

LXE-010S-H XGSPON ONU STICK 9.95328Gbps TX 9.95328Gbps RX With MAC

The LXE-010S-H XGSPON ONU STICK module has been designed for low cost Point-to-

Multi Point (P2MP) Fiber to the Home (FTTH), Building or Curb (FTTx) applications employing high-speed Burst Mode TDM Upstream at 9.95328Gb/s and CW Downstream at 9.95328Gb/s.

The LXE-010S-H is based on ITU-T G.9807.1. It is fabricated with a die cast metal housing and cage assembly and the electrical interface refers to the industry standard SFP+. It is FDA 21CFR1040.10 and IEC/EN 60825-1:2014, IEC/EN 60825-2, Class I laser safety compliant and meets the EEC Directive 2002/95/EC for RoHS compliance.

LXE-010S-H provides the core functionality of an ITU-T G.9807.1 XGSPON Optical Network Terminal (ONT) . In addition, the device also offers some advanced functions such as DBA AES, FEC, PLOAM, OMCI. A powerful Network Processor is provided to allow for traffic prioritization, local address filtering, and statistics gathering. A dedicated processor provides management control and responds to in-band OAM commands and Host Interface messages for configuration and statistics gathering. By means of configuring personal variables accordingly, the customer can get a device that will fit various application very well.



Applications

- Home Gateway
- Network switch, router and MDU

Features

- 2x10 SFP+ Die Cast Housing
- SC Optical Receptacle
- One single-mode fiber
- Bidirectional Operation
- Dual Wavelength
- 9.95328Gb/s Burst Mode Tx Data Rate
- 9.95328Gb/s CW Mode Rx Data Rate
- Single 3.3V DC Input Voltage
- Power Consumption < 3w
- Case Operating Temperature Ranges:
 - Industrial: -40 to 85 °C
 - Expanded: 0 to 85 °C
 - Commercial: 0 to 70 °C
- ITU-T G.984.3/G.988/ G.9807.1/ G.987.3
- Support Rogue ONU Detecting
- Layer 2 switching supporting up to 4K MAC addresse
- support Jumbo frame (up to 9Kbyte packet sizes)
- Support Upstream Output Scheduling: Strict-Priority +
- Support IGMP/MLDv2 and multicast delivered
- Support Dying Gasp
- Support 1* XFI including USXGMII/ 1G SGMII interface

Absolute Maximum Ratings					
Parameter	Symbol	Min	Max	Units	Notes
Storage Ambient Temperature	T _{stg}	-40	+85	°C	Exceeding the Absolute Maximum Ratings may cause irreversible damage to the device. The device is not intended to be operated under the condition of simultaneous Absolute Maximum Ratings, a condition which may cause irreversible damage to the device.
Relative Humidity - Storage	RH _{stg}	0	95	%	
Relative Humidity - Operating	RH _{op}	0	85	%	
Module Supply Voltage	V _{cc}	0	3.6	V	

**LXE-010S-H XGSPON ONU STICK**
9.95328Gbps TX 9.95328Gbps RX With MAC**Absolute Maximum Ratings: Control Function Logic Levels**

Parameter	Symbol	Min	Max	Units	Notes
Receiver LOSS OF SIGNAL Logic State	Rx_LOS	0	$V_{CC}+0.5$	V	LVTTL
Transmit Disable Logic State	Tx_Dis	0	$V_{CC}+0.5$	V	LVTTL

Recommended Operating Conditions

Parameter	Symbol	Min	Typ	Max	Units	Notes
Case Operating Temperature	T_{case}	-40	25	85	°C	Temperature Range = I
Module Supply Voltage	V_{CC}	3.135	3.3	3.465	V	
Module Supply Current	I_{IN}	-	-	900	mA	

Transmitter Electrical Characteristics

Parameter	Symbol	Min	Typ	Max	Units	Conditions / Notes
Tx_Data Differential Input Voltage	$V_{IH}-V_{IL}$	200	-	1200	mV	
Tx_DIS= HIGH (Transmitter OFF / DISABLED)	V_{IH}	2.0	-	$V_{CC}+0.3$	V	
Tx_DIS = LOW (Transmitter ON / ENABLED)	V_{IL}	0	-	0.8	V	

Receiver Electrical Characteristics

Rx_Data Differential Output Voltage	$V_{OH}-V_{OL}$	200	-	900	mV	
Rx_LOS = HIGH (Receiver OFF)	V_{OH}	2.4	-	3.3	V	LVTTL
Rx_LOS = LOW (Receiver ON)	V_{OL}	0	-	0.8	V	LVTTL

Ordering Information

Part Number	Package Type (X)		Temperature Option (Y)		Connector type (Z)		RoHS Compliance	
LTF7267-BHA+	B	SC	H	-40 to 85°C		UPC	+	RoHS compliance
			E	0 to 85°C				
			C	0 to 70°C	A	APC		

Leolabs part number: LXE-010S-H**Vendor name in MCU: LEOX****Vendor part number in MCU: LXE-010S-H**

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Transmitter Electrical Characteristics						
Parameter	Symbol	Min	Typ	Max	Unit	Conditions / Notes
Tx_Data Differential Input Voltage	V_{ID}	300	-	1200	mV	SGMII mode
Bit Rate(TX)	BR_{TX}	-	1250	-	Mbps	SGMII mode
Tx_DIS = HIGH (Transmitter OFF)	V_{OH}	2.0	-	V_{CC}	V	
Tx_DIS = LOW (Transmitter ON)	V_{OL}	0	-	0.8	V	

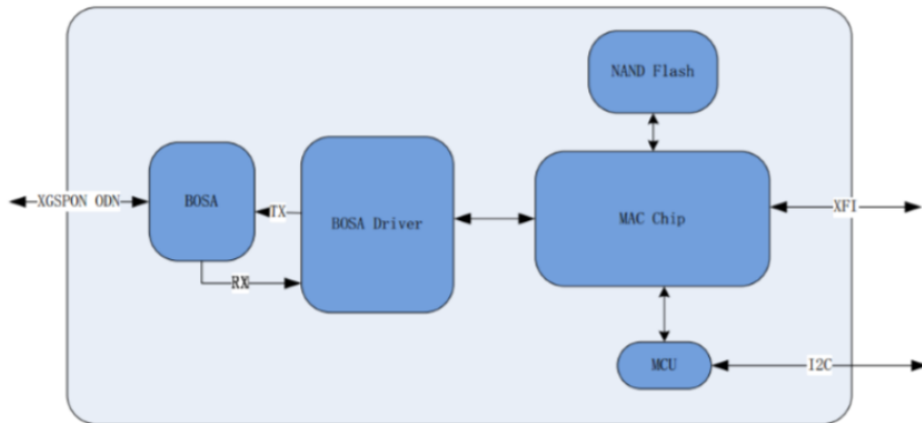
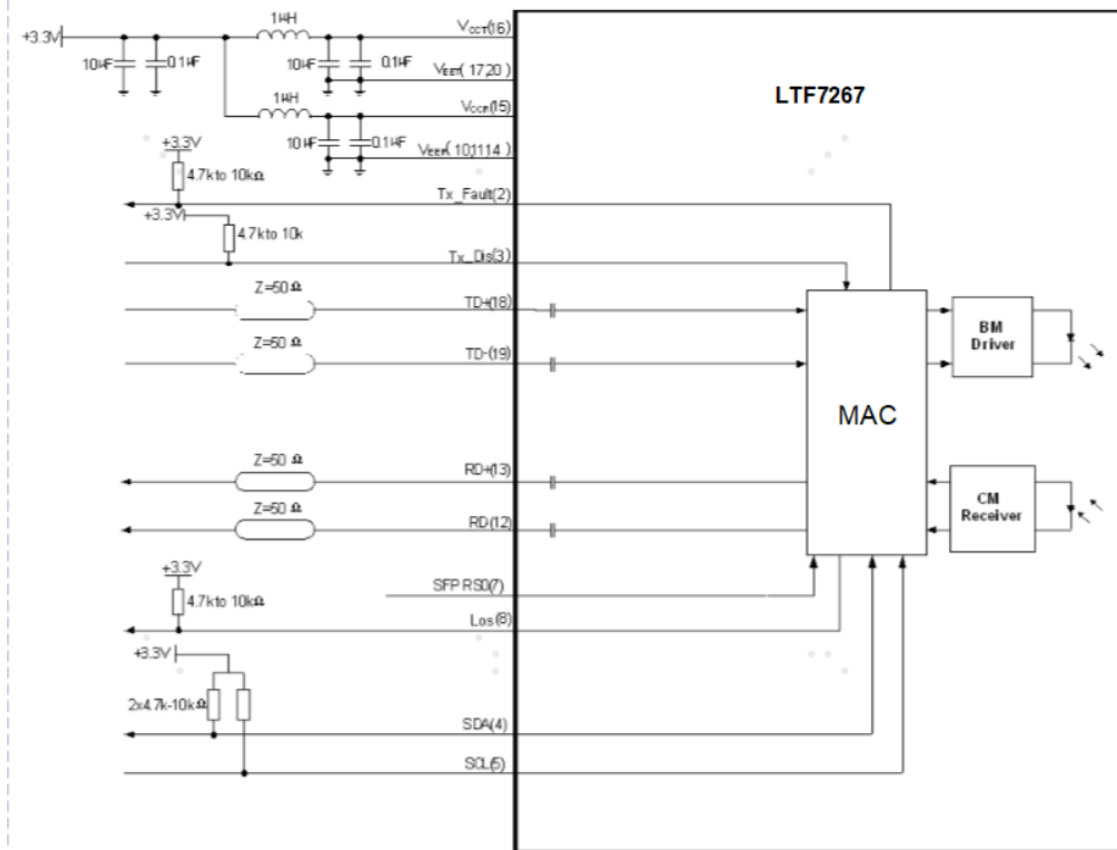
Receiver Electrical Characteristics						
Parameter	Symbol	Min	Typ	Max	Unit	Conditions / Notes
Rx_Data Differential Output Voltage	V_{OD}	300	-	800	mV	1250Mbps
Rx_Data Differential Output Voltage	V_{OD}	500	-	1000	mV	2500Mbps
Rx_LOS Logic HIGH State	V_{LOS_H}	2.4	-	-	V	LVTTTL(Open Collector/Drain)
Rx_LOS Logic LOW State	V_{LOS_L}	-	-	0.8	V	

Transmitter Optical Characteristics						
Parameter	Symbol	Min	Typ	Max	Units	Notes
Laser Type		DFB Laser				
Transmitter Signal Rate		9.95328			Gb/s	
Average Output Power	P_{out}	4	-	9	dBm	
Optical Center Wavelength	λ	1260	1270	1280	nm	
Spectral Width	$\Delta\lambda$		-	1	nm	
Side Mode Suppression Mode	SMSR	30	-	-	dB	
Extinction Ratio	ER	6	-	-	dB	

Receiver Optical Characteristics						
Parameter	Symbol	Min	Typ	Max	Units	Notes
Receiver Type		CW APD/TIA				Notes
Receiver Signal Rate		9.95328			Gb/s	
Optical Center Wavelength	λ	1575	1577	1581	nm	
Receiver Sensitivity	P_{IN}	-	-	-28	dBm	$BER \leq 10^{-3}$ PRBS $2^{31}-1$ ER=6dB

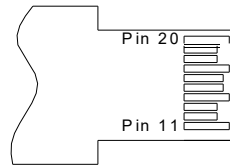
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Received Optical Overload	$P_{in}(SAT)$	-9	-	-	dBm	
Rx_LOS of Signal Assert	P_A	-44	-	-	dBm	
Rx_LOS of Signal De-assert	P_A	-	-	-29	dBm	
Rx_LOS of Signal Hysteresis	P_{hy}	0.5	-	6	dB	

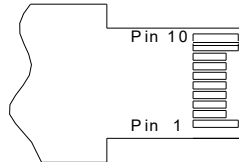
Block Diagram**Electrical Interface (Part of interface to be confirmed)**

PIN Assignment

TOP VIEW
OF BOARD

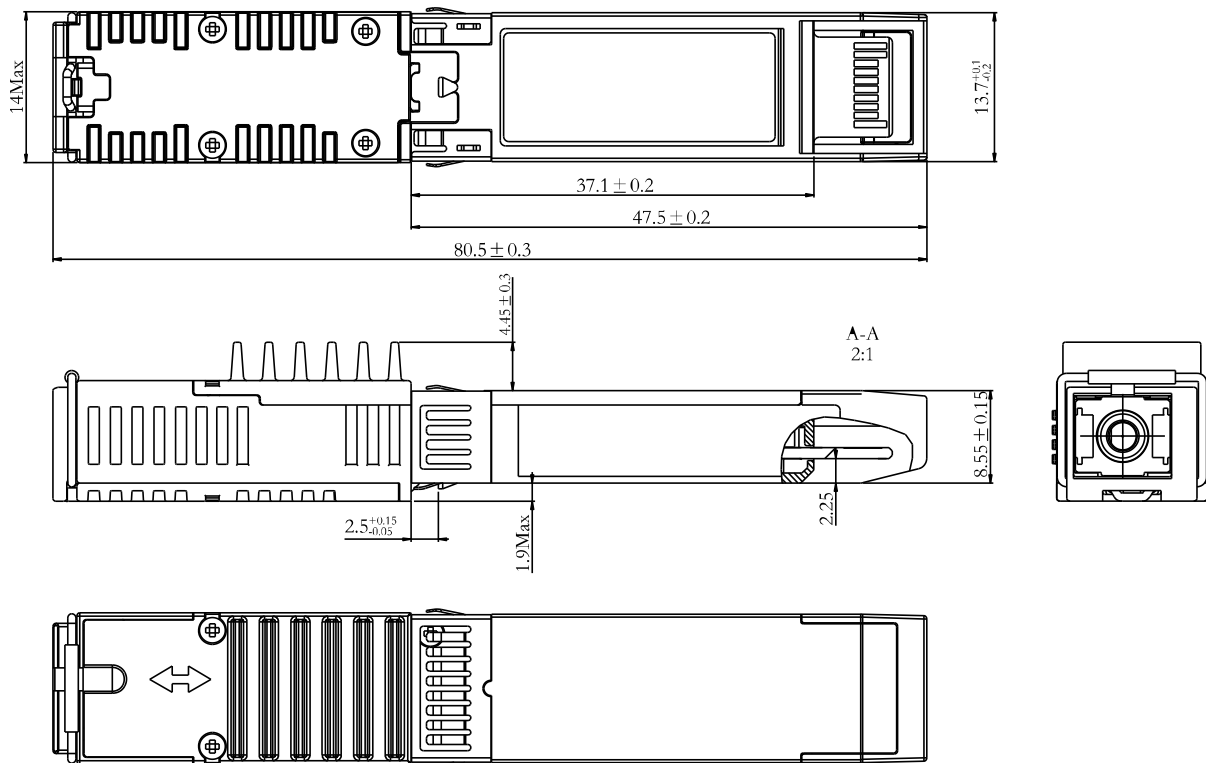


BOTTOM VIEW
OF BOARD



MAC

Mechanical Dimensions



NOTES:

- 1.TOLERANCE: $\pm 0.1\text{mm}$;
- 2.OTHERS ACCORDING WITH MSA SFF-8432.

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PIN Assignment			
Pin	Symbol	Description	Notes
1	V _{EET}	Transmitter Ground	
2	Tx_FAULT	Transmitter Fault, LOW = Normal Operation, HIGH = Fault Indication	1
3	Tx_DIS	Transmit Disable, LOW = Normal Operation, HIGH = Disables Module	1
4	MOD_DEF 2	Module Definition 2 - Two-Wire Interface - Serial Data	1
5	MOD_DEF 1	Module Definition 1 - Two-Wire Interface - Clock Signal	1
6	MOD_DEF 0	Module Definition 0 - Presence Pin, the MOD_DEF0 Signal set to low level after initialisation of μ C and power up the I2C interface	
7	Dying Gasp	Dying Gasp Indication, when high indicates normal operation, low indicates power fail	4
8	LOS	Loss of Signal, When high indicates no optical power; Low indicates normal operation	1
9	PIN9	Reserved. Keep floating when unused.	
10	V _{EER}	Receiver Ground	
11	V _{EER}	Receiver Ground	
12	RD-	Rx_Data Output (Inverted)	2
13	RD+	Rx_Data Output (Non Inverted)	2
14	V _{EER}	Receiver Ground	
15	V _{CCR}	Receiver DC Power	3.3 V +/- 5%
16	V _{CCT}	Transmitter DC Power	3.3 V +/- 5%
17	V _{EET}	Transmitter Ground	
18	TD+	Tx_Data Input (Non Inverted)	3
19	TD-	Tx_Data Input (Inverted)	3
20	V _{EET}	Transmitter Ground	
Notes			
1. The uncommitted Tx_FAULT, Tx_DIS, MOD_DEF2, MOD_DEF1 and LOS monitor and control pins each require a pull up resistor of 4.7k to 10k Ohms. The pull-up voltage must be 3.3V. 2. The 100Ohms differential Rx Data output is internally AC coupled. Supporting 1000BASE-X/2500BASE-X/SGMII/HSGMII interface 3. The 100Ohms differential Tx Data input is internally AC coupled. Supporting 1000BASE-X/2500BASE-X/SGMII/HSGMII interface 4. Voltage Detect Input for Dying Gasp. When the voltage on this pin is lower than 1.29V+/-5%, a dying gasp event is triggered. A 4.7k Ohm resistor is used to pull up to DC Power in the module.			



Warnings

Handling Precautions:

This device is susceptible to damage as a result of electrostatic discharge (ESD). A static free environment is highly recommended. Follow guidelines according to proper ESD procedures.

Laser Safety:

Radiation emitted by laser devices can be dangerous to human eyes. Avoid eye exposure to direct or indirect radiation.

Notice:

The information provided on this page contains the product target specifications which are subject to change without notice.

Check with your Hisense Sales Office for product updates, changes in specifications, sample availability and production release dates.

EYE SAFETY

Complies with IEC 60825-1:2014, EN 60825-1:2014+A11:2021 and IEC 60825-2: 2021, EN 60825-2:2004+A1:2007+A2:2010. Class 1 laser safety compliant.

INVISIBLE LASER RADIATION.

CAUTION:

Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.