LG-SC432G-20CB1

GPON-OLT-SFP-B+ Transceiver, Single Mode, 20km Reach
2.5Gbps 1490nm TX / 1.25Gbps 1310nm RX ,SC

Product Features

- Compliant with ITU-T G.984.2 GPON OLT B+/C+/C++/D application
- Single fiber bi-directional data links with symmetric 2.488Gbps Tx and 1.244Gbps Rx
- 1490nm continuous-mode transmitter with DFB LD
- 1310nm burst-mode receiver with APD-TIA
- 2-wire interface for integrated digital diagnostic monitoring
- Receiver RESET, Signal Detect, RSSI function indication (RESET, RX_SD, RSSI)
- SFP package with SC/UPC receptacle optical interface
- Single +3.3V power supply
- RoHS Compliance
- Operating case temperature:
  Standard: 0 to +70°C
  Industrial: -40 to +85°C

Applications

- Gigabit-capable Passive Optical Networks (GPON)

Recommended Operating Conditions

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Operating Case Temperature	Tc	0		70	°C	Standard
		-40		85		Industrial
Storage Temperature	Ts	-40		85	°C	
Operating Relative Humidity	Ho	5		85	%	
Storage Relative Humidity	Hs	5		90	%	
Power Supply Voltage	Vcc	3.135	3.3	3.465	V	
Power Supply Current	I			500	mA	
Bit Rate for Tx		2.488			Gbps	
Bit Rate for Rx		1.244			Gbps	

Optical Characteristics

Parameter	Min	Typical	Max	Unit	Notes
Transmitter					
TX Central Wavelength	1480	1490	1500	nm	
Spectral Width(-20dB)			1	nm	
Side Mode Suppression Ratio	30			dB	
Mean Launched Power(B+)	1.5		5	dBm	
Mean Launched Power(C+)	3		7	dBm	
Mean Launched Power(C++)	4.5		10	dBm	
Mean Launched Power(D)	6		10	dBm	
Mean LaunchedPower (TX Off)			-45	dBm	
Extinction Ratio	8.2			dB	
Optical Return Loss Tolerance	-15			dB	
Transmitter and dispersion Penalty			1	dB	
Transmitter Mask(PRBS223-1@2.488G)	Compliant With ITU-T G.984.2				
Receiver					
Receive Wavelength	1290	1310	1330	nm	
Sensitivity(B+) (PRBS223-1@1.244G,ER= 10,BER<10-10)			-28	dBm	
Sensitivity(C+) (PRBS223-1@1.244G,ER= 10,BER<10-10)			-30	dBm	
Sensitivity(C+) (PRBS223-1@1.244G,ER= 10,BER<10-4)			-32	dBm	

Sensitivity(D) (PRBS223-1@1.244G,ER= 10,BER<10-10)			-33	dBm	
Sensitivity(D) (PRBS223-1@1.244G,ER= 10,BER<10-4)			-35	dBm	
Overload(B+) (PRBS223-1@1.244G,ER= 10,BER<10-10)	-8			dBm	
Overload(C+) (PRBS223-1@1.244G,ER= 10,BER<10-10)	-12			dBm	
Overload(C++) (PRBS223-1@1.244G,ER= 10,BER<10-10)	-12			dBm	
Overload(D) (PRBS223-1@1.244G,ER= 10,BER<10-10)	-15			dBm	
Receiver Burst Mode Dynamic Range	15			dB	
SD Assert Level			-33	dBm	
SD De-assert Level	-45			dBm	
SD Hysteresis	0.5		6	dB	
WDM Filter isolationto 1550nm	38			dB	
WDM Filter isolationto 1650nm	35			dB	

Electrical Characteristics

Parameter	Min	Typical	Max	Unit	Notes
Data Input Swing Differential/TX	600	-	1600	mV	
Data Output Swing Differential/RX	400		1600	mV	
Data Differential Impedance	90	100	110	Ω	
LVTTL Output High	2.4		Vcc	V	
LVTTL Output Low	0		0.4	V	
LVTTL Input High	2.0		Vcc+0.3	V	
LVTTL Input Low	0		0.8	V	

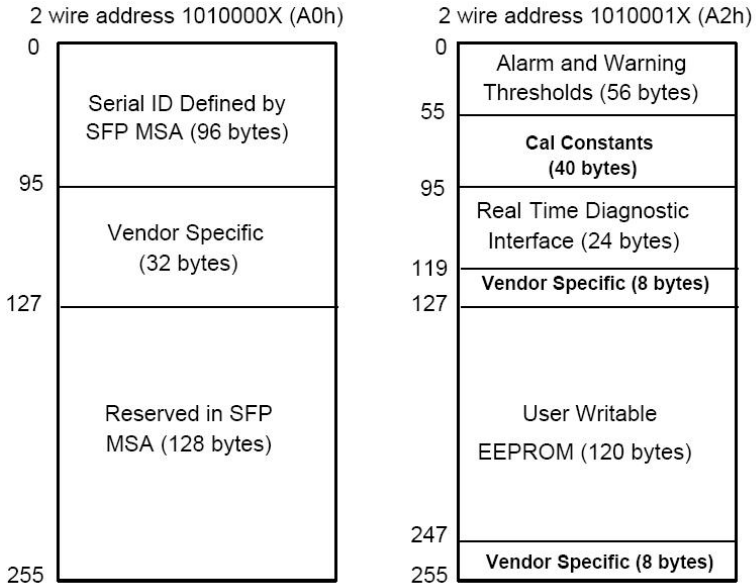
Timing Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Notes
RSSI Trigger Delay	Ttd	25			ns	
RSSI Trigger Pulse Width	Tw	500			ns	
Internal I2C Delay	Twait			500	us	

Pin definition

Pin No	Symbol	Name/Description	Power Seq.	Note
1	$V_{EE}T$	Transmitter Ground	1st	
2	TX Fault	Transmitter Fault Indication	3rd	High: abnormal; Low: normal
3	TX Disable	Transmitter Disable	3rd	High: transmitter disable; Low: transmitter enable. Internally 4.7k-10k ohm pull-up.
4	MOD-DEF2	Module Definition 2	3rd	The data line of two wire serial interface
5	MOD-DEF1	Module Definition 1	3rd	The clock line of two wire serial interface
6	MOD-DEF0	Module Definition 0	3rd	Connected to Ground in the transceiver
7	Reset	Receiver Reset	3rd	High: reset the receiver
8	SD	Signal Detect	3rd	High: signal detected; Low: loss of signal;
9	RSSI Trigger	RSSI Trigger for Transceiver A/D Conversion	3rd	High: enable RSSI A/D conversion
10	$V_{EE}R$	Receiver Ground	1st	
11	$V_{EE}R$	Receiver Ground	1st	
12	RD-	Inv. Receiver Data Out	3rd	LVPECL logic output, DC coupled
13	RD+	Receiver Data Out	3rd	LVPECL logic output, DC coupled
14	$V_{EE}R$	Received Ground	1st	
15	$V_{CC}R$	Receiver Power	2nd	
16	$V_{CC}T$	Transmitter Power	2nd	
17	$V_{EE}T$	Transmitter Ground	1st	
18	TD+	Transmit Data In	3rd	LVPECL logic input, AC coupled
19	TD-	Inv. Transmit Data In	3rd	LVPECL logic input, AC coupled
20	$V_{EE}T$	Transmitter Ground	1st	

EEPROM Memory Map



EEPROM Serial ID Memory Contents

The optical transceiver contains an EEPROM. It provides access to sophisticated identification information that describes the transceiver's capabilities, standard interfaces, manufacturer, and other information. When the serial protocol is activated, the host generates the serial clock signal (SCL, Mod Def 1). The positive edge clocks data into those segments of the EEPROM that are not writing protected within the SFP transceiver. The negative edge clocks data from the SFP transceiver. The serial data signal (SDA, Mod Def 2) is bi-directional for serial data transfer. The host uses SDA in conjunction with SCL to mark the start and end of serial protocol activation. The memories are organized as a series of 8-bit data words that can be addressed individually or sequentially.

The Module provides diagnostic information about the present operating conditions. The transceiver generates this diagnostic data by digitization of internal analog signals. Calibration and alarm/warning threshold data is written during device manufacture. Received power monitoring, transmitted power monitoring, bias current monitoring, supply voltage monitoring and temperature monitoring all are implemented. The diagnostic data are raw A/D values and must be converted to real world units using calibration constants stored in EEPROM locations 56 – 95 at wire serial bus address A2h.

Package Outline

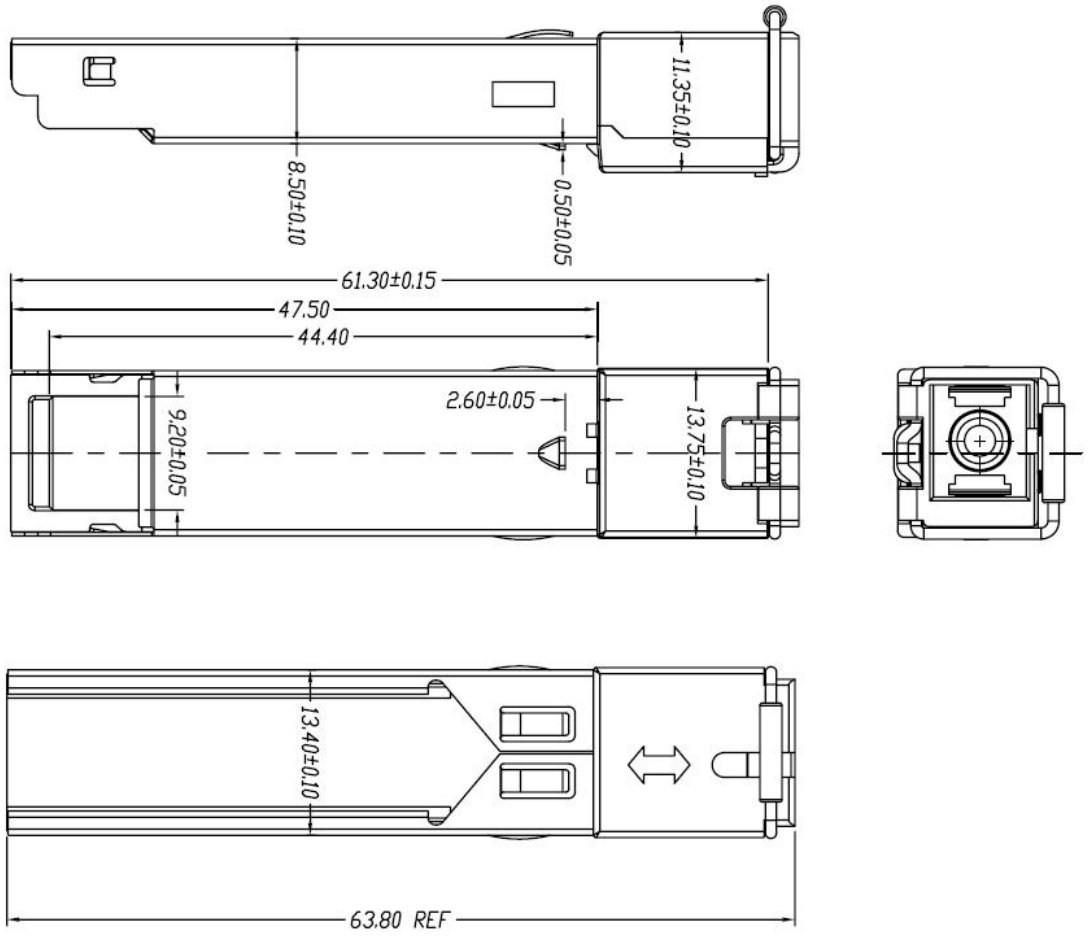


Figure 1. Package Outline

Ordering information

Part Number	Product Description
LG-SC432G-20CB1	GPON OLT Class B+, 1490T/1310R, 2.5Gbps, SC, 20km, 0°C~+70°C, with DDM
LG-SC432G-20IB1	GPON OLT Class B+, 1490T/1310R, 2.5Gbps, SC, 20km, -40°C~+85°C, with DDM