

Single-mode 2.5Gbps Transmitter / Receiver

Features

Transmitter :

- 2 x 10 pins, 2 x 8 pins metal case
- 1310nm, 1550nm LD transmitter with automatic power control
- AC coupled LVPECL compatible data input and output
- Single 3.3V power supply



Receiver :

- 2 x 10 pins, 2 x 8 pins metal case
- InGaAs PIN detector
- Receiver loss of signal output
- Single 3.3V power supply



Specifications

| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|--|-----------------|------|------|------|-------------------|
| Transmitter | | | | | |
| Data Rate (NRZ) | B | - | 2500 | - | Mb/s |
| Optical Output Power (avg.) ^{(1) (2) (3)} | | | | | |
| -1 | P _o | -12 | - | -6 | dBm |
| -2 | P _o | -6 | - | 0 | dBm |
| Extinction Ratio | ER | 8.2 | - | - | dB |
| Optical Wavelength | | | | | |
| 1310nm FP LD | λ_c | 1260 | 1310 | 1360 | nm |
| 1310nm DFB LD | λ_c | 1290 | 1310 | 1330 | nm |
| 1550nm FP LD | λ_c | 1490 | 1550 | 1610 | nm |
| 1550nm DFB LD | λ_c | 1530 | 1550 | 1570 | nm |
| Spectral Width (RMS, -20dB) | | | | | |
| 1310nm FP LD | $\Delta\lambda$ | - | 1.0 | 2.0 | nm |
| 1550nm FP LD | $\Delta\lambda$ | - | 1.0 | 2.5 | nm |
| Side Mode Suppression Ratio | | | | | |
| 1310nm DFB LD | SMSR | 30 | 40 | - | dB |
| 1550nm DFB LD | SMSR | 30 | 40 | - | dB |
| Output Rise Time (20-80%) | t _r | - | - | 180 | ps |
| Output Fall Time (20-80%) | t _f | - | - | 180 | ps |
| Data Differential Input Voltage ⁽⁶⁾ | V _i | 500 | - | 2400 | mV _{p-p} |
| Supply Voltage | V _{cc} | 2.97 | 3.3 | 3.63 | V |
| Supply Current | I _{cc} | - | - | 120 | mA |

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| Parameter | Symbol | Min. | Typ. | Max. | Unit |
|--|---------------------|------|------|-----------------|-------------------|
| Receiver | | | | | |
| Data Rate (NRZ) | B | - | 2500 | - | Mb/s |
| Optical Input (avg.) Sensitivity ⁽¹⁾ ⁽⁵⁾ | P _{IN} | - | - | -18 | dBm |
| Saturation | P _{SAT} | -3 | 0 | - | dBm |
| Optical Wavelength | λ | 1100 | - | 1600 | nm |
| Output Rise Time (20-80%) | t _r | - | - | 175 | ps |
| Output Fall Time (20-80%) | t _f | - | - | 175 | ps |
| Data Differential Output Voltage ⁽⁶⁾ | V _o | 600 | - | 1200 | mV _{p-p} |
| LOS Deasserted Power Level (avg.) | P _A | - | - | -18 | dBm |
| LOS Asserted Power Level (avg.) | P _D | -28 | - | - | dBm |
| LOS Hysteresis | P _{HYS} | 0.5 | 3 | - | dB |
| LOS Output Voltage | V _{LOS-OL} | 0 | - | 0.4 | V |
| | V _{LOS-OH} | 2.4 | - | V _{CC} | |
| Supply Voltage | V _{CC} | 2.97 | 3.3 | 3.63 | V |
| Supply Current | I _{CC} | - | - | 120 | mA |

Notes :

- (1) With 0.275 NA, 9/125μm fiber.
- (2) Driven with a differential signal.
- (3) Class 1 eye safe per FDA and IEC.
- (4) Transmitter eye mask diagram is compliant to ITU-T G.957 Eye Diagram.
- (5) 2²³ -1 PRBS, BER= 10⁻¹⁰.
- (6) Compatible with LVPECL logic levels.
- (7) The transmitter output should not be viewed directly.

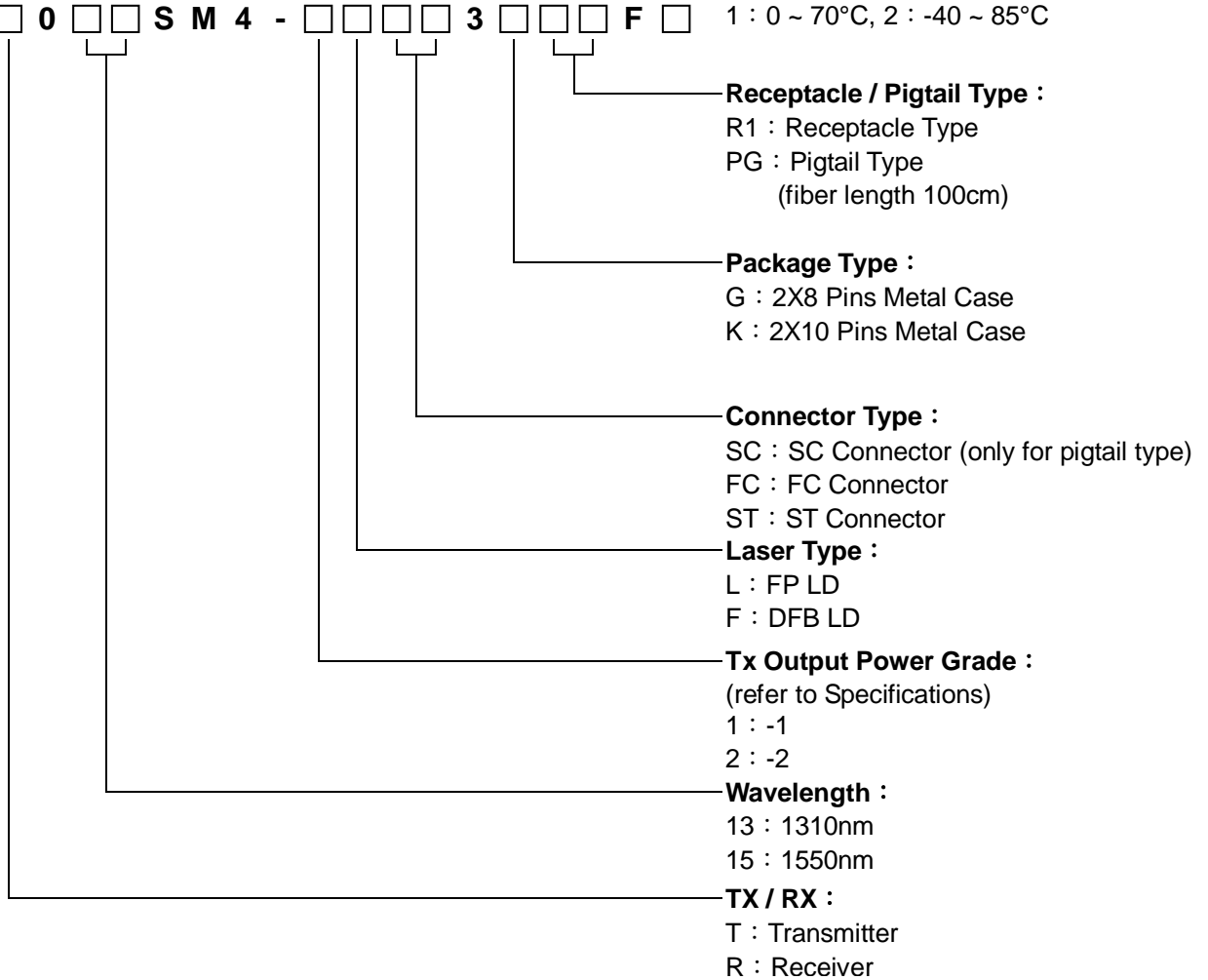
Absolute Maximum Ratings

| Parameter | Min. | Max. | Unit |
|-----------------------|------|--------|---------|
| Operating Temperature | -40 | 85 | °C |
| Storage Temperature | -40 | 100 | °C |
| Lead Soldering Limits | - | 240/10 | °C /sec |
| Supply Voltage | -0.2 | 4 | V |

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Ordering Information

□ 0 □ □ S M 4 - □ □ □ □ 3 □ □ □ F □ 1 : 0 ~ 70°C, 2 : -40 ~ 85°C

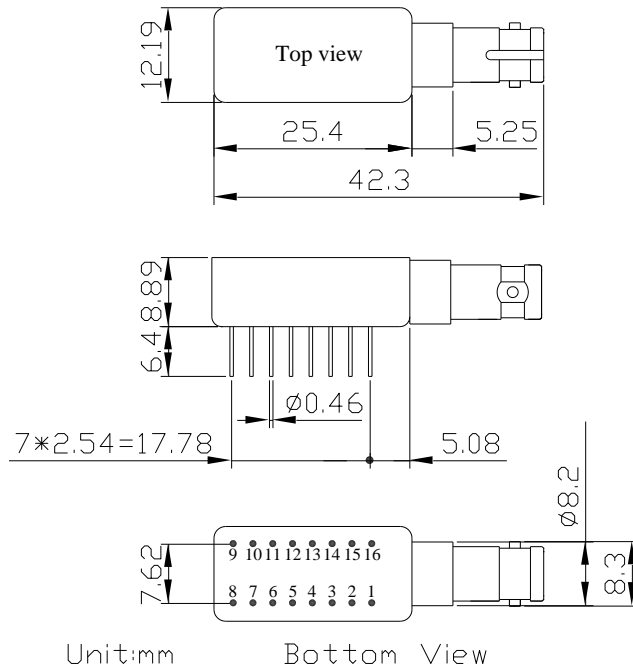


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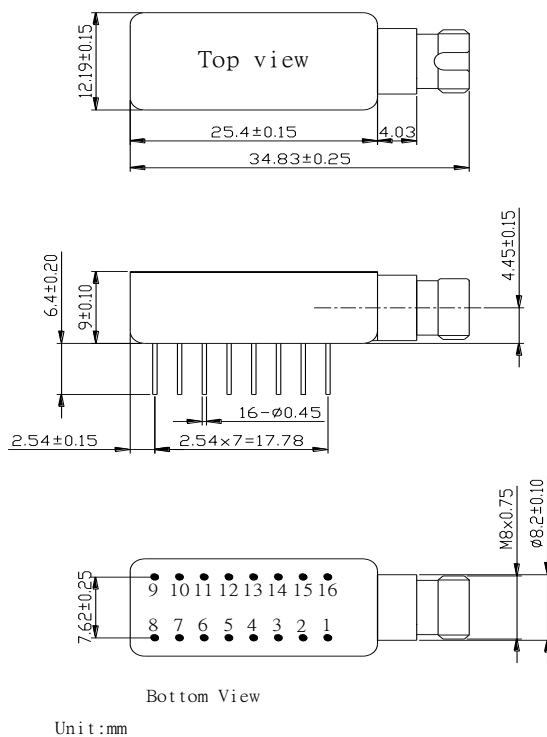
Outline Drawing (2X8 Pins Package)

2X8 Pins Metal Case :

ST receptacle



FC receptacle



Single-mode 2.5Gbps Transmitter / Receiver

Pinout Description (2X8 Pins Package)

Transmitter Pin Assignment

| Pin No. | Description |
|---------|---------------------------------|
| 1 | No Connection ^(Note) |
| 2 | No Connection |
| 3 | Vee (Ground) |
| 4 | Vee (Ground) |
| 5 | Vee (Ground) |
| 6 | Vee (Ground) |
| 7 | No Connection |
| 8 | No Connection ^(Note) |
| 9 | No Connection ^(Note) |
| 10 | Vee (Ground) |
| 11 | Vcc (Supply Voltage) |
| 12 | Vcc (Supply Voltage) |
| 13 | Vee (Ground) |
| 14 | Data In |
| 15 | Data In (Inverted) |
| 16 | No Connection ^(Note) |

Receiver Pin Assignment

| Pin No. | Description |
|---------|---------------------------------|
| 1 | No Connection ^(Note) |
| 2 | Data Out (Inverted) |
| 3 | Data Out |
| 4 | Vcc (Supply Voltage) |
| 5 | Vcc (Supply Voltage) |
| 6 | Vcc (Supply Voltage) |
| 7 | Vee (Ground) |
| 8 | No Connection ^(Note) |
| 9 | No Connection ^(Note) |
| 10 | No Connection |
| 11 | Vee (Ground) |
| 12 | Vee (Ground) |
| 13 | Vee (Ground) |
| 14 | SD |
| 15 | /SD |
| 16 | No Connection ^(Note) |

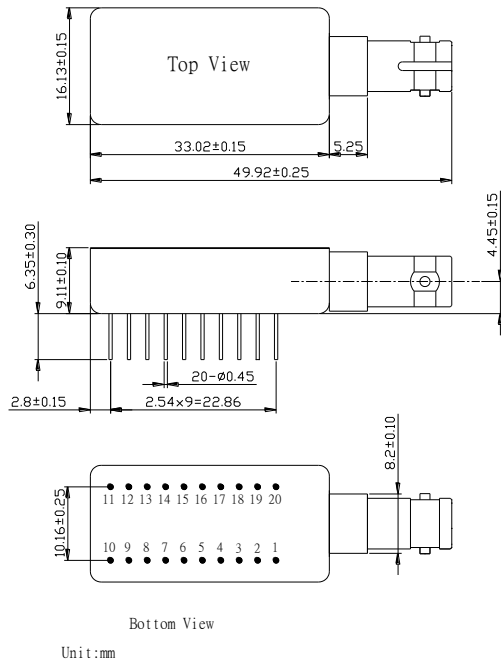
Note : Metal case version Pin1, Pin8, Pin9 and Pin16 internal connect to case.

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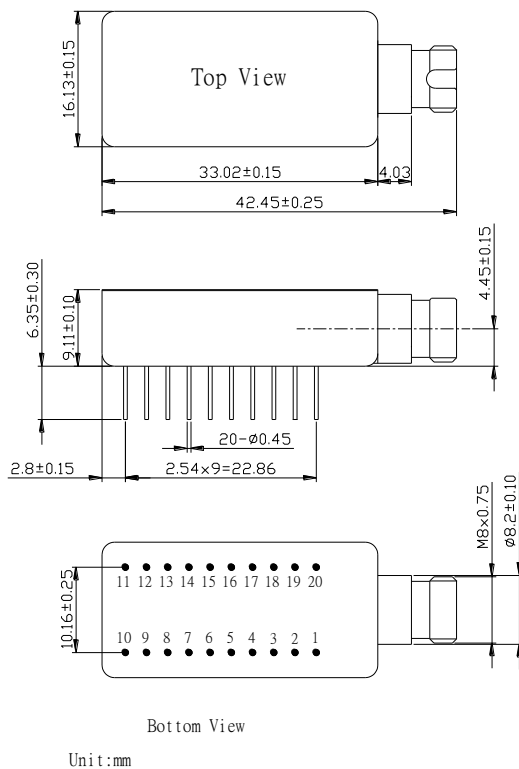
Outline Drawing (2X10 Pins Metal Package)

2X10 Pins Metal Case :

ST receptacle



FC receptacle



Single-mode 2.5Gbps Transmitter / Receiver

Pinout Description (2x10 Pins Package)

Transmitter Pin Assignment

| Pin No. | Description |
|---------|---------------------------------------|
| 1 | No Connection |
| 2 | No Connection |
| 3 | No Connection |
| 4 | No Connection |
| 5 | Vee(Ground) |
| 6 | Vcc(Supply Voltage) |
| 7 | Transmitter Disable ^(Note) |
| 8 | Vcc(Supply Voltage) |
| 9 | Vcc(Supply Voltage) |
| 10 | No Connection |
| 11 | Vee(Ground) |
| 12 | Vcc(Supply Voltage) |
| 13 | Vee(Ground) |
| 14 | Vee(Ground) |
| 15 | Data In (Inverted) |
| 16 | Data In |
| 17 | No Connection |
| 18 | Vcc(Supply Voltage) |
| 19 | No Connection |
| 20 | No Connection |

Receiver Pin Assignment

| Pin No. | Description |
|---------|---------------------|
| 1 | No Connection |
| 2 | No Connection |
| 3 | No Connection |
| 4 | No Connection |
| 5 | No Connection |
| 6 | Vee(Ground) |
| 7 | Data Out |
| 8 | Vee(Ground) |
| 9 | Data Out (Inverted) |
| 10 | No Connection |
| 11 | Vcc(Supply Voltage) |
| 12 | SD |
| 13 | Vee(Ground) |
| 14 | /SD |
| 15 | Vee(Ground) |
| 16 | Vee(Ground) |
| 17 | No Connection |
| 18 | No Connection |
| 19 | No Connection |
| 20 | No Connection |

Note : Input TTL Logic Low Level to Switch Laser "ON".
 Input TTL Logic High Level to Switch Laser "OFF".

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