

TITLE 6.4G T12R12 mini SN-MT	DOC No.NRFD-20260417100-001	
	REVISION : 01	AUTHORIZED BY : Albert Lin
	DATE : 2026.04.17	CLASSIFICATION : Optics Patch Code

1. Production Features

- Wide Operating Temperature(0°C~70°C)
- 12x6.4Gbps 850nm VCSEL-based Transmitter
- Maximum Link Length of 50m via Multimode Fiber (MMF)
- Differential AC coupled TX input
- Differential AC coupled RX output
- Mini-SNMT/UPC pig-tails
- Support EQ/DEMP/RX SWING adjust
- Support DDMI TEMP readout

2. Production Description

3.1 Product Name and Series Numbers

6.4G T12R12 mini SN-MT

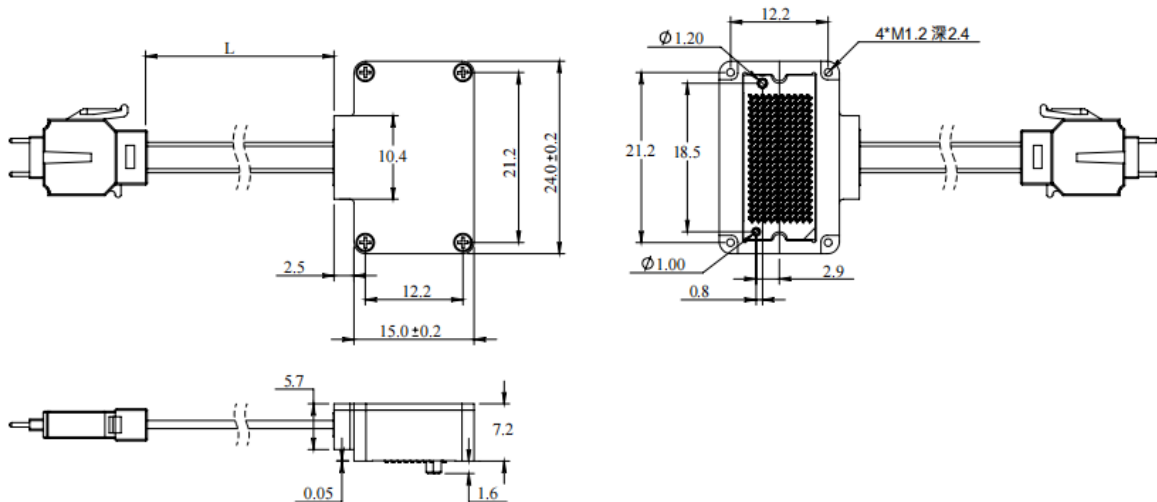
JPC PN	Data Rate	Wavelength (nm)	Distance	Power (dBm)	Sen. (dBm)	Connector	Temp.
PAB**RM00**M-1	6.4G	850 nm	50m	-8.4~2.4	-11.1	MMF	C

Note-1 : ** Indicates the customer code.

Note-2 : ** Indicates the length.

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3.2 Dimension, Materials, Plating and Marking



L Tolerance Table	
L<7M	L+100/-0mm
L≥7M	L+2%L/-0mm

3. Product Specification

Absolute Maximum Ratings

Parameters	Symbol	Min	Max	Units
Case Storage Temperature	T _{storage}	-40	85	°C
Relative Humidity	RH	0	85	%

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Recommended Operating Conditions

Parameters	Symbol	Min	Max	Units
Case Temperature	T _c	0	70	°C
Power Supply Voltage	V _{cc}	3.135	3.465	V
Signaling Rate each Channel		6.4		Gbps
Receiver Differential Data Output		100		Ohm
Operating Distance	D		50	m
Power Consumption	P _c		3.5	W
Supply Current	I _{cc}		1060	mA

Transmitter Characteristics, Optical / Electrical

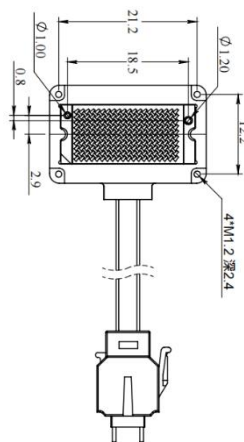
Parameters	Symbol	Min	Typical	Max	Units
Signaling rate, each lane (range)	GBb		6.4		GBb
Center Wavelength	λ	840	850	860	nm
RMS Spectral Width	SW			0.6	nm
Average launch power, each lane	P _f	-8.4		2.4	dBm
Optical Modulation Amplitude (OMA), each lane	TxOMA	-6.4		3	dBm
Average launch power of OFF transmitter, each lane				-30	dBm
Extinction ratio	ER	3			dB

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Receiver Optical Characteristics / Electrical

Parameters	Symbol	Min	Typical	Max	Units
Signaling rate, each lane (range)	GBb		6.4		GBb
Center Wavelength	λ	840		860	nm
Damage threshold		3.4			dBm
Average power at receiver input, each lane		-10.3		2.4	dBm
Receive power, each lane (OMA)				3	dBm
Receiver sensitivity (OMA)	S _{OMA}			-11.1	dBm
Receiver reflectance				-12	dB
LOS Assert	LOS _A	-30			dBm
LOS De-Assert	LOS _D			-11	dBm
LOS Hysteresis		0.5			dB

5.Pin Assignments



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Electrical Pin Definition

20	19	18	17	16	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	
GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	RXSD	VCC	A
GND	Z11N	Z11P	GND	GND	Z08N	Z08P	GND	GND	Z05N	Z05P	GND	GND	Z02N	Z02P	GND	GND	GND	GND	VCC	B
GND	GND	GND	Z10N	Z10P	GND	GND	Z07N	Z07P	GND	GND	Z04N	Z04P	GND	GND	Z01N	Z01P	GND	GND	VCC	C
GND	Z12N	Z12P	GND	GND	Z09N	Z09P	GND	GND	Z06N	Z06P	GND	GND	Z03N	Z03P	GND	GND	GND	GND	GND	D
GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	SDA	GND	GND	E
GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	SCL	GND	GND	F
GND	A12N	A12P	GND	GND	A09N	A09P	GND	GND	A06N	A06P	GND	GND	A03N	A03P	GND	GND	GND	GND	GND	G
GND	GND	GND	A10N	A10P	GND	GND	A07N	A07P	GND	GND	A04N	A04P	GND	GND	A01N	A01P	GND	GND	VCC	H
GND	A11N	A11P	GND	GND	A08N	A08P	GND	GND	A05N	A05P	GND	GND	A02N	A02P	GND	GND	GND	GND	VCC	I
GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	GND	LDIS	INTL	RESETL	VCC	J

Host PCB	Logic	Symbol	Description	Notes
A1		VCC	+3.3V Power Supply	
B1		VCC	+3.3V Power Supply	
C1		VCC	+3.3V Power Supply	
H1		VCC	+3.3V Power Supply	
I1		VCC	+3.3V Power Supply	
J1		VCC	+3.3V Power Supply	
A2	LVTTL-O	RXSD	RX Signal Detected	
J2	LVTTL-I	RESETL	Input.	
E3	LVC MOS-I/O	SDA	2-Wire Serial Interface Data	
F3	LVC MOS-I/O	SCL	2-Wire Serial Interface Clock	
J3	LVTTL-O	INTL	Interrupt output	
J4	LVTTL-I	LDIS	Input.	
C4	CML-I	Z01P	Transmitter Non-Inverted Data Input	
C5	CML-I	Z01N	Transmitter Inverted Data Input	
B6	CML-I	Z02P	Transmitter Non-Inverted Data Input	
B7	CML-I	Z02N	Transmitter Inverted Data Input	

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D6	CML-I	Z03P	Transmitter Non-Inverted Data Input	
D7	CML-I	Z03N	Transmitter Inverted Data Input	
C8	CML-I	Z04P	Transmitter Non-Inverted Data Input	
C9	CML-I	Z04N	Transmitter Inverted Data Input	
B10	CML-I	Z05P	Transmitter Non-Inverted Data Input	
B11	CML-I	Z05N	Transmitter Inverted Data Input	
D10	CML-I	Z06P	Transmitter Non-Inverted Data Input	
D11	CML-I	Z06N	Transmitter Inverted Data Input	
C12	CML-I	Z07P	Transmitter Non-Inverted Data Input	
C13	CML-I	Z07N	Transmitter Inverted Data Input	
B14	CML-I	Z08P	Transmitter Non-Inverted Data Input	
B15	CML-I	Z08N	Transmitter Inverted Data Input	
D14	CML-I	Z09P	Transmitter Non-Inverted Data Input	
D15	CML-I	Z09N	Transmitter Inverted Data Input	
C16	CML-I	Z10P	Transmitter Non-Inverted Data Input	
C17	CML-I	Z10N	Transmitter Inverted Data Input	
B18	CML-I	Z11P	Transmitter Non-Inverted Data Input	
B19	CML-I	Z11N	Transmitter Inverted Data Input	
D18	CML-I	Z12P	Transmitter Non-Inverted Data Input	
D19	CML-I	Z12N	Transmitter Inverted Data Input	
H4	CML-O	A01P	Receiver Non-Inverted Data Output	
H5	CML-O	A01N	Receiver Inverted Data Output	
I6	CML-O	A02P	Receiver Non-Inverted Data Output	
I7	CML-O	A02N	Receiver Inverted Data Output	
G6	CML-O	A03P	Receiver Non-Inverted Data Output	

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G7	CML-O	A03N	Receiver Inverted Data Output	
H8	CML-O	A04P	Receiver Non-Inverted Data Output	
H9	CML-O	A04N	Receiver Inverted Data Output	
I10	CML-O	A05P	Receiver Non-Inverted Data Output	
I11	CML-O	A05N	Receiver Inverted Data Output	
G10	CML-O	A06P	Receiver Non-Inverted Data Output	
G11	CML-O	A06N	Receiver Inverted Data Output	
H12	CML-O	A07P	Receiver Non-Inverted Data Output	
H13	CML-O	A07N	Receiver Inverted Data Output	
I14	CML-O	A08P	Receiver Non-Inverted Data Output	
I15	CML-O	A08N	Receiver Inverted Data Output	
G14	CML-O	A09P	Receiver Non-Inverted Data Output	
G15	CML-O	A09N	Receiver Inverted Data Output	
H16	CML-O	A10P	Receiver Non-Inverted Data Output	
H17	CML-O	A10N	Receiver Inverted Data Output	
I18	CML-O	A11P	Receiver Non-Inverted Data Output	
I19	CML-O	A11N	Receiver Inverted Data Output	
G18	CML-O	A12P	Receiver Non-Inverted Data Output	
G19	CML-O	A12N	Receiver Inverted Data Output	
Others		GND	Ground	

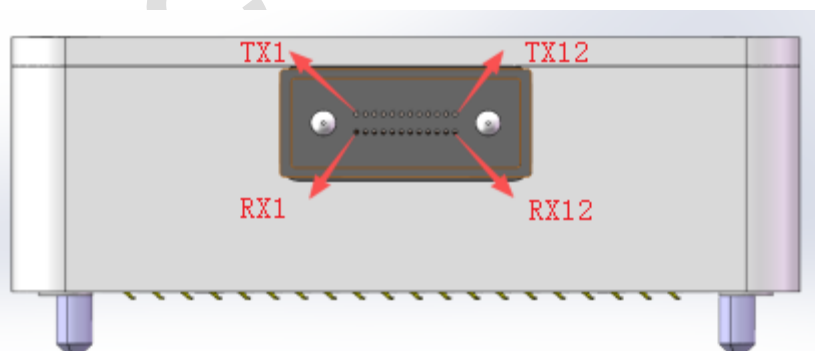
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Digital Diagnostic Specification

Parameter	Symbol	Min	Typical	Max	Units	Notes
Transceiver Case Temperature	DMI_Temp	-3		+3	°C	Over operating temp
Supply voltage monitor absolute error	DMI _VCC	-3%		+3%	V	Full operating range
Channel RX power monitor absolute error	DMI_RX	-3		+3	dB	Per channel
Channel Bias current monitor	DMI_Ibias	-10%		+10%	mA	Per channel
Channel TX power monitor absolute error	DMI_TX	-3		+3	dB	Per channel

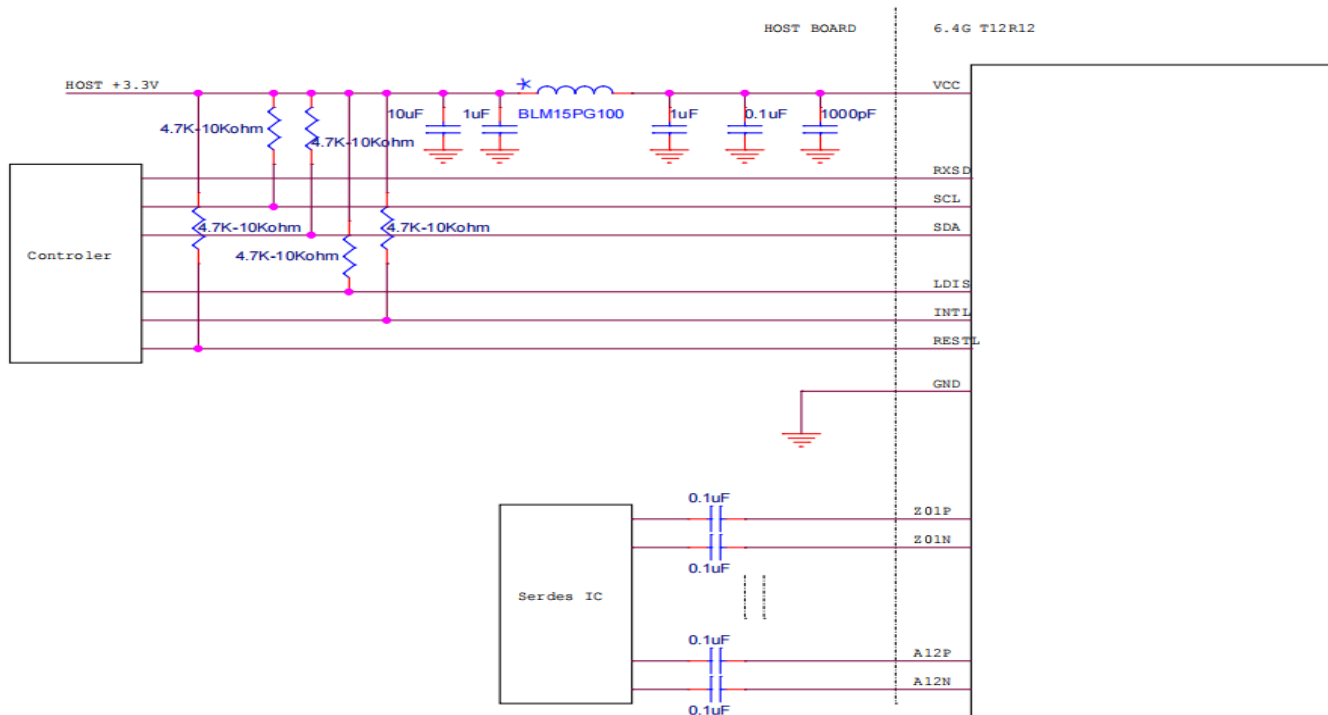
Optic Interface

There are 12-CH TX and 12-CH RX.



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Application Circuit



6.Modification History

Rev.	Comments	Date	Originator	Approval
01	Preliminary Draft	2026.04.17	Albert Lin	Mike Sun