Thin film lithium niobate
25 GHz intensity modulator

Description:

Thin film lithium niobate intensity modulator is a high-performance electro-optical conversion device, which is independently developed by our company and has complete independent intellectual property rights. The product is packaged by high-precision coupling technology to achieve ultra-high electro-optical conversion efficiency. Compared with the traditional lithium niobate crystal modulator, this product has the characteristics of low half-wave voltage, high stability, small device size and thermo-optical bias control, and can be widely used in digital optical communication, microwave photonics, backbone communication networks and communication research projects.

Feature:

- RF bandwidth up to 25 GHz
- Low half-wave voltage
- Insertion loss as low as 4.5dB
- Small device size

Parameter C-band

Category	Argument	Sym	Uni	Aointer	
Optical performance (@25°C)	Operating wavelength (*)	λ	nm	X_2: C	
				~1550	
	Optical extinction ratio (@DC) (**)	ER	dB	≥ 20	
	Optical return loss	ORL	dB	≤ -27	
	Optical insertion loss (*)	IL	dB	MAX: 5.5 Typ: 4.5	
Electrical properties (@25°C)	3 dB electro-optical bandwidth (from 2 GHz	S_{21}	GHz	X_1: 1	X_1: 2
				MIN: 10 Typ: 15	MIN: 20 Typ: 25
	Rf half wave voltage (@50 kHz)	V_π	V	MAX: 3.5 Typ: 3.0	
	Heat modulated bias half wave power	P_π	mW	≤ 50	
	Rf return loss (2 GHz to 40 GHz)	S_{11}	dB	≤ -10	
Working condition	Operating temperature	T_O	°C	-20~70	

* customizable

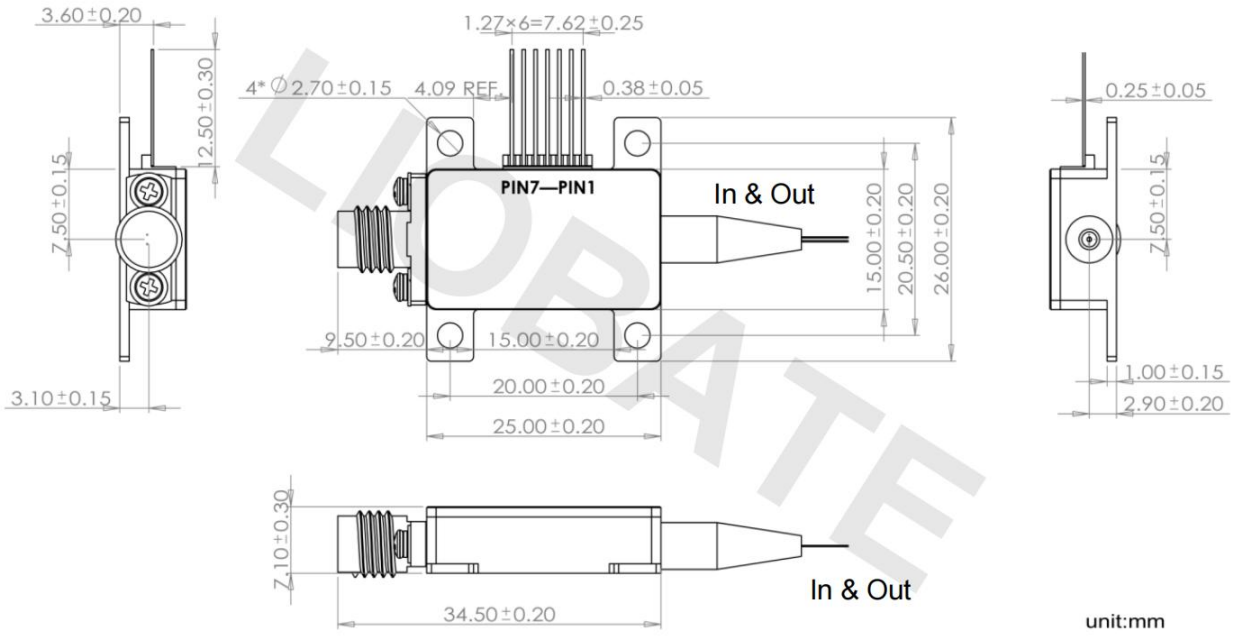
** High extinction ratio (> 25 dB) can be customized.

Damage threshold

If the device exceeds the maximum damage threshold, it will cause irreversible damage to the device, and this type of device damage is not covered by the maintenance service.

Argument	Sym	Selectable	MIN	MAX	Uni
Rf input power	S_{in}	-	18	dBm	S_{in}
Rf input swing voltage	V_{pp}	-2.5	+2.5	V	V_{pp}
Rf input RMS voltage	V_{rms}	-	1.78	V	V_{rms}
Optical input power	P_{in}	-	20	dBm	P_{in}
Thermotuned bias voltage	U_{heater}	-	4.5	V	U_{heater}
Hot tuning bias current	I_{heater}	-	50	mA	I_{heater}
Storage temperature	T_S	-40	85	℃	T_S
Relative humidity (no condensation)	RH	5	90	%	RH

Package dimensions and pin definition (unit: mm)



The REF. dimension will not be measured in batch.

Note: Data marked with REF. Are for reference only.

	Sym	Description
1	MPD0+	Modulator incoming light monitors PD anode
2	MPD0-	Modulator incoming light monitors PD cathode
3	Heater	Thermotuned bias electrode
4	Heater	Thermotuned bias electrode
5	MPD1+	The modulator emits light to monitor the PD anode
6	MPD1-	The modulator emits light to monitor the PD cathode
7	-	undefined
RF	RF Connectors (*)	2.92 mm K connector
In	Incoming fiber	FC/APC, PMF
Out	Outgoing fiber	FC/APC, PMF (The length of the loose fiber optic sleeve is approximately 0.8 meters.)

* Customizable 1.85mm connector or J connector.

S21 test sample (40 GHz typical value)

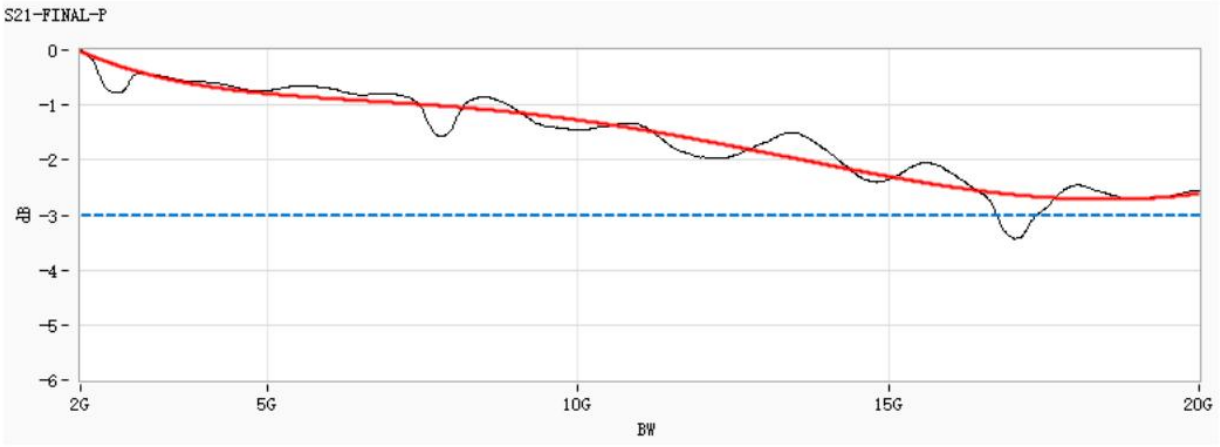


FIG **1: S21**

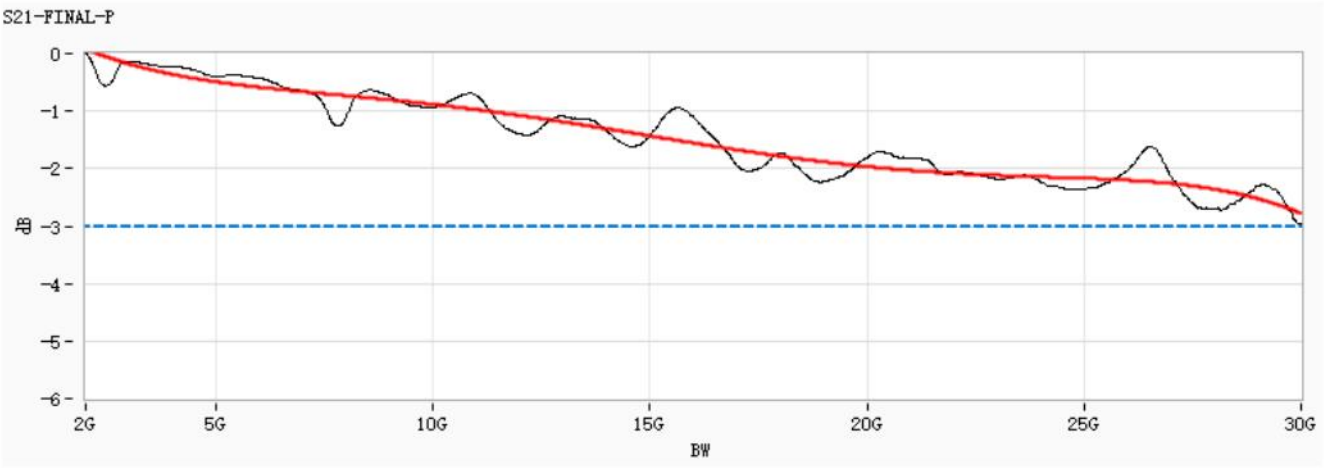


FIG **1: S11**

Electrostatic discharge (ESD) protection

This product contains an ESD sensitive component (MPD) and should be used with the necessary ESD protection measures.

Order information

Thin film lithium niobate 25 GHz intensity modulator

selectable	Description	selectable
X_1	3 dB electro-optical bandwidth	1 or 2

To purchase this product, inquire about lead times or specific customization options, please contact the Sales Manager or email to: bjrofoc@rof-oc.com