Product Specification
X2 10G LR 20km SC Optical Transceiver

1. Features

- XAUI Electrical Interface: 4 Lanes @ 3.125Gbit/s
- Hot Z-Pluggable
- SC-Duplex Optical Receptacle
- MDIO, DOM Support
- Uncooled 1.3µm DFB-LD
- PIN Photo-detector
- Operating Case Temperature: 0°C to 70°C
- Compliant to IEEE 802.3ae 10GBASE-LR Application
- Compliant to X2 MSA
- Mechanical Footprint: 91mm L x 36mm W x 13.46* H [*Other heights available]

2. Reference

- IEEE 802.3ae as 10GBASE-LR, X2 MSA Release 1.0b.

3. Product Description

A-GEAR's 10GbE X2 transceiver module X2 10G LR 20km SC is a hot pluggable in the Z-direction module that is usable in typical router line card applications, Storage, IP network and LAN and compliant to X2 MSA. The X2 10G LR 20km SC is a fully integrated 10.3Gbit/s optical transceiver module that consists of a 10.3Gbit/s optical transmitter and receiver, XAUI interface, Mux and Demux with clock and data recovery(CDR). This version of A-GEAR Inc. transceiver line uses an uncooled direct modulation (DM) 1310nm DFB Laser Diode to achieve 20km over standard single mode fiber as 10GBASE-LR of the IEEE 802.3ae.

4. Absolute Maximum Ratings

Stresses in excess of the Absolute Maximum Ratings can cause permanent damage to the transceiver.

Parameter	Symbol	Min.	Max.	Unit
Supply Voltage	V_{CCI}	0	+5.5	V [1]
Supply Voltage	V_{CC2}	0	+3.6	V [2]
Supply Voltage	V_{CC3}	0	+ 1.5	V [3]
Optical Receiver Input	P_{IMAX}	-	+ 1.5	dBm [4]
Case Temperature	T_C	0	+70	° C [5]
Storage Temperature	T_{STR}	-40	+85	° C

Notes:
[1] +5V
[2] +3.3V
[3] APS
[4] Average
[5] Figure 1

5. Operating Environment

Electrical and optical characteristics below are defined under this operating environment, unless otherwise specified.

Parameter	Symbol	Min.	Typical	Max.	Unit
Supply Voltage	V_{CC1}	4.75	5	5.25	V [1]
Supply Voltage	V_{CC2}	3.135	3.3	3.465	V [2]
Supply Voltage	V_{CC3}	1.152	1.2	1.248	V [3]
Case Temperature	T_C	0	25	70	°C [4]

Notes:
[1] +5V
[2] +3.3V
[3] APS
[4] Figure 1

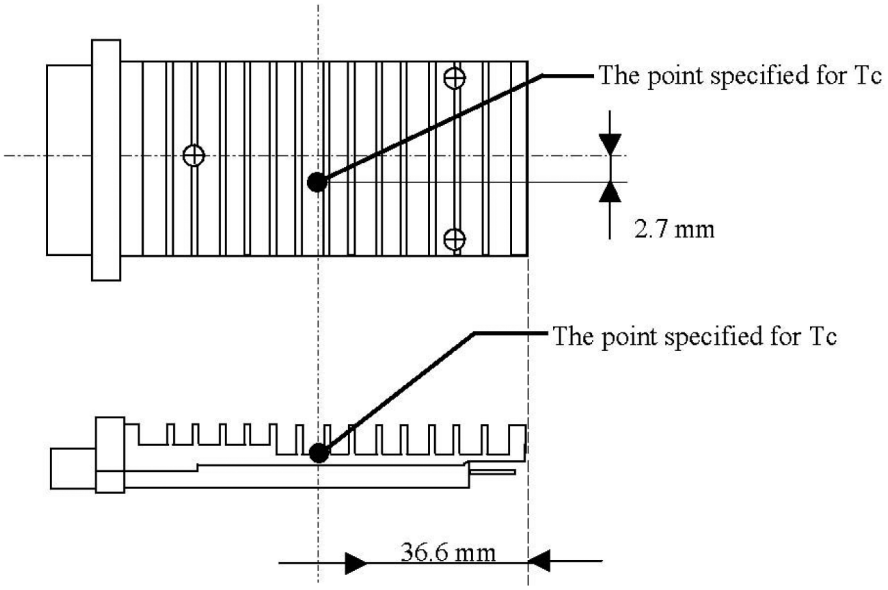


Figure 1. The Point Specified for Case Temperature (T_C).

6. Optical Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
Center Wavelength	Ac	1280	1310	1340	nm
Signaling speed		-	10.3125	-	Gbit/s
Signaling speed variation from nominal		-100	-	+ 100	ppm
Optical modulation amplitude	OMA	-5.2	-	-	dBm
Optical Output Power	Pf	-	-	+0.5	dBm [1]
Optical Waveform	-	-	-		
Side Mode Suppression Ratio	Sr	30	-	-	dB [1]
Extinction Ratio	Er	3.5	-	-	dB
Off Transmit Power	Poff	-	-	-30	dBm [1]
Receiver Sensitivity in OMA	OMA rmin	-	-	-10.3	dBm
Receiver Overload	Rro	+0.5	-	-	dBm [1]
Receiver Return Loss	RL	12	-	-	dB [1]

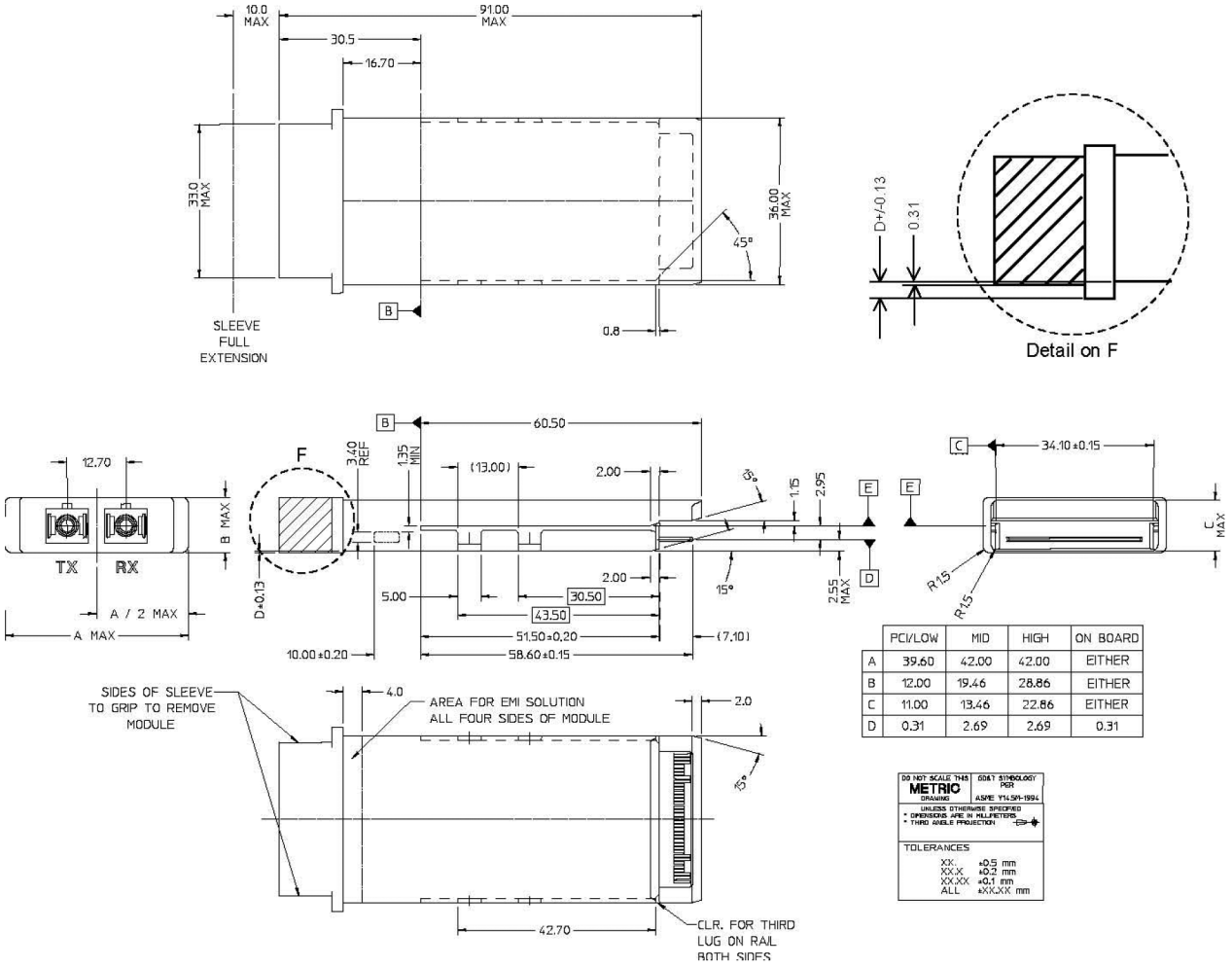
Notes:
[1] Average

7. Power Supply Characteristics

Parameter	Symbol	Min.	Typical	Max.	Unit
Supply Voltage	V_{CC1}	4.75	5.00	5.25	V
Supply Voltage	V_{CC2}	3.135	3.300	3.465	V
Supply Voltage	V_{CC3}	1.15	1.20	1.25	V
Supply Current	I_{CC1}	-	-	1.4	A [1]
Supply Current	I_{CC2}	-	-	1.7	A [2]
Power Consumption	P_{DS}	-	-	4.0	W

Notes:
[1] +3.3 V
[2] APS

8. Mechanical dimensions



	PCI/LOW	MID	HIGH	ON BOARD
A	39.60	42.00	42.00	EITHER
B	12.00	19.46	28.86	EITHER
C	11.00	13.46	22.86	EITHER
D	0.31	2.69	2.69	0.31

Figure 2. Mechanical dimensions.