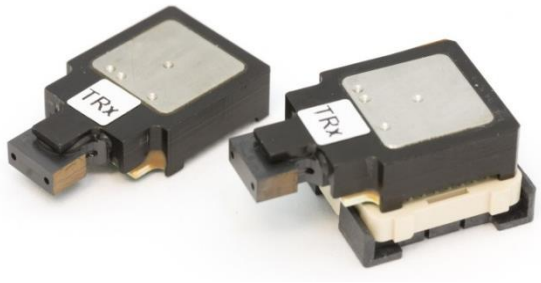
Product Brief

The Reflex Photonics 40Gbps LightABLE™ SR4 LM series Optical Transceiver Industrial and Commercial Temperature Range

THE *Light* on Board® family of optical engine technology in its smallest form-factor.



The Reflex Photonics *Light*ABLE™ LM SR4 Optical Transceiver includes 4 transmit and 4 receive channels in a parallel fiber configuration. It supports up to 41.25 Gbps full duplex.

The *Light*ABLE™ LM SR4 Pluggable/Surface Mount Optical Engine is a low-profile parallel transceiver with integrated microcontroller*. The optical engines can be mounted directly upon a high-speed printed circuit board via surface mount technology or attached via a pluggable connector. This allows short electrical traces from the Host ASIC connect high-speed electrical data signals to the Reflex *Light*ABLE™ LM SR4 optical engine to be implemented.

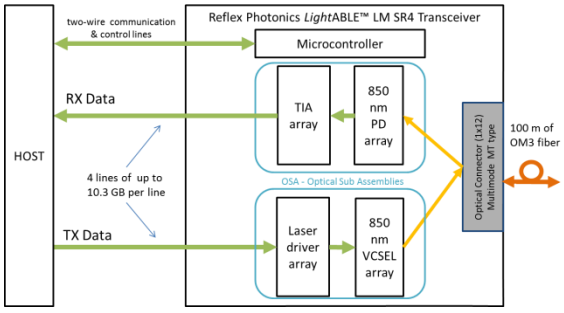
The Reflex *Light*ABLE™ LM SR4 optical engine's self-contained design makes it simple to add to any application which can benefit from high-speed, short-reach optical connectivity.

*A version without microcontroller is also available.

** Industrial part qualified between -40 °C to 85 °C. Please communicate with Reflex for detailed information on operation over 85 °C.

Summary Specifications:

- Commercial temp. range 0 °C to +70 °C
- Industrial temp. range -40 °C to +100 °C**
- Bit Error Rate of E-12
- Sensitivity of -12 dBm
- Up to 10.3125 Gbps per channel
- 4 transmit and 4 receive channels
- Industry standard MT-terminated connector
- 850 nm wavelength
- Over 100 m reach on OM3 ribbon fiber
- 3.4 cm^2 footprint for surface mount
- 0.9 W power consumption
- AC coupled to the host ASIC
- CML high-speed electrical interface
- I2C communication interface
- Integrated microcontroller with look-up table*
- Data protocol agnostic with balanced code
- Tin-Lead or RoHS options available



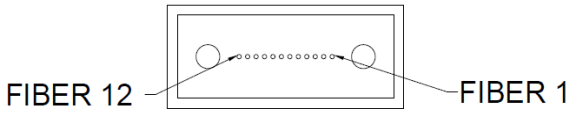
Functional Diagram of LightABLE™ LM SR4 Transceiver

Applications:

The LM SR4 module targets applications that require very large bandwidths in confined areas and are typically co-located with high-speed, high port count FPGAs or ASICs. The modules provide robust operation and high operating temperature ranges. Typically the modules are used in:

- Phased array radar
- FPGA Serdes Interfaces
- Multi-processor interconnects
- CCD/CMOS Imaging sensor arrays
- High fidelity radar imagery

Optical Interface Lanes:

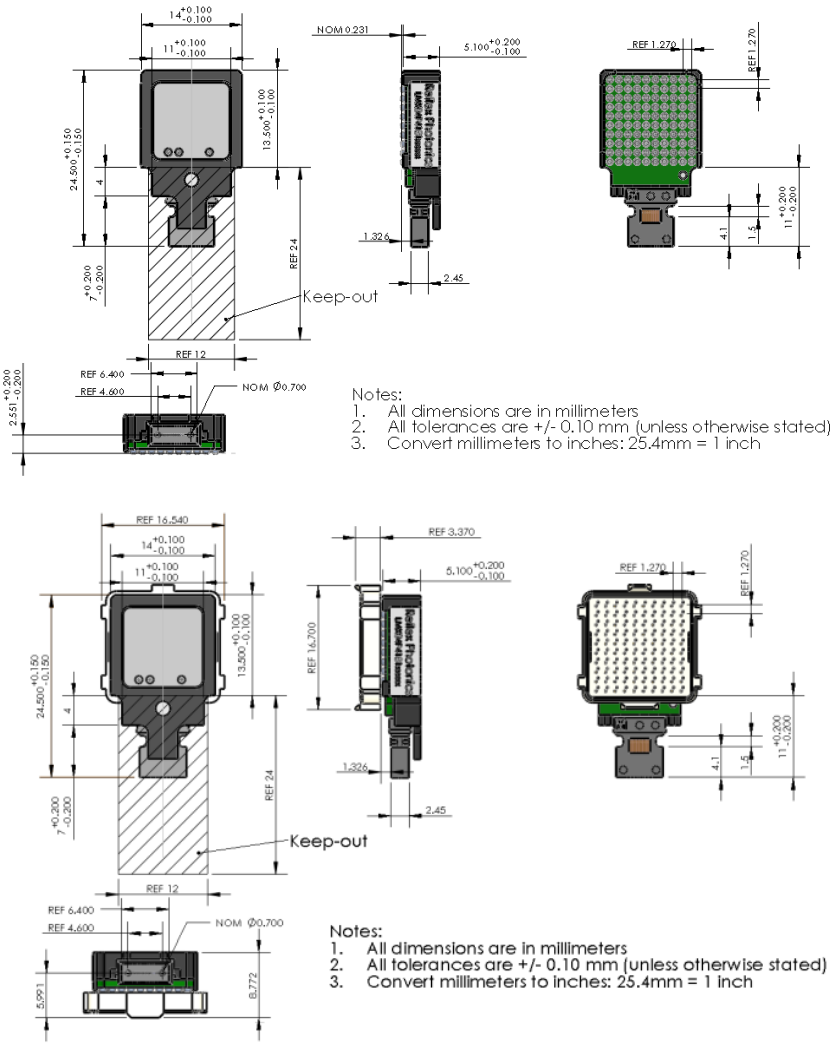


*Outside view of the Light*ABLE™ LM *SR4 Transceiver module MT receptacle*

MT Fiber #	Lane Assignment	MT Fiber #	Lane Assignment
1	RX1	**7**	Unused
2	RX2	**8**	Unused
3	RX3	**9**	TX4
4	RX4	**10**	TX3
5	Unused	**11**	TX2
6	Unused	**12**	TX1

Mechanical

The Reflex ***Light*ABLE™ LM *SR4*** optical engine's small form factor and low power consumption make it ideal for space-constrained applications.



*Light*ABLE™ LM *SR4 module dimensions*

PRODUCT VARIANTS

*Light*ABLE™ LM SR4 transceivers are available in several operating temperature variants

- Industrial Operating Temperature Range (-40 to +85°C) (Tcase)
- Commercial Operating Temperature Range (0 to +70°C) (Tcase)

Each temperature variant is available in mounting options of

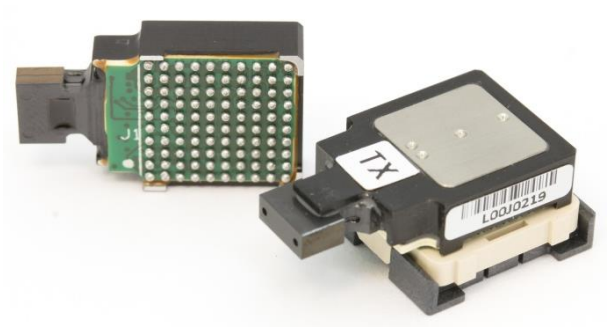
- Surface mount: Pb / Leaded solder balls
- Pluggable: RoHS / Lead-Free MegArray® connector

1-514-842-5179 or **1-408-715-1781** or by email at sales@reflexphotonics.com

Product Brief

The Reflex Photonics 150Gbps LightABLE™ SR12 LM series Optical Transceiver Industrial and Commercial Temperature Range

THE *Light* on Board® family of optical engine technology in its smallest form-factor.



The Reflex Photonics *Light*ABLE™ LM SR12 Optical Engines with integrated microcontroller* delivers 150Gbps over 12 fiber optic channels. The Reflex Photonics *Light*ABLE™ Optical Engine is a stand-alone integrated solution for converting between high-speed electrical and optical I/O.

The *Light*ABLE™ Optical Engine is a low-profile pre-aligned parallel electrical - to - optical (or optical - to - electrical) transmitter (or receiver). The optical engines can be mounted directly upon a high-speed printed circuit board via surface mountable 1.27 mm pitch BGA or via a MEG-array® connector. The *Light*ABLE™ LM optical engine's is ideal for space-constrained applications.

Qualification

MIL-STD-883:

- ✓ Vibration tests. Method 2007.3
- ✓ Mech., shock tests, Method 2002.4
- ✓ Thermal shock tests, Method 1011.9
- ✓ Thermal cycling tests, Method 1010.8

MIL-STD-202:

- ✓ Damp heat tests, Method 103B

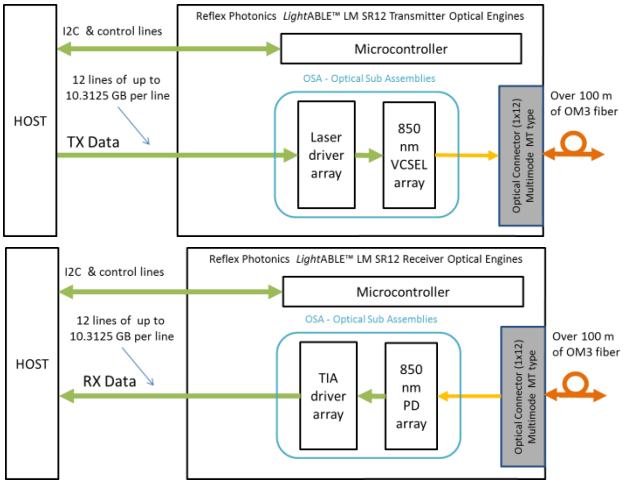
MIL-STD-810:

Cold storage tests, Method 502.5

Summary Specifications:

- ✓ Commercial Temp. range 0 °C to 70 °C
- ✓ Industrial Temp. range -40 °C to 100 °C**
- ✓ Bit Error Rate of 1E-12
- ✓ Sensitivity up to -12 dBm
- ✓ Up to 12.5-Gbps per channel***
- ✓ Short-Reach 850-nm VCSELs
- ✓ Standard 1x12 MT optical interface
- ✓ 12 Differential CML Inputs/Outputs
- ✓ Amphenol/FCI MegArray™ Connector
- ✓ Footprints of 17-mm x 17-mm
- ✓ Link Distance up to 100-m (OM3 fiber)
- ✓ I2C communication interface
- ✓ Asynchronous channel operation
- ✓ Data protocol agnostic with balanced-code
- ✓ Tin-Lead or RoHS options available

*A version without microcontroller is also available.
** Industrial part qualified between -40 °C to 85 °C.
*** LightABLE qualification test done at 10.3125 Gbps



Reflex 12 x 10G LightABLE™ LM Transmitter & Receiver

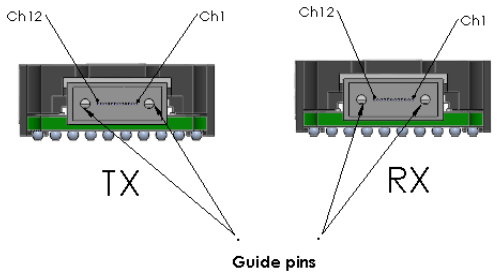
contact: sales@reflexphotonics.com

Applications:

The LM SR12 module targets applications that require very large bandwidths in confined areas and are typically co-located with high-speed, high port count FPGAs or ASICs. The modules provide robust operation and high operating temperature ranges. Typically the modules are used in:

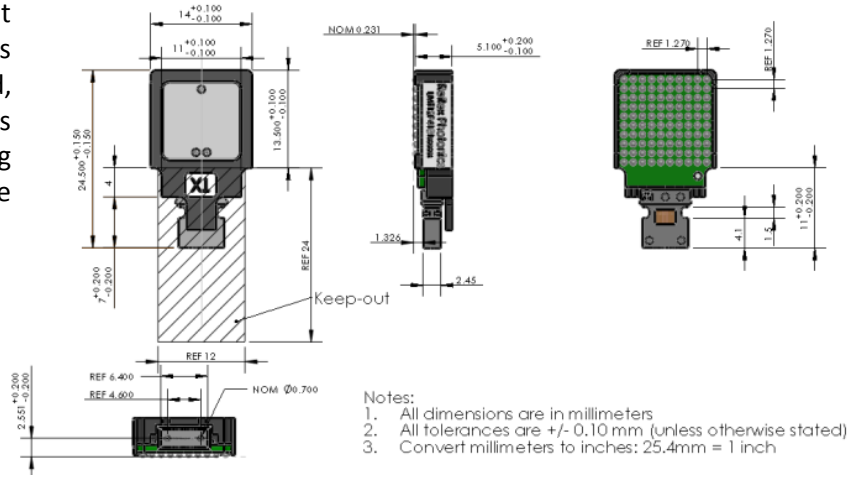
- ✓ Phased array radars
- ✓ FPGA Serdes Interfaces
- ✓ Multi-processor interconnects
- ✓ CCD/CMOS Imaging sensor arrays
- ✓ High fidelity radar imagery

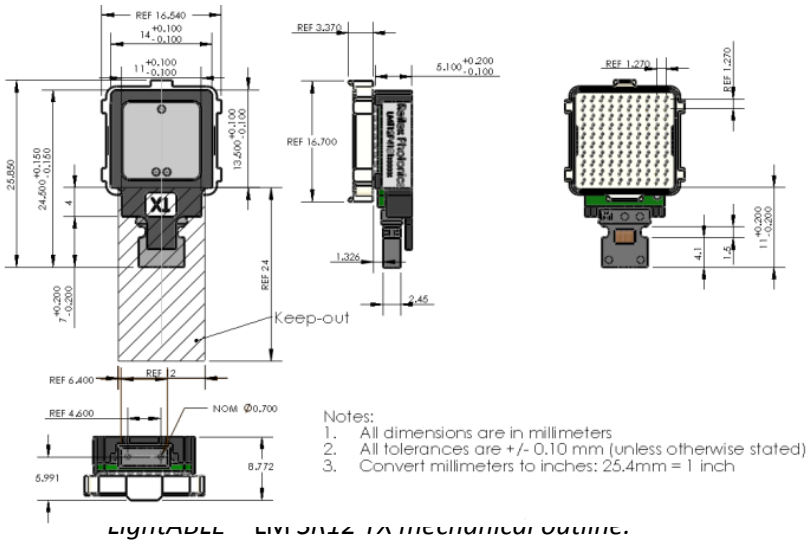
Optical Interface Lanes:



Outside view of the LightABLE™ LM *module MT receptacles*

Mechanical





LightABLE™ LM SR12 TX mechanical outline.

Transmitter and Receiver engines mechanical outline are the same.

PRODUCT VARIANTS

*Light*ABLE™ LM SR12 transmitters and receivers are available in several operating temperature variants

- Industrial Operating Temperature Range (-40 to +85°C) (Tcase)
- Commercial Operating Temperature Range (0 to +70°C) (Tcase)

Each temperature variant is available in mounting options of

- Surface mount: Pb / Leaded solder balls
- Pluggable: RoHS / Lead-Free MegArray® connector

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