municom®

C-15-1250AC-TDFB3-SSC2(4)C-14-G5

Features
- SC Duplex Single Mode Transceiver
- Industry Standard 1x9 Footprint
- Gigabit Ethernet Compliant
- Single +3.3 Power Supply
- LVPECL Differential Inputs and Outputs (AC-coupling)
- LVTTL Signal Detection Output
- Wave Solderable and Aqueous Washable
- Uncooled laser diode with MQW structure
- Complies with Telcordia (Bellcore) GR-468-CORE
- Gigabit Ethernet Application
- RoHS compliance available

Absolute Maximum Rating

Parameter	Symbol	Min.	Max.	Unit	Note
Power Supply Voltage	V_{cc}	0	3.6	V	
Output Current	I_{out}	0	30	mA	
Soldering Temperature	-	-	260	°C	10 seconds on leads only
Storage Temperature	T_{stg}	-40	85	°C	

Recommended Operating Condition

Parameter	Symbol	Min.	Typ.	Max.	Unit
Power Supply Voltage	V_{cc}	3.1	3.3	3.5	V
Operating Temperature (Case)	T_{opr}	-40	-	85	°C
Data Rate	-	-	1250	-	Mbps

Transmitter Specifications (Optical)

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Optical Transmit Power	P_o	-5	-	0	dBm	C-15-1250AC-TDFB3-SSC2C-14-G5
Optical Transmit Power	P_o	0	-	+5	dBm	C-15-1250AC-TDFB3-SSC4C-14-G5
Output center Wavelength	λ	1500	1550	1600	nm	
Output Spectrum Width	$\Delta\lambda$	-	-	1	nm	-20 dB width
Side Mode Suppression Ratio	SMSR	30	35	-	dB	
Extinction Ratio	ER	9	-	-	dB	
Output Eye		Compliant with IEEE 802.3				
Optical Rise Time	t_r	-	-	0.26	ns	20% to 80% Values
Optical Fall Time	t_f	-	-	0.26	ns	20% to 80% Values
Relative Intensity Noise	RIN	-	-	-120	dB/Hz	
Total Jitter	TJ	-	-	0.27	ns	Measured with 2^7-1 PRBS

C-15-1250AC-TDFB3-SSC2(4)C-14-G5

Transmitter Specifications (Electrical)

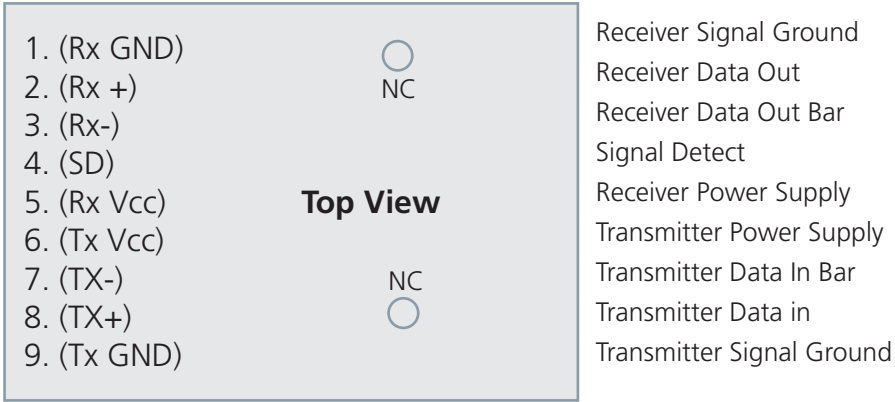| Parameter	Symbol	Min	Typical	Max	Unit	Notes
Power Supply Current	I_{CC}	-	-	180	mA	Maximum current is specified at Vcc= Maximum @ maximum temperature
Data Input Current-Low	I_{IL}	-350	-	-	µA	
Data Input Current-High	I_{IH}	-	-	350	µA	
Differential Input Voltage	$V_{IH}-V_{IL}$	300	-	-	mV	
Data Input Voltage-Low	$V_{IL}-V_{CC}$	-2.0	-	-1.58	V	These inputs are compatible with 10K, 10KH and 100K ECL and PECL inputs
Data Input Voltage-High	$V_{IH}-V_{CC}$	-1.1	-	-0.74	V	

Receiver Specifications (Optical)

Parameter	Symbol	Min	Typical	Max	Unit	Notes
Sensitivity[1]	-	-	-	-24	dBm	
Maximum Input Power	P_{in}	0	-	-	dBm	
Signal Detect-Asserted	Pa	-	-	-24	dBm	Measured on transition: low to high
Signal Detect-Deasserted	Pd	-38	-	-	dBm	Measured on transition: high to low
Signal Detect-Hysteresis		1	-	-	dB	
Wavelength of Operation		1100	-	1600	nm	

Note 1: Measured with 2^7-1 PRBS, BER= 10^{-12}

Receiver Specifications (Electrical)

Parameter	Symbol	Min	Typical	Max	Unit	Note
Power Supply Current	I_{CC}	-	-	100	mA	The current excludes the output load current
Data output Voltage-Low	$V_{OL}-V_{cc}$	-2.0	-	-1.58	V	These outputs are compatible with 10K, 10KH and 100KECL and LVPECL outputs
Data output Voltage-High	$V_{OH}-V_{cc}$	-1.1	-	-0.74	V	
Differential Data Output Voltage	$V_{OH}-V_{OL}$	600	-	1600	V	AC-coupled
Signal Detect Output Voltage-Low	V_{SDL}	-	-	0.5	V	LVTTL
Signal Detect Output Voltage-High	V_{SDH}	2	-	Vcc	V	

C-15-1250AC-TDFB3-SSC2(4)C-14-G5

Connection Diagram

1. (Rx GND)		Receiver Signal Ground
2. (Rx +)	NC	Receiver Data Out
3. (Rx-)		Receiver Data Out Bar
4. (SD)		Signal Detect
5. (Rx Vcc)	**Top View**	Receiver Power Supply
6. (Tx Vcc)		Transmitter Power Supply
7. (TX-)	NC	Transmitter Data In Bar
8. (TX+)		Transmitter Data in
9. (Tx GND)		Transmitter Signal Ground

PIN	Symbol	Notes
1	RxGND	Directly connect this pin to the receiver ground plane
2	RD+	See recommended circuit schematic
3	RD-	See recommended circuit schematic
4	SD	Active high on this indicates a received optical signal
5	RxVcc	DC power for the receiver section
6	TxVcc	DC power for the transmitter section
7	TD-	See recommended circuit schematic
8	TD+	See recommended circuit schematic
9	TxGND	Directly connect this pin to the transmitter ground plane

Recommended Circuit Schematic

C-15-1250AC-TDFB3-SSC2(4)C-14-G5

Notes:
C1=C2=0.1 μF
C3=C4=10 μF
L1=L2=1 μH
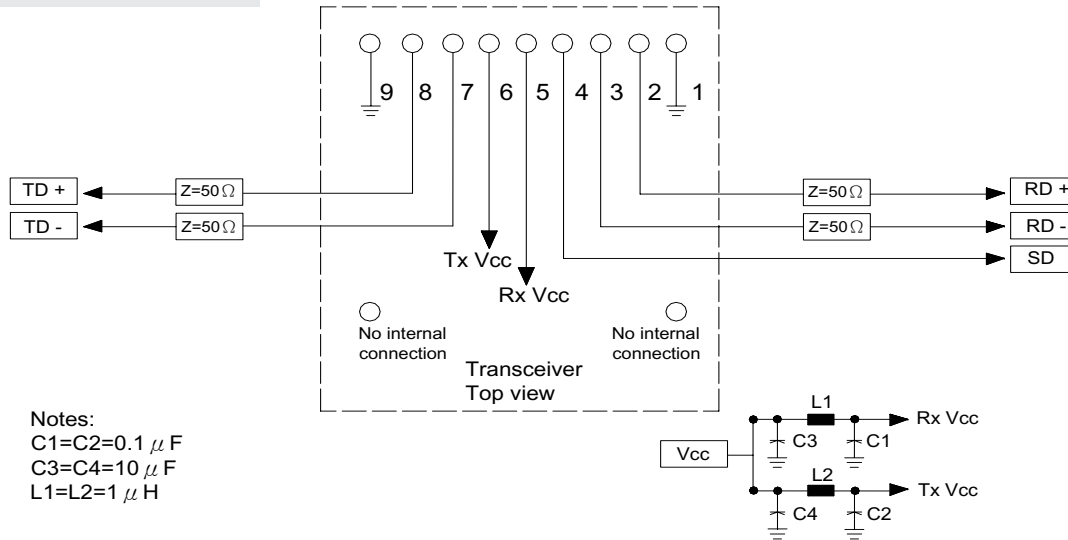
The split-loaded terminations for ECL signals need to be located at the input of devices receiving those ECL signals.
The power supply filtering is required for good EMI performance. Use short tracks from the inductor L1/L2 to the module Rx Vcc.
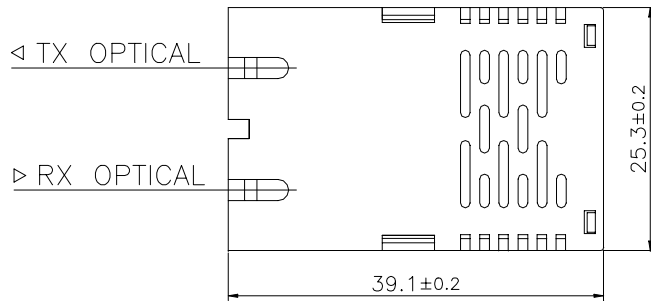A GND plane under the module is required for good EMI and sensitivity performance.

Label
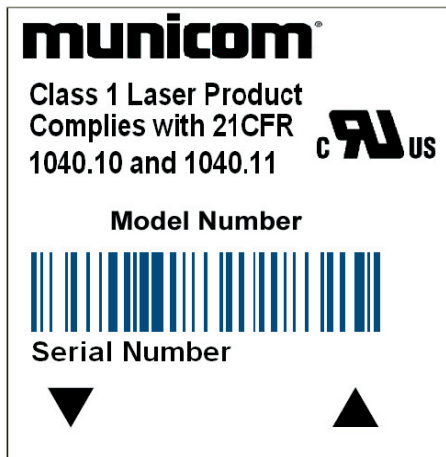
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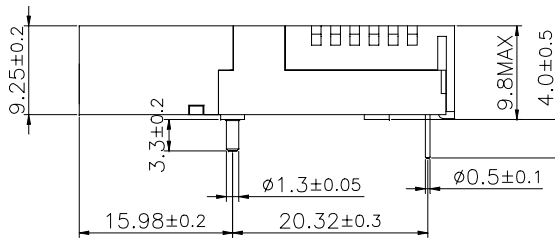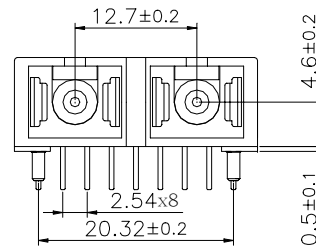**C-15-1250AC-TDFB3-SSC2C-14-G5**
C-15-1250AC-TDFB3-SSC4C-14-G5

C-15-1250AC-TDFB3-SSC2(4)C-14-G5

Package Diagram

Top View

⊲ TX OPTICAL

▷ RX OPTICAL

25.3±0.2

39.1±0.2

Front View

Units: mm

12.7±0.2

4.6±0.2

2.54x8

20.32±0.2

0.5±0.1

Side View

9.25±0.2

3.3±0.2

9.8MAX

4.0±0.5

ø1.3±0.05

ø0.5±0.1

15.98±0.2

20.32±0.3

Rear View

1 2 3 4 5 6 7 8 9
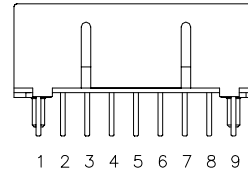
Package Option :
C = Black case

C-15-1250AC-TDFB3-SSC2(4)C-14-G5

Ordering Information

Available Options:
C-15-1250AC-TDFB3-SSC2C-14-G5
C-15-1250AC-TDFB3-SSC4C-14-G5

Part numbering Definition:

C - 15 - 1250AC - TDFB3 - S SC TxPower Temperature and Package -14 -RoHS

- **15 = Wavelength 1550nm**

- **Communication protocol (1250 Mbps)**
  AC = AC coupling for data input/output
  TTL Signal Detection output

- **TDFB3= +3.3V Transceier, DFB**

- **Single mode fiber**

- **Connector options**

- **Tx Power range**
  2 = -5 to 0 dBm
  4 = 0 to +5 dBm

- **Temperature range and package**
  C = industrial temperature(-40 to 85 °C), 9.8 mm, Black case

- **-14 : Municom customization label**

- **Ordering Information**
  G5 = RoHS 5/6-compliant product (lead exemption)

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.

Legal Notes:

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