

SD-20

20 Gb/s Intensity Modulator

Features:

- Titanium-Indiffused Waveguides
- > 20 GHz Bandwidth for up to 25 Gb/s Operation
- C and L-Band Operation
- Zero Chirp, No Spectral Broadening
- Reduced V_{π} (@ 20 GHz)
- High Extinction Ratio
- Small Footprint
- Integrated Photodiode
- PM Output Fiber
- V Connector

Applications:

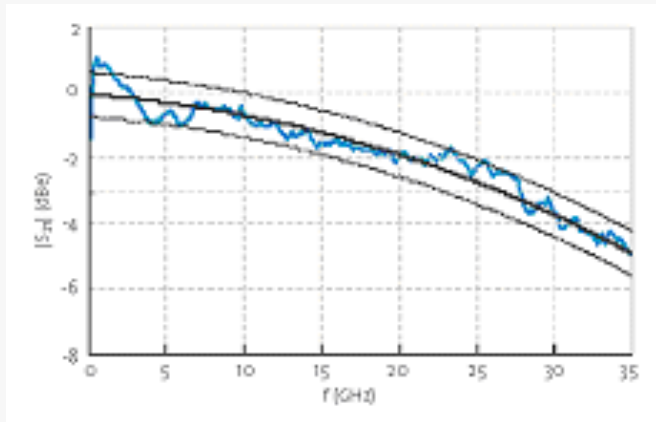
- Chirp-Free Signal Generation
- 20+ Gb/s NRZ Modulation
- 40+ Gb/s Signal Generation via 20+ Gb/s Multiplexing (OTDM interleaving)
- Terrestrial and Submarine Long and Ultra Long-Haul Systems
- (CS-)RZ Pulse Generation at 20+ Gb/s and 40+ Gb/s



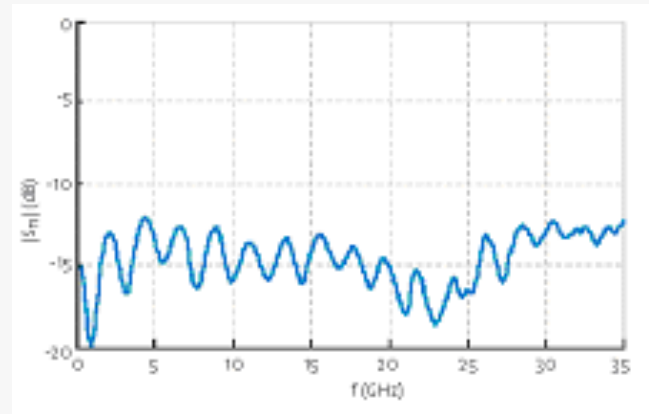
This new 20 Gb/s modulator builds the bridge between 10 and 40 Gb/s. The 20 Gb/s modulator allows system designers to take advantage of cost effective electronics available at 20 GHz. Electronic circuit complexity is significantly reduced compared to 40 Gb/s. A single 40 Gb/s data stream can be generated by multiplexing two 20 Gb/s signals. The low V_{π} (@ 20 GHz) enables full period operation at half bit rate to generate a 40 Gb/s CS-RZ optical clock signal. Additionally, 20 Gb/s transmission enables the maximum NRZ-bandwidth efficiency in DWDM systems running at 50 GHz channel spacing, and is less sensitive to chromatic fiber dispersion than at 40 Gb/s. Suitable driver amplifiers are available through Oclaro recommended partners.

Performance Characteristics

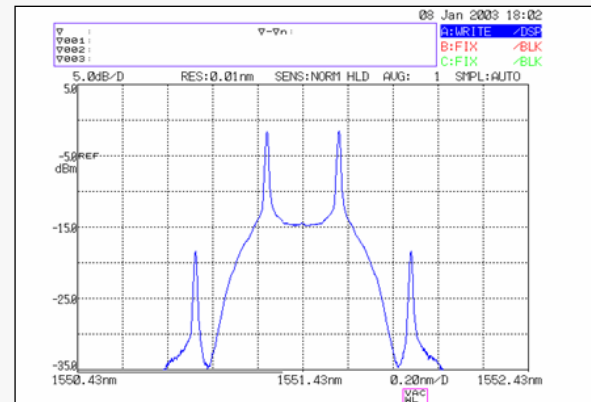
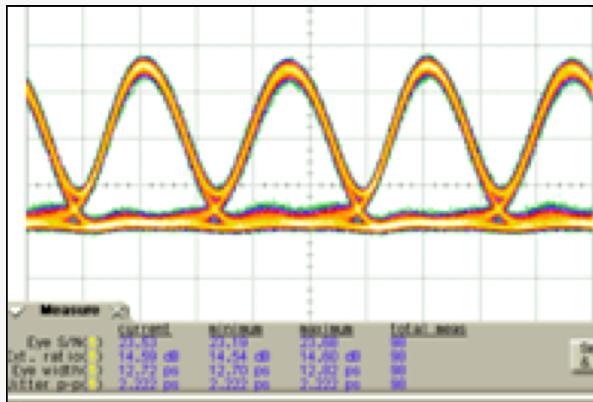
Electro Optical Response



Electrical Return Loss



40 Gb/s CS-RZ signal from cascading with an NRZ data modulator



Absolute Maximum Ratings

Parameter	Conditions	Min	Max	Unit
Maximum Input Power (Electrical)			25	dBm
Maximum Input Power (Optical)	CW		100	mW
Maximum Operating Temperature Variation Rate			1	°C/min
Storage Temperature Range		-40	+85	°C
Operating Temperature Range		0	+70	°C

Specifications

Parameters		Units
Optical		
Operating Wavelengths Range	C and L-Band	
Insertion Loss	3.2	dB
Extinction Ratio (DC)	≥ 20	dB
Dynamic Extinction Ratio	13	dB
Optical Return Loss (without connectors)	≥ 45	dB
Chirp	± 0.1	
Electrical		
S_{21} Electro Optical Bandwidth (-3 dBe)	≥ 20	GHz
S_{11} Return Loss (V-connector)	≤ -10	dB
RF V_{π} Voltage (@ 1 kHz)	5.0	V
RF V_{π} Voltage (@ 20 GHz)	6.0	V
Bias V_{π} Voltage (@ 1 kHz)	5.5	V
PRBS Electrical Drive Voltage	5.0	V
Input Connector Impedance	50	Ohm
Photodiode Responsivity	10^{-3}	A/W

- Where not specified, parameters are measured at 25 °C.
- Values are "typical", unless otherwise indicated.

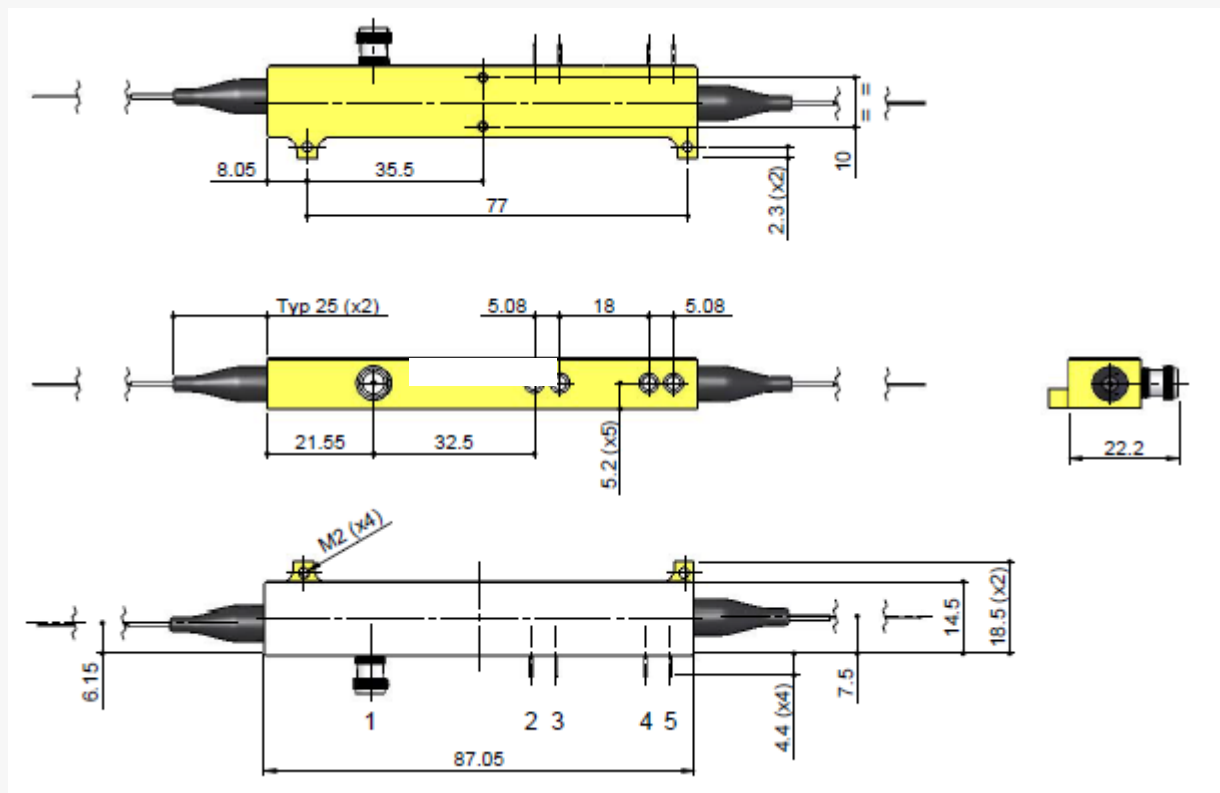
Pin-Out and Fiber Specifications

RF Connector	V-Connector ²
Bias and PD Connector	LEAD Pins
Input Fiber	Corning/Fujikura SM15P UV/UV250 (Panda fiber)
Output Fiber	Corning/Fujikura SM15P UV/UV250 (Panda fiber) ¹

Note 1. Other output fibers are available upon request.

Note 2. V-Connector is a registered trademark of the Anritsu Corporation.

Package Footprint



Pin #	Description
A	RF Input
B	Ground
C	Bias
D	Photodiode Cathode
E	Photodiode Anode

Ordering Information

Product	Part Number
SD20	7910508-A

Contact Information

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