LNX8540 Series: 850 nm 40 GHz $LiNbO_3$ Intensity Modulators

Features

- Operating Wavelength of 850 ± 20 nm
- 20 mW Optical Power Handling
- ≥ 20 dB Extinction Ratio

Applications

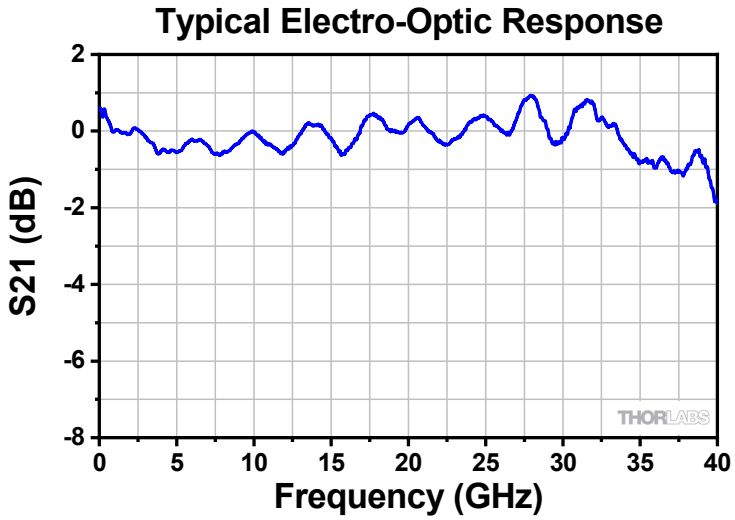
- Quantum Optics
- Analog Modulation up to 40 GHz
- High-Speed Telecommunications
- WDM Transmission
- Test and Measurement

Description

The LNX8540 Series $LiNbO_3$ X-Cut intensity modulator are based on Annealed Proton-Exchanged (APE) waveguide technology and can provide modulation from DC to 40 GHz. A DC voltage is applied to bias port electrodes to control the modulator bias. The input and output fibers are polarization-maintaining (PM). The key of the fiber connectors is aligned to the slow axis of the PM fiber, which is in turn aligned with the extraordinary mode of the chip. The RF port input connector is an Anritsu (V) female spark plug (1.85 mm compatible) connector. Units are available with FC/PC (LNX8540F) and FC/APC (LNX8540A) connectors.

- **LNX8540F** 40 GHz Intensity Modulator, X-Cut, FC/PC Connectors, 830 nm - 870 nm
- **LNX8540A** 40 GHz Intensity Modulator, X-Cut, FC/APC Connectors, 830 nm - 870 nm

Typical Performance Graphs



TYPICAL SPECIFICATIONS

All specifications are at 25 °C unless otherwise specified.

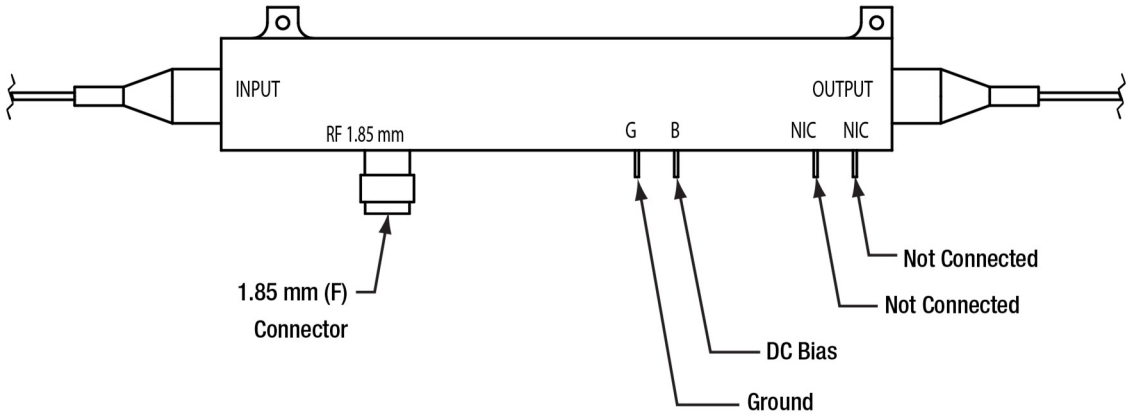
Optical Specifications	Min	Typ.	Max
Operating Wavelength	830 nm	850 nm	870 nm
Insertion Loss (20 mW Input, Peak Bias, Without Connector)	-	4.5 dB	5 dB
Optical Return Loss	30 dB	40 dB	-
Optical Extinction Ratio (20 mW Input, DC)	20 dB	-	-
Optical Power Handling	20 mW	-	-
Chirp	-0.1	0	0.1
Electrical Specifications	**Min**	**Typical**	**Max**
E/O Bandwidth (-3 dB Drop from 1 GHz)	37 GHz	40 GHz	-
Operating Frequency Range	DC to 40 GHz (Minimum)		
RF Port V_π (@ 1 GHz)	-	4.8 V	5.3 V
Bias Port V_π (@ 1 kHz)	-	6.5 V	7 V
S11 (DC to 10 GHz)	-	-	-10 dB
S11 (DC to 40 GHz)	-	-	-5 dB
DC Port Impedance	-	1 MΩ	-
Mechanical Specifications			
Crystal Orientation	X-Cut		
RF Connector	Anritsu (V) Female Spark Plug (1.85 mm Compatible)		
Fiber Type (Input and Output)	Corning PM85-U40D (PANDA Polarization Maintaining)		
Fiber Connectors	2.0 mm Narrow Key, FC/PC (LNX8540F) or FC/APC (LNX8540A), Key Aligned to Slow Axis		
Fiber Lead Length	>0.7 m (Max 1.3 m)		
Fiber Jacket	Ø900 µm Loose Tube		
Environmental Specifications	**Min**	**Typical**	**Max**
Operating Temperature	10 °C	-	60 °C

ABSOLUTE MAXIMUM RATINGS

All specifications are at 25 °C unless otherwise specified.

Parameter	Min	Typical	Max
Storage Temperature	-40 °C	-	85 °C
Optical Input Power	-	-	25 mW
RF Input Power	-	-	25 dBm
DC Bias Voltage	-50 V	-	50 V

MECHANICAL DRAWING



MANUFACTURING AND COMPLIANCE

Manufactured by: Thorlabs Inc., Ann Arbor, MI 48103 USA

All specifications are subject to change without notice.