

TeraXion

An indie Semiconductor Company

ClearSpectrum™

TDCMX-SM Slope-Matched Tunable Dispersion Compensator



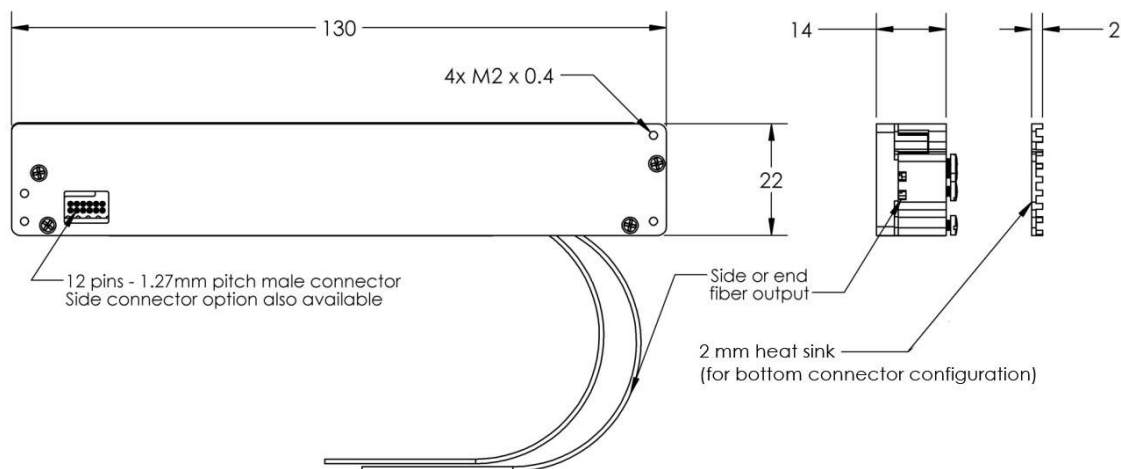
The ClearSpectrum™ TDCMX-SM is the only G.652 slope-matched tunable chromatic dispersion compensator on the market that provides adjustable, simultaneous compensation for all channels across the entire C-band, all within a single device. The revolutionary TDCMX-SM is built on TeraXion's established dispersion-compensation technology that has been providing reliable operation for over 15 years. This "single part number" solution reduces cost-per-bit (\$/bit) by enabling customers to use intensity-modulation direct-detection up to 100 Gb/s over distances up to 80 km.

System vendors who serve communication and internet service providers (CSP & ISP) are seeking ways to increase data rates in next-generation DWDM access networks. This is particularly true for data-center interconnect (DCI)/enterprise, fiber-to-the-premises (FTTx), and 5G X-Haul networks operating with intensity modulation direct detection (IMDD) modulation formats such as PAM-4.

Top 5 Features

- **Tunable:** The TDCMX-SM provides highly accurate, dynamically adjustable chromatic dispersion compensation over a large range of dispersion values (from 0 to 80 km with the same module).
- **Full C-band coverage:** TDCMX-SM features full C-band coverage, either on a 50 GHz or 100 GHz grid.
- **G.652 Slope-Matched:** The TDCMX-SM compensates for the chromatic dispersion slope of the fiber, resulting in a precise, homogeneous residual dispersion for every channel of the C-band.
- **Compact:** The ClearSpectrum™ TDCMX-SM has dimensions of only 130 x 22 x 14 mm.
- **Low-Latency:** The TDCMX-SM features a latency of less than 25 ns, a reduction of over 1 000x compared to dispersion compensating fiber (DCF), making it the perfect choice for time-sensitive networks.

Module Dimensions



50 GHz Versions: 0 to 80 km or ± 40 km

Parameters ⁽¹⁾	Specifications			Units
Channel Grid	50			GHz
Wavelength Range	1529.55 – 1567.54			nm
Compensation Range	0 to 80		-40 to 40	km
	Specs for 0 - 40 range	Specs for 40 - 80 range		
Typical -3 dB Bandwidth	34	30	34	GHz
Phase Ripple Std Deviation	≤ 0.1	≤ 0.13	≤ 0.12	rad
Slope-Matching Error	≤ 25	≤ 35	≤ 30	ps/nm
Dispersion Accuracy	≤ 2	≤ 2.5	≤ 2	km

100 GHz Version: 0 to 80 km

Parameters ⁽¹⁾	Specifications			Units
Channel Grid	100			GHz
Wavelength Range	1527.99 – 1566.31			nm
Compensation Range	0 to 80			km
	Specs for 0 - 40 range	Specs for 40 - 80 range		
Typical -3 dB Bandwidth	68	50		GHz
Phase Ripple Std Deviation	≤ 0.12	≤ 0.15		rad
Slope-Matching Error	≤ 20	≤ 35		ps/nm
Dispersion Accuracy	≤ 2	≤ 3		km

⁽¹⁾Custom configurations available upon request

General Specifications

Parameters		Units
Insertion loss	<6	dB
Polarization-dependent loss	≤0.5	dB
Polarization mode dispersion	≤1	ps
Maximum input power	<27	dBm
Control interface	I ² C	
Voltage	5	V
Typical power consumption	4	W
Operating temperature	-5 to 70	°C
Storage temperature	-40 to 85	°C
Telcordia qualified	GR-468	
RoHS compliant	Yes	

Ordering information

For orders, questions, specific requirements or to learn more about TeraXion's products, contact us at info@teraxion.com

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An indie Semiconductor Company

teraxion.com
 2716 Einstein Street
 Quebec, Quebec, CANADA G1P 4S8
 +1 (877) 658-8372 / info@teraxion.com

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