

## 40 GHz Lithium Niobate Intensity Modulator, Small Form Factor Housing

LNA6112



### Description

The LNA6112 is a broadband LiNbO<sub>3</sub> z-cut intensity modulator. The electro-optic response (S21) is smooth from DC to 40 GHz with a low V<sub>π</sub>. The input fiber is polarization-maintaining (PM), and the output fiber is standard single mode fiber; both terminated with FC/PC connectors. The key of the input FC/PC connector is aligned to the slow axis of the PM fiber, which is in turn aligned with the extraordinary mode of the chip. The RF input connector is a field-replaceable 1.85 mm (V) connector. The bias voltage is applied through a separate set of pins.

The LNA6112 includes an internal polarizer that is aligned with the extraordinary mode of the chip.

### Specifications

LNA6112			
Optical Specifications	Min	Typical	Max
Operating Wavelength <sup>a</sup>	1525 nm	-	1605 nm
Insertion Loss	-	4.0 dB	5.0 dB
Optical Return Loss	40 dB	-	-
Optical Extinction Ratio	20 dB	-	-
Optical Input Power	-	-	100 mW
Electrical Specifications	Min	Typical	Max
E/O Bandwidth (-3 dB)	30 GHz	35 GHz	-
Operating Frequency Range	DC to 40 GHz (Minimum)		
RF V <sub>π</sub> (@ 1 GHz)	-	5.5 V	6.0 V
DC Bias V <sub>π</sub> (@ 1 kHz)	-	8.5 V	11.0 V
S11 (DC to 30 GHz)	-	-12 dB	-10 dB
S11 (30 to 40 GHz)	-	-10 dB	-8 dB
RF Port Input Power	-	-	24 dBm
Mechanical Specifications			
Crystal Orientation	Z-Cut		
RF Connector	Female 1.85 mm (V)		
Fiber Type	Input: PANDA Polarization Maintaining Output: SMF-28 <sup>†</sup> Single Mode		
Fiber Connectors	2.0 mm Narrow Key FC/PC		
Fiber Lead Length	1.5 m (Typ.)		
Fiber Jacket	Ø900 µm Loose Tube		
Environmental Specifications	Min	Typical	Max
Operating Temperature	0 °C	-	70 °C
Storage Temperature	-40 °C	-	85 °C



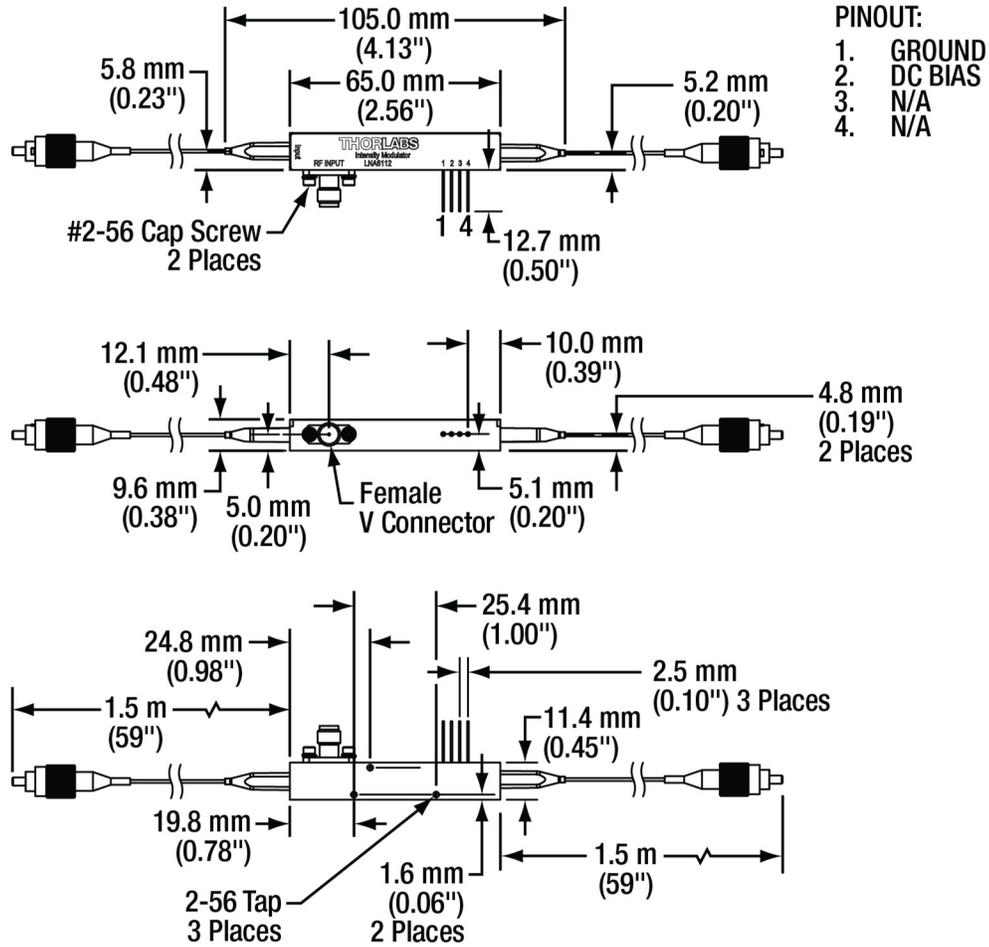
- a. The modulator is designed for use at the specified wavelengths. Using the modulator at other wavelengths may cause an increase in the optical loss that is not covered under warranty. In some cases, this loss can be temporary; for instance, the increase in loss caused by shorter wavelengths can usually be reversed by heating the modulator to 80 °C for an hour.

<sup>†</sup>SMF-28 is a registered trademark of Corning.

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QTN045317-S01, Rev A

## Mechanical Drawing



STANDARD INPUT FIBER	
FIBER TYPE	PM
CONN. TYPE	FC/UPC
KEY	NARROW
KEY ALIGNMENT	SLOW AXIS

STANDARD OUTPUT FIBER	
FIBER TYPE	SM
CONN. TYPE	FC/UPC
KEY	NARROW
KEY ALIGNMENT	N/A