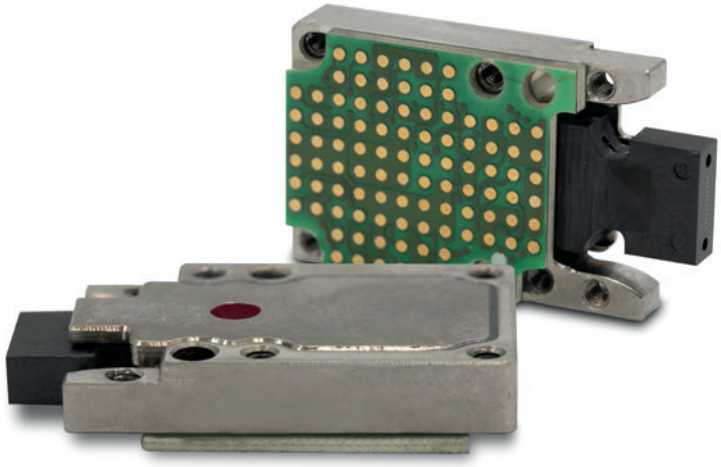
smiths interconnect

*Light*ABLE 10G LGA 4TRX

Rugged optical transceiver



Rugged, low-SWaP, multichannel optical transceivers for defense applications

Product Summary

The *Light*ABLE™ LGA 4TRX optical module is a four-lane, full-duplex, 10 Gbps per lane, optical transceiver in a small, ruggedized package for harsh-environment applications.

The electrical interfaces are based on CML logic levels and support per lane data rates of up to 10.3125 Gbps (a total bandwidth of over 40 Gbps full-duplex).

The optical transceiver integrates an industry-standard, 1×12 MT, optical interface using the QSFP+-compatible channel configuration (4-TX/4-n.c./4-RX). The transceiver uses a 96-pin LGA-type electrical interposer connector and the entire plug-in module is screw-attached on to the host board.

The module contains a preprogrammed microcontroller for configuration – only power and high-speed signaling is required.

An I2C serial interface is provided to interrogate the module.

Qualification

MIL-STD-883

- Vibration tests, Method 2007.3
- Mechanical shock tests, Method 2002.5
- Thermal shock tests, Method 1011.9
- Thermal cycling tests, Method 1010.8

JEDEC-STD-22

- Damp heat - Method A101

MIL-STD-810

- Cold storage tests, Method 502.5

Key Features

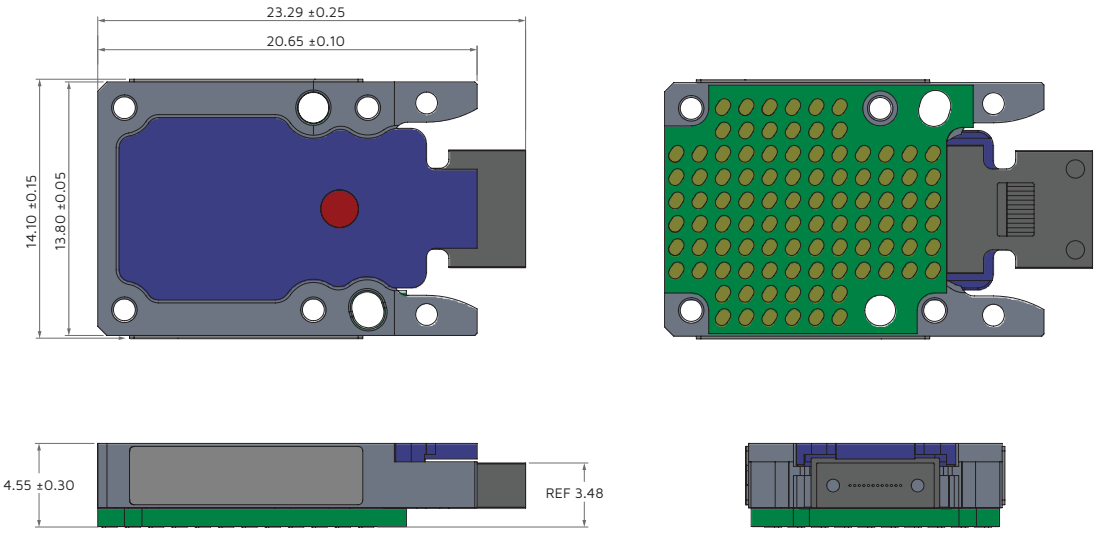
- Industrial temperature: –40 °C to 85 °C
- Sensitivity up to –12 dBm
- Up to 10.3125 Gbps per channel
- Short-reach 850 nm VCSELs
- Standard 1×12 MT optical interface
- 4 differential CML inputs
- 4 differential CML outputs
- LGA electrical interface
- Link distance up to 100 m (OM3 fiber)
- I2C communication interface
- Asynchronous channel operation
- Data protocol-agnostic, balanced code

Application

The *Light*ABLE 4TRX LGA module targets the following applications:

- Phased array radars
- CCD/CMOS imaging sensors
- FPGA serdes

Mechanical layout



Part Numbering and Ordering Information

Part number	Description
Transceiver	
LLX04P9185323AA	*Light*ABLE 10G 4TRX LGA transceiver, high sensitivity
LLX04P9185321AA	*Light*ABLE 10G 4TRX LGA transceiver, standard sensitivity
Accessories	
415-00018	1 mm, 96–position, LGA interposer kit (interposer +4 x ¼ in. screws)
700-00106	1 mm, 96–position, LGA interposer (no screws)
322-00030	MicroClip
706-00003	Dowel pins
500-00002	1.2 m MT-to-MT multimode fiber cable
500-00007	1.8 m MT-to-MPO multimode fiber cable / MPO optical fiber ribbon cable
600-00037	MT dust cap (included with the *Light*ABLE).
Evaluation boards and related parts	
LLK040028500001	*Light*ABLE 10G 4TRX evaluation board
865-00003	I2C host adapter (AARDVARK)
500-00017	12-fiber multimode breakout cable with MT-to-FC/PC connectors
500-00020	Loopback ribbon fiber cable (MPO)
500-00250	1.8 m MT-to-MPO multimode fiber cable
600-00024	MPO-to-MPO adapter

Copyright© 2024 Smiths Interconnect | All rights reserved | Version 1.0
The information contained within this document is subject at all times to applicable Export Control regulations and legal requirements.