


ETU-LINK

Optical Communication System

1X9 Series
1X9
E13103-3(5) SC20
155M 1310nm Single-mode 1x9 TTL Duplex Transceiver (20km)

- Duplex SC/FC/ST optical interface compliant
- Industry Standard 1x9 Footprint
- Multi-rate of 1M~155Mbps operation
- Single 3.3V or 5V Power Supply
- Uncooled 1310nm FP laser transmitter
- DC-coupled LVTTTL/TTL inputs and outputs
- LVTTTL/ TTL Signal Detection Output
- Wave Solder able and Aqueous Washable
- Class 1 laser safety certified
- ROHS Compliant



Applications

- SONET/SDH/PDH Equipment Interconnect

Absolute Maximum Ratings

Parameter	Symbol	Min.	Max.	Units	Note
Storage Temperature	Ts	-40	85	°C	
Power Supply Voltage	Vcc	0	4.5	V	
		0	6	V	
Soldering Temperature			260	°C	10 seconds on leads
Storage Relative Humidity	RH	5	95	%	

Recommended Operating Conditions

Parameter	Symbol	Min.	Typ.	Max.	Units	Note
Operating Supply Voltage	Vcc	3.15	3.3	3.45	V	E13103-3SC20
		4.75	5	5.25	V	E13103-5SC20
Operating Temperature	Top	0		70	°C	E13103-3SC20
		-40		85	°C	E13103-3SI20
Power Supply Current	Icc		150	250	mA	
Data Rate			100		Mbps	

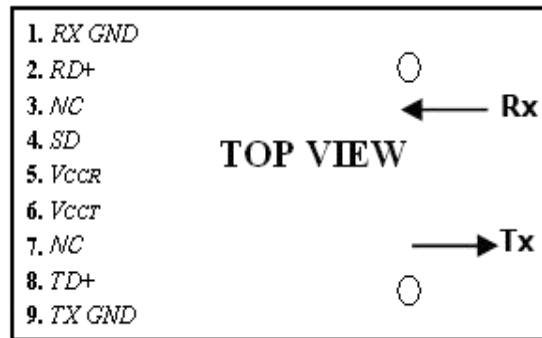
Transmitter Specifications

Parameter	Symbol	Min.	Typ.	Max.	Units
Optical					
Optical Transmit Power	Po	-15		-8	dBm
Optical Center Wavelength	λ_C	1260	1310	1360	nm
Output Spectrum Width (RMS)	$\Delta\lambda$			4	nm
Extinction Ratio	ER	12	-	-	dB
Optical Rise Time	tr			3	ns
Optical Fall Time	tf			3	ns
Relative Intensity Noise(1)	RIN			-116	dB/Hz
Electrical					
Data Input Voltage – Low		0		0.8	V
Data Input Voltage – High		2.0		VCC	V

Receiver Specifications

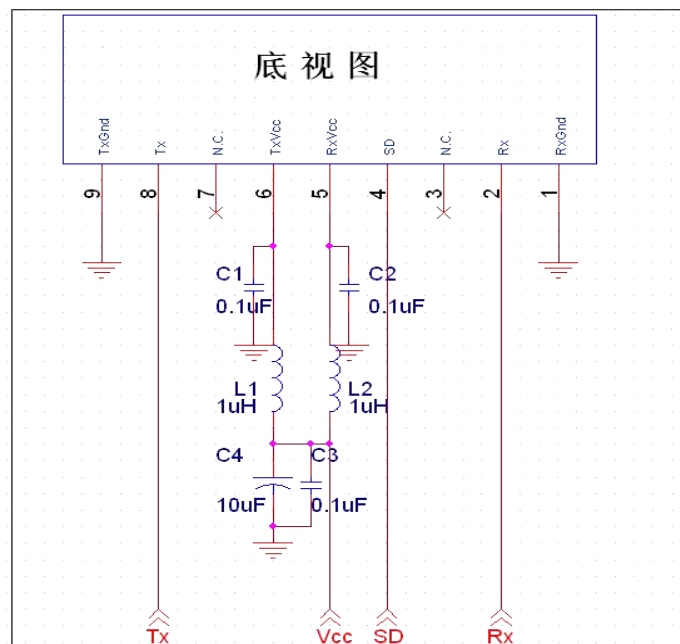
Parameter	Symbol	Min.	Typ.	Max.	Units
Optical					
Sensitivity	Sen			-30	dBm
Maximum Input Power(Saturation)	PI-MAX	-3			dBm
Wavelength of Operation	λ	1100		1610	nm
Signal Detect – Asserted	Pa			-30	dBm
Signal Detect – De-asserted	Pd	-45			dBm
Signal Detect – Hysteresis	Phys	1		5	dB
Electrical					
Data Output Voltage – Low	VOL	0		0.8	mV
Data Output Voltage – High	VOH	2.0		VCC	mV
Signal Detect Output Voltage– Low	VSDL	0	-	0.8	V
Signal Detect Output Voltage– High	VSDH	2.0	-	VCC	V

PIN ASSIGNMENT



Pin	Name	Function
1	RX GND	Receiver Signal Ground
2	RD+	Receiver Data Out
3	NC	No Connect
4	SD	Signal Detect
5	VccR	Receiver Power Supply
6	VccT	Transmitter Power Supply
7	NC	No Connect
8	TD+	Transmitter Data In
9	TX GND	Transmitter Signal Ground

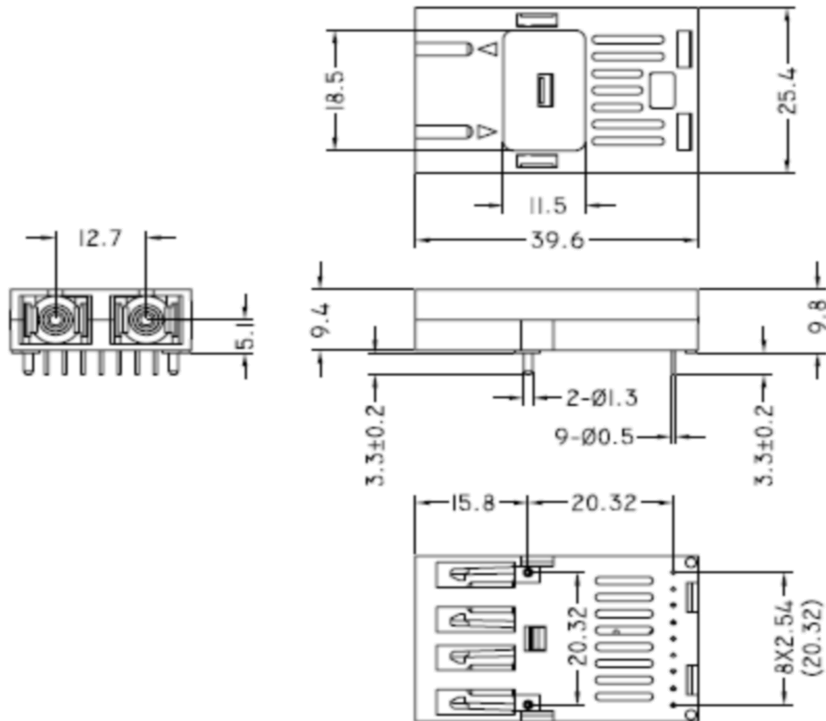
RECOMMENDED CIRCUIT



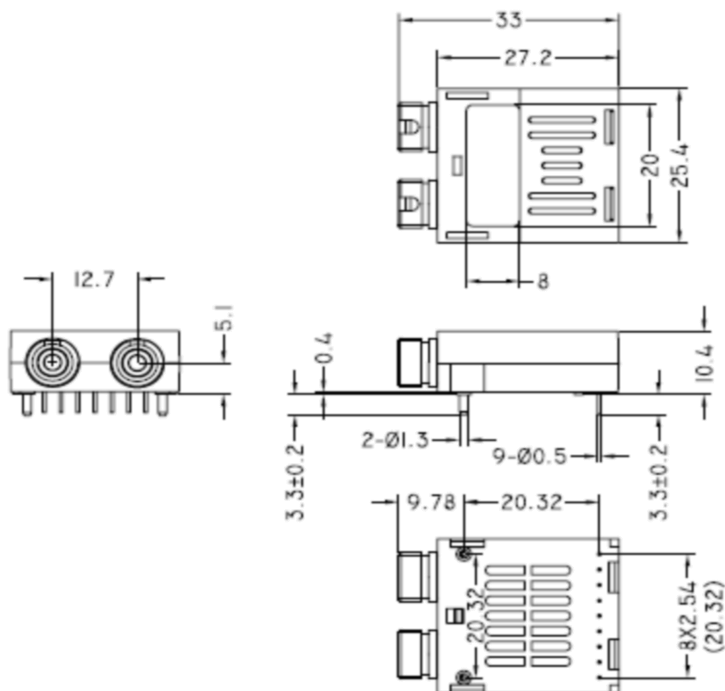
MECHANICAL DIMENSIONS

(All Dimensions are $\pm 0.20\text{mm}$ unless otherwise Specified, Unit: mm)

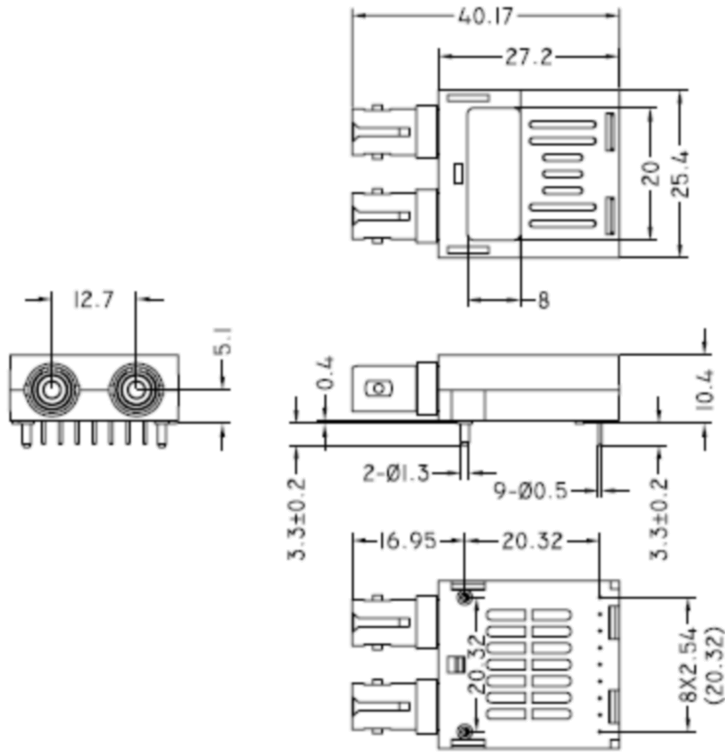
1) SC Type



2) FC Type



3) ST Type



Regulatory Compliance

Feature	Reference	Performance
Electrostatic discharge (ESD)	IEC/EN 61000-4-2	Compatible with standards
Electromagnetic Interference (EMI)	FCC Part 15 Class B EN 55022 Class B (CISPR 22A)	Compatible with standards
Laser Eye Safety	FDA 21CFR 1040.10, 1040.11 IEC/EN 60825-1, 2	Class 1 laser product
Component Recognition	IEC/EN 60950, UL	Compatible with standards
ROHS	2002/95/EC	Compatible with standards
EMC	EN61000-3	Compatible with standards

Compatibility Test

In order to ensure the product compatibility, our products will be tested on the switch before shipment. Our modules can be compatible with many mainstream brand switches, such as Cisco, Juniper, Extreme, Brocade, IBM, H3C, HP, Huawei, D-Link, Mikrotik, ZTE, TP-Link...

Our test equipment: VOLKTEK MEN-4110, HP 2530-8G, CRS226-24G-25+RM, Catalyst 2960G Series, Catalyst 3850 XS 10G SFP+, Catalyst 3750-E Series, HUAWEI S5700Series, H3C S3100V2 Series, Juniper-EX4200, etc.



Cisco Catalyst 3850



HUAWEI S5700



H3C S3100V2



HP J9264AR



Juniper EX 4200



Alcatel 6850E-U24X



Mikrotik CR5226-24G-25+RM



Cisco Catalyst 2960G



Volktek MEN-4110

Quality Assurance

Continuous introduction of new equipment, produced by strict standards, strict quality inspection, to guarantee the high quality standard of each product.



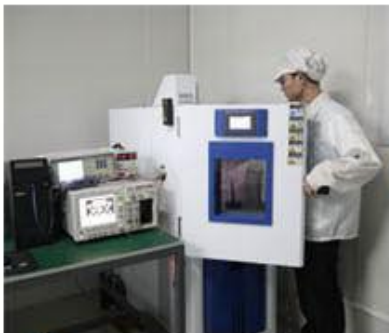
**Standardized
Production Line**



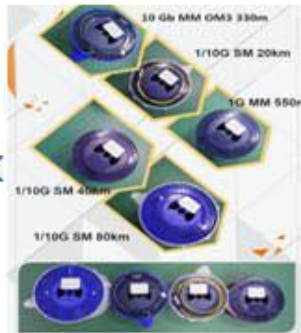
**Professional
Welding**



Assembling



Aging Testing



Distance Testing



Cleaning end face



Product Initial Test



Switch Testing



Product Final Test

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