

## Uncooled 4 x 10Gb/s 1310nm CWDM Mini-TOSA

### KEY FEATURES

- four uncooled 1310nm CWDM 10Gb/s DFB lasers
- extended temperature range (-5°C to 75°C)
- multi-rate operation
- pin photodiode monitor
- CWDM wavelength multiplexer/combiner
- rectangular body fitting within a 6x6 mm cross section
- LC receptacle, electrically isolated from signal ground
- RoHS 6/6
- Telcordia GR468 qualified

The **KAIAM** mini-TOSA consists of four CWDM DFB lasers, four monitor photodiodes, and an optical multiplexer to combine the outputs from the four lasers, in a hermetic package with an LC receptacle with isolator, and flex circuit for interface to the transceiver PCB.

The target applications for this TOSA are QSFP+ OTU-3 line rate and IEEE 40GBASE-LR4 small form-factor pluggable transceivers operating at aggregate bit rates of 4x (9.95 to 11.35 Gb/s).

The mini-TOSA is qualified in accordance with:

- Telcordia GR468 (500g)
- Operational shock and vibration testing
- RoHS 6/6
- FDA laser classification



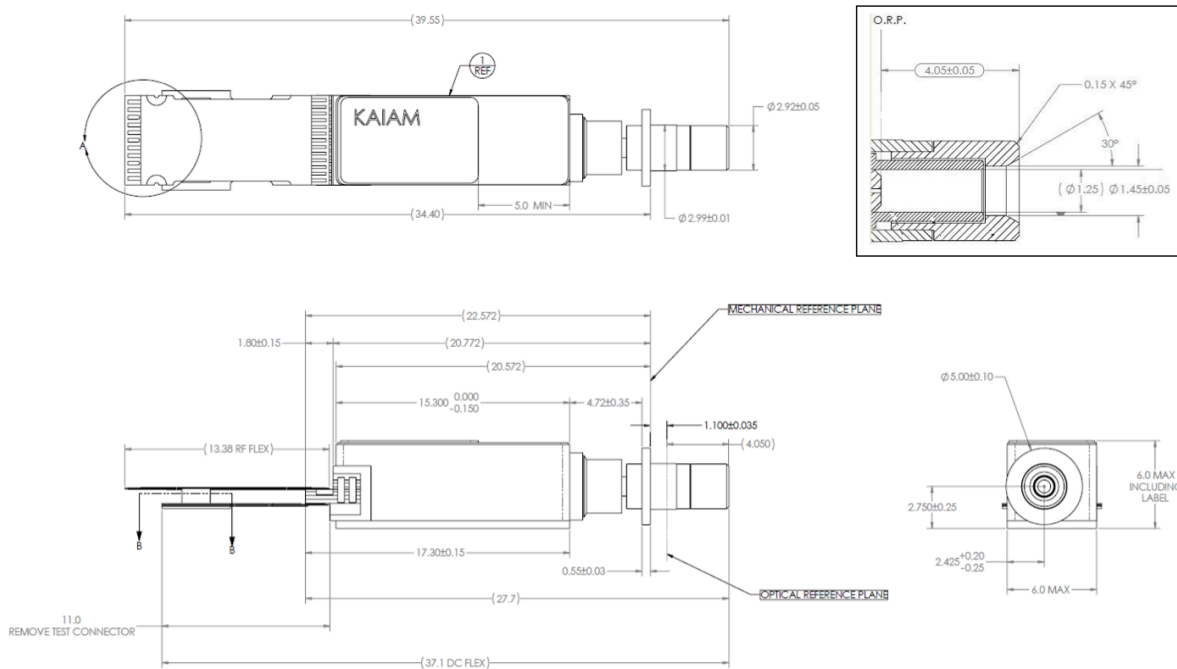
# Uncooled 4 x 10Gb/s 1310nm CWDM Mini-TOSA

## ELECTRO-OPTICAL SPECIFICATIONS

| PARAMETER                       | SYMBOL        | MIN                    | MAX    | UNITS   |    |
|---------------------------------|---------------|------------------------|--------|---------|----|
| Channel Wavelength              | Ch0           | $\lambda_0$            | 1264.5 | 1277.5  | nm |
|                                 | Ch1           | $\lambda_1$            | 1284.5 | 1297.5  |    |
|                                 | Ch2           | $\lambda_2$            | 1304.5 | 1317.5  |    |
|                                 | Ch3           | $\lambda_3$            | 1324.5 | 1337.5  |    |
| Side-Mode Suppression Ratio     | SMSR          | 30                     |        | dB      |    |
| Optical Modulation Amplitude    | OMA           | -2.5                   |        | dBm     |    |
| Extinction Ratio                | ER            | 3.5                    | 6.5    | dB      |    |
| Transmitter Optical Mask        | MM            | Compliant with 40G-LR4 |        |         |    |
| Relative Intensity Noise        | $RIN_{20OMA}$ |                        | -128   | dB/Hz   |    |
| Optical Return Loss Tolerance   | ORT           | 20                     |        | dB      |    |
| Optical Return Loss             | ORL           |                        | -12    | dB      |    |
| Wiggle                          |               |                        | +1.5   | dB      |    |
| Threshold Current               | $I_{th}$      |                        | 30     | mA      |    |
| Operating Current               | $I_{op}$      |                        | 120    | mA      |    |
| Operating Laser Voltage         | $V_{op}$      |                        | 2.2    | V       |    |
| Monitor Photodiode Current      | $I_{mon}$     | 20                     | 400    | $\mu A$ |    |
| Monitor Photodiode Dark Current | $I_{dark}$    |                        | 1.0    | $\mu A$ |    |

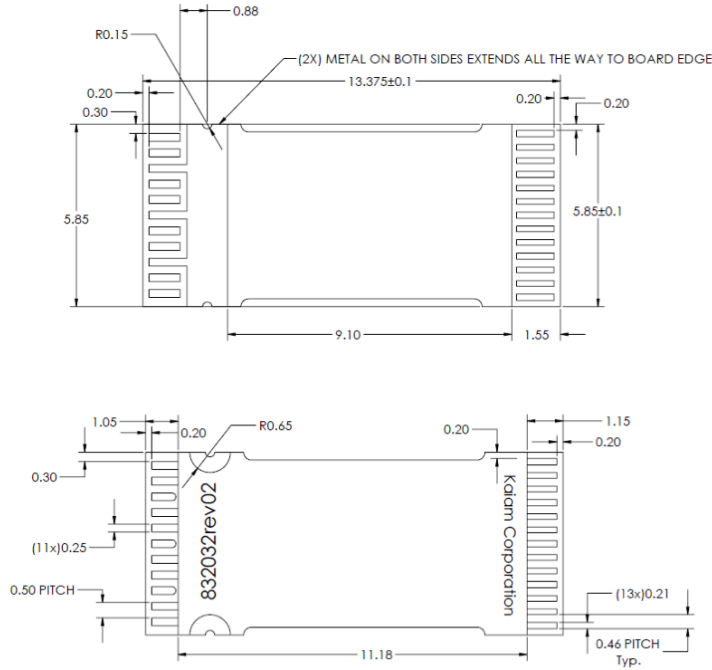
## MECHANICAL OUTLINE

(all dimensions in mm)

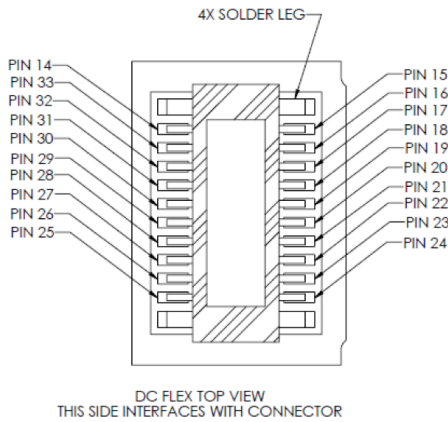
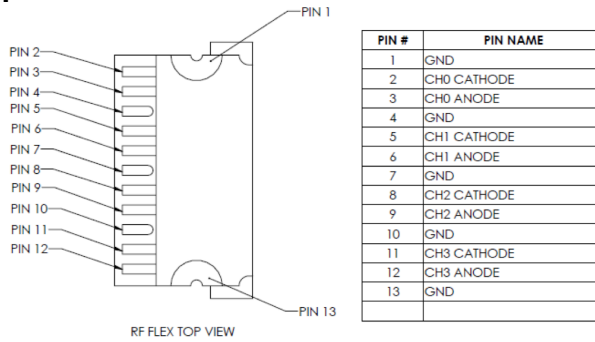


## RF FLEX OUTLINE

(all dimensions in mm)



## PIN ASSIGNMENT



20 PIN CONNECTOR PINOUT

| PIN # | PIN NAME           | PIN # | PIN NAME     |
|-------|--------------------|-------|--------------|
| 14    | GND/CASE GND       | 24    | GND/CASE GND |
| 15    | GND/CASE GND       | 25    | GND/CASE GND |
| 16    | GND/CASE GND       | 26    | GND/CASE GND |
| 17    | MPD COMMON CATHODE | 27    | GND/CASE GND |
| 18    | CH0 MPD ANODE      | 28    | GND/CASE GND |
| 19    | CH1 MPD ANODE      | 29    | GND/CASE GND |
| 20    | CH2 MPD ANODE      | 30    | GND/CASE GND |
| 21    | CH3 MPD ANODE      | 31    | GND/CASE GND |
| 22    | MPD COMMON CATHODE | 32    | GND/CASE GND |
| 23    | GND/CASE GND       | 33    | GND/CASE GND |

**Note:** Connector Hirose DF40C-20DP-0.4V(51), ([http://www.digikey.com/product-detail/en/DF40C-20DP-0.4V\(51\)/H11618TR-ND/1969479](http://www.digikey.com/product-detail/en/DF40C-20DP-0.4V(51)/H11618TR-ND/1969479))

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