SFP-155M-LC40

Features:

- Compliant with specifications for IEEE802.3Z
- Multi-source package with Duplex LC Connector
- Eye Safety Designed to meet
  Laser Class1 Compliant with IEC60825-1
- Up to 155Mb/s data links
- Single +3.3V Power Supply
- Hot-Pluggable
- Complies with Bellcore TA-NWT-000983

Applications:

- SONET OC-3/SDH STM-1
- Switch to Switch interface
- Fast Ethernet

Standard:

- Compatible with SFP MSA

PRODUCT SELECTION

SFP-155M-LC40

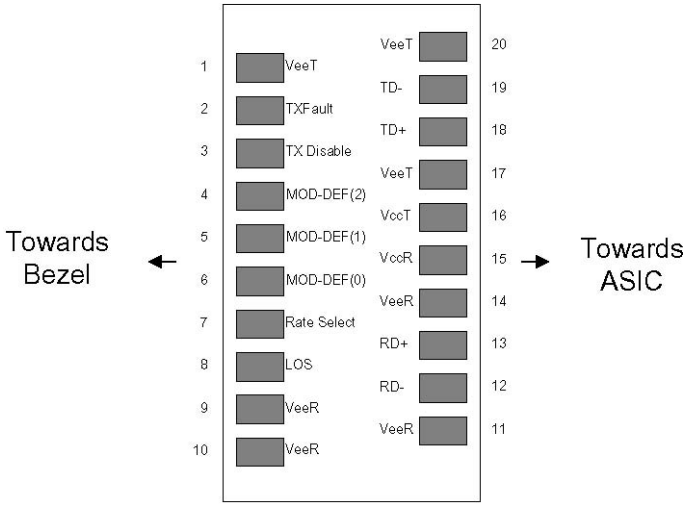
x	Blank	Without DDM
	D	With DDM

I. Pin Descriptions

Pin	Symbol	Name/Description	Ref.
1	VeeT	Transmitter Ground (Common with Receiver Ground)	1
2	TX Fault	Transmitter Fault. Not supported.	
3	TX Disable	Transmitter Disable. Laser output disabled on high or open.	2
4	MOD_DEF(2)	Module Definition 2. Data line for Serial ID.	3
5	MOD_DEF(1)	Module Definition 1. Clock line for Serial ID.	3
6	MOD_DEF(0)	Module Definition 0. Grounded within the module.	3
7	Rate Select	No connection required	
8	LOS	Loss of Signal indication. Logic 0 indicates normal operation.	4
9	VeeR	Receiver Ground (Common with Transmitter Ground)	1
10	VeeR	Receiver Ground (Common with Transmitter Ground)	1
11	VeeR	Receiver Ground (Common with Transmitter Ground)	1
12	RD-	Receiver Inverted DATA out. AC Coupled	
13	RD+	Receiver Non-inverted DATA out. AC Coupled	
14	VeeR	Receiver Ground (Common with Transmitter Ground)	1
15	VccR	Receiver Power Supply	
16	VccT	Transmitter Power Supply	
17	VeeT	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	VeeT	Transmitter Ground (Common with Receiver Ground)	1

Notes:

1. Circuit ground is internally isolated from chassis ground.
2. Laser output disabled on TX Disable >2.0V or open, enabled on TX Disable<0.8V.
3. Should be pulled up with 4.7k - 10kohms on host board to a voltage between 2.0V and 3.6V. MOD_DEF(0) pulls line low to indicate module is plugged in.
4. LOS is LVTTL output. Should be pulled up with 4.7k – 10kohms on host board to a voltage between 2.0V and 3.6V. Logic 0 indicates normal operation; logic 1 indicates loss of signal.



Pinout of Connector Block on Host Board

II. Absolute Maximum Ratings

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Maximum Supply Voltage	Vcc	-0.5		4.0	V	
Storage Temperature	TS	-40		100	°C	
Case Operating Temperature	TOP	0		70	°C	
Relative Humidity	RH	0		85	%	1

III. Electrical Characteristics (TOP=25°C, Vcc=3.3Volts)

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Supply Voltage	Vcc	3.10		3.50	V	
Supply Current	Icc		165	300	mA	
Transmitter						
Input differential impedance	Rin		100		Ω	2
Single ended data input swing	Vin, pp	250		1200	mV	
Transmit Disable Voltage	VD	Vcc – 1.3		Vcc	V	
Transmit Enable Voltage	VEN	Vee		Vee+ 0.8	V	3
Transmit Disable Assert Time				10	us	
Receiver						
Single ended data output swing	Vout, pp	300	400	800	mV	4
Data output rise/fall time	tr		400	1300	ps	5
LOS Fault	VLOS fault	Vcc – 0.5		VccHOST	V	6
LOS Normal	VLOS norm	Vee		Vee+0.5	V	6
Power Supply Rejection	PSR	100			mVpp	7

Notes:

1. Non condensing.
2. AC coupled.
3. Into 100 ohm differential termination.
4. 20 – 80 %
5. LOS is LVTTL. Logic 0 indicates normal operation; logic 1 indicates no signal detected.
6. Measured with DJ-free data input signal. In actual application, output DJ will be the sum of input DJ and ΔDJ.

IV. Optical Characteristics (TOP=25°C, Vcc=3.3 Volts)

Parameter	Symbol	Min	Typ	Max	Unit	Ref.
Transmitter						
Output Opt. Pwr：9/125 SMF	PO	-5		0	dBm	1
Optical Wavelength	λ	1263		1360	nm	
Spectral Width	σ			3	nm	
Optical Extinction Ratio	ER	10			dB	
Optical Rise/Fall Time	tr/tf			1300	ps	2
Relative Intensity Noise	RIN			-120	dB/Hz	
Generated Jitter (peak to peak)	Jtxp-p			0.07	UI	3
Generated Jitter (rms)	Jtxrms			0.007	UI	3
Mask Margin			30%			
Receiver						
Average Rx Sensitivity @ OC-3	RSENS2	-34		-8	dBm	4
Optical Center Wavelength	λC	1260		1600	nm	
LOS De-Assert	LOSD			-34	dBm	
LOS Assert	LOSA	-45			dBm	
LOS Hysteresis		0.5			dB	

Notes:

1. Class 1 Laser Safety.
2. Unfiltered, 20-80%.
3. Jitter measurements taken using Agilent OMNIBERT 718 in accordance with GR-253
4. With worst-case extinction ratio.

V. General Specifications

Parameter	Symbol	Min	Typ	Max	Units	Ref.
Data Rate	BR			155	Mb/sec	1
Bit Error Rate	BER			10^{-12}		2
Max. Supported Link Length on 9/125μm SMF @ OC-3	LMAX5		40		km	3

Notes:

1. Compliant with SONET and SDH at OC-3 LR-1/STM L-1.1.
2. Tested with a PRBS 2^{23}-1 data pattern.
3. Attenuation of 0.55 dB/km is used for the link length calculations. Please refer to the Optical Specifications in Table IV to calculate a more accurate link budget based on specific conditions in your application.

VI. Environmental Specifications

1310nm Commercial Temperature SFP transceivers have an operating temperature range from 0°C to +70°C case temperature.

Parameter	Symbol	Min	Typ	Max	Units	Ref.
Case Operating Temperature	Top	0		70	°C	
Storage Temperature	Tsto	-40		100	°C	

VII. Mechanical Specifications

The Small Form Factor Pluggable (SFP) transceivers are compatible with the dimensions defined by the SFP Multi-Sourcing Agreement (MSA).

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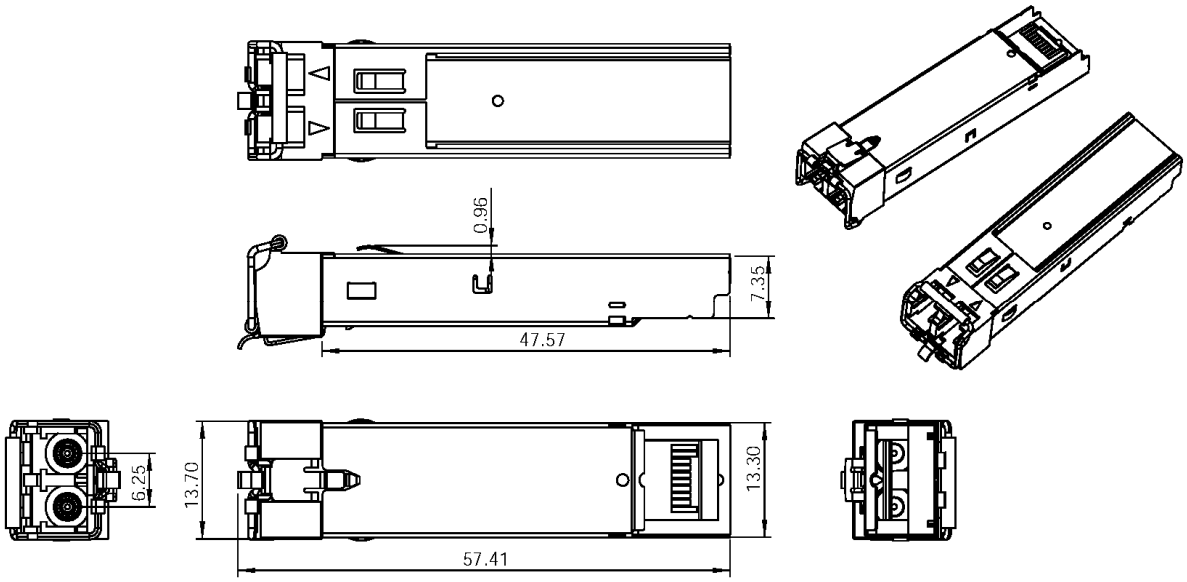

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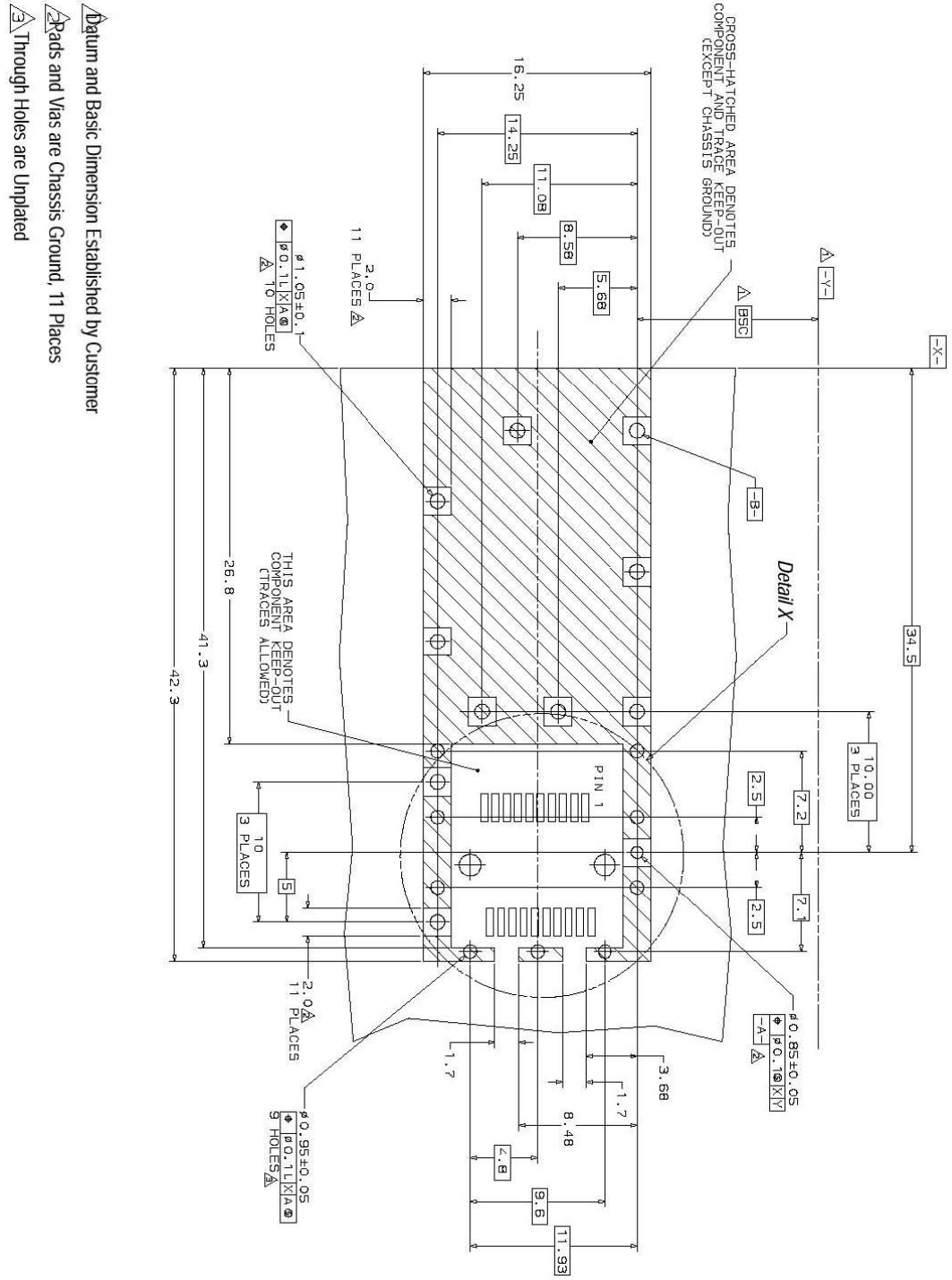
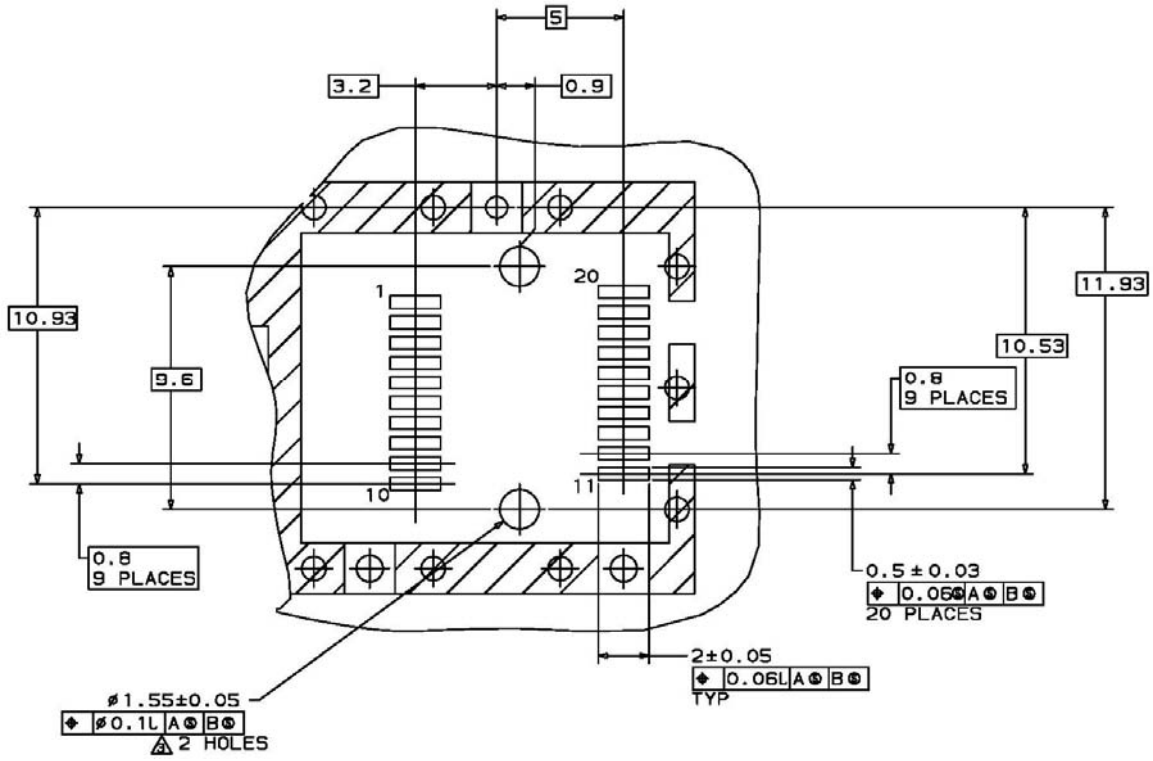
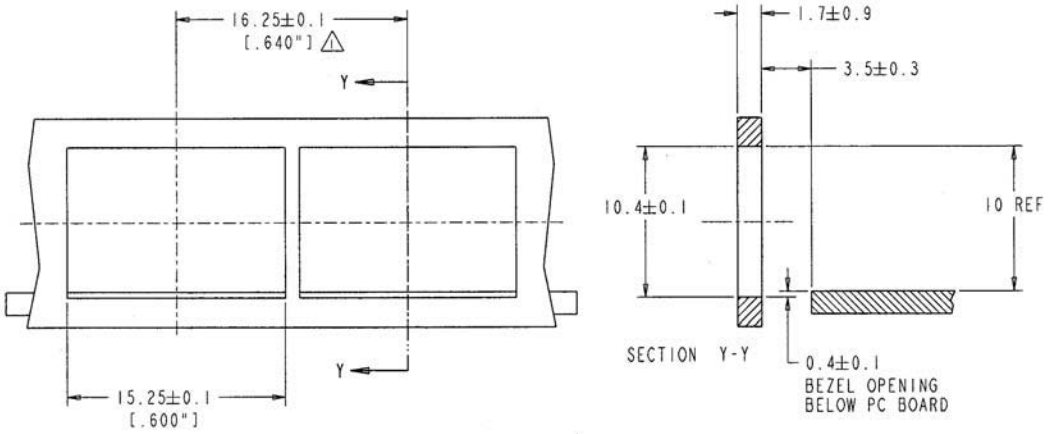
IX. PCB Layout and Bezel Recommendations







NOTES:

1. MINIMUM PITCH ILLUSTRATED, ENGLISH DIMENSIONS ARE FOR REFERENCE ONLY
2. NOT RECOMMENDED FOR PCI EXPANSION CARD APPLICATIONS