

RoHS Compliant 1250Mbps Gigabit Interface Converters (GBIC) Transceiver Module for Gigabit Ethernet



Features

- Compliant with Gigabit Interface Converter (GBIC) Revision 5.4
- Compliant with proposed specifications for IEEE 802.3z/Gigabit Ethernet
- Dual 5/3.3V Power Supply
- TTL Logic TX_DISABLE / TX_FAULT / RX_LOS functions
- Class 1 Laser Product Compliant with the Requirements of IEC 60825-1 and IEC 60825-2
- Hot-Pluggable
- RoHS Compliant per Directive 2002/95/EC

Description

The GBIC-1250xxxx families are compliant with GBIC interface converters specification Rev. 5.4. as well as Gigabit Ethernet standard as specified in IEEE 802.3.

Delta's GBIC transceiver family uses a 20-pin connector to allow hot plug capability. The system designer can make configuration changes or maintenance simply by plugging in different type of converters without removing the power supply from the host system.

Applications

- 1.25 Gigabit Ethernet
- Fiber Channel

Performance

GBIC-1250B5LR:

1310nm MQW DFB laser, up to 40km in SMF

GBIC-1250D5MR:

1550nm MQW DFB laser, up to 40km in SMF

GBIC-1250D5WR:

1550nm MQW DFB laser, up to 70km in SMF

GBIC-1250D5RR:

1550nm MQW DFB laser, up to 80km in SMF

GBIC-1250D5VR:

1550nm MQW DFB laser, up to 100km in SMF

**Absolute Maximum Ratings**

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Note |
|---------------------|-----------------|------|------|------|------|------|
| Storage Temperature | T _s | -40 | | 85 | °C | |
| Supply Voltage | V _{CC} | 0 | | 6 | V | |

Recommended Operating Conditions

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Notes |
|-------------------------------|-----------------|-----------|-------|-----------|------|-------|
| Ambient Operating Temperature | T _A | 0 | | 70 | | |
| Supply voltage | V _{CC} | 3.15/4.75 | 3.3/5 | 3.47/5.25 | V | |
| Total Supply Current | I _S | | | 300 | mA | |
| Data Input/Output Load | R _{DL} | | 75 | | | |

Electrical Characteristics(V_{CC}=3.15/4.75V to 3.47/5.25V)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Note |
|--|---------------------------------|------|------|----------------------|------|------|
| Transmitter | | | | | | |
| Transmitter Differential Input Voltage | V _{DT} | 0.5 | | 2.4 | V | 1 |
| Transmitter Disable Input-High | V _{DISH} | 2 | | V _{CC} +0.3 | V | |
| Transmitter Disable Input-Low | V _{DISL} | 0 | | 0.8 | V | |
| Transmitter Fault Pull up Resistor | R _{TX_FAULT} | 4.7 | | 10 | kΩ | 2 |
| Transmitter Fault Output-High | V _{TXFH} | 2 | | V _{CC} +0.3 | V | 2 |
| Transmitter Fault Output-Low | V _{TXFL} | 0 | | 0.8 | V | 2 |
| Receiver | | | | | | |
| Receiver Differential Output Voltage | V _{DR} | 0.35 | | 2 | V | 3 |
| Receiver LOS Load | R _{RXLOS} | 4.7 | | 10 | kΩ | 2 |
| LOS Output Voltage-High | V _{LOSH} | 2 | | V _{CC} +0.3 | V | 2 |
| LOS Output Voltage-Low | V _{LOSL} | 0 | | 0.8 | V | 2 |
| Output Data Rise/Fall Time | t _r / t _f | | 220 | | psec | 4 |

Notes:

1. Internally AC coupled and terminated to 150-Ohm differential load.
2. Pull up to V_{CC} on host Board.
3. Internally AC coupled, but requires a 150-Ohm differential termination at or internal to Serializer/Deserializer.
4. These are 20%~80% values.



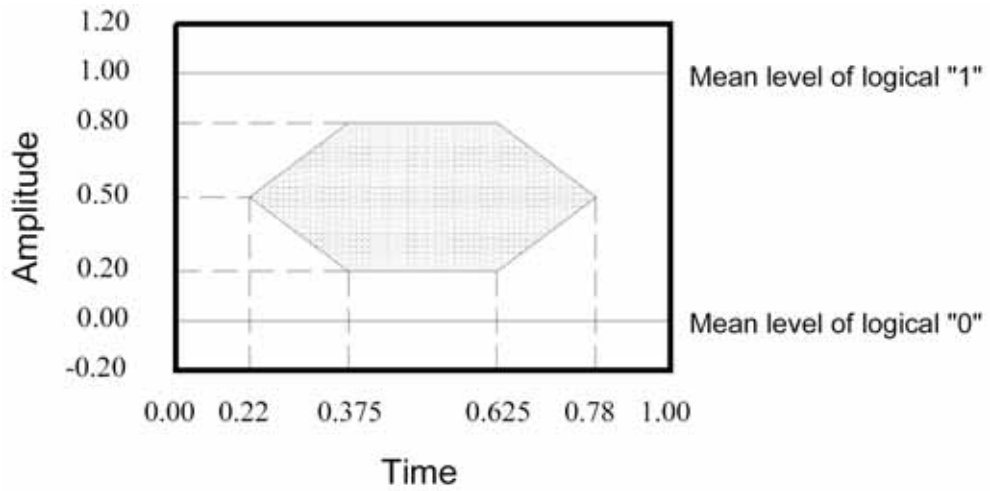
Optical Characteristics

(V_{CC}=3.15/4.75V to 3.47/5.25V, Data Rate=1250Mb/sec, PRBS=2⁷-1 NRZ)

| Parameter | Symbol | Min. | Typ. | Max. | Unit | Note |
|-----------------------------|--------------------------------|------|------|------|------|------|
| Transmitter | | | | | | |
| Output Optical Power (Avg.) | | | | | | |
| GBIC-1250B5LR | P _O | -4 | | 1 | dBm | |
| GBIC-1250D5MR | | -4 | | 1 | | |
| GBIC-1250D5WR | | -3 | | 2 | | |
| GBIC-1250D5RR | | 0 | | 5 | | |
| GBIC-1250D5VR | | 0 | | 5 | | |
| Optical Extinction Ratio | | 9 | | | dB | |
| Center Wavelength | | | | | | |
| GBIC-1250B5 Series | c | 1274 | 1310 | 1355 | nm | |
| GBIC-1250D5 Series | | 1530 | 1550 | 1570 | | |
| Spectral Width | | | | 1 | nm | |
| Side-mode Suppression Ratio | SMSR | 30 | | | dB | |
| Optical Rise/ Fall Time | t _r /t _f | | | 260 | psec | 1 |
| Receiver | | | | | | |
| Sensitivity (Avg.) | | | | | | |
| GBIC-1250B5LR | P _{IN} | | | -23 | dBm | 2 |
| GBIC-1250D5MR | | | | -21 | | |
| GBIC-1250D5WR | | | | -24 | | |
| GBIC-1250D5RR | | | | -24 | | |
| GBIC-1250D5VR | | | | -29 | | |
| Input Optical Wavelength | | 1270 | | 1570 | nm | |
| LOS-Deasserted (Avg.) | | | | | | |
| GBIC-1250B5LR | P _A | | | -23 | dBm | |
| GBIC-1250D5MR | | | | -21 | | |
| GBIC-1250D5WR | | | | -24 | | |
| GBIC-1250D5RR | | | | -24 | | |
| GBIC-1250D5VR | | | | -29 | | |
| LOS-Asserted (Avg.) | P _D | -40 | | | dBm | |
| LOS-Hysteresis | P _A -P _D | 0.5 | | | dB | |
| Overload | | | | | | |
| GBIC-1250B5 Series | P _O | -1 | | | dBm | |
| GBIC-1250D5 Series | | -1 | | | | |
| GBIC-1250D5VR | | -9 | | | | |

Notes:

1. These are unfiltered 20%~80% values
2. The sensitivity is provided at a BER of 1×10⁻¹² or better with an input signal consisting of 1250Mb/s, 2⁷-1 PRBS and ER=9dB.



Mask of the eye diagram for the optical transmit signal

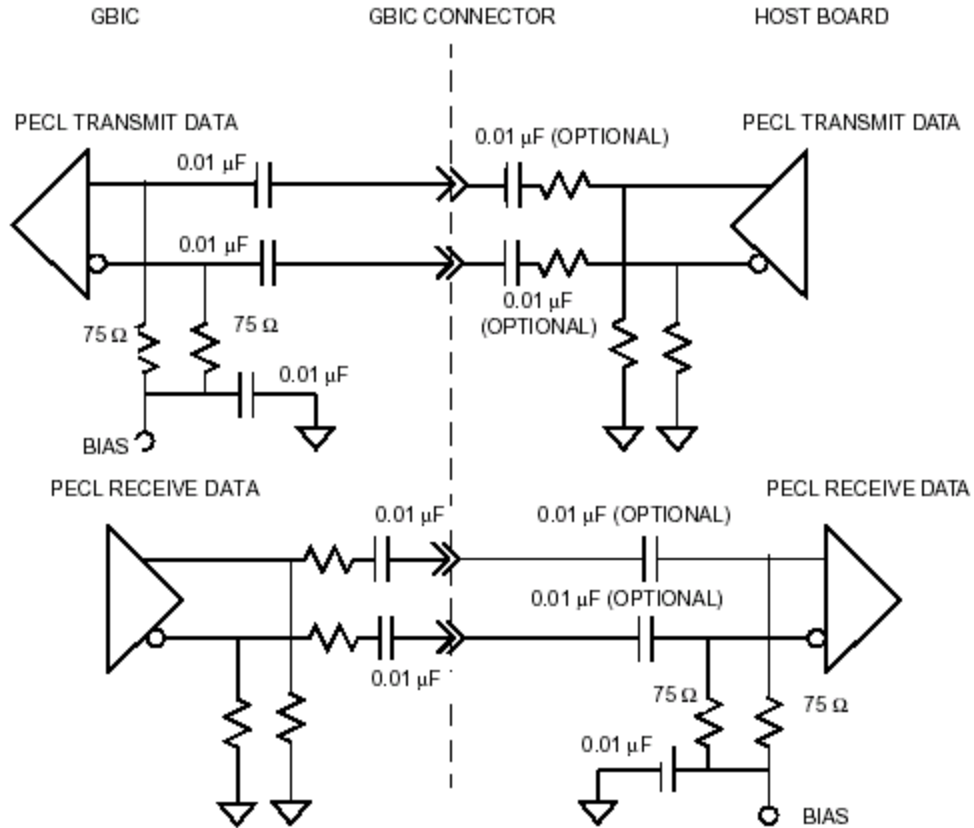
Pin Out Table

| Pin Name | Pin# | Sequence | Sequence | Pin# | Pin Name |
|------------|------|----------|----------|------|----------|
| RX_LOS | 1 | 2 | 1 | 11 | RGND |
| RGND | 2 | 2 | 1 | 12 | -RX_DAT |
| RGND | 3 | 2 | 1 | 13 | +RX_DAT |
| MOD_DEF(0) | 4 | 2 | 1 | 14 | RGND |
| MOD_DEF(1) | 5 | 2 | 2 | 15 | VDDR |
| MOD_DEF(2) | 6 | 2 | 2 | 16 | VDDT |
| TX_DISABLE | 7 | 2 | 1 | 17 | TGND |
| TGND | 8 | 2 | 1 | 18 | +TX_DAT |
| TGND | 9 | 2 | 1 | 19 | -TX_DAT |
| TX_FAULT | 10 | 2 | 1 | 20 | TGND |

Overview of internal interface signal Definition

| Pin Name | Pin # | Name/Function | Signal Specification |
|----------------------------|-----------|--|------------------------------|
| Receiver Signals | | | |
| RGND | 2,3,11,14 | Receiver Ground (may be connected with TGND in GBIC) | Ground, to GBIC |
| VDDR | 15 | Receiver +5 volt (may be connected with VDDT in GBIC) | Power, to GBIC |
| -RX_DAT | 12 | Receive Data, Differential PECL | High speed serial, from GBIC |
| +RX_DAT | 13 | Receive Data, Differential PECL | High speed serial, from GBIC |
| RX_LOS | 1 | Receiver Loss of Signal, logic high, open collector compatible, 4.7 K to 10 K Ohm pullup to VDDT on host | Low speed, from GBIC |
| Transmitter Signals | | | |
| TGND | 8,9,17,20 | Transmitter Ground (may be connected with RGND internally) | Ground, to GBIC |
| VDDT | 16 | Transmitter +5 volt (may be connected with VDDR in GBIC) | Power, to GBIC |
| +TX_DAT | 18 | Transmit Data, Differential PECL | High speed serial, to GBIC |
| -TX_DAT | 19 | Transmit Data, Differential PECL | High speed serial, to GBIC |
| TX_DISABLE | 7 | Transmitter Disable, logic high, open collector compatible, 4.7 K to 10 K Ohm pullup to VDDT on GBIC | Low speed, to GBIC |
| TX_FAULT | 10 | Transmitter Fault, logic high, open collector compatible, 4.7 K to 10 K Ohm pullup to VDDT on host | Low speed, from GBIC |
| Control Signals | | | |
| MOD_DEF(0) | 4 | GBIC module definition and presence, bit 0, 4.7 K to 10 K Ohm pullup to VDDT on host | Low speed, from GBIC |
| MOD_DEF(1) | 5 | GBIC module definition and presence, bit 1, 4.7 K to 10 K Ohm pullup to VDDT on host | Low speed, from GBIC |
| MOD_DEF(2) | 6 | GBIC module definition and presence, bit 2, 4.7 K to 10 K Ohm pullup to VDDT on host | Low speed, from GBIC |

Recommend Circuit Schematic



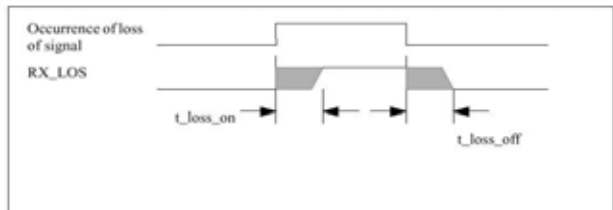
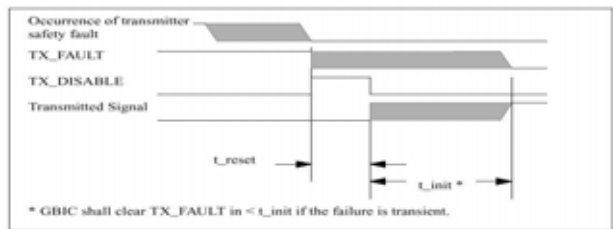
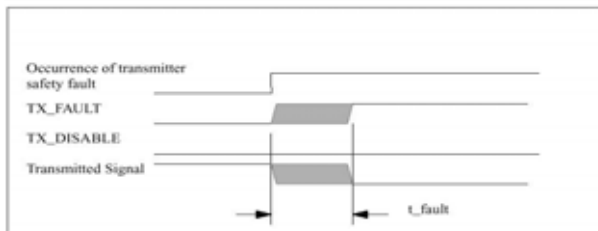
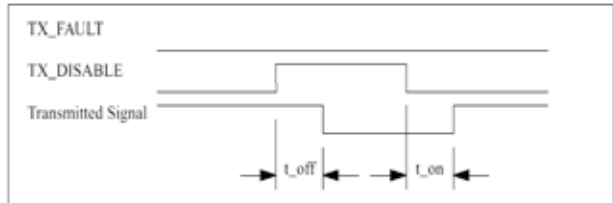
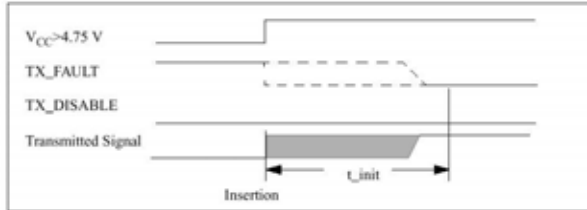
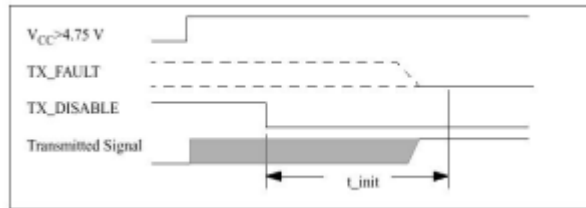
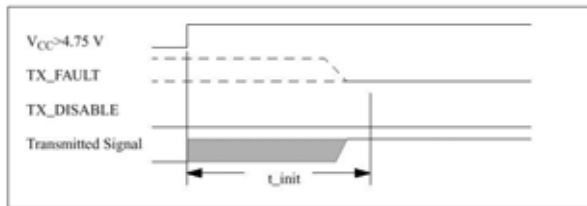
GBIC module definition parameters

| Module Definition | MOD_DEF(0) Pin 4 | MOD_DEF(1) Pin 5 | MOD_DEF(2) Pin 6 | Interpretation by host Reference |
|-------------------|---------------------|---------------------|---------------------|--|
| 0 | NC | NC | NC | GBIC not present clause |
| 1 | NC | NC | TTL LOW | Copper Style 1 or Style 2 connector, 1.0625 Gbd, 100-TW-EL-S or 100-TP-EL-S, active inter-enclosure connection and IEEE802.3 1000BASE-CX |
| 2 | NC | TTL LOW | NC | Copper Style 1 or Style 2 connector, 1.0625 Gbd, 100-TW-EL-S, or 100-TP-EL-S, active or passive intra-enclosure connection |
| 3 | NC | TTL LOW | TTL LOW | Optical LW, 1.0625 Gbd 100-SM-LC-L |
| 4 | TTL LOW | SCL | SDA | Serial module definition protocol |
| 5 | TTL LOW | NC | TTL LOW | Optical SW, 1.0625 Gbd 100-M5-SN-I or 100-M6-SN-I |
| 6 | TTL LOW | TTL LOW | NC | Optical LW, 1.0625 Gbd 100-SM-LC-L and similar to 1.25 Gbd IEEE802.3z 1000BASE-LX, single mode |
| 7 | TTL LOW | TTL LOW | TTL LOW | Optical SW, 1.0625 Gbd 100-M5-SN-I or 100-M6-SN-I and 1.25 Gbd, IEEE 802.3z, 1000BASE-SX |

GBIC timing parameters for GBIC management

| Parameter | Symbol | Min. | Max. | Unit | Unit Conditions |
|--|------------|------|------|------|---|
| TX_DISABLE assert time | t_off | | 10 | μsec | Rising edge of TX_DISABLE to fall of output signal below 10% of nominal |
| TX_DISABLE negate time | t_on | | 1 | nec | Falling edge of TX_DISABLE to rise of output signal above 90% of nominal |
| Time to initialize, includes reset of TX_FAULT | t_init | | 300 | msec | From power on or hot plug fter V DD T > 4.75 volts or From negation of TX_DISABLE during reset of TX_FAULT. |
| TX_FAULT from fault to assertion | t_fault | | 100 | μsec | From occurrence of fault (out-put safety violation or V DD T < 4.5 volts) |
| TX_DISABLE time to start reset | t_rest | 10 | | μsec | TX_DISABLE HIGH before TX_DISABLE set LOW |
| RX_LOS assert delay | t_loss_on | | 100 | μsec | From detection of loss of signal to assertion of RX_LOS |
| RX_LOS negate delay | t_loss_off | | 100 | μsec | From detection of presence of signal to negation of RX_LOS |

GBIC timing parameters





GBIC-1250B5Lx EEPROM Serial ID Memory Contents (2-Wire Address A0h)

| Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII |
|---------|-----|-------|---------|-----|-------|---------|-------|--------|---------|-----|--------|---------|-----|-------|---------|-----|-------|
| 00 | 01 | | 25 | 20 | | 50 | 35 | 5 | 75 | SN | | 100 | 00 | | 125 | 00 | |
| 01 | 04 | | 26 | 20 | | 51 | 4C | L | 76 | SN | | 101 | 00 | | 126 | 00 | |
| 02 | 01 | | 27 | 20 | | 52 | 53/52 | S/R | 77 | SN | | 102 | 00 | | 127 | 00 | |
| 03 | 00 | | 28 | 20 | | 53 | 20 | | 78 | SN | | 103 | 00 | | | | |
| 04 | 00 | | 29 | 20 | | 54 | 20 | | 79 | SN | | 104 | 00 | | | | |
| 05 | 00 | | 30 | 20 | | 55 | 20 | | 80 | SN | | 105 | 00 | | | | |
| 06 | 02 | | 31 | 20 | | 56 | 56 | | 81 | SN | | 106 | 00 | | | | |
| 07 | 12 | | 32 | 20 | | 57 | 31 | | 82 | SN | | 107 | 00 | | | | |
| 08 | 00 | | 33 | 20 | | 58 | 2D | | 83 | SN | | 108 | 00 | | | | |
| 09 | 01 | | 34 | 20 | | 59 | 30 | | 84 | DC | Note 3 | 109 | 00 | | | | |
| 10 | 01 | | 35 | 20 | | 60 | 05 | | 85 | DC | | 110 | 00 | | | | |
| 11 | 01 | | 36 | 00 | | 61 | 1E | | 86 | DC | | 111 | 00 | | | | |
| 12 | 0D | | 37 | 00 | | 62 | 00 | | 87 | DC | | 112 | 00 | | | | |
| 13 | 00 | | 38 | 00 | | 63 | CS1 | Note 1 | 88 | DC | | 113 | 00 | | | | |
| 14 | 28 | | 39 | 00 | | 64 | 00 | | 89 | DC | | 114 | 00 | | | | |
| 15 | 00 | | 40 | 47 | G | 65 | 1A | | 90 | DC | | 115 | 00 | | | | |
| 16 | 37 | | 41 | 42 | B | 66 | 05 | | 91 | DC | | 116 | 00 | | | | |
| 17 | 37 | | 42 | 49 | I | 67 | 05 | | 92 | 00 | | 117 | 00 | | | | |
| 18 | 00 | | 43 | 43 | C | 68 | SN | Note 2 | 93 | 00 | | 118 | 00 | | | | |
| 19 | 00 | | 44 | 2D | - | 69 | SN | | 94 | 00 | | 119 | 00 | | | | |
| 20 | 44 | D | 45 | 31 | 1 | 70 | SN | | 95 | CS2 | Note 4 | 120 | 00 | | | | |
| 21 | 45 | E | 46 | 32 | 2 | 71 | SN | | 96 | 00 | | 121 | 00 | | | | |
| 22 | 4C | L | 47 | 35 | 5 | 72 | SN | | 97 | 00 | | 122 | 00 | | | | |
| 23 | 54 | T | 48 | 30 | 0 | 73 | SN | | 98 | 00 | | 123 | 00 | | | | |
| 24 | 41 | A | 49 | 42 | B | 74 | SN | | 99 | 00 | | 124 | 00 | | | | |

GBIC-1250D5Mx EEPROM Serial ID Memory Contents (2-Wire Address A0h)

| Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII |
|---------|-----|-------|---------|-----|-------|---------|-------|--------|---------|-----|--------|---------|-----|-------|---------|-----|-------|
| 00 | 01 | | 25 | 20 | | 50 | 35 | 5 | 75 | SN | | 100 | 00 | | 125 | 00 | |
| 01 | 04 | | 26 | 20 | | 51 | 4D | M | 76 | SN | | 101 | 00 | | 126 | 00 | |
| 02 | 01 | | 27 | 20 | | 52 | 53/52 | S/R | 77 | SN | | 102 | 00 | | 127 | 00 | |
| 03 | 00 | | 28 | 20 | | 53 | 20 | | 78 | SN | | 103 | 00 | | | | |
| 04 | 00 | | 29 | 20 | | 54 | 20 | | 79 | SN | | 104 | 00 | | | | |
| 05 | 00 | | 30 | 20 | | 55 | 20 | | 80 | SN | | 105 | 00 | | | | |
| 06 | 02 | | 31 | 20 | | 56 | 56 | | 81 | SN | | 106 | 00 | | | | |
| 07 | 12 | | 32 | 20 | | 57 | 31 | | 82 | SN | | 107 | 00 | | | | |
| 08 | 00 | | 33 | 20 | | 58 | 2D | | 83 | SN | | 108 | 00 | | | | |
| 09 | 01 | | 34 | 20 | | 59 | 30 | | 84 | DC | Note 3 | 109 | 00 | | | | |
| 10 | 01 | | 35 | 20 | | 60 | 05 | | 85 | DC | | 110 | 00 | | | | |
| 11 | 01 | | 36 | 00 | | 61 | 1E | | 86 | DC | | 111 | 00 | | | | |
| 12 | 0D | | 37 | 00 | | 62 | 00 | | 87 | DC | | 112 | 00 | | | | |
| 13 | 00 | | 38 | 00 | | 63 | CS1 | Note 1 | 88 | DC | | 113 | 00 | | | | |
| 14 | 28 | | 39 | 00 | | 64 | 00 | | 89 | DC | | 114 | 00 | | | | |
| 15 | 00 | | 40 | 47 | G | 65 | 1A | | 90 | DC | | 115 | 00 | | | | |
| 16 | 37 | | 41 | 42 | B | 66 | 05 | | 91 | DC | | 116 | 00 | | | | |
| 17 | 37 | | 42 | 49 | I | 67 | 05 | | 92 | 00 | | 117 | 00 | | | | |
| 18 | 00 | | 43 | 43 | C | 68 | SN | Note 2 | 93 | 00 | | 118 | 00 | | | | |
| 19 | 00 | | 44 | 2D | - | 69 | SN | | 94 | 00 | | 119 | 00 | | | | |
| 20 | 44 | D | 45 | 31 | 1 | 70 | SN | | 95 | CS2 | Note 4 | 120 | 00 | | | | |
| 21 | 45 | E | 46 | 32 | 2 | 71 | SN | | 96 | 00 | | 121 | 00 | | | | |
| 22 | 4C | L | 47 | 35 | 5 | 72 | SN | | 97 | 00 | | 122 | 00 | | | | |
| 23 | 54 | T | 48 | 30 | 0 | 73 | SN | | 98 | 00 | | 123 | 00 | | | | |
| 24 | 41 | A | 49 | 44 | D | 74 | SN | | 99 | 00 | | 124 | 00 | | | | |



GBIC-1250D5Wx EEPROM Serial ID Memory Contents (2-Wire Address A0h)

| Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII |
|---------|-----|-------|---------|-----|-------|---------|-------|--------|---------|-----|--------|---------|-----|-------|---------|-----|-------|
| 00 | 01 | | 25 | 20 | | 50 | 35 | 5 | 75 | SN | | 100 | 00 | | 125 | 00 | |
| 01 | 04 | | 26 | 20 | | 51 | 77 | W | 76 | SN | | 101 | 00 | | 126 | 00 | |
| 02 | 01 | | 27 | 20 | | 52 | 53/52 | S/R | 77 | SN | | 102 | 00 | | 127 | 00 | |
| 03 | 00 | | 28 | 20 | | 53 | 20 | | 78 | SN | | 103 | 00 | | | | |
| 04 | 00 | | 29 | 20 | | 54 | 20 | | 79 | SN | | 104 | 00 | | | | |
| 05 | 00 | | 30 | 20 | | 55 | 20 | | 80 | SN | | 105 | 00 | | | | |
| 06 | 02 | | 31 | 20 | | 56 | 56 | | 81 | SN | | 106 | 00 | | | | |
| 07 | 12 | | 32 | 20 | | 57 | 31 | | 82 | SN | | 107 | 00 | | | | |
| 08 | 00 | | 33 | 20 | | 58 | 2D | | 83 | SN | | 108 | 00 | | | | |
| 09 | 01 | | 34 | 20 | | 59 | 30 | | 84 | DC | Note 3 | 109 | 00 | | | | |
| 10 | 01 | | 35 | 20 | | 60 | 05 | | 85 | DC | | 110 | 00 | | | | |
| 11 | 01 | | 36 | 00 | | 61 | 1E | | 86 | DC | | 111 | 00 | | | | |
| 12 | 0D | | 37 | 00 | | 62 | 00 | | 87 | DC | | 112 | 00 | | | | |
| 13 | 00 | | 38 | 00 | | 63 | CS1 | Note 1 | 88 | DC | | 113 | 00 | | | | |
| 14 | 46 | | 39 | 00 | | 64 | 00 | | 89 | DC | | 114 | 00 | | | | |
| 15 | 00 | | 40 | 47 | G | 65 | 1A | | 90 | DC | | 115 | 00 | | | | |
| 16 | 37 | | 41 | 42 | B | 66 | 05 | | 91 | DC | | 116 | 00 | | | | |
| 17 | 37 | | 42 | 49 | I | 67 | 05 | | 92 | 00 | | 117 | 00 | | | | |
| 18 | 00 | | 43 | 43 | C | 68 | SN | Note 2 | 93 | 00 | | 118 | 00 | | | | |
| 19 | 00 | | 44 | 2D | - | 69 | SN | | 94 | 00 | | 119 | 00 | | | | |
| 20 | 44 | D | 45 | 31 | 1 | 70 | SN | | 95 | CS2 | Note 4 | 120 | 00 | | | | |
| 21 | 45 | E | 46 | 32 | 2 | 71 | SN | | 96 | 00 | | 121 | 00 | | | | |
| 22 | 4C | L | 47 | 35 | 5 | 72 | SN | | 97 | 00 | | 122 | 00 | | | | |
| 23 | 54 | T | 48 | 30 | 0 | 73 | SN | | 98 | 00 | | 123 | 00 | | | | |
| 24 | 41 | A | 49 | 44 | D | 74 | SN | | 99 | 00 | | 124 | 00 | | | | |

GBIC-1250D5Rx EEPROM Serial ID Memory Contents (2-Wire Address A0h)

| Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII |
|---------|-----|-------|---------|-----|-------|---------|-------|--------|---------|-----|--------|---------|-----|-------|---------|-----|-------|
| 00 | 01 | | 25 | 20 | | 50 | 35 | 5 | 75 | SN | | 100 | 00 | | 125 | 00 | |
| 01 | 04 | | 26 | 20 | | 51 | 52 | R | 76 | SN | | 101 | 00 | | 126 | 00 | |
| 02 | 01 | | 27 | 20 | | 52 | 53/52 | S/R | 77 | SN | | 102 | 00 | | 127 | 00 | |
| 03 | 00 | | 28 | 20 | | 53 | 20 | | 78 | SN | | 103 | 00 | | | | |
| 04 | 00 | | 29 | 20 | | 54 | 20 | | 79 | SN | | 104 | 00 | | | | |
| 05 | 00 | | 30 | 20 | | 55 | 20 | | 80 | SN | | 105 | 00 | | | | |
| 06 | 02 | | 31 | 20 | | 56 | 56 | | 81 | SN | | 106 | 00 | | | | |
| 07 | 12 | | 32 | 20 | | 57 | 31 | | 82 | SN | | 107 | 00 | | | | |
| 08 | 00 | | 33 | 20 | | 58 | 2D | | 83 | SN | | 108 | 00 | | | | |
| 09 | 01 | | 34 | 20 | | 59 | 30 | | 84 | DC | Note 3 | 109 | 00 | | | | |
| 10 | 01 | | 35 | 20 | | 60 | 05 | | 85 | DC | | 110 | 00 | | | | |
| 11 | 01 | | 36 | 00 | | 61 | 1E | | 86 | DC | | 111 | 00 | | | | |
| 12 | 0D | | 37 | 00 | | 62 | 00 | | 87 | DC | | 112 | 00 | | | | |
| 13 | 00 | | 38 | 00 | | 63 | CS1 | Note 1 | 88 | DC | | 113 | 00 | | | | |
| 14 | 50 | | 39 | 00 | | 64 | 00 | | 89 | DC | | 114 | 00 | | | | |
| 15 | 00 | | 40 | 47 | G | 65 | 1A | | 90 | DC | | 115 | 00 | | | | |
| 16 | 37 | | 41 | 42 | B | 66 | 05 | | 91 | DC | | 116 | 00 | | | | |
| 17 | 37 | | 42 | 49 | I | 67 | 05 | | 92 | 00 | | 117 | 00 | | | | |
| 18 | 00 | | 43 | 43 | C | 68 | SN | Note 2 | 93 | 00 | | 118 | 00 | | | | |
| 19 | 00 | | 44 | 2D | - | 69 | SN | | 94 | 00 | | 119 | 00 | | | | |
| 20 | 44 | D | 45 | 31 | 1 | 70 | SN | | 95 | CS2 | Note 4 | 120 | 00 | | | | |
| 21 | 45 | E | 46 | 32 | 2 | 71 | SN | | 96 | 00 | | 121 | 00 | | | | |
| 22 | 4C | L | 47 | 35 | 5 | 72 | SN | | 97 | 00 | | 122 | 00 | | | | |
| 23 | 54 | T | 48 | 30 | 0 | 73 | SN | | 98 | 00 | | 123 | 00 | | | | |
| 24 | 41 | A | 49 | 44 | D | 74 | SN | | 99 | 00 | | 124 | 00 | | | | |



GBIC-1250D5Vx EEPROM Serial ID Memory Contents (2-Wire Address A0h)

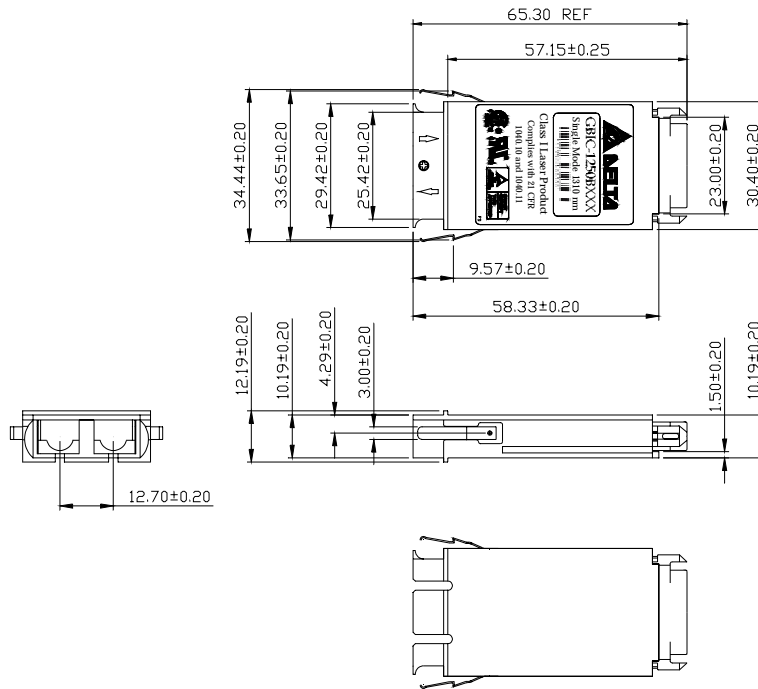
| Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII | Address | Hex | ASCII |
|---------|-----|-------|---------|-----|-------|---------|-------|--------|---------|-----|--------|---------|-----|-------|---------|-----|-------|
| 00 | 01 | | 25 | 20 | | 50 | 35 | 5 | 75 | SN | | 100 | 00 | | 125 | 00 | |
| 01 | 04 | | 26 | 20 | | 51 | 56 | V | 76 | SN | | 101 | 00 | | 126 | 00 | |
| 02 | 01 | | 27 | 20 | | 52 | 53/52 | S/R | 77 | SN | | 102 | 00 | | 127 | 00 | |
| 03 | 00 | | 28 | 20 | | 53 | 20 | | 78 | SN | | 103 | 00 | | | | |
| 04 | 00 | | 29 | 20 | | 54 | 20 | | 79 | SN | | 104 | 00 | | | | |
| 05 | 00 | | 30 | 20 | | 55 | 20 | | 80 | SN | | 105 | 00 | | | | |
| 06 | 02 | | 31 | 20 | | 56 | 56 | | 81 | SN | | 106 | 00 | | | | |
| 07 | 12 | | 32 | 20 | | 57 | 31 | | 82 | SN | | 107 | 00 | | | | |
| 08 | 00 | | 33 | 20 | | 58 | 2D | | 83 | SN | | 108 | 00 | | | | |
| 09 | 01 | | 34 | 20 | | 59 | 30 | | 84 | DC | Note 3 | 109 | 00 | | | | |
| 10 | 01 | | 35 | 20 | | 60 | 05 | | 85 | DC | | 110 | 00 | | | | |
| 11 | 01 | | 36 | 00 | | 61 | 1E | | 86 | DC | | 111 | 00 | | | | |
| 12 | 0D | | 37 | 00 | | 62 | 00 | | 87 | DC | | 112 | 00 | | | | |
| 13 | 00 | | 38 | 00 | | 63 | CS1 | Note 1 | 88 | DC | | 113 | 00 | | | | |
| 14 | 64 | | 39 | 00 | | 64 | 00 | | 89 | DC | | 114 | 00 | | | | |
| 15 | 00 | | 40 | 47 | G | 65 | 1A | | 90 | DC | | 115 | 00 | | | | |
| 16 | 37 | | 41 | 42 | B | 66 | 05 | | 91 | DC | | 116 | 00 | | | | |
| 17 | 37 | | 42 | 49 | I | 67 | 05 | | 92 | 00 | | 117 | 00 | | | | |
| 18 | 00 | | 43 | 43 | C | 68 | SN | Note 2 | 93 | 00 | | 118 | 00 | | | | |
| 19 | 00 | | 44 | 2D | - | 69 | SN | | 94 | 00 | | 119 | 00 | | | | |
| 20 | 44 | D | 45 | 31 | 1 | 70 | SN | | 95 | CS2 | Note 4 | 120 | 00 | | | | |
| 21 | 45 | E | 46 | 32 | 2 | 71 | SN | | 96 | 00 | | 121 | 00 | | | | |
| 22 | 4C | L | 47 | 35 | 5 | 72 | SN | | 97 | 00 | | 122 | 00 | | | | |
| 23 | 54 | T | 48 | 30 | 0 | 73 | SN | | 98 | 00 | | 123 | 00 | | | | |
| 24 | 41 | A | 49 | 44 | D | 74 | SN | | 99 | 00 | | 124 | 00 | | | | |

Notes:

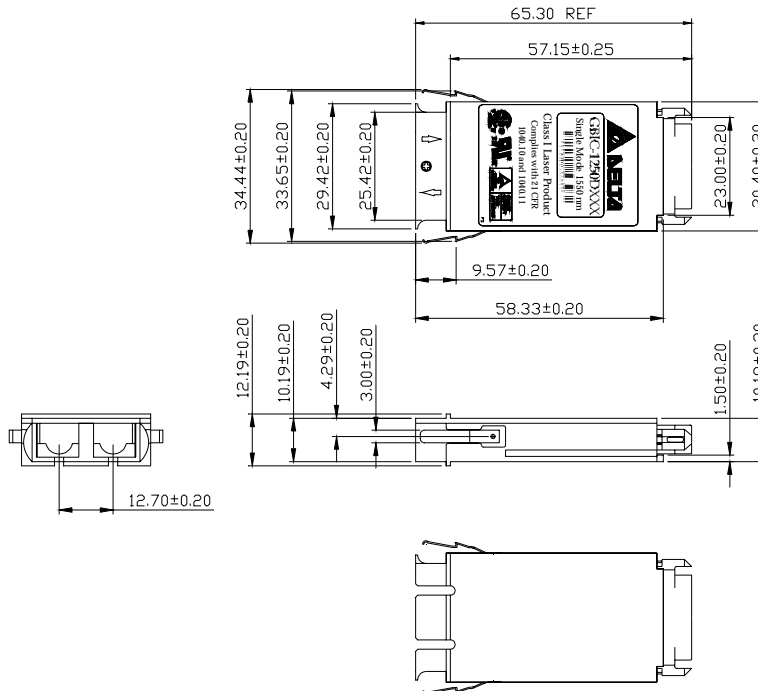
- 1) Byte 63(CS1): Check sum of bytes 0-62.
- 2) Byte 68-83 (SN): Serial number.
- 3) Byte 84-91 (DC): Date code.
- 4) Byte 95 (CS2): Check sum of bytes 64-94.
- 5) Byte 128-255 had been set hex. 00.

Package Outline Drawing

GBIC-1250B5Lx



GBIC-1250D5M (W, R, V) x



Regulatory Compliance

| Test Item | Reference | Qty' | Evaluation |
|---|--|------|--|
| (#1) Electromagnetic Interference EMC | FCC Class B EN 55022 Class B CISPR 22 | 5 | (1) Satisfied with electrical characteristics of product spec. (2) No physical damage |
| (#2) Immunity : Radio Frequency Electromagnetic Field | EN 61000-4-3 IEC 1000-4-3 | 5 | |
| (#3) Immunity : Electrostatic Discharge to the Duplex SC Receptacle | EN 61000-4-2 IEC 1000-4-2 IEC 801.2 | 5 | |
| (#4) Electrostatic Discharge to the Electrical Pins | MIL-STD-883C Method 3015.4 EIAJ#1988.3.2B Version 2, Machine model | 5 | |

Ordering information for GBIC modules
GBIC-1250X₁X₂X₃X₄

X1: **Light source types**
B: 1310nm Single-mode
D: 1550nm Single-mode

X2: **Power Supply Voltage**
5: 3.3 and 5V

X3: **Distance**
L: 40km
M: 40km
W: 70km
R: 80km
V: 100km
X4: S: Standard part
R: RoHS Compliant

Available Products

- **GBIC-1250A3Fx**: Single supply voltage (5V), 850nm VCSEL, 50um MMF 500m.
- **GBIC-1250B3Qx**: Single supply voltage (5V), 1310nm MQW FP-LD, SMF 10km.
- **GBIC-1250A5Fx**: Dual supply voltage (3.3/5V), 850nm VCSEL, 50um MMF 500m.
- **GBIC-1250B5Qx**: Dual supply voltage (3.3/5V), 1310nm MQW FP-LD, SMF 10km.