

Hisense

LTE3680M SFP GPON OLT Transceiver

CLASS B+ 2488/1244 Mb/s With Digital RSSI Function

Product Description

The LTE3680M is a low cost point to multi point (P2MP) Fiber to the Home, Business or Curb (FTTx) GPON OLT transceiver. It is designed for 2488Mb/s downstream / 1244Mb/s upstream duplex data links that employ high-speed burst mode TDM receivers/transmitters. It is based on the ITU-T G.984.2 Class B+ specifications for bidirectional communications over a single fiber and incorporates a high performance 1310nm Burst Mode APD/TIA receiver and 1490nm CW mode DFB transmitter with internal optical isolator. The Burst Signal Detect (BSD), the Burst Mode Receiver Reset (Rx_RESET), Transmit Disable (Tx_DIS), Transmit Fault (Tx_FAULT) and control functions are LVTTTL compatible. The industry standard 2x10 small form pluggable (SFP) package incorporates the SC/UPC receptacle. It is fabricated with a rugged die cast metal housing and cage assembly. Commercial temperature ranges are available. It is IEC 60825-1 Class I laser safety compliant and meets the EEC Directive 2002/95/EC for RoHS compliance.

Applications

- Access Networks
- Fiber to the Home, Curb, Office (FTTx)
- Point to Multi Point Service (P2MP)
 - ITU-T G.984.2
 - FSN Class B+

Features

- Dual Wavelength Bidirectional Transceiver
- 2488Mb/s Downstream
- 1244Mb/s Upstream
- BER10^{-10}, 1244Mb/s, PRBS 2²³-1
- 1310nm APD/TIA Burst Mode Receiver
- 1490nm CW Mode DFB Laser with Isolator
- ITU-T G.984.2 Complaint
- Single 3.3V DC supply
- Low Power Consumption
- 2x10 SFP Package Outline
- Single Fiber, Full Duplex Operation
- SC Optical Receptacle
- Case Operating Temperature Ranges:
 - Commercial: 0 to +70°C
- Data and Control interfaces

Tx_Data	LVPECL/AC Coupled
Rx_Data	LVPECL/DC Coupled
Tx_DIS	LVTTTL
Tx_FAULT	LVTTTL
Rx_Reset	LVTTTL
BSD	LVTTTL
- ESD
 - >500V HBM
- RoHS6



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Absolute Maximum Ratings					
Parameter	Symbol	Min	Max	Units	Notes
Storage 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_s	0	95	%	
Relative Humidity - Operating	RH_o	0	85	%	
Module Supply Voltage	V_{CC}	0	3.6	V	

Absolute Maximum Ratings: Optical and Electrical Signal Levels					
Parameter	Symbol	Min	Max	Units	Notes
Transmit DISABLE Logic HIGH State	Tx_DIS	0	$V_{CC}+0.5$	V	LVTTTL (Tx is OFF / DISABLED)
Transmit FAULT Logic HIGH State	Tx_FAULT	0	$V_{CC}+0.5$	V	LVTTTL (Laser is OFF / FAULT)
BSD Logic HIGH State	BSD	0	$V_{CC}+0.5$	V	LVTTTL
Receiver RESET Logic HIGH State	Rx_RESET	0	$V_{CC}+0.5$	V	LVTTTL (Receiver is being RESET)
I ² C Serial Data Logic HIGH State	SDA	-	$V_{CC}+0.5$	V	LVTTTL
I ² C Serial Clock HIGH State	SCL	-	$V_{CC}+0.5$	V	LVTTTL

Recommended Operating Conditions						
Parameter	Symbol	Min	Typ	Max	Units	Notes
Case Operating Temperature	T_{case}	0	25	+70	°C	
Module Supply Voltage	V_{CC}	3.135	3.3	3.465	V	
Module Power Dissipation	P_L	-	-	1.9	W	
Transmitter Operating Current	I_{CC}	-	-	350	mA	
Receiver Operating Current	I_{CC}	-	-	350	mA	
Downstream Signaling Speed +/- 100ppm	S_{down}	-	2488	-	Mb/s	
Upstream Signaling Speed +/- 100ppm	S_{up}	-	1244	-	Mb/s	
Transmitter Turn ON Time	T_{ON}	-	-	2	ms	
Transmitter Turn OFF Time	T_{OFF}	-	-	100	µs	

Ordering Information						
Part Number	Latch Type (X)		Temperature Option (Y)		RoHS Compliance (Z)	
LTE3680M-XYZ	B	Bail	C	0 to 70 °C	+	RoHS Compliance



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Transmitter Electrical Specifications						
Parameter	Symbol	Min	Typ	Max	Units	Conditions / Notes
Tx_Data Differential Input Voltage	V _{IN}	200	-	1600	mV	LVPECL Tx_DATA Electrical Signal
Tx_DIS = HIGH (Transmitter OFF / DISABLED)	V _{IH}	2	-	V _{CC} +0.3	V	LVTTL (Control INPUT)
Tx_DIS = LOW (Transmitter ON / ENABLED)	V _{IL}	0	-	0.8	V	LVTTL (Control INPUT)
Tx_FAULT = HIGH (Laser OFF / FAULT)	V _{OH}	2.4	-	V _{CC} +0.3	V	LVTTL (Monitor OUTPUT)
Tx_FAULT = LOW (Laser ON / NORMAL)	V _{OL}	0	-	0.8	V	LVTTL (Monitor OUTPUT)
Receiver Electrical Specifications						
Parameter	Symbol	Min	Typ	Max	Units	Conditions / Notes
Rx_Data Differential Output Voltage	V _{OUT}	600	-	1600	mV	LVPECL Rx_DATA Electrical Signal
BSD (Burst Signal Detect) = HIGH	V _{OH}	2.4	-	V _{CC} +0.3	V	LVTTL
BSD (Burst Signal Detect) = LOW	V _{OL}	0	-	0.4	V	LVTTL
Rx_RESET = HIGH (Receiver RESET)	V _{IH}	2	-	V _{CC} +0.3	V	LVTTL (Control Input)
Rx_RESET = LOW (Receiver ON / NORMAL)	V _{IL}	0	-	0.8	V	LVTTL (Control Input)
I ² C Serial Logic						
Parameter	Symbol	State	Logic	Min	Max	Units
I ² C Serial Data	SDA	HIGH	LVTTL	0.7*V _{CC}	V _{CC} +0.3	V
	SDA	LOW	LVTTL	0	0.8	V
I ² C Serial Clock	SCL	HIGH	LVTTL	0.7*V _{CC}	V _{CC} +0.3	V
	SCL	LOW	LVTTL	0	0.8	V



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Transmitter Optical Specifications						
Parameter	Symbol	Min	Typ	Max	Units	Conditions / Notes
Transmitter Type	1490nm DFB Laser with Isolator					CW Mode
Downstream Signaling Speed	STX		2488		Mb/s	
Average Launch Power (9/125 μ SMF)	P _{BOL}	2.5	-	5.0	dBm	
	P _{EOL}	1.5	-	5.0	dBm	
Average Launch Power with Tx OFF	P _{OFF}	-	-	-40	dBm	
Optical Center Wavelength	λ	1480	1490	1500	nm	
Spectral Line Width @ -20dB	$\Delta\lambda$	-	-	0.6	nm	
Side Mode Suppression Ratio	SMSR	30	-	-	dB	
Extinction Ratio	ER	8.2	-	-	dB	
Transmit Link length	L	-	40	-	km	
Transmit Output Eye	Compliant with G.984.2					Data Rate = 2488 Mb/s
Receiver Optical Specifications						
Parameter	Symbol	Min	Typ	Max	Units	Conditions / Notes
Receiver Type	1310nm APD/TIA Burst Mode					
Optical Signal Indicator	Burst Packet Detect					
Upstream Signaling Speed	S		1244		Mb/s	
Optical Center Wavelength	λ	1260	1310	1360	nm	
Receiver Sensitivity	P _{BOL}			-29	dBm	BER<10 ⁻¹⁰ , 1244 Mb/s, PRBS 2 ²³ -1
	P _{EOL}			-28	dBm	
Receiver Optical Overload	P _{IN(SAT)}	-8	-	-	dBm	BER<10 ⁻¹⁰ , 1244 Mb/s, PRBS 2 ²³ -1
Dynamic Range	DR	15			dB	Power differential between sequential ONU bursts
Receiver Data Rise/Fall time	T _r /T _f		250		ps	
Maximum Input Optical Power	P _{IN(MAX)}	-	-	5	dBm	Damage Threshold
SD Assert	P _A	-	-	-32	dBm	
SD De Assert	P _D	-45	-	-	dBm	
SD Hysteresis	P _{Hy}	0.5	-	6	dB	

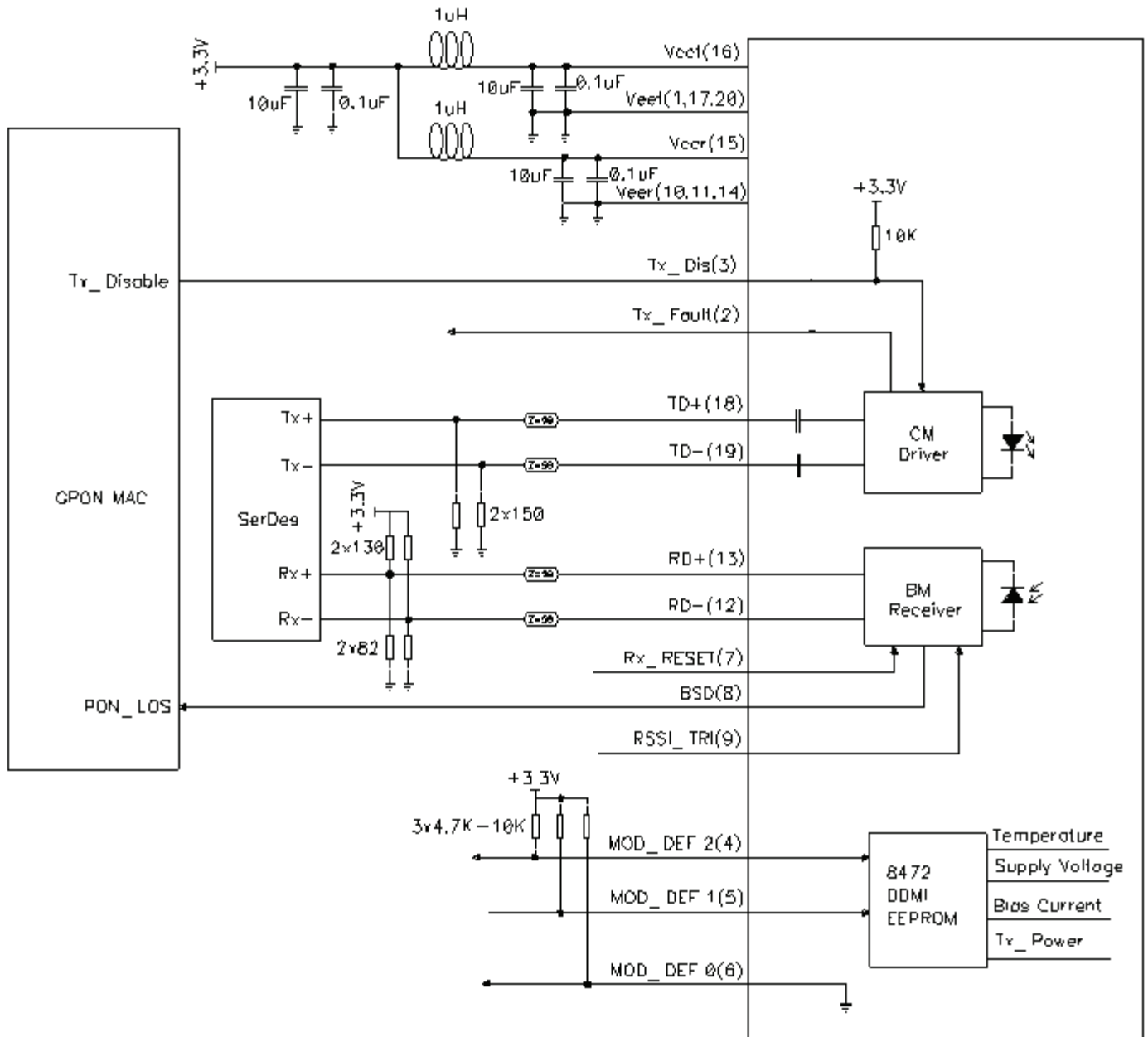
DDMI Accuracy Requirements		
Parameter	Range	Accuracy
Temperature	0~70°C	+/-3°C
Vcc Voltage	3.0V to 3.6V	+/-3%
Bias Current	0 to 100mA	+/-10%
Tx Power	1.5 to 5dBm	+/-1dB (BOL) +/-3dB (EOL)



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Electrical Interface



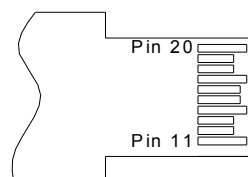
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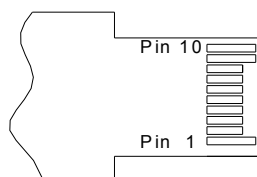
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Pin Assignment

TOP VIEW
OF BOARD



BOTTOM VIEW
OF BOARD



Pin Description			
Pin#	Name	Function	Notes
1	V _{EET}	Transmitter Ground	
2	Tx_FAULT	Transmitter Fault Indication	Open collector/drain output
3	Tx_DIS	Transmitter Disable	Module disables on high or open
4	MOD_DEF 2	Module Definition 2	2 wire serial ID interface, SDA
5	MOD_DEF 1	Module Definition 1	2 wire serial ID interface, SCL
6	MOD_DEF 0	Module Definition 0	
7	Rx_RESET	Rx Reset Pulse Input, High Level Input at the end of Previous Packet	
8	BSD	Signal Detect	Open collector/drain output
9	RSSI_TRI	Receiver RSSI trigger input	
10	V _{EER}	Receiver Ground	
11	V _{EER}	Receiver Ground	
12	RD-	Inv. Received Data Out	DC-coupled
13	RD+	Received Data Out	DC-coupled
14	V _{EER}	Receiver Ground	
15	V _{CCR}	Receiver Power	3.3V± 5%
16	V _{CCT}	Transmitter Power	3.3V± 5%
17	V _{EET}	Transmitter Ground	
18	TD+	Transmit Data In	AC-coupled, differential lines with 100Ω differential termination inside the module
19	TD-	Inv. Transmit Data In	AC-coupled, differential lines with 100Ω differential termination inside the module
20	V _{EET}	Transmitter Ground	



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EEPROM Serial ID Memory Contents

Accessing Serial ID Memory uses the 2 wire address 1010000X (A0). Memory Contents of Serial ID are shown in Table below.

I ² C Memory Map (Page A0 HEX, Unlisted Fields are Blank / Empty)				
IIC Addr	Size	Name	Description	Values (HEX)
0	1	Identifier	SFP	03
1	1	Extended Identifier	Extended Identifier	04
2	1	Connector	Connector Type = SC	01
3-10	8	Transceiver	Compatibility	11 13 00 00 00 00 00 08
11	1	Encoding	Encoding Type = NRZ	03
12	1	BR, Nominal	Nominal Bit Rate 2488Mb/s	19
13	1	Reserved	Reserved	00
14	1	Length(9µm)-km	40km Link Length in Kilometers / SMF	28
15	1	Length (9µm)-100m	40km Link Length in Hundreds of Meters / SMF	00
16	1	Length (50µm)-10m	50-micron MMF Link Length = N/A	00
17	1	Length (62.5µm)-10m	62.5-micron MMF Link Length = N/A	00
18	1	Length (Copper)	Copper Link Length = N/A	00
19	1	Reserved	Reserved	00
20-35	16	Vendor name	Hisense	ASCII Format
36	1	Reserved	Reserved	00
37-39	3	Vendor OUI	SFP Vendor IEEE Company ID	Programmed by Factory
40-55	16	Vendor PN	Hisense Part Number on this datasheet	ASCII Format
56-59	4	Vendor Revision Number	Programmed by Factory	Programmed by Factory
60-61	2	Wavelength	Laser Wavelength = 1490nm	05 D2
62	1	Reserved	Reserved	00
63	1	CC-BASE	Check_sum(0 to 62)	Programmed by Factory
64-65	2	Transceiver Options	1. Rx_SD 2. Tx_FAULT 3. Tx_Disable	00 1C
66	1	BR, max	0	00
67	1	BR, min	0	00
68-83	16	Vendor SN	Programmed by Factory	Programmed by Factory
84-91	8	Date code	Programmed by Factory	Programmed by Factory
92	1	Monitoring Type	Monitoring Implemented Address Change Required	58
93	1	Enhanced Options	1. Optional Alarm/Warning Implemented 2. Soft Tx_DISABLE Monitor and Control 3. Soft Tx_FAULT Monitor	E0
94	1	Compliance	Revision Implemented	02
95	1	CC_EXT	Check_Sum (64 to 94)	Programmed by Factory
96-127	32	Vendor Specific	Vendor Specific EEPROM	Programmed by Factory
128-255	128	Reserved	Reserved	Programmed by Factory

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A2 (HEX) Address Table for Alarm and Warning Data				
Address	Size (Byte)	Bits	Name of Filed	Description
84-85	2	ALL	T(Slope)	Fixed decimal (unsigned) calibration data, internal module temperature. Bit 7 of byte 84 is MSB, bit 0 of byte 85 is LSB. For "internally calibrated" devices, T(Slope) should be set to 1, and useless.
86-87	2	ALL	T (Offset)	Fixed decimal (signed two's complement) calibration data, internal module temperature. Bit 7 of byte 86 is MSB, bit 0 of byte 87 is LSB. For "internally calibrated" devices, T(Offset) should be set to zero, and useless.
88-89	2	ALL	V (Slope)	Fixed decimal (unsigned) calibration data, internal module supply voltage. Bit 7 of byte 88 is MSB, bit 0 of byte 89 is LSB. For "internally calibrated" devices, V(Slope) should be set to 1, and useless.
90-91	2	ALL	V(Offset)	Fixed decimal (signed two's complement) calibration data, internal module supply voltage. Bit 7 of byte 90 is MSB. Bit 0 of byte 91 is LSB. For "internally calibrated" devices, V(Offset) should be set to zero, and useless.
92-94	3	ALL	Reserved	Reserved
95	1	ALL	Checksum	Checksum Byte 95 contains the low order 8 bits of the sum of bytes 0 –94.
96	1	ALL	Temperature MSB	Internally measured module temperature.
97	1	ALL	Temperature LSB	
98	1	ALL	Vcc MSB	Internally measured supply voltage in transceiver.
99	1	ALL	Vcc LSB	
100	1	ALL	TX Bias MSB	Internally measured TX Bias Current.
101	1	ALL	TX Bias LSB	
102	1	ALL	TX Power MSB	Measured TX output power.
103	1	ALL	TX Power LSB	
104	1	ALL	RX Power MSB	RSSI Data
105	1	ALL	RX Power LSB	RSSI Data
106-109	4	ALL	Reserved	Reserved
110	1	7	Reserved	Reserved
		6	Soft TX Disable	Soft TX Disable Read/write bit that allows software disable of laser. Writing '1' disables laser.
		5	Reserved	Reserved
		4	Reserved	Reserved
		3	Reserved	Reserved
		2	TX Fault	Tx Fail Status: 1=TX Fail; 0=TX Normal
		1	LOS	Signal Detect Status. Active High.
		0	Reserved	Reserved
111	1	ALL	Reserved	Reserved
112	1	7	Temp High Alarm	Set when internal temperature exceeds high alarm level.
		6	Temp Low Alarm	Set when internal temperature is below low alarm level.
		5	Vcc High Alarm	Set when internal supply voltage exceeds high alarm level.
		4	Vcc Low Alarm	Set when internal supply voltage is below low alarm level.
		3	TX Bias High Alarm	Set when TX Bias current exceeds high alarm level.
		2	TX Bias Low Alarm	Set when TX Bias current is below low alarm level.
		1	TX Power High Alarm	Set when TX output power exceeds high alarm level.
		0	TX Power Low Alarm	Set when TX output power is below low alarm level.



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A2 (hex) Table - Summary of Parameters in the A2 (hex) Parametric Table

A2 (HEX) Address Table for Alarm and Warning Data				
Address	Size (Byte)	Bits	Name of Filed	Description
00-01	2	ALL	Temp High Alarm Thresholds	MSB at low address,80°C
02-03	2	ALL	Temp Low Alarm Thresholds	MSB at low address,-13°C
04-05	2	ALL	Temp High Warning Thresholds	MSB at low address,75°C
06-07	2	ALL	Temp Low Warning Thresholds	MSB at low address,-8°C
08-09	2	ALL	Voltage High Alarm Thresholds	MSB at low address,3.6V
10-11	2	ALL	Voltage Low Alarm Thresholds	MSB at low address,3.0V
12-13	2	ALL	Voltage High Warning Thresholds	MSB at low address,3.5V
14-15	2	ALL	Voltage Low Warning Thresholds	MSB at low address,3.1V
16-17	2	ALL	Bias High Alarm Thresholds	MSB at low address,90mA
18-19	2	ALL	Bias Low Alarm Thresholds	MSB at low address,0mA
20-21	2	ALL	Bias High Warning Thresholds	MSB at low address,70mA
22-23	2	ALL	Bias Low Warning Thresholds	MSB at low address,0mA
24-25	2	ALL	TX Power High Alarm Thresholds	MSB at low address,5.5dBm
26-27	2	ALL	TX Power Low Alarm Thresholds	MSB at low address,0.5dBm
28-29	2	ALL	TX Power High Warning Thresholds	MSB at low address,5.0dBm
30-31	2	ALL	TX Power Low Warning Thresholds	MSB at low address,1.0dBm
32-33	2	ALL	RX Power High Alarm Thresholds	MSB at low address, -7dBm
34-35	2	ALL	RX Power Low Alarm Thresholds	MSB at low address, -30dBm
36-37	2	ALL	RX Power High Warning Thresholds	MSB at low address, -8dBm
38-39	2	ALL	RX Power Low Warning Thresholds	MSB at low address, -29dBm
40-55	16	ALL	Reserved	Reserved
56-59	4	ALL	Rx_PWR(4)	4 th order RSSI calibration coefficient
60-63	4	ALL	Rx_PWR(3)	3 rd order RSSI calibration coefficient
64-67	4	ALL	Rx_PWR(2)	2 nd order RSSI calibration coefficient
68-71	4	ALL	Rx_PWR(1)	1 st order RSSI calibration coefficient
72-75	4	ALL	Rx_PWR(0)	0th order RSSI calibration coefficient
76-77	2	ALL	Tx_I(Slope)	Fixed decimal (unsigned) calibration data, laser bias current. Bit 7 of byte 76 is MSB, bit 0 of byte 77 is LSB. For "internally calibrated" devices, Tx_I(Slope) should be set to 1, and useless.
78-79	2	ALL	Tx_I(Offset)	Fixed decimal (signed two's complement) calibration data, laser bias current. Bit 7 of byte 78 is MSB, bit 0 of byte 79 is LSB. For "internally calibrated" devices, Tx_I(Offset)should be set to zero , and useless.
80-81	2	ALL	Tx_PWR(Slope)	Fixed decimal (unsigned) calibration data, transmitter coupled laser bias current. Bit 7 of byte 78 is MSB, bit 0 of byte 79 is LSB. For "internally calibrated" devices, Tx_I(Offset)should be set to one , and useless.
82-83	2	ALL	Tx_PWR(Offset)	Fixed decimal (signed two's complement) calibration data, transmitter coupled output power. Bit 7 of byte 82 is MSB, bit 0 of byte 83 is LSB. For "internally calibrated" devices, Tx_PWR(Offset) should be set to zero , and useless.

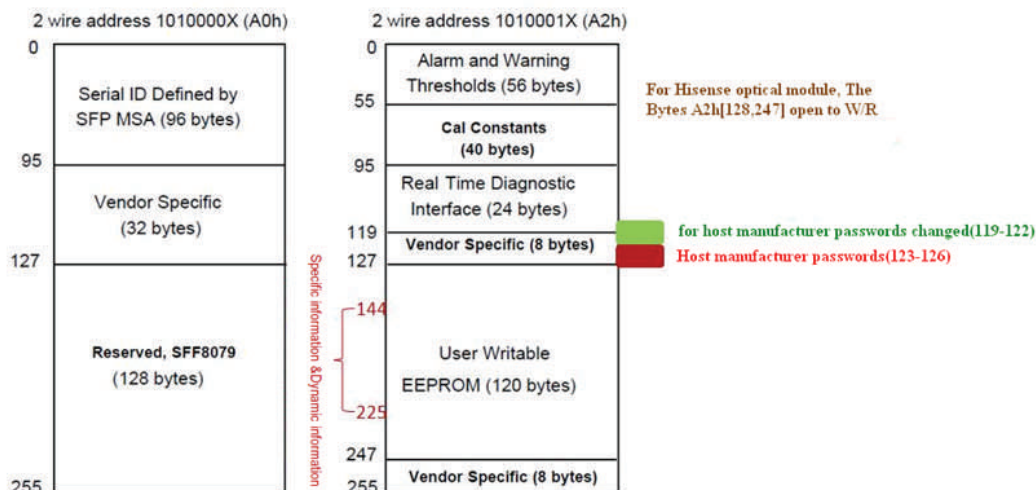


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A2 (HEX) Address Table for Alarm and Warning Data				
Address	Size (Byte)	Bits	Name of Filed	Description
113	1	7	RX Power High Alarm	Set when Received Power exceeds high alarm level, Reserved
		6	RX Power Low Alarm	Set when Received Power is below low alarm level, Reserved
		5	Reserved	Reserved
		4	Reserved	Reserved
		3	Reserved	Reserved
		2	Reserved	Reserved
		1	Reserved	Reserved
		0	Reserved	Reserved
114	1	ALL	Reserved	Reserved
115	1	ALL	Reserved	Reserved
116	1	7	Temp High Warning	Set when internal temperature exceeds high warning level.
		6	Temp Low Warning	Set when internal temperature is below low warning level.
		5	Vcc High Warning	Set when internal supply voltage exceeds high warning level.
		4	Vcc Low Warning	Set when internal supply voltage is below low warning level.
		3	TX Bias High Warning	Set when TX Bias current exceeds high warning level.
		2	TX Bias Low Warning	Set when TX Bias current is below low warning level.
		1	TX Power High Warning	Set when TX output power exceeds high warning level.
		0	TX Power Low Warning	Set when TX output power is below low warning level.
117	1	7	RX Power High Warning	Set when Received Power exceeds high warning level, Reserved
		6	RX Power Low Warning	Set when Received Power is below low warning level, Reserved
		5	Reserved	Reserved
		4	Reserved	Reserved
		3	Reserved	Reserved
		2	Reserved	Reserved
		1	Reserved	Reserved
		0	Reserved	Reserved
118	1	ALL	Reserved	Reserved
119	1	ALL	Reserved	Reserved
120-127	8	ALL	Vendor Specific	Vendor Specific
128-247	120	ALL	User EEPROM	User writable EEPROM
248-255	1	ALL	Vendor Specific	Vendor Specific

Password Protection For User Writable EEPROM



1. Bytes A2h[123,126] are reserved for an optional password entry function. The Password entry bytes are write only and will be retained until power down, reset, or rewritten by host.

2. This function may be used to control read/write access to vendor specific tables 03h – 7Fh. Additionally, module vendors may use this function to implement write protection of Serial ID and other MSA read only information. Passwords may be supplied to and used by Host manufacturers to limit write access in the User EEPROM Table (02h).

3. Host manufacturer and module manufacturer passwords shall be distinguished by the high order bit (bit 7, Byte 123). All host manufacturer passwords shall fall in the range of 00000000h to 7FFFFFFFh, and all module manufacturer passwords in the range of 80000000h to FFFFFFFFh. Host manufacturer passwords shall be initially set to 00001011h in new modules. Host manufacturer passwords may be changed by writing a new password in Bytes A2h[119-122] when the correct current Host manufacture password has been entered in A2h [123,126] , with the high order bit being ignored and forced to a value of 0 in the new password.

4. The password entry field shall be set to 00000000h on power up and reset.

5. Host manufacturer and Hisense passwords shall be distinguished by the high order bit (bit7, Byte 123). All host manufacturer passwords shall fall in the range of 00000000h to 7FFFFFFFh, and Hisense passwords in the range of 80000000h to FFFFFFFFh. Host manufacturer passwords shall be initially set to 0000111h in new modules. Host manufacturer passwords may be changed by writing a new password in Bytes 119-122 of A2¹ when the correct Host manufacturer password has been entered in 123-126 of A2², with the high order bit being ignored and forced to a value of 0 in the new password.

6. The password entry field is set to 00000000h on power up and reset.

Notes:

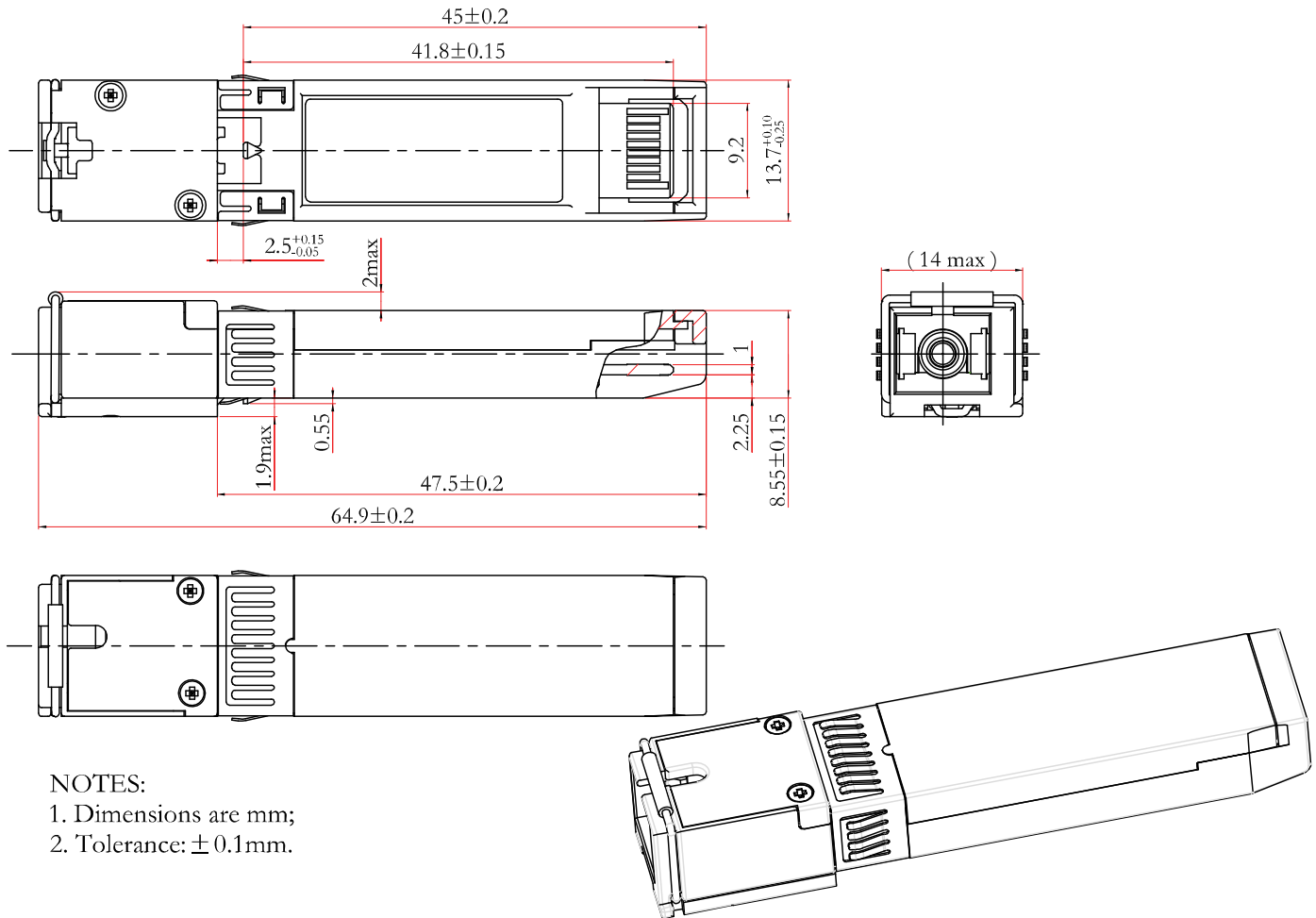
1. 119-122 of A2 means byte 119-122 which is accessible over a 2 wire serial interface at the 8 bit address 1010001X(A2h)
2. 123-126 of A2 means byte 123-126 which is accessible over a 2 wire serial interface at the 8 bit address 1010001X(A2h)



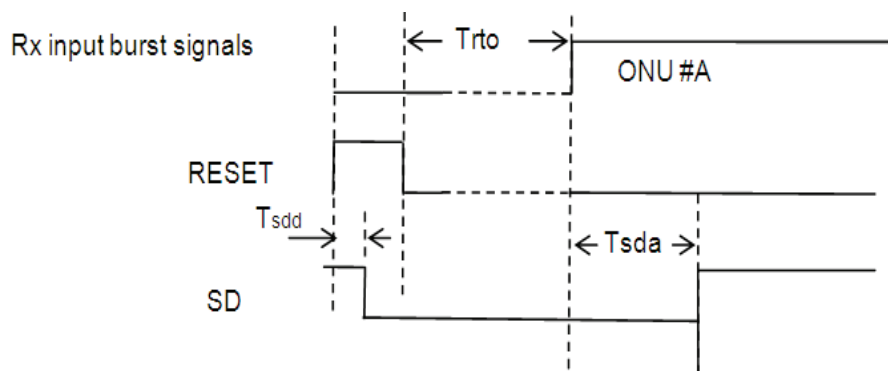
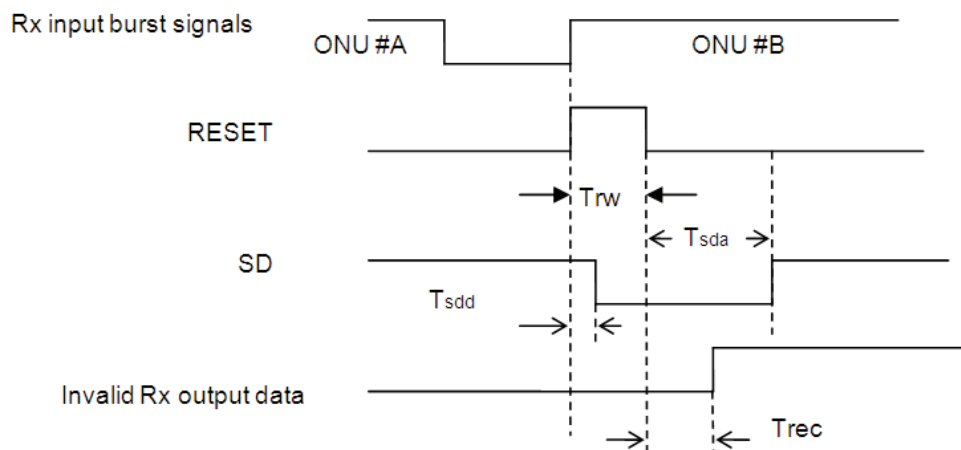
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Mechanical Dimensions



LTE3680M Timing Diagram

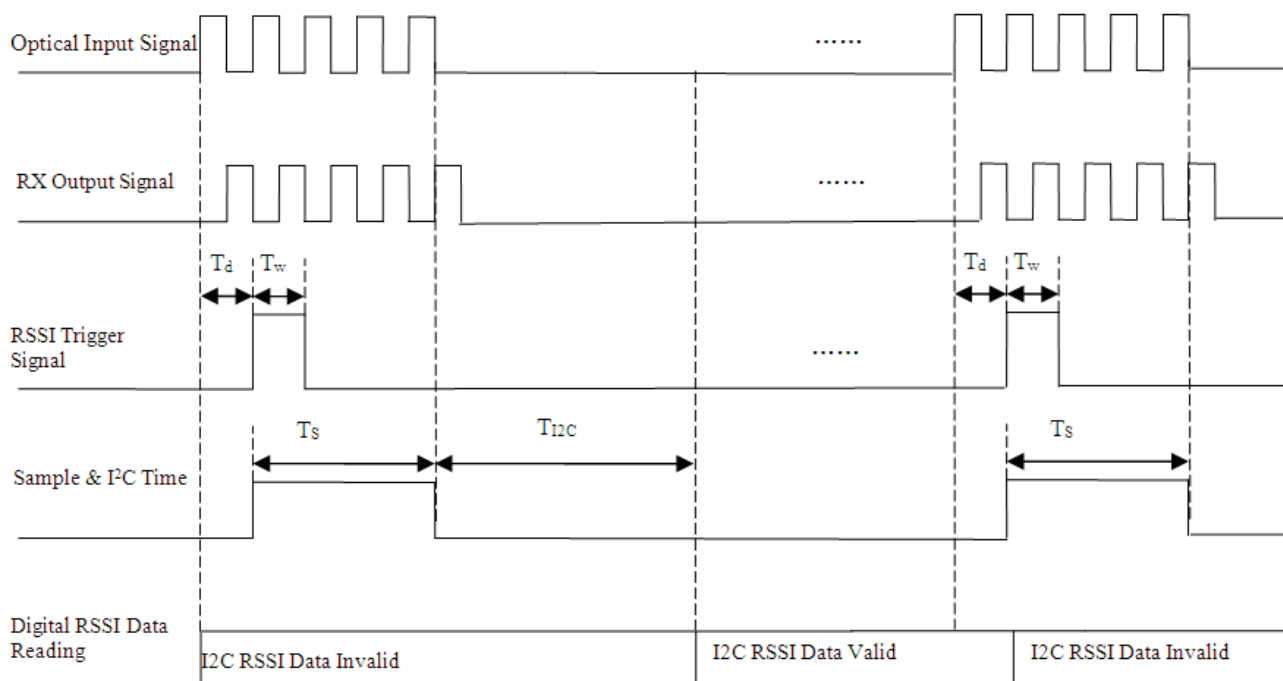


Parameter	Symbol	Min	Typical	Max	Units	Note
SD Assert time	Tg	0	-	50	ns	Note1
SD DeAssert time	Tr	0	-	12.8	ns	Note 1
Reset width	Ta	12.8	-	-	ns	Note2
Date recovery time	Trec		-	25.6	ns	
Reset To ONU Optical time	Trto	0	-	250(20km) 500(40km) 750(60km)	us	

Note 1: The Rx BSD assert LOW when the RESET signal is applied, assert HIGH when the incoming burst is detected and latch to HIGH state until next RESET signal input

Note 2: The Reset signal should be occurred in the preamble slot with normal mode

Digital RSSI Sample/Hold Timing Specification



Parameter	Symbol	Min	Typical	Max	Units
Trigger delay	T_d	25	-	-	Ns
Trigger width	T_w	350	-	-	Ns
Sample time	T_s	-	-	350	Ns
I ² C read time	T_{I2C}	-	-	500	μ s
Receiver Power DDM(RSSI) ERRORh	RXDDM	-3		3	dB



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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.

Global Sales Offices

Asia

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