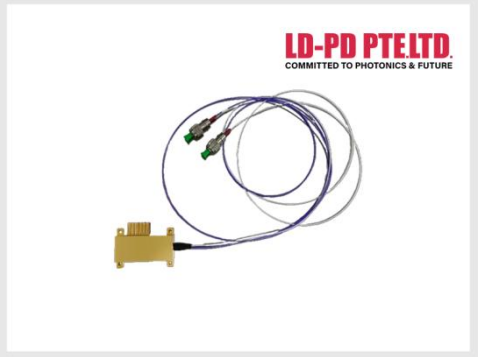
40 GHz TFLN IQ Modulator



Overview

The 40G-Thin Film modulator design is based on a dual parallel structure of 2 Mach-Zehnder modulators embedded in a Mach-Zehnder super-structure. Each internal modulator is designed to have EO bandwidth above 20 GHz. Monitor photodiode is provided for automatic bias control.

Features

- Thin Film X-Cut Lithium Niobate
- Operating at C-Band
- High Bandwidth Operating > 25 GHz
- Compliance with TelcordiaGR-468-Core
- Hermetically Sealed
- Excellent Linearity

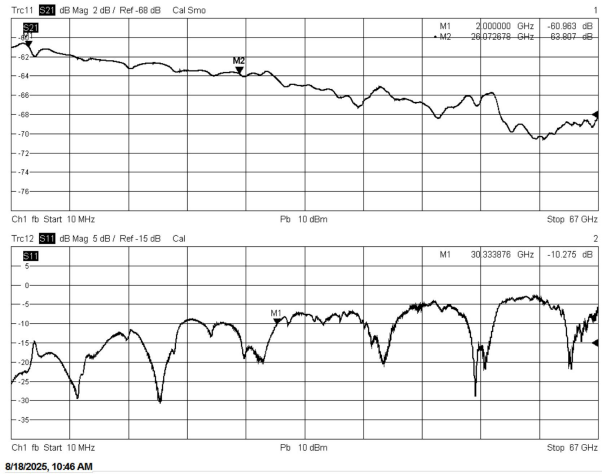
Specifications

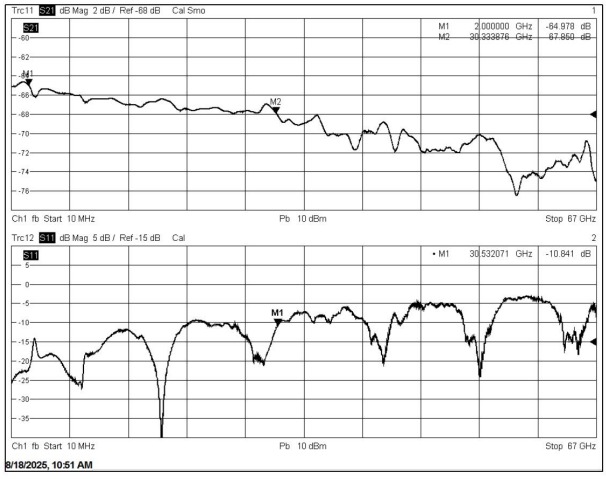
Specifications (Unless otherwise specified, the test temperature is 25°C)

Category	Parameters	Symbol	Unit	Performance	
Optical Features	Operating Wavelength	λ	nm	~1550	
	Optical Extinction Ratio（@DC）	ER	dB	≥25dB	
	Optical Return Loss	ORL	dB	≤-15	
	Optical Insertion Loss	IL	dB	~6	
Electrica Features	3db Bandwidth	S21	GHz	I	Q
				~30	~30
	RF Load	Rm	Ohm	50 ±5	
	Parent RF Vπ（@50 Khz）	Vπ -P	V	3~3.5	

	Child RF Vπ（@50 Khz）	Vπ -C	V	3~3.5
	Heater Resistance	Rh	Ohm	4000 ± 10%
	Parent Heater Pπ（@DC）	Pπ -P	mW	~50
	Child Heater Pπ（@DC）	Pπ -C	mW	~50
	RF Return Loss（100 MHz To 30 Ghz）	S11	dB	-10
Test Condition	Operating Temperature	To	℃	-20~70
Fiber type	PM1550/SMF-28E			

Bandwidth S21 Curve





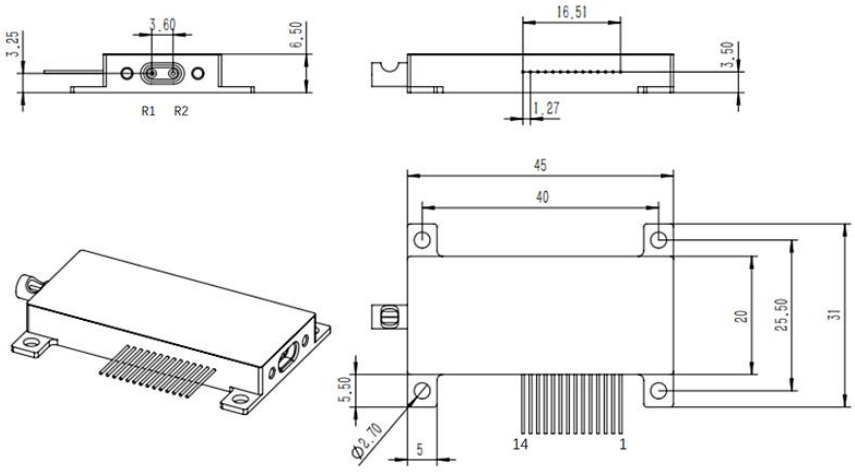
Absolute Maximum Ratings

Parameters	Symbol	Min	Max	Typ	Unit
RF Input Power	Sin	-	-	10	dBm

Heater Bias Voltage		0	5		V
Storage Temperature		-40	85	25	℃
Relative Humidity	RH	5	90	50	%

Dimensions and Pin definitions

Dimensions (mm)



Pin definitions

Pin	Symbol	Description	Pin	Symbol	Description
RF1	R1	RF INPUT Q	7	DC7	I BIAS
RF2	R2	RF INPUT I	8	DC8	IN MPD N
1	DC1	IN MPD P	9	DC9	OUT MPD N
2	DC2	Q BIAS	10	DC10	OUT MPD P
3	DC3	Q BIAS	11	DC11	Q MPD P
4	DC4	P BIAS	12	DC12	Q MPD N
5	DC5	P BIAS	13	DC13	I MPD P
6	DC6	I BIAS	14	DC14	I MPD N

Application

- OFDM Coding
- QPSK Coding
- QAM Coding
- CS-SSB (Carrier Suppressed Single Side Band)
- FMCW LiDAR in Autonomous Driving