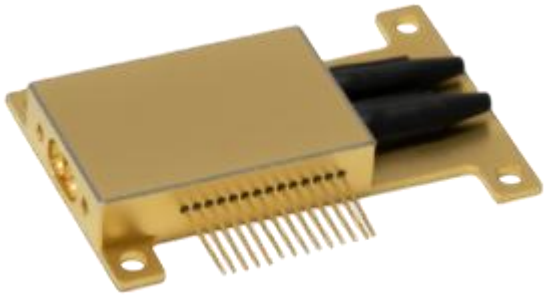
Description

modulator device, which was developed in-house and showcased unparalleled performance. This device features thermal-optic bias control interface and is manufactured using advanced coupling and micro-electronic processes, and realizes high opto-electric conversion efficiency on TFLN. Our products provide superior characteristics on half-wave voltage, stability, and device size, significantly enhancing critical performance in digital optical communications and telecommunication networks.

Product Description

C-band TFLN 20/30/40 GHz IQ modulator device.



Features

- Bandwidth up-to 40 GHz
- Low half-wave voltage 3.5 V
- Low insertion loss ≤ 8 dB

Specifications

Category	Parameters	Symbol	Unit	Performance		
Optical Features	Operating Wavelength	λ	nm	~1550		
	Optical Extinction Ratio (@ DC)	ER	dB	≥ 20		
	Optical Return Loss	ORL	dB	≤ -27		
	Optical Insertion Loss (*)	IL	dB	≤ 8		
Electrical Features	3 dB Bandwidth (from 2 GHz)	S21	GHz	X1: 2 Min: 18 Typ: 20	X1: 3 Min: 26 Typ: 30	X1: 4 Min: 36 Typ: 40
	Child RF Vπ (@ 50 kHz)	Vπ-C	V	3 ~ 3.5		
	Heater Resistance	Rh	Ohm	4000 ± 10%		
	Heater Pπ(@ DC)	Pπ	mw	≤ 40		
	RF Return Loss (10 MHz to 40 GHz)	S11	dB	≤ -10		
Work Condition	Operating Temperature	TO	℃	-10~60		

* Lower insertion loss is available for customization.

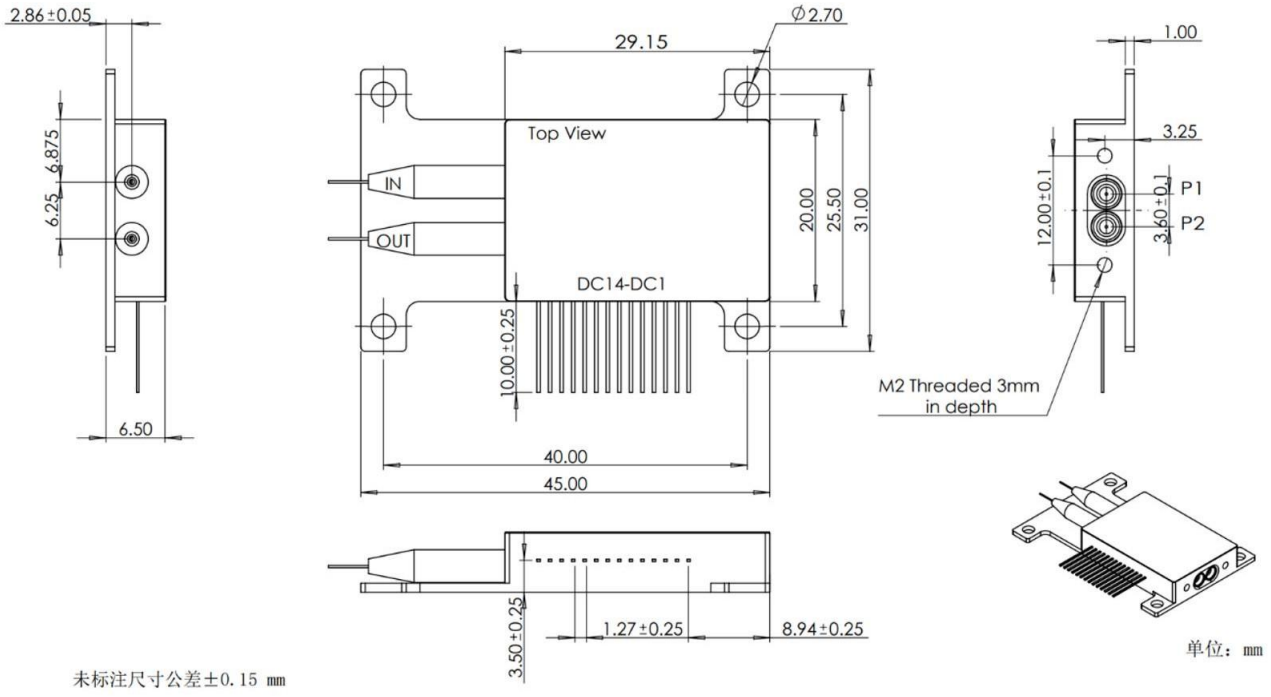
Absolute Maximum Ratings

Working over maximum ratings could significantly reduce device reliability and cause irreversible damage.

Parameters	Symbol	Min.	Max.	Unit
RF Input Power (*)	S_{in}	-	23	dBm
RF Swing Voltage (*)	V_{pp}	-	8.93	V
RF RMS Voltage (*)	V_{rms}	-	3.16	V
Heater Bias Voltage	U_{heater}	-	15	V
Storage Temperature	T_s	-40	85	℃
Relative Humidity (no condensation)	RH	5	90	%

* Higher RF input power is customizable.

Package and Pins (Unit: mm)



PIN	Symbol	Description	PIN	Symbol	Description
RF1	P1	RF Input "I"	**7**	DC7	Parent MZM bias2
RF2	P2	RF Input "Q"	**8**	DC8	N/A
1	DC1	N/A	**9**	DC9	P MZM MPD anode
2	DC2	I1(Child MZM I) bias	**10**	DC10	P MZM MPD cathode
3	DC3	I2(Child MZM I) bias	**11**	DC11	Q MZM MPD anode
4	DC4	Q1(Child MZM Q) bias	**12**	DC12	Q MZM MPD cathode
5	DC5	Q2(Child MZM Q) bias	**13**	DC13	I MZM MPD anode
6	DC6	Parent MZM bias1	**14**	DC14	I MZM MPD cathode

Notes:

1. Both input and output are PM fibers, FC/APC connectors.
2. RF adaptor type is SSMP (i.e. SMPM or GPPO).

S21 Measurement (20GHz Typical)

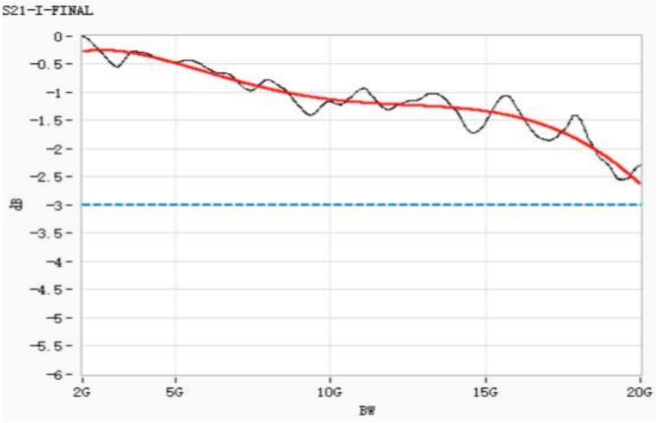


Figure : S21

Ordering Code : HC-X_1C8PPBC61

Optional Model	Description	Optional Code
X_1	RF 3dB Bandwidth	2 or 3 or 4