TFLN Intensity Modulator Die

Features

※ **Single-terminal GSG RF signal**

※ **Up-to 67 GHz EO bandwidth**

※ **Low V_π**

Optical / Electrical Characteristics(1310nm)

Category	Parameter	Sym.	Unit	Performance		
Optical Features	Operating Wavelength	λ	nm	X_2 : O		
				1310		
	Optical Extinction Ratio(@ DC)	ER	dB	≥ 20		
	Polarization Extinction Ratio (@ DC)	PER	dB	≥ 25		
	Optical Return Loss*	ORL	dB	≤ -27		
	Optical Insertion Loss	IL	dB	≤ 5.0		
	Mode Field Diameter	MFD	μm	9		
Electrical Features	3 dB Bandwidth (from 2 GHz)	S_{21}	GHz	X_1 : 2	X_1 : 5	X_1 : 7
				20	50	67
	RF Load	R_m	Ohm	50 ± 5		
	RF V_π (@ 50 KHz)	V_π	V	X_3 : 4		
				Max: 2.5 Typ: 2.0		
	Heater Resistance	R_{heater}	Ohm	80 ± 10		
	RF Return Loss (10 MHz up-to 67 GHz)**	S_{11}	dB	≤ - 10		
Work Condition	Operating Temperature	T_O	°C	-20 to 70		

Note:

* With index matching fluids

** Depends on Die type

Optical / Electrical Characteristics(1550nm)

Category	Parameter	Sym.	Unit	Performance		
Optical Features	Operating Wavelength	λ	nm	X_2 : C		
				1550		
	Optical Extinction Ratio(@ DC)	ER	dB	≥ 20		
	Polarization Extinction Ratio (@ DC)	PER	dB	≥ 25		
	Optical Return Loss*	ORL	dB	≤ -27		
	Optical Insertion Loss	IL	dB	≤ 5.0		
	Mode Field Diameter	MFD	μm	9		
Electrical Features	3 dB Bandwidth (from 2 GHz)	S_{21}	GHz	X_1 : 2	X_1 : 5	X_1 : 7
				20	50	67
	RF Load	R_m	Ohm	50 ± 5		
	RF Vπ (@ 50 KHz)	Vπ	V	X_3 : 6		
				Max: 3.5 Typ: 3.0		
	Heater Resistance	R_{heater}	Ohm	80 ± 10		
	RF Return Loss (10 MHz up-to 67 GHz)**	S_{11}	dB	≤ - 10		
Work Condition	Operating Temperature	T_O	°C	-20 to 70		

Note:

* With index matching fluids

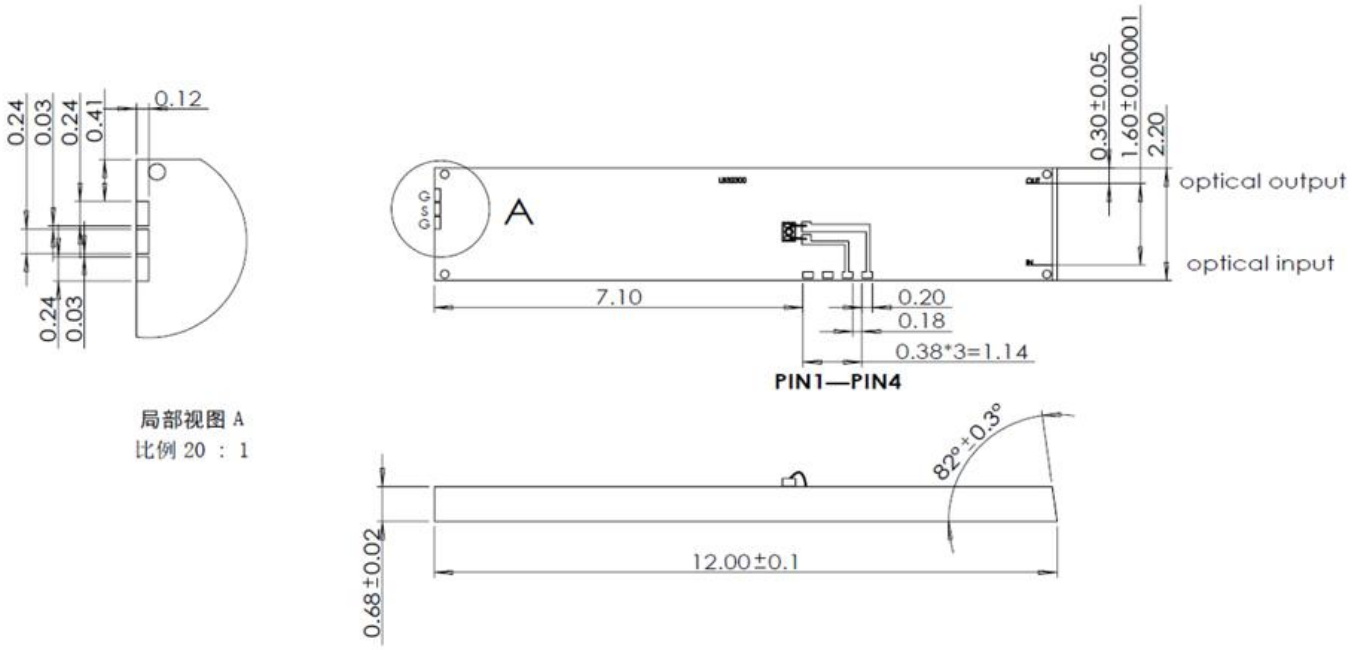
** Depends on Die type

Absolute Maximum Rating

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

Parameter	Symbol	Min	Max	Unit
RF Input Power	S_{in}	-	23	dBm
Maximum RF Swing Voltage	V_{pp}	-4.465	4.465	V
Heater Bias Voltage		0	4.0	V
Storage Temperature		-40	85	℃
Relative Humidity (no condensation)	RH	5	90	%

Dimension and Pins (Unit: mm)



Pad Definition

Interface	Symbol	Note
G	RF-G	RF GND pad
S	RF-S	RF signal pad
G	RF-G	RF GND pad
PIN 1	Heater+	Heater positive electrode
PIN 2	Heater-	Heater negative electrode
PIN 3	MPD+	MPD Anode
PIN 4	MPD-	MPD Cathode

***MPD is the complementary output power monitoring PD for bias control.**

Typical Response Curves

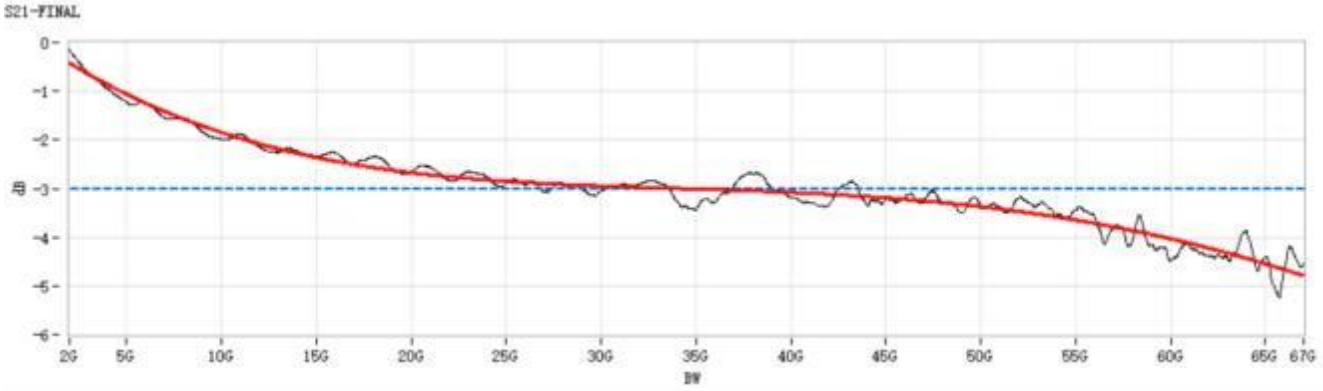


Fig . 1 S21-20GHz Typical

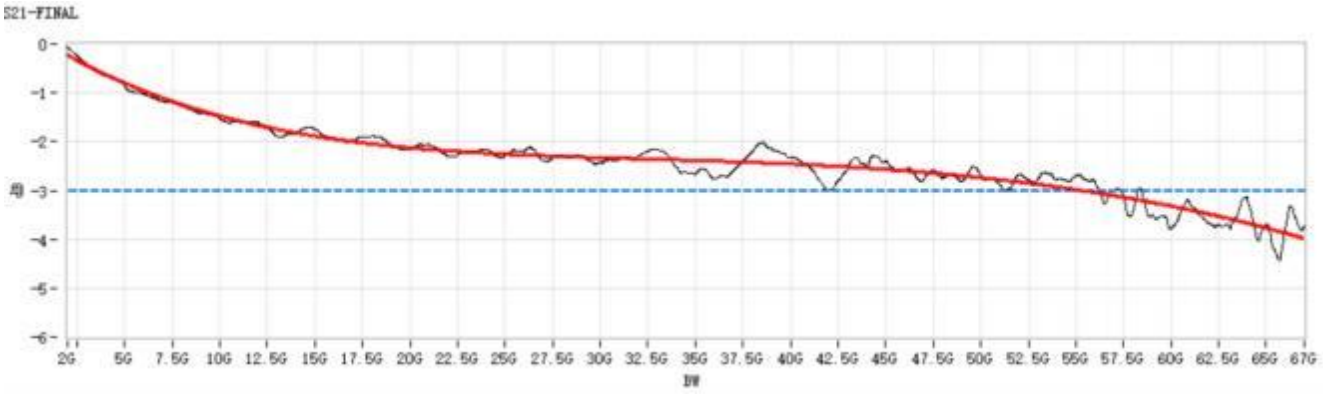


Fig . 2 S21-50GHz Typical

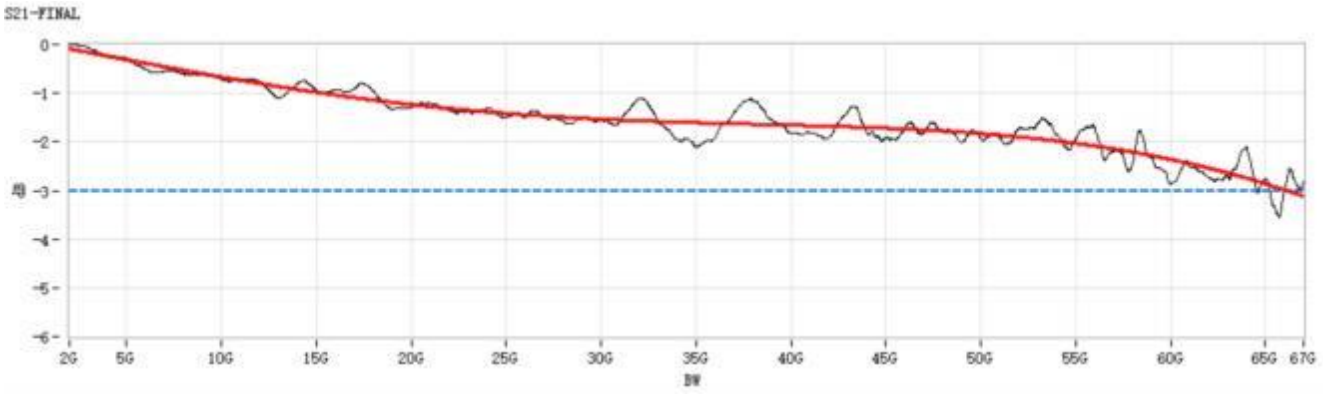


Fig . 3 S21-67GHz Typical

Ordering Information

P/N: NY- X1X2 508 X3 MC1

Optional model	Description
X1	RF 3dB Bandwidth (2 or 5 or 7)
X2	Working wavelength (O or C)
X3	RF Vpi (4 or 6)

Product description: LiNbO3 TFLN intensity modulator Die.

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