

## 2.5 Gb/s Bias-Ready Modulator Butterfly Package



### Key Features

- Designed to work with bias control circuits
- Small-outline package
- 1530 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

### Compliance

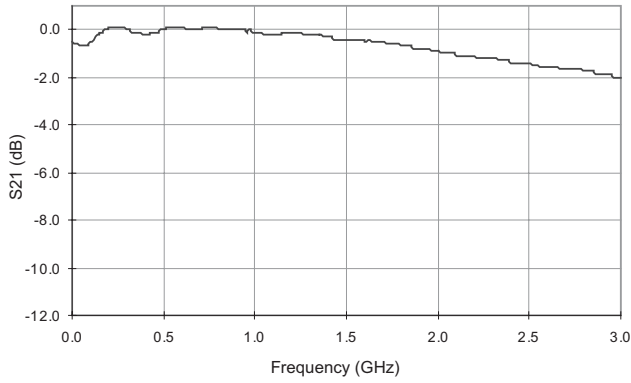
- Telcordia 468

The 2.5 Gb/s bias-ready modulator is a digital device in which the bias point of the interferometer is set using an applied voltage, typically with a control loop, to operate at the half-intensity point (quadrature). This design uses our x-cut technology, which has been field-proven and provides the best stability in the bias point over life. 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.

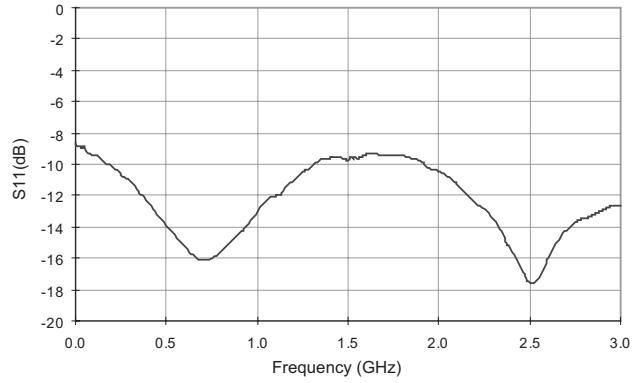
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Typical Performance Characteristics

Typical Frequency Response Curve, S21

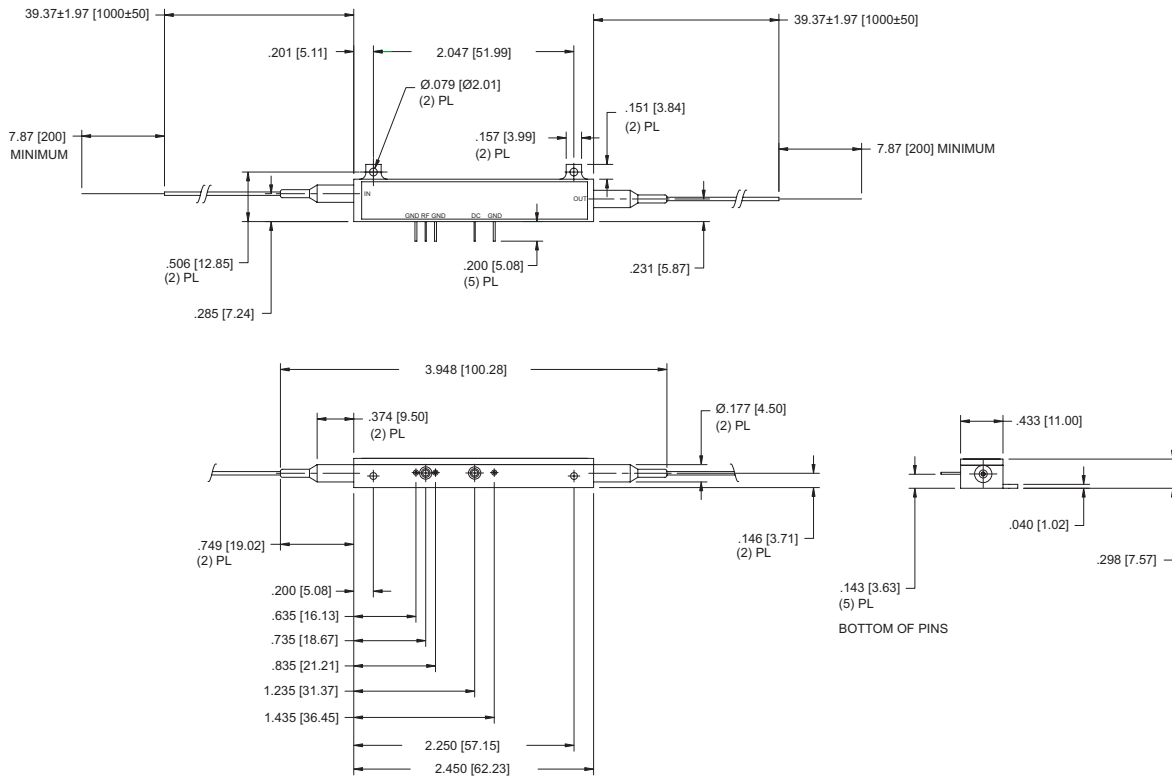


Typical Return Loss Curve, S11



Dimensions Diagram

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



### 3

#### Specifications

#### Parameter

#### Specification

#### General

Material	Lithium niobate
Crystal orientation	x-cut, y-propagating
Waveguide process	Titanium-indiffused

#### Optical

Operating wavelength	1530 to 1565 nm
Insertion loss, no connectors <sup>2</sup>	≤ 4.5 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 <sup>3</sup>	3.9 V typical
$V\pi$ at 100 kHz <sup>3</sup>	≤ 4.5 V
S21 electro-optic bandwidth (-3 dBe) <sup>1,3</sup>	≥ 2.5 GHz
S11 return loss, 0.03 to 2.5 GHz <sup>3</sup>	≤ -8 dB
RF input power	≤ 24 dBm
Chirp, alpha parameter	$ \alpha  < 0.2$

#### Bias port

$V\pi$ at DC	≤ 8.5 V
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#### Mechanical

Input	Fujikura SM-15-P-8/125-UV/UV-400
Output <sup>4</sup>	SMF-28
RF connection	Pins
Bias connection	Pins

#### Environmental

Qualification reference	Telcordia 468
Operating temperature	0 to 65 °C
Storage temperature	-40 to 85 °C

1. Relative to 30 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](mailto:customer.service@jdsu.com).

**Sample: 21044597**

<b>Product Code</b>	<b>Description</b>
21044597	2.5 Gb/s modulator with FC/SPC optical connectors
21044598	2.5 Gb/s modulator with no optical connectors

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

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