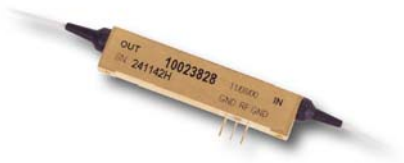
2.5 Gb/s Bias-Free Miniaturized Modulator



Key Features

- **Bias-free operation for fast transmitter development and manufacturing**
- **Small - required board space (footprint) reduced by greater than 70% compared with standard butterfly package**
- **Printed circuit board (PCB) compatible - single in-line package mounts pins-down**
- **1535 to 1565 nm operation; L-band versions available**
- **Low drive voltage; compatible with commercial drivers**
- **Low chirp for maximum transmission distance (>1000 km)**

Applications

- Medium- and long-haul transmission
- DWDM and TDM transmission

The 2.5 Gb/s bias-free modulator is a digital device in which the bias point of the interferometer is set to operate at about the half-intensity point (quadrature). A bias control circuit is not required. This feature simplifies circuit design and speeds up product development. The device provides superior signal quality across a wide range of wavelengths in the C and L bands and can be used to modulate tunable lasers. The modulator is designed for medium- and long-haul transmission in dense wavelength division multiplexing (DWDM) and time division multiplexing (TDM) systems.

As the optical layer extends into the metropolitan and enterprise areas, board real estate is reduced and the component functionality requirement increased. The JDSU miniaturized line of modulators optimizes board space with a footprint reduced by 70%.

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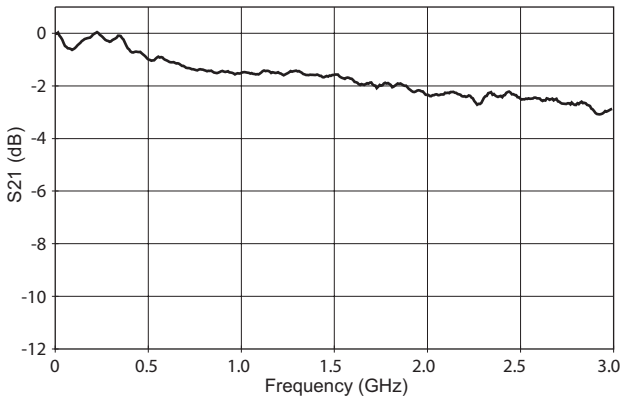
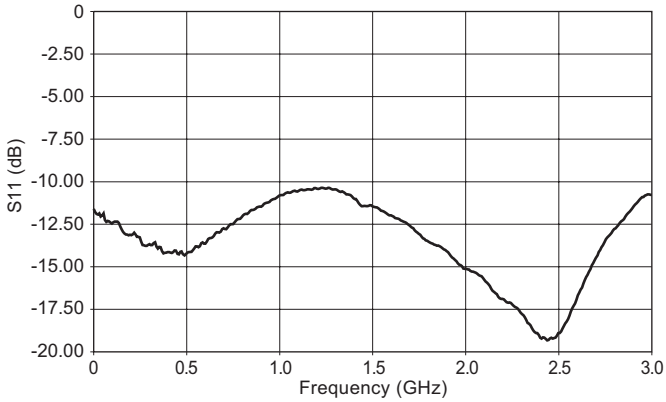
Typical Performance Characteristics

Typical Frequency Response Curve, S21

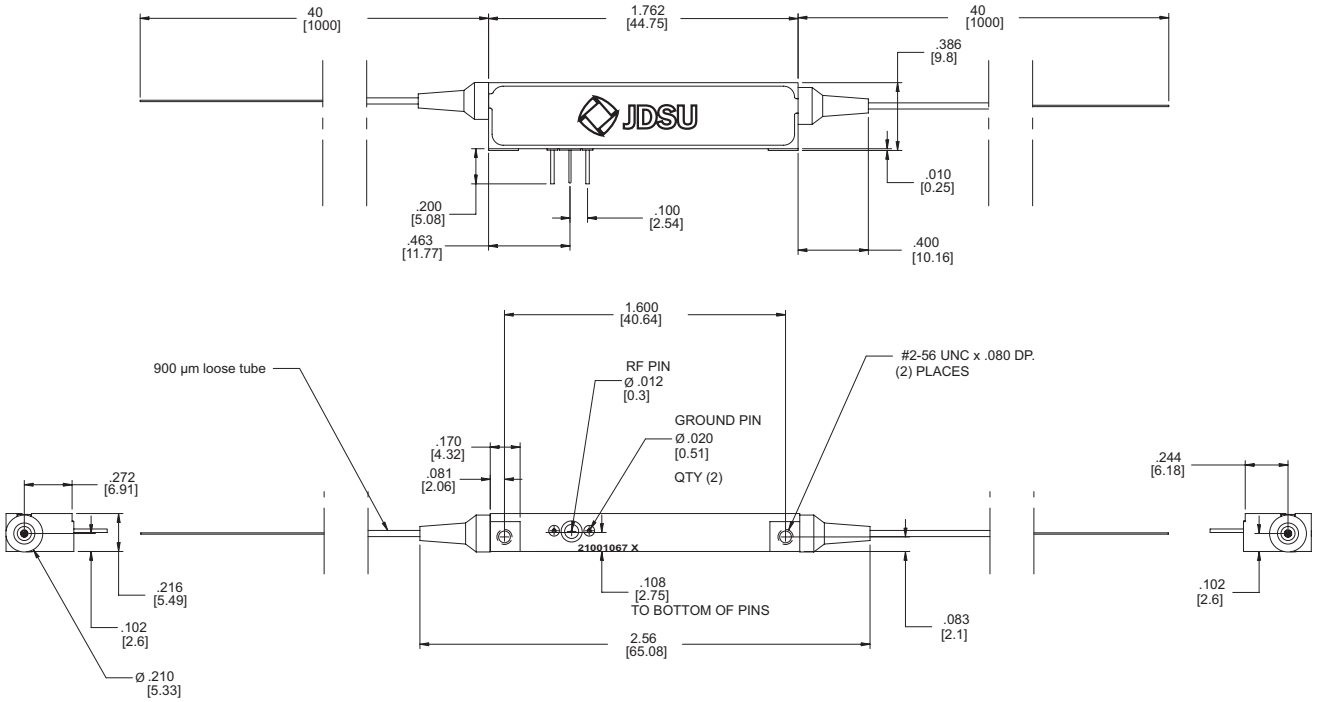


Typical Return Loss Curve, S11



Dimensions Diagram

(Specifications in inches [mm] unless otherwise noted.)



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Specifications

Parameter	Specification
General	
Material	Lithium niobate
Crystal orientation	x-cut, y-propagating
Waveguide process	APE
Optical	
Operating wavelength	1535 to 1565 nm
Insertion loss, no connectors (note[2])	≤5.0 dB
On/off extinction ratio, low frequency	≥20 dB
Optical return loss	≥50 dB
Electrical	
RF port	
Drive voltage, V peak-to-peak, at 2.5 Gb/s PRBS (note[3])	3.6 V typical
$V\pi$ at 100 kHz (note[3])	≤3.7 V
S21 electro-optic bandwidth (-3 dBe) (note[1, 3])	≥2.5 GHz
S11 return loss, 0.03 to 2.50 GHz (note[3])	≤-9.5 dB
RF input power	≤24 dBm
Chirp, alpha parameter	$\|\alpha\|<0.2$
Bias port	
$V\pi$ at DC	N/A
Impedance	N/A
Mechanical	
Input	Fujikura SM-15-P-8/125-UV/UV-400
Output (note[4])	SMF-28
RF connection	Pins
Bias connection	None
Environmental	
Operating temperature	0 to 65 °C
Storage temperature	-40 to 85 °C

1. Relative to 130 MHz.

2. Insertion loss is measured at the maximum of the modulator's transfer function and does not include the 3 dB loss incurred when operating at quadrature.

3. Variances with temperature and wavelength included.

4. PM output fiber also available.

Ordering Information

For more information on this or other products and their availability, please contact your local JDSU account manager or JDSU directly at 1-800-498-JDSU (5378) in North America and +800-5378-JDSU worldwide or via e-mail at customer.service@jdsu.com.

Sample: 10023825

Product Code	Description
10023825	2.5 Gb/s modulator with no optical connectors
10023828	2.5 Gb/s modulator with FC/SPC optical connectors

Note: Other connectors available upon special request. Call JDSU for more information.