

## RT-P10E15-C00

### SFP+ 10Gb/s 1550nm 40km DDMI

#### Product Features

- Up to 11.3Gbps Data Links
- Cooled 1550nm EML laser transmitter and PIN/TIA receiver
- Maximum link length of 40km on 9/125um SMF
- Hot-pluggable SFP+ footprint
- Duplex LC receptacles
- Low power dissipation
- RoHS compliant and lead-free
- Support Digital Diagnostic Monitor interface
- Single +3.3V power supply
- Compliant with SFF-8472

#### Applications

- 10GBASE-ER/EW Ethernet
- 10Gb/s Fibre Channel
- CPRI option 2 through 8

#### Compliance

- SFP MSA
- SFF-8472
- IEEE802.3ab
- ROHS

#### Ordering Information

Part Number	Description
RT-P10E15-C00	SFP+ 10Gb/s 1550nm 40km DDMI

#### For More Information:

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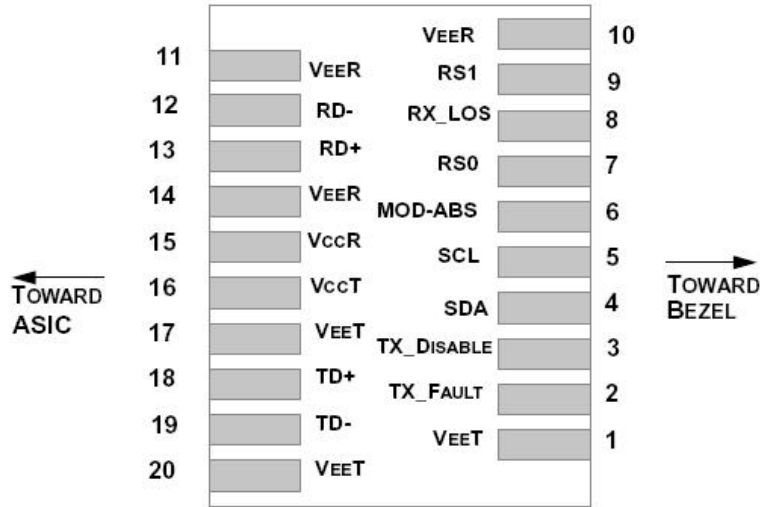
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#### Ordering information

Part No.	Bit Rate (Gbps)	Laser (nm)	Distance (km)	Fiber Type	DDMI	Connector	Temp
RT-P10E15-C00	10.3125	1550	40	SMF	YES	LC	0°C~70°C

## Pin Diagram



Pinout of Connector Block on Host Board

## Pin Descriptions

Pin	Symbol	Name/Description	Ref.
1	$V_{EET}$	Transmitter Ground (Common with Receiver Ground)	1
2	$T_{FAULT}$	Transmitter Fault.	2
3	$T_{DIS}$	Transmitter Disable. Laser output disabled on high or open.	3
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	4
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	4
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	4
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication. Logic "0" indicates normal operation.	5
9	$V_{EER}$	Receiver Ground (Common with Transmitter Ground)	
10	$V_{EER}$	Receiver Ground (Common with Transmitter Ground)	1
11	$V_{EER}$	Receiver Ground (Common with Transmitter Ground)	1
12	RD-	Receiver Inverted DATA out (CML). AC Coupled	
13	RD+	Receiver Non-inverted DATA out (CML). AC Coupled	
14	$V_{EER}$	Receiver Ground (Common with Transmitter Ground)	1
15	$V_{CCR}$	Receiver Power Supply	

16	V <sub>CCT</sub>	Transmitter Power Supply	
17	V <sub>EET</sub>	Transmitter Ground (Common with Receiver Ground)	1
18	TD+	Transmitter Non-Inverted DATA in. AC Coupled.	
19	TD-	Transmitter Inverted DATA in. AC Coupled.	
20	V <sub>EET</sub>	Transmitter Ground (Common with Receiver Ground)	1

Notes:

1. Circuit ground is internally isolated from chassis ground.
2. TFAULT is an open collector/drain output, which is pulled up with a 4.7kΩ – 10kΩ resistor on the host board, but is grounded inside the SFP+ cable plug.
3. Laser output disabled on TDIS >2.0V or open, enabled on TDIS <0.8V.
4. Should be pulled up with 4.7kΩ – 10kΩ on host board to a voltage between 2.0V and 3.6V. MOD\_ABS pull line low to indicate module is plugged in.
5. LOS is open collector output. Should be pulled up with 4.7kΩ – 10kΩ on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.

### Absolute Maximum Ratings

Parameter	Symbol	Min	Type	Max	Unit	Ref.
Maximum Supply Voltage	Vcc	-0.5		3.6	V	
Storage Temperature	TS	-40		85	°C	1
Case Operating Temperature	TOP	0		70		Commercial
Relative Humidity	RH	0		85	%	2

Notes:

- 1.Limited by the fiber cable jacket, not the active ends.
- 2.Non-condensing.

### Optical Characteristics (TOP = 0°C to 70°C, VCC = 3.3 ± 5% Volts)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Remark
<b>Transmitter</b>						
Center Wavelength	λc	1530	1550	1565	nm	
Spectral Width(-20dB)	Pm			1	nm	
Side-mode Suppression Ratio	SMSR	30			dB	
Average Output Power	Pavg	-1		4	dBm	
Extinction Ratio	ER	7			dB	
Return Loss		12			Db	
Transmitter OFF Output Power	Poff			-30	dBm	
Transmitter and Dispersion Peralty	TDP			3	dB	

Receiver						
Center Wavelength	$\lambda_c$	1530		1565	nm	
Receiver Sensitivity, Average Power				-15.8	dBm	
Receiver Saturation Power	$P_{sat}$			0.5	dBm	
Loss of Signal Assert	$P_A$	-30			dBm	
Loss of Signal De-assert	$P_D$			-18	dBm	
LOS Hysteresis	$P_D - P_A$	0.5			dB	

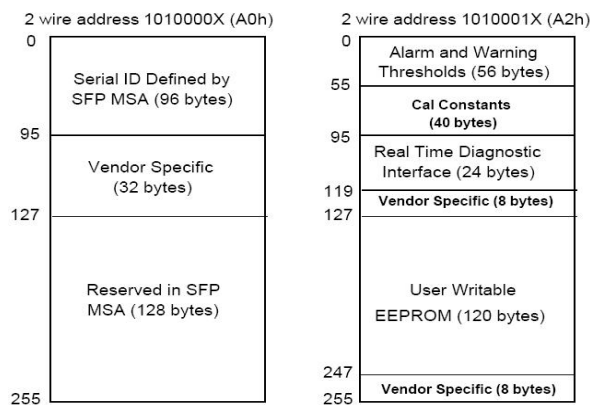
### Electrical Characteristics (TOP = 0°C to 70°C, VCC = 3.3 ± 5% Volts)

Parameter	Symbol	Min	Type	Max	Unit	Ref.
Supply Voltage	Vcc	3.135	3.3	3.465	V	
Supply Current	Icc			450	mA	
Transmitter						
Input differential impedance	Rin		100			1
Differential data input swing	Vin, pp	200		1000	mV	
Transmit Disable Voltage	V <sub>D</sub>	2		V <sub>CC</sub>	V	
Transmit Enable Voltage	V <sub>EN</sub>	V <sub>ee</sub>		V <sub>ee</sub> +0.8	V	
Receiver						
Differential data output swing	Vout, pp	200		1000	mV	2
LOS Fault	V <sub>LOS_fault</sub>	2		V <sub>cc</sub>	V	3
LOS Normal	V <sub>LOS_norm</sub>	V <sub>ee</sub>		V <sub>ee</sub> +0.8	V	3
Power Supply Noise Tolerance	V <sub>CCT</sub> /V <sub>CCR</sub>	Per SFP MSA			mVpp	

Notes:

1. Connected directly to TX data input pins.AC coupling from pins into laser driver IC.
2. Into 100Ω differential termination.
3. Loss Of Signal is LVTTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.

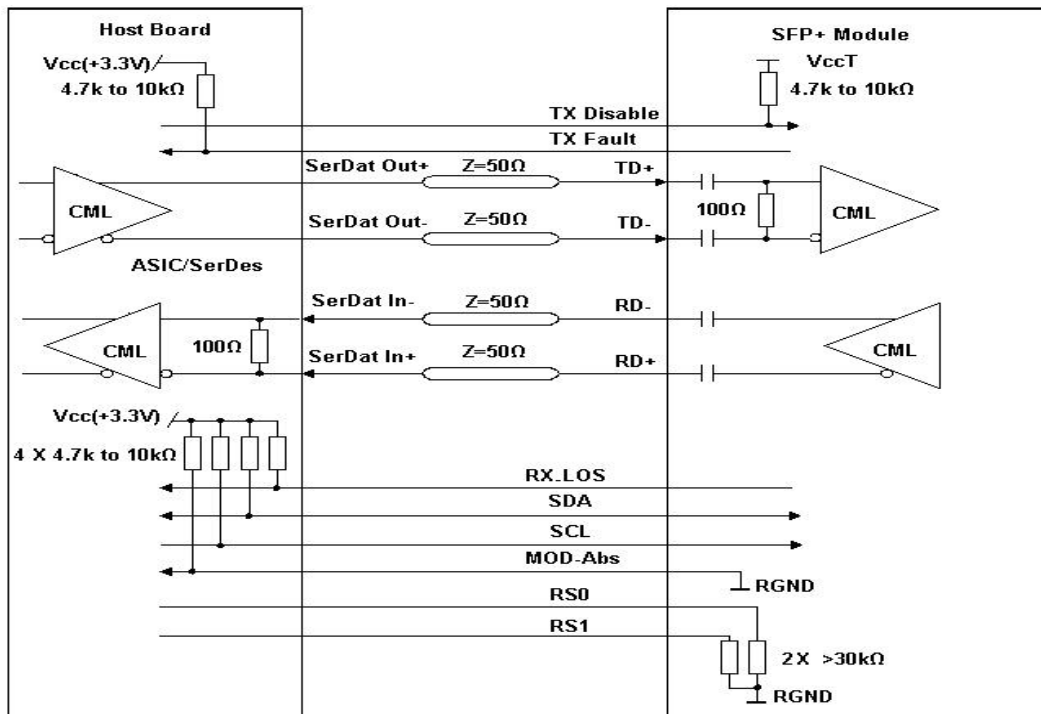
### Digital Diagnostic Memory Map



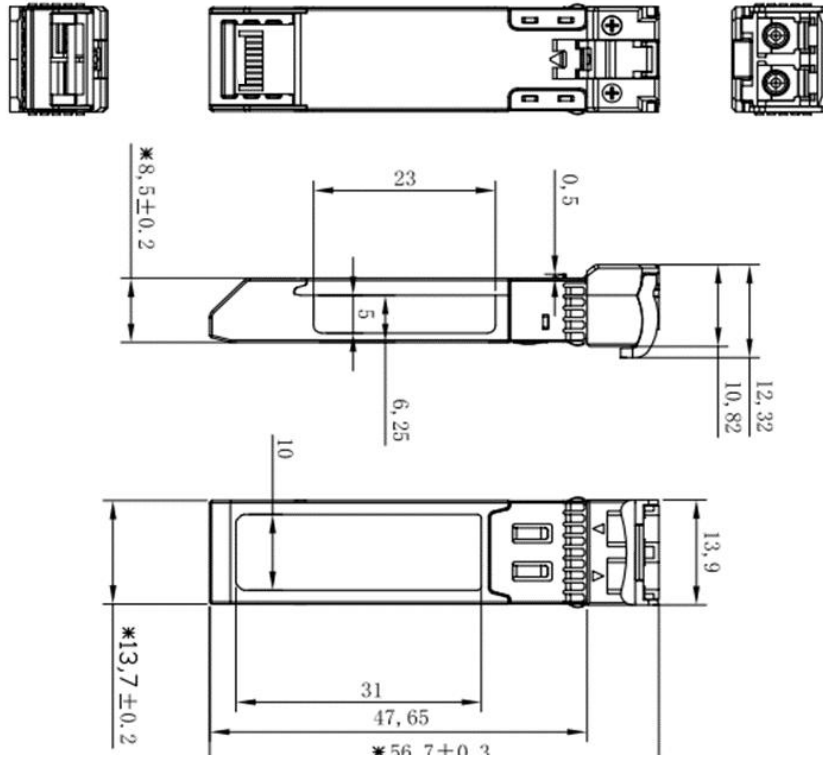
## Digital Diagnostic Monitoring Information

Parameter	Unit	Accuracy
Case Temperature	°C	±3
Supply Voltage	V	±3%
Tx Bias Current	mA	±10%
Tx Optical Power	dB	±3
Rx Optical Power	dB	±3

## Recommended Interface Circuit



## Mechanical Dimensions



SFP wire mechanical drawing (Unit: mm)

## Contact Information

### Wuhan RayOptekCO.,Ltd

Headquarter

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