

# SD-40

## 40 Gb/s Intensity Modulator

### Features:

- Titanium-Indiffused Waveguides
- X-Cut, Single Drive
- C and L-Band Operation
- Extended Bandwidth for FEC
- Zero Chirp, No Spectral Broadening
- Small Footprint
- Low Drive Voltage, Matched Drivers Available
- High Extinction Ratio
- Integrated Photodiode
- Allows Highest Power into the Fiber
- V Connector

### Applications:

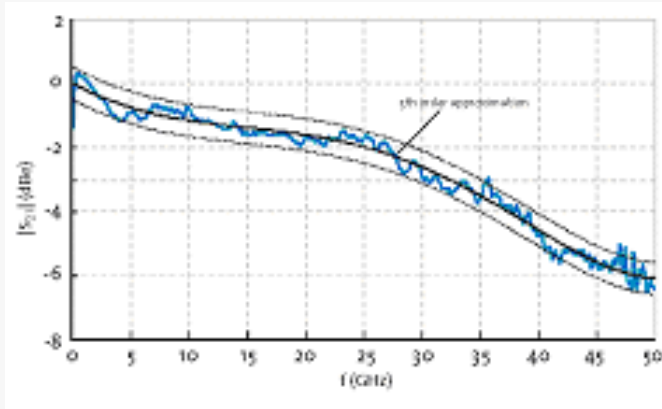
- Chirp-Free External NRZ Intensity Modulation
- Terrestrial and Submarine Long and Ultra Long-Haul Systems
- WDM over C and L-Band
- Data Encoder for Double Stage RZ Modulators



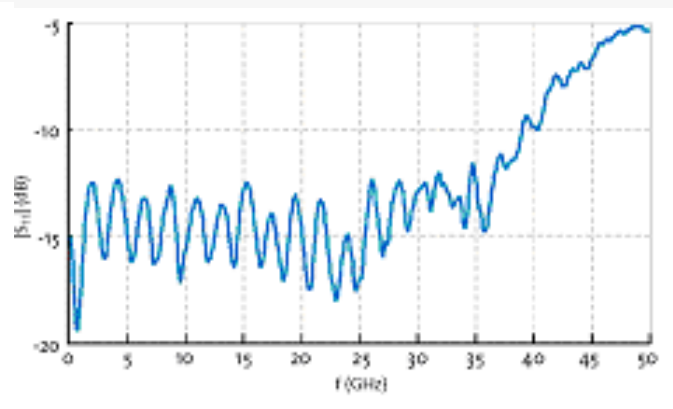
This leading edge 40 Gb/s intensity modulator is a key building block for next generation optical communication networks. The unique x-cut, zero chirp modulator enables leading uncompensated transmission distances, and high channel counts in Long and Ultra Long Haul DWDM networks. Chirp free signal generation provides high dispersion tolerance and minimum channel crosstalk. LiNbO<sub>3</sub> is also the technology of choice when optimum transmission quality is required on shorter reaches. Advanced process technologies are applied to achieve maximum feasible electro-optic bandwidth while maintaining the low drive voltage and low insertion loss of classical x-cut modulators. Well matched driver amplifiers are available through Oclaro recommended suppliers.

### Performance Characteristics

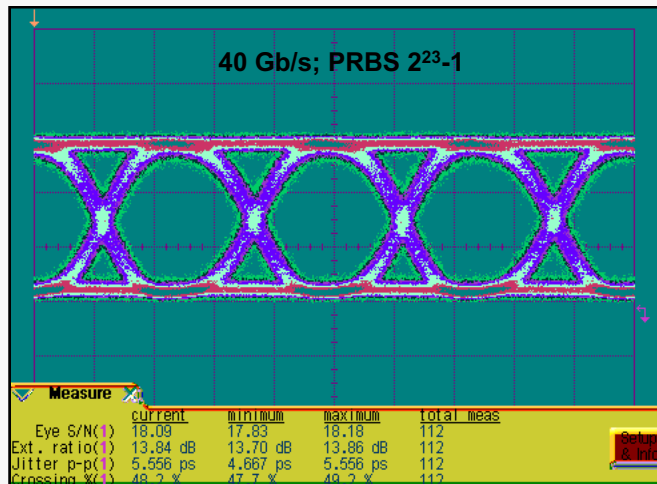
Electro Optical Response



Electrical Return Loss



Eye Diagram



### 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
<b>Optical</b>		
Operating Wavelengths Range	C and L-Band	
Insertion Loss	3.2	dB
Extinction Ratio (DC)	$\geq 20$	dB
Dynamic Extinction Ratio	$\geq 12$	dB
Optical Return Loss (without connectors)	$\geq 45$	dB
Chirp	$\pm 0.1$	
<b>Electrical</b>		
$S_{21}$ Electro Optic Bandwidth (-3 dBe)	30	GHz
$S_{11}$ Return Loss (V-Connector)	$\leq -10$	dB
RF $V_{\pi}$ Voltage (@ 1 kHz)	5.0	V
Bias V Voltage (@ 1 kHz)	5.5	V
PRBS Electrical Drive Voltage ( $V_{amp}$ )	5.5	V
Input Connector Impedance	50	Ohm
Photodiode Responsivity	$10^{-3}$	A/W

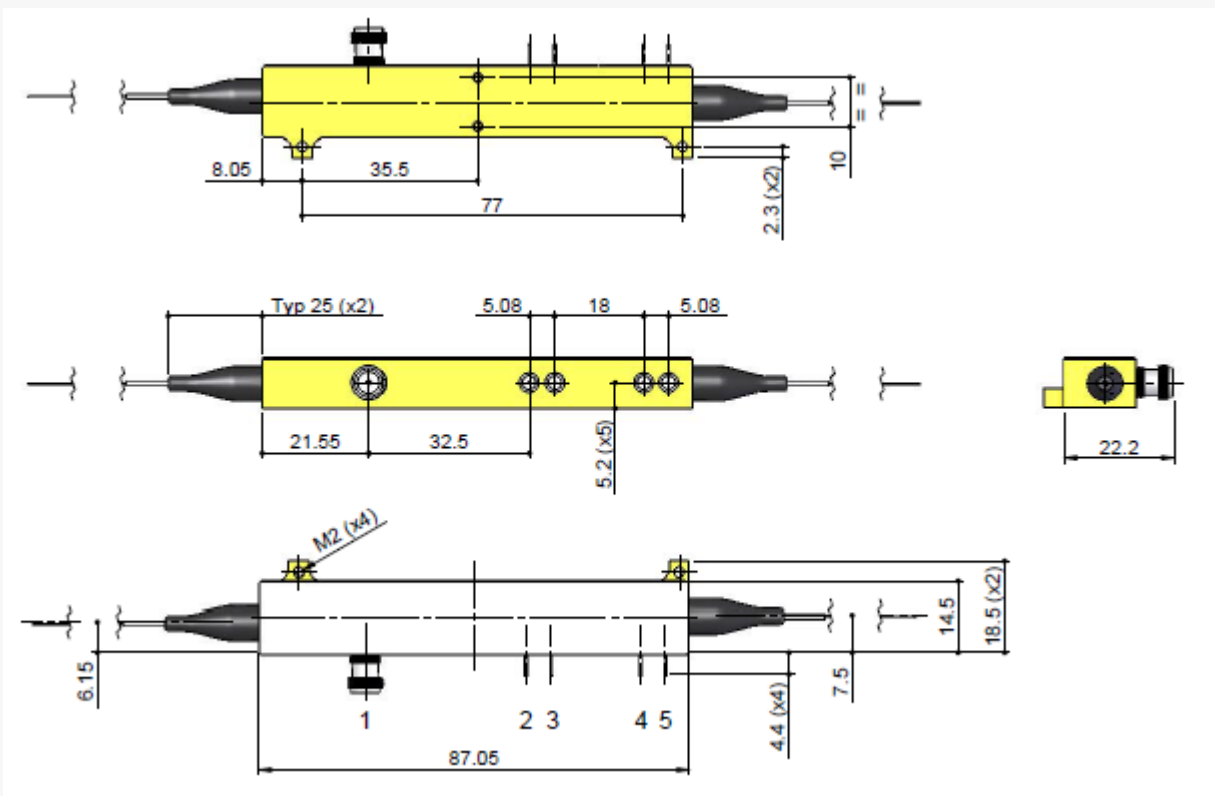
- Where not specified, parameters are measured at 25 °C.
- Values are "typical", unless otherwise indicated.

## Pin-Out and Fiber Specifications

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

Note 1. 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
SD40	7910507-A



## Contact Information

**Oclaro Inc.**  
**Worldwide Headquarters**  
2584 Junction Avenue  
San Jose  
CA 95134  
USA

Tel: +1 408 383 1400  
Fax: +1 408 919 1501

[www.oclaro.com](http://www.oclaro.com)  
[Americas@oclaro.com](mailto:Americas@oclaro.com)

## Important Notice

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by Oclaro before they become applicable to any particular order or contract. In accordance with the Oclaro policy of continuous improvement specifications may change without notice. The publication of information in this data sheet does not imply freedom from patent or other protective rights of Oclaro or others. Further details are available from any Oclaro sales representative.

D2701 PowerBit SD-40 Version 1.1 September 2009  
©Oclaro 2009. Oclaro the Oclaro, Inc. logo, and all other Oclaro, Inc product names and slogans are trademarks or registered trademarks of Oclaro, Inc. in the U.S.A. or other countries. Products described in this datasheet may be covered by one or more patents in the U.S.A. and abroad. Information in this datasheet is subject to change without notice.