

GPON OLT SFP Class B+

GS9115T-CN-C+ Product Specification

FEATURES

- Single fiber bi-directional data links asymmetric TX 2488Mbps / RX1244Mbps application
- 1490nm continuous-mode DFB laser transmitter and 1310nm burst-mode APD-TIA receiver
- Small Form Factor Pluggable package with SC/UPC Connector
- Reset burst-mode receiver design support more than 15dB dynamic range
- 0 to 70° C operating temperature

APPLICATIONS

- Gigabit-capable Passive Optical Networks (GPON) Class C+ 20Km

COMPLIANCE

- Compliant with SFF-8472
- Complies with FCC 47 CFR Part 15, Class B
- Compliant with ITU-T G.984.2

ORDERING INFORMATION

Part Number	Form Factor	Data Rate (Gbps)	Media	Distance (km)	Wavelength (nm)	Temperature (°C)
GS9115T-CN-C++	SFP	TX:2.488 RX:1.244	SMF	20	1490/1310	0~70

ABSOLUTE MAXIMUM RATINGS

Exceeding the limits below may damage the transceiver permanently.

Parameter	Symbol	Min.	Typ.	Max.	Unit.	Note
Storage Temperature	Tstg	-40		85	°C	
Operating Case Temperature	Tcase	0		70	°C	
Operating Relative Humidity	RH	5		95	%	
Supply Voltage	VCC	0		3.6	V	

RECOMMENDED OPERATING CONDITIONS

Parameter	Symbol	Min.	Typ.	Max.	Unit.	Note
Supply Voltage	VCC	3.14	3.3	3.47	V	
Supply Current	ICC		330	500	mA	+3.3V supply
Operating Case Temperature	Tcase	0		70	°C	

ELECTRICAL and OPTICAL CHARACTERISTICS

Parameter	Symbol	Min.	Typ.	Max.	Unit.	Note
Transmitter @2.488Gbps						
Center Wavelength Range	λ_c	1480	1490	1500	nm	
Output Optical Power	Po	5.5(BOL) 4.5(EOL)		10	dBm	Note 2
Extinction Ratio	ER	8.2	-		dB	Note 3
Optical Rise/Fall Time (20%~80%)	tr/tf			160	ps	
Spectrum Width(-20dB)	$\Delta \lambda$	-	-	1	nm	
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
Transmitter Dispersion Penalty	TDP	-	-	1	dB	
Transmitter Reflectance	TRef			-10	dB	
Optical Power at Tx Disable	PTxdis			-40	dBm	
Output Optical Eye	Compliant with ITU G.984.2 eye masks when filtered, Mask Margin $\geq 5\%$					
Tx Disable Voltage	VOH	2.0	-	Vcc	V	LVTTTL
	VOL	0	-	0.8	V	LVTTTL
Tx Differential Input Voltage	Vinp-p	600		1600	mV	Note 1
Input Differential Impedance	Zin		100		Ω	
Receiver @1.244Gbps						

Parameter	Symbol	Min.	Typ.	Max.	Unit.	Note
Receiver Optical Wavelength	λ_c	1290	1310	1330	nm	
Receiver Sensitivity	Sen			-31(BOL)	dBm	Note 5
				-30(EOL)	dBm	Note 5
Receiver Overload	Rxold	-12			dBm	Note 5
Maximum Optical Input	OIMax			0	dBm	
Receiver Reflectance	Refl			-12	dB	
SD Voltage	Normal	2.4		Vcc	V	
	Fault	0		0.4	V	
SD Assert Level	Psda			-32	dBm	
SD De-Assert Level	Psdd	-45			dBm	
Data Recovery Time	Drecovery			25.6	ns	
Reset Width	Trw	12.8			ns	
CID	CID	72			Bit	
Rx Differential Output Voltage	Vout p-p	400		1600	mV	Note 4

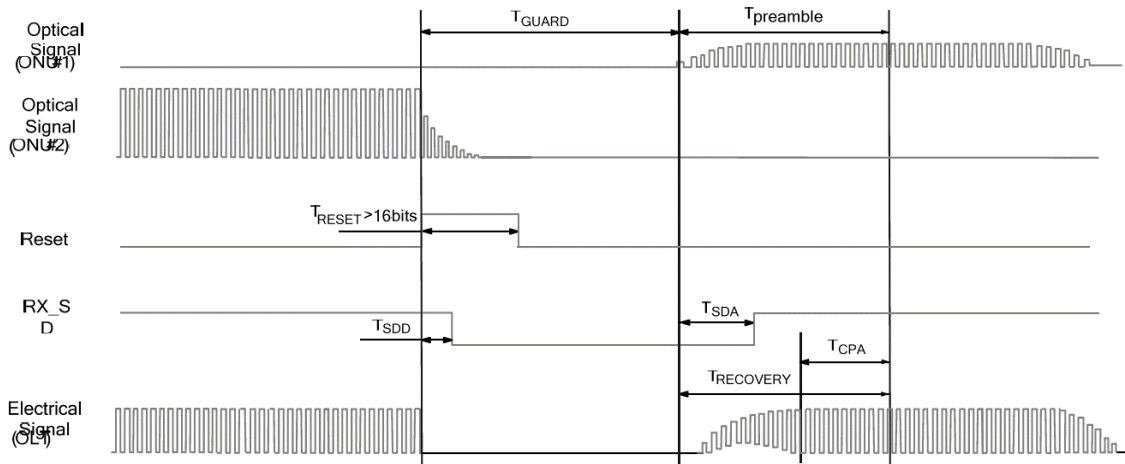
Notes:

1. Compatible with LVPECL or CML input, internally AC coupled.
2. BOL @ case temperature 25°C; EOL @ case temperature 0~70°C.
3. Measured with PRBS 2²³-1 test pattern @2.488Gbps, ER is measured with a 4th order Bessel-Thompson filter on.
4. LVPECL output, internally DC coupled.
5. Measured with PRBS 2²³-1+72CID@1.244Gbps, BER≤1E-10.

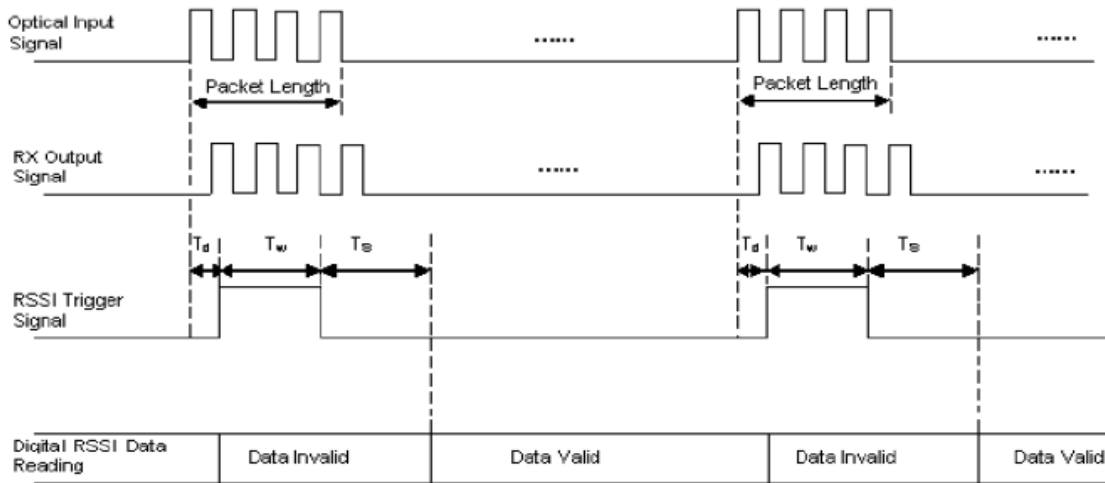
Digital Diagnostic Functions

Parameter	Range	Unit	Accuracy	Calibration	Notes
Temperature	0 to +70	°C	±3°C	Internal	1LSB=1/256°C
Supply Voltage	3.0 to 3.6	V	±3%	Internal	1LSB=0.1mV
Bias Current	0 to 100	mA	±10%	Internal	1LSB=2uA
TX Power	3 to 8.2	dBm	±2dB	Internal	1LSB=0.1uW
RX Power	-32 to -10	dBm	±2dB@25°C ±3dB@0~70°C	Internal	1LSB=0.1uW

TIMING CHARACTERISTICS for RESET SIGNAL



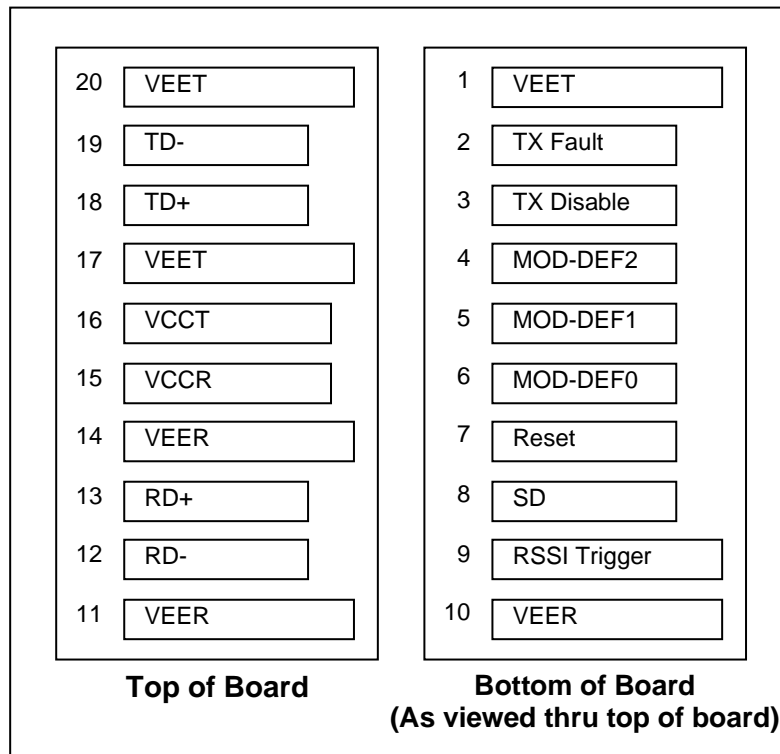
TIMING CHARACTERISTICS for DIGITAL RSSI



CONTROL and STATUS I/O TIMING CHARACTERISTICS

Parameter	Symbol	Min.	Typical	Max.	Units
Reset Width	Treset	12.8			ns
Receiver Amplitude Recovery	Trecovery			25.6	ns
Signal Detect Assert Time				50	ns
Signal Detect De-assert Time				12.8	ns
Packet Length		300			ns
Trigger Delay	Td	100			ns
RSSI Trigger & Sample Time	Tw	300			ns
Delay Before Read	Ts			500	us

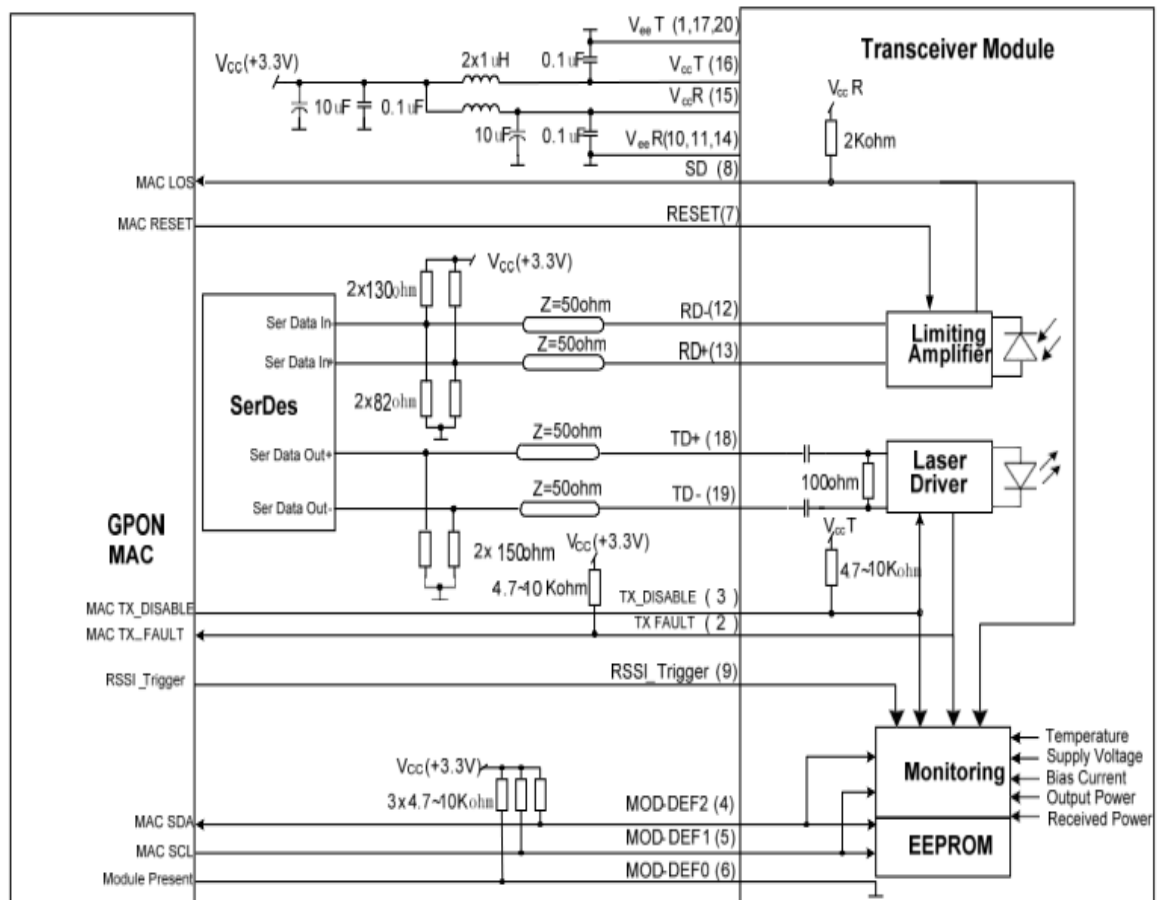
PIN DIAGRAM



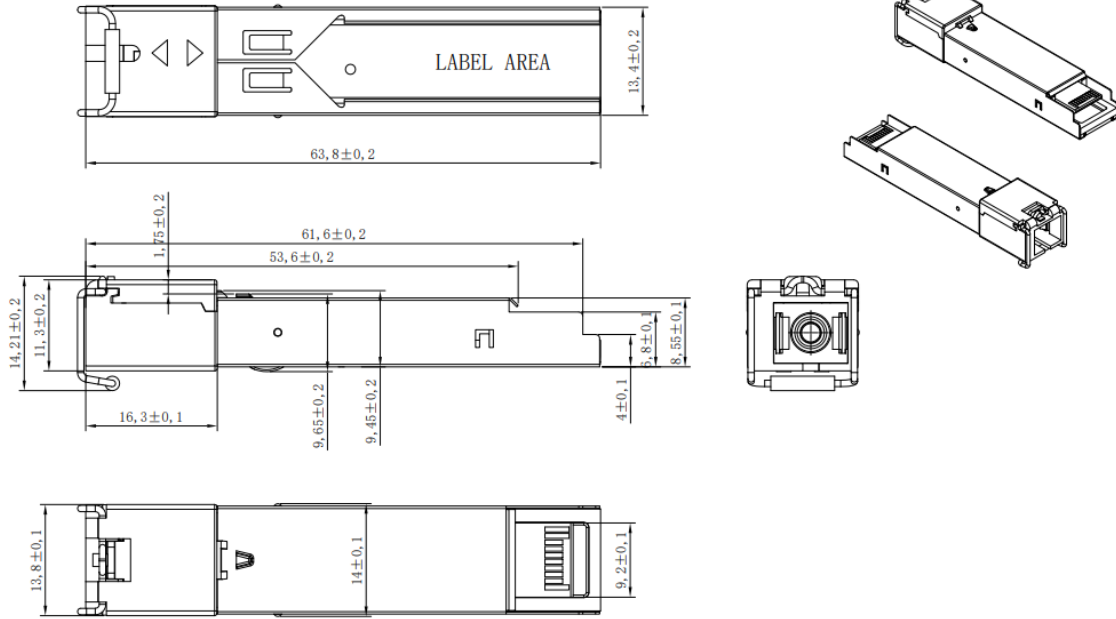
PIN DESCRIPTIONS

PIN	Symbol	Description	Ref.
1	VEET	Transmitter Ground	
2	TX Fault	Transmitter Fault Indication	High: abnormal; Low: normal
3	TX Disable	Transmitter Disable	High: transmitter disable; Low: transmitter enable
4	MOD-DEF2	Module Definition 2	SDA
5	MOD-DEF1	Module Definition 1	SCL
6	MOD-DEF0	Module Definition 0	
7	Reset	Receiver Reset	High: reset the receiver
8	SD	Signal Detect	High: signal detected; Low: loss of signal;
9	RSSI Trigger	RSSI Trigger for Transceiver A/D Conversion	
10	VEER	Receiver Ground	
11	VEER	Receiver Ground	
12	RD-	Inv. Receiver Data Out	LVPECL logic output, DC coupled
13	RD+	Receiver Data Out	LVPECL logic output, DC coupled
14	VEER	Received Ground	
15	VCCR	Receiver Power	
16	VCCT	Transmitter Power	
17	VEET	Transmitter Ground	
18	TD+	Transmit Data In	LVPECL logic input, AC coupled
19	TD-	Inv. Transmit Data In	LVPECL logic input, AC coupled
20	VEET	Transmitter Ground	

RECOMMENDED INTERFACE CIRCUIT



MECHANICAL SPECIFICATION



LABEL DIAGRAM



GS9115T-CN-C++
GPON OLT SFP Class C++

Class 1 Laser
 MADE IN CHINA

S/N: ??????????



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