

10-20 GHz 1310nm Optical Phase Modulator PM-1310-10G series

Overview

PM-1310-10G chip is used for optical phase modulation and spectral broadening. This device is composed of a high polarization extinction ratio polarizer and an integrated electro-optic phase modulator suitable for telecommunication applications. Based on Lithium Niobate (LiNbO₃) material, PM-1310-10G is fabricated with waveguides using High Temperature Proton Exchange (HTPE), and group-velocity matched electrodes at high-frequency band. The PM-1310-10G provides highly reliable performance over wide temperature range and with extended life time in comparison with other competing technologies such as InP and silicon photonics.

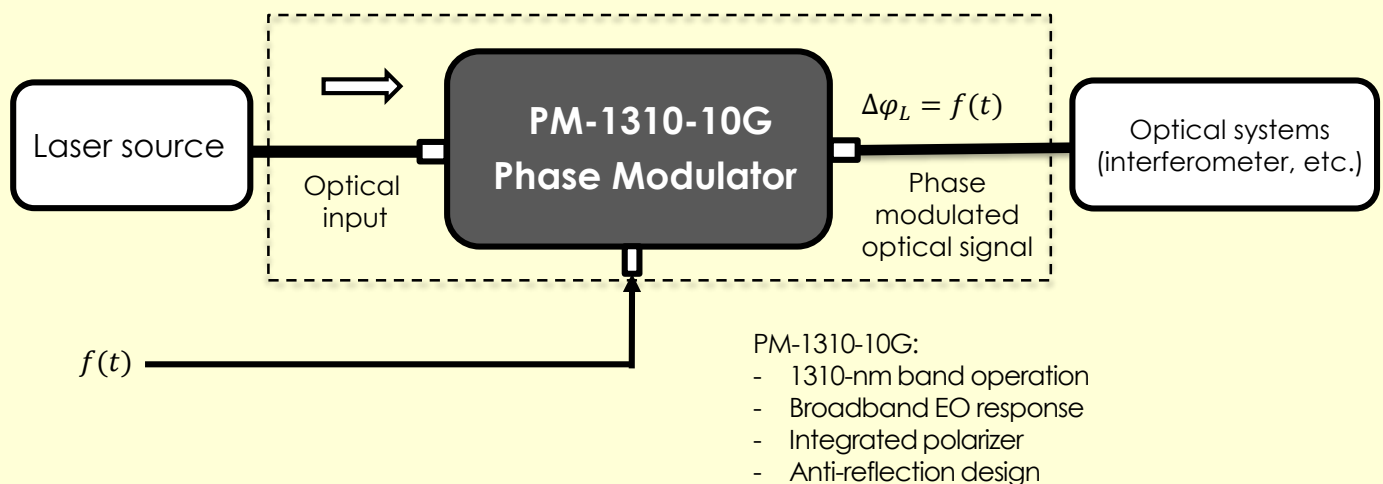
Key Features

- 1310 ± 30 nm operation
- EO bandwidth (-3dB)
 - ≥ 10 GHz, Max. to 20 GHz
- Insertion loss < 4.0 dB
- V_π (RF port, at 1 GHz) < 5 V
- Polarizer-integrated, High-PER

Applications

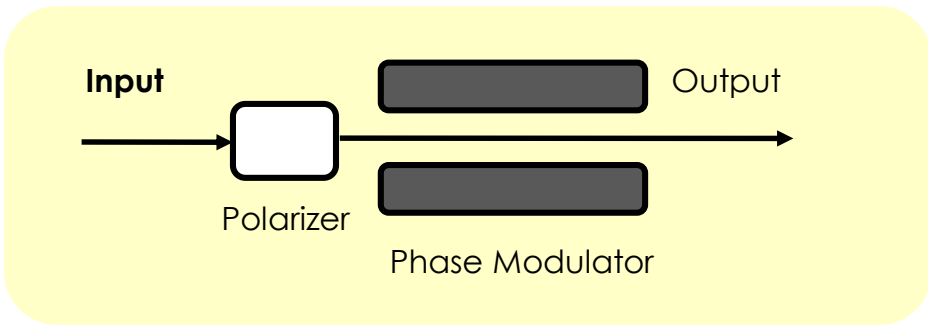
- Short/Long-haul communication
- CWDM applications
- Interferometric sensor
- Phase-shifting key format
- Spectral broadening, shifting, chirping
- Laser phase modulation
- Free-space optical communication (FSOC)

Application Diagram



Specifications			
Model	PM-1310-10G-P	PM-1310-10G-A	PM-1310-10G-S
Substrate	X-cut, Y-propagation Lithium Niobate		
Operation wavelength	1310 ± 30 nm		
Input optical power	70 mW (typ.), 100 mW (max.)		
Chip insertion loss	≤ 3.5 dB	≤ 4.0 dB	≤ 4.5 dB
V _π (RF port, 100kHz)	≤ 3.0 V	≤ 3.5 V	≤ 4.0 V
EO bandwidth (RF Port)	≥ 10 GHz, Max. to 20 GHz		
Polarization extinction ratio	≥ 60 dB		
Optical return loss	≤ -45 dB		
Return loss (RF Port)	≤ -10 dB (DC to 10 GHz)		
RF input power	26 dBm max.		
Impedance (RF Port)	50 ± 5 Ω		
Chip polished angle	6 ± 0.5 degree		
Chip dimension	43.2 mm (L) x 2 mm (W) x 1 mm (H), tolerance 10 %		
Operating temperature	- 30 °C ~ + 70 °C		
Storage temperature	- 50 °C ~ + 80 °C		

Mechanical Drawing



Customization

- Customization for PER higher than 75dB
- Custom phase modulator design for different wavelengths
- ODM/OEM for other LiNbO₃ device, including polarizer, phase modulator and intensity modulator, Y splitter/combiner and anti-reflection