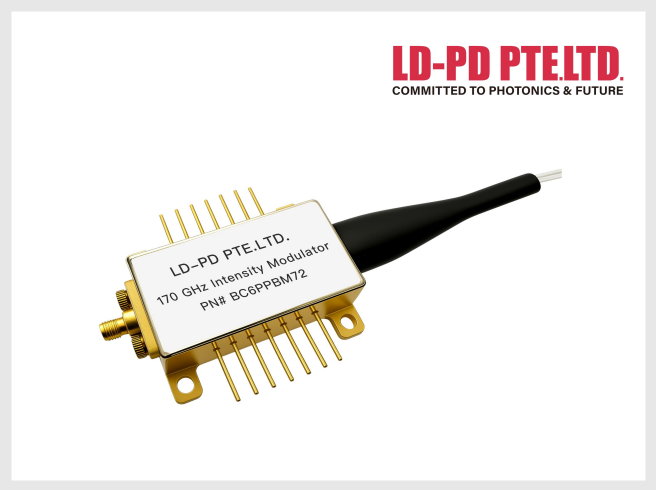
170GHz Ultra-High Bandwidth Optical Intensity Modulator



Description

The BC6PPBM72 is a high-performance integrated thin-film Lithium Niobate (TFLN) Mach-Zehnder Interferometer (MZI) modulator. It is specifically designed for C-band operation, featuring an ultra-high bandwidth of 170GHz with high speed, low half-wave voltage Vπ, and high linearity.

Features

- Ultra-High Electro-Optic Bandwidth: Up to 170GHz.
- Low Drive Voltage: Low RF half-wave voltage for efficient modulation.
- Compact Structure: Small footprint for integration into various systems.

Specifications

Technical Specifications

Parameter	Symbol	Min.	Typ.	Max.	Unit
Operating Wavelength	OW	-	1550	-	nm
Optical Insertion Loss	IL	-	8	9.5	dB
Electro-Optic Bandwidth	S21	-	170	-	GHz

Parameter	Symbol	Min.	Typ.	Max.	Unit
RF Half-wave Voltage (@50KHz)	Vpi	-	-	5	V
Extinction Ratio (@DC)	ER	20	-	-	dB
Input Optical Power	OPin	-	-	+20	dBm
RF Input Power	EPin	0	-	+17	dBm
Bias Voltage Range	Vbias	-	-	+5	V
RF Input Impedance	Zin-RF	-	50	-	Ohm
Operating Temperature	OT	0	25	70	°C
Storage Temperature	ST	-40	-	85	°C

S21 test sample image (170 GHz typical)

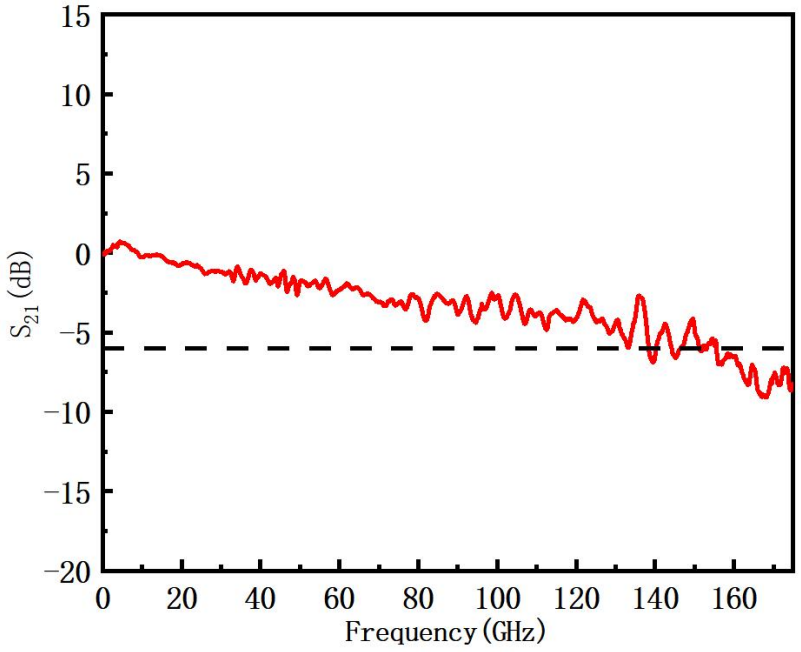


Figure 1: S21

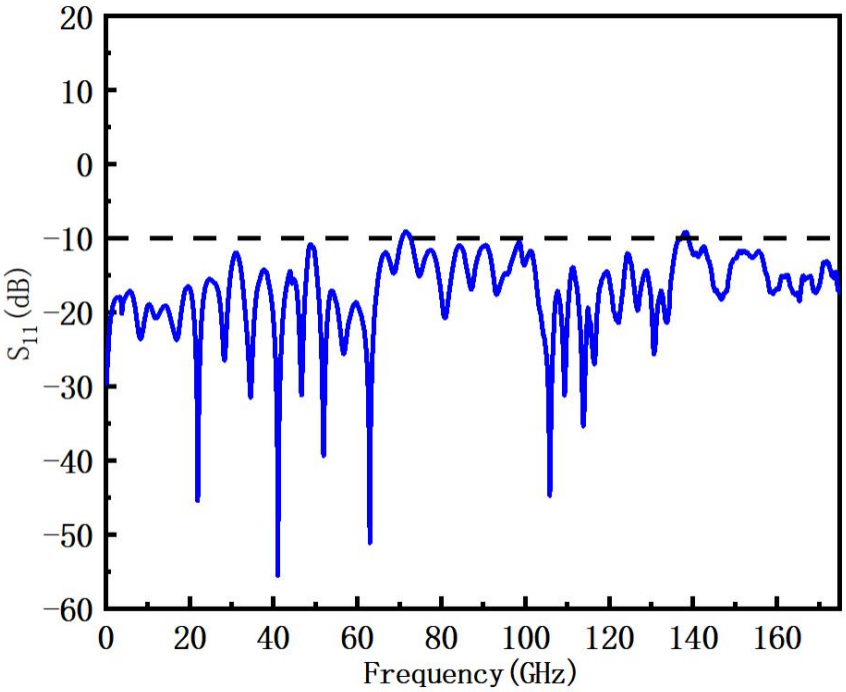


Figure 1: S11

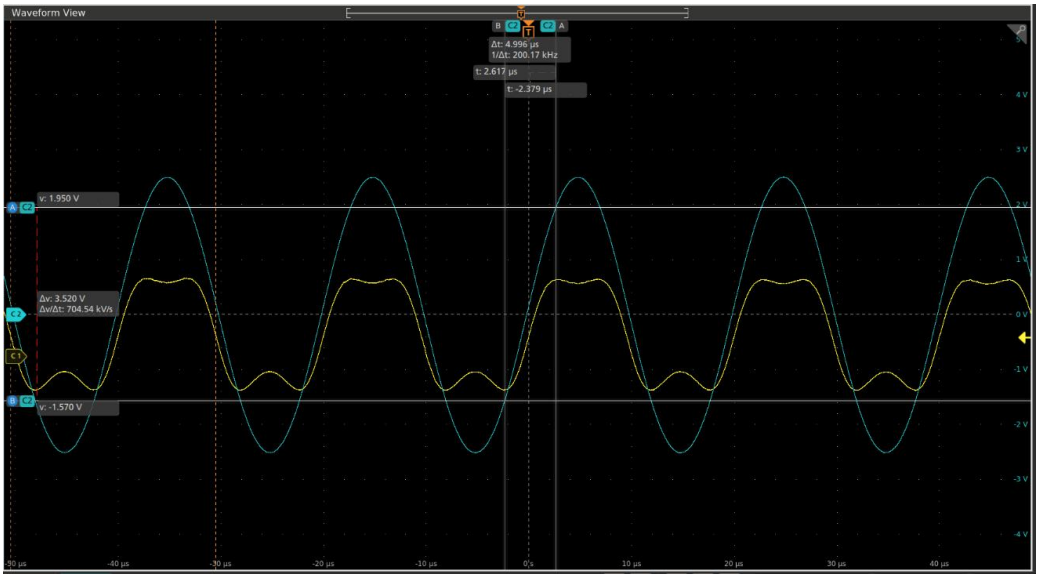


Figure 3:Modulator RF-Vπ Test Results (Typical Values)

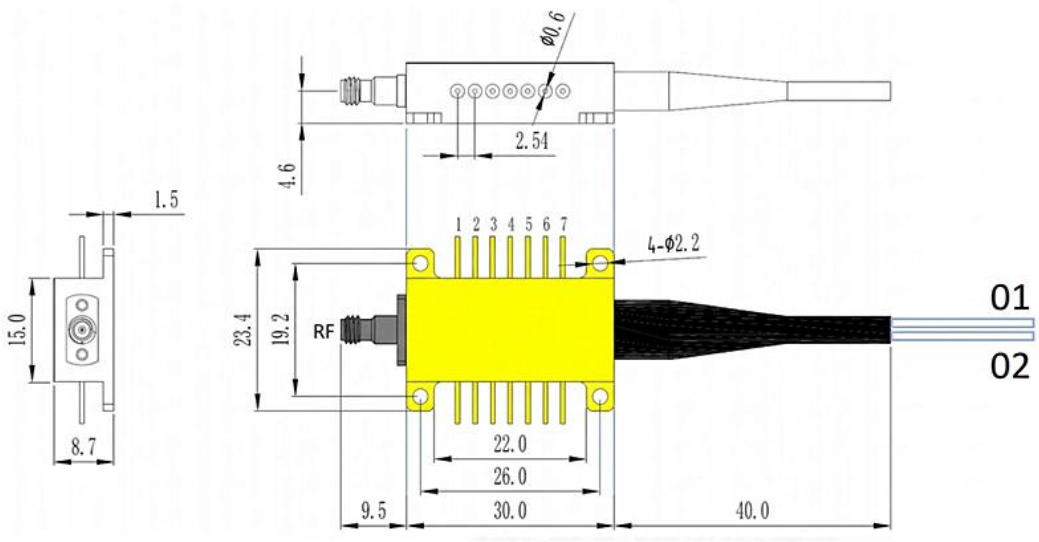
Electrostatic Discharge (ESD) Protection

This product contains ESD-sensitive components (MPDs). Necessary ESD protection measures must be taken when using it.



Dimensions and Pin definitions

Package dimensions and pin definition (unit: mm)



*Note:

1.Unless other wise specified tolerance:±0.15 mm;

2.The REF.dimension will not be measured in batch.

Pin Definitions

Pin No.	Definition	Remarks
1	NC	-
2	NC	-
3	Heater+	Bias Voltage Positive (+)
4	Heater-	Bias Voltage Negative (-)
5	NC	-
6	MPD0+	MPD0 Anode (GND)
7	MPD0-	Output Optical Power onitoring MPD0 (+3V)
RF	RF Input	1.0mm Female Connector
01	PM Fiber Output	Standard FC/APC
02	PM Fiber Input	Standard FC/APC

Precautions:

Electrostatic Discharge (ESD) Protection: Handle with proper ESD precautions to prevent damage.
RF Input: Do not apply DC voltage to the RF port. (Ensure DC block is used if necessary).
RF Power: Maximum RF input power should not exceed +17 dBm.
Heater Control: When adjusting the heater voltage, do not exceed +5V. The current must be limited to 50 mA.

Application

- High-Speed Modulation: Supports OOK, PAM-N, and DMT formats.
- Test & Measurement: Characterization of high-speed optical chips and devices.
- Scientific Research: Optical transmission, optical interconnects, and microwave photonics.