3.3V 1×9 155M Transceiver Module

RTXM126-DFB&136-DFB

Features

- *Duplex SC receptacle or FC pigtailed optical interface*
- *1550nm DFB laser*
- *Standard 1x9 package*
- *Single +3.3V power supply*
- *0 to 70°C operating temperature range*
- *LVPECL compatible data input/output interface*
- *LVPECL receiver signal-detected indication*

Applications

- *SDH STM-1 L1.2*
- *100M Fast Ethernet*

Standards

- *Compliant with ITU-T G.957*

Absolute Maximum Ratings

Parameter	Symbol	Unit	Min	Max
Storage Temperature Range	T_s	°C	-40	85
Relative Humidity	RH	%	0	95
Power Supply Voltage	V_{cc}	V	-0.5	+4.5
Lead Solder Temperature	-	°C	-	260
Lead Solder Duration	-	S	-	10
Voltage on any input/output pin	VI	V	0	Vcc

Recommended Operating Conditions

Parameter	Symbol	Unit	Min	Typ	Max
Operating Temperature Range	T_{op}	°C	0	-	70
Power Supply Voltage	V_{cc}	V	3.14	3.3	3.47
Operating Data Rate	-	Mbps	-	155.52	-

Specifications *(Top=0 °C to 70°C and V_{CC}=3.13V to 3.47V)*

Parameter	Symbol	Unit	Min	Typ	Max	Note
Electrical Characteristics						
Supply Current	I_{cc}	mA	-	-	250	
Transmitter Differential Input Voltage	V_D	mV	300	-	1860	
Common-mode Input Voltage	V_{com}-V_{CC}	V	-1.38	-	-0.47	
LVPECL Output Voltage-Low	V_{OL}-V_{CC}	V	-1.810	-	-1.620	1
LVPECL Output Voltage-High	V_{OH}-V_{CC}	V	-1.025	-	-0.880	1
Optical transmitter Characteristics						
Center Wavelength Range	λ_c	nm	1480	1550	1580	
Launch Optical Power	P_o	dBm	-5	-	0	2
Extinction Ratio	EX	dB	10	-	-	
Spectral Width (-20dB)	$\Delta\lambda$	nm	-	-	1	
Side Mode Suppression Ratio	SMSR	dB	30	-	-	
Optical Rise Time	t_R	ns	-	-	2.0	3
Optical Fall Time	t_F	ns	-	-	2.0	3
Eye Diagram	ITU recommendation G.957 STM-1/OC-3					
Optical receiver Characteristics						
Receiver Sensitivity	S	dBm	-	-	-35	4
Overload Input Power	P_{in}	dBm	-10	-	-	4
Signal Detect-Deasserted	P_D	dBm	-50.0	-	-	
Signal Detect-Asserted	P_A	dBm	-	-	-36.0	

Signal Detect-Hysteresis	P_A-P_D	dB	0.5	-	6

Note 1: *Terminated with 50Ω to V_{CC}-2V.*

Note 2: *Minimum output optical level is at end of life.*

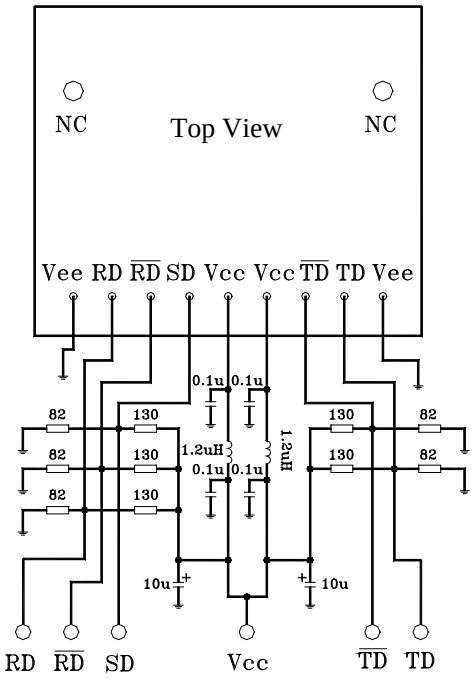
Note 3: *These are unfiltered 10~90% values.*

Note 4: *Sensitivity and overload for 2^{23}-1 PRBS and Bit Error Rate better than or equal to 10E-10.*

Pin Description

Pin	Name	Level	Description
1	V_{ee}		Negative power of receiver section, normally grounded
2	RD+	LVPECL	Data output of receiver section
3	RD-	LVPECL	Reverse data output of receiver section
4	SD	LVPECL	Optical alarm of receiver section, High level when normal, low level when no light
5	V_{cc}		Positive power of receiver section, normally +3.3V
6	V_{cc}		Positive power of transmitter section, normally +3.3V
7	TD-	LVPECL	Reverse data input of transmitter section
8	TD+	LVPECL	Data input of transmitter section
9	V_{ee}		Negative power of transmitter section, normally grounded

Typical Application Circuit

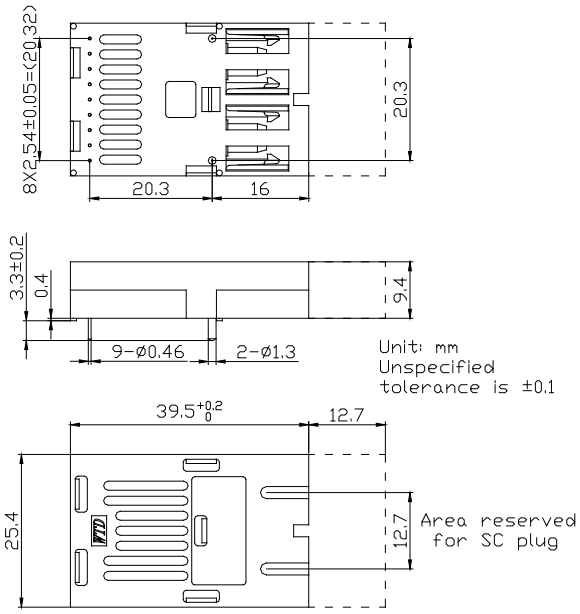


Package outline *(unit:mm)*

Duplex SC receptacle optical interface

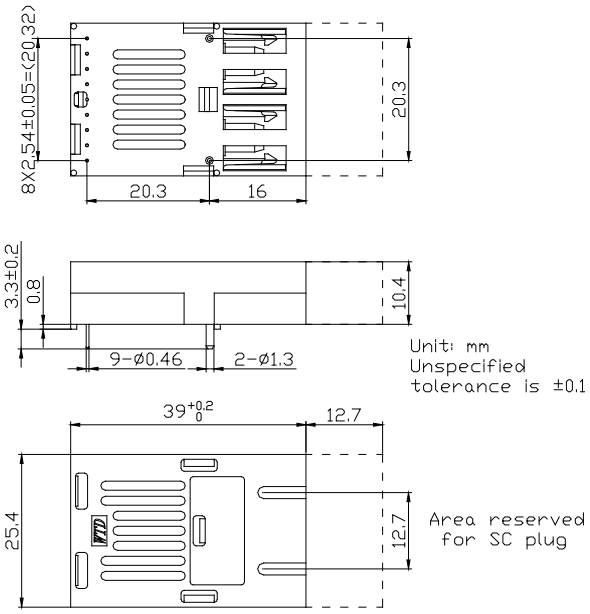
Thin type package

RTXM136B-DFB



Thick type package

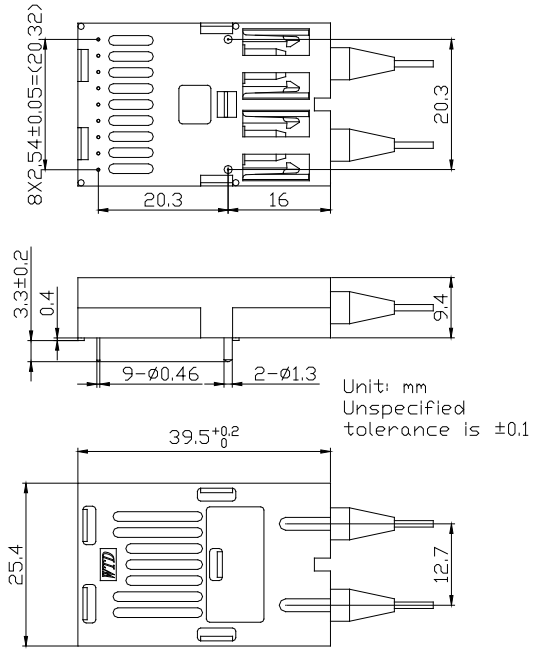
RTXM136-DFB



FC pigtailed optical interface

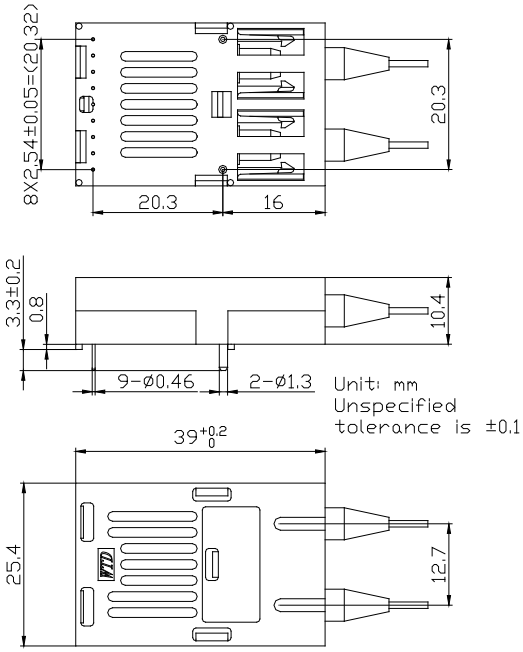
Thin type package

RTXM126B-DFB



Thick type package

RTXM126B-DFB



Regulatory Compliance

Feature	Test Method	Performance
Electrostatic Discharge (ESD) to the Electrical Pins	MIL-STD-883E Method 3015.7	Class 1 (>1.5kV) – Human Body Model
Electrostatic Discharge (ESD) Immunity	IEC61000-4-2	Class 2(>4.0kV)
Electromagnetic Interference (EMI)	CISPR22 ITE Class B EN55022 Class B	Compliant with standards
Immunity	IEC61000-4-3 Class 2 EN55024	Typically show no measurable effect from a 3V/m field swept from 80 to 1000MHz applied to the transceiver without a chassis enclosure.
Eye Safety	FDA 21 CFR 1040.10 and 1040.11 UL TUV EN 60825-1	Compliant with Class 1 laser product UL No. E239070

Ordering Information

Part No.	Specifications									Application code
	Package	Data rate	Laser	Optical Power	Detector	Sensitivity	Temp	Reach	Interface	
RTXM126-DFB	1×9 thick	155Mb/s	1550nm DFB	-5~0dBm	PIN+TIA	-35dBm(max)	0~70°C	40km	FC Pigtail	SDH L-1.2
RTXM126B-DFB	1×9 thin	155Mb/s	1550nm DFB	-5~0dBm	PIN+TIA	-35dBm(max)	0~70°C	40km	FC Pigtail	SDH L-1.2
RTXM136-DFB	1×9 thick	155Mb/s	1550nm DFB	-5~0dBm	PIN+TIA	-35dBm(max)	0~70°C	40km	Duplex SC	SDH L-1.2
RTXM136B-DFB	1×9 thin	155Mb/s	1550nm DFB	-5~0dBm	PIN+TIA	-35dBm(max)	0~70°C	40km	Duplex SC	SDH L-1.2

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