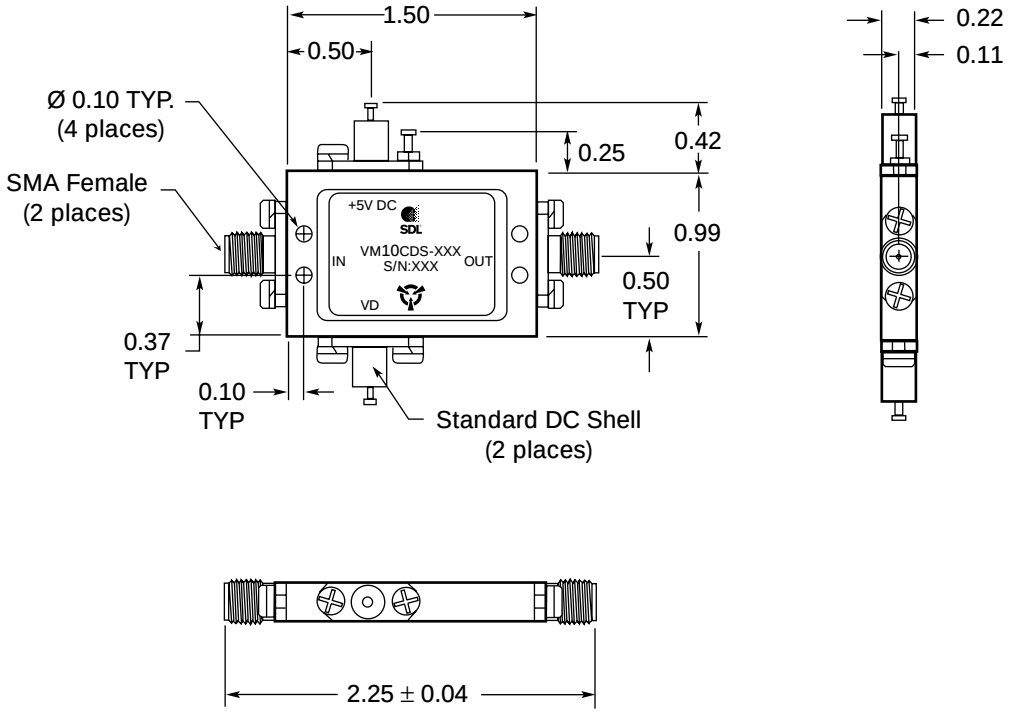
Applications
- Long haul optical transmission systems
- OC-192 applications with FEC protocols

Typical Performance of VM10CDS-180



Package Dimensions

Dimensions in inches except where indicated



10 Gb/s Clock Delay Shifter Performance Specifications

Model # VM10CDS-xxx	Phase Adjustment range min	Control Voltage (VD) Range for rated min Phase Adjustment range V, min/max	Output Voltage Vp-p min/max	Output Voltage Variation[1] dB, max	Output Harmonics dBc, max	+5VDC @mA max
- 180	180°	8/15	1.5/1.9	0.5	–20	70
- 360	360°	8/15	1.5/1.9	0.75	–20	70

1. The RF input voltage is constant while the control port (VD) is adjusted to provide the specified delay variation at any given frequency.

Other Specifications

- Operating frequency is 9.95 GHz to 12.25 GHz
- Operating RF input voltage range is 0.4 Vpp to 2 Vpp
- RF inputs and outputs are AC coupled and VSWR is less than 2:1
- Time delay will be monotonic and decreasing with increasing absolute control voltage of 0 to –15 VDC
- Control port impedance is 3000 ohms minimum
- Control voltage port is reverse voltage protected +15 VDC
- Internal regulators provide over voltage to +15 VDC and reverse voltage protection to –50 VDC
- Operating case temperature is 0°C to +85°C

High Reliability Screening Options

Level I: Pre-cap visual inspection. Burn in at 100°C for 48 hrs with DC applied. External visual inspection.

Level II: Level I above plus In-situ FET inspection, temperature cycling (10 cycles 0 to 100°C), and centrifuge (5000 G acceleration)

Ordering information

For more information on this or other products and their availability, please contact your local JDS Uniphase sales representative or JDS Uniphase directly at 732 465-2800, or by fax 732 465-2801, or via email at sales.nj@us.jdsuniphase.com. Visit our Web site at www.jdsuniphase.com.

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