

Product Brief

The Reflex Photonics 50 Gbps 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 *LightABLE*™ LM SR4 Optical Transceiver includes 4 transmit and 4 receive channels in a parallel fiber configuration. It supports up to 50 Gbps full duplex.

The *LightABLE*™ 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. The Reflex *LightABLE*™ 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.

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

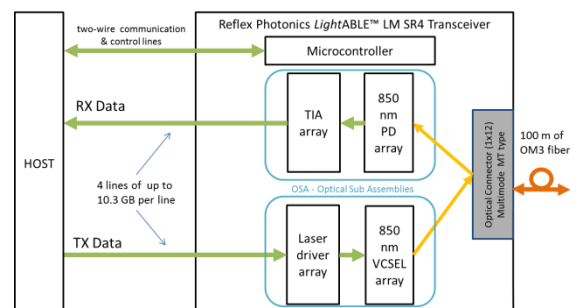
Summary Specifications:

- ✓ Commercial temp. range 0 °C to +70 °C
- ✓ Industrial temp. range -40 °C to +100 °C**
- ✓ Bit Error Rate of E-12
- ✓ Sensitivity of -12 dBm
- ✓ Up to 12.5 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 cm² 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

*A version without microcontroller is also available.

** Industrial part qualified between -40 °C to 85 °C.

*** Qualification test done at 10.3125 Gbps.



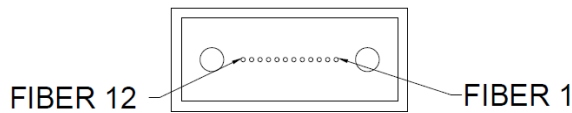
Functional Diagram of *LightABLE*™ LM SR4 Transceiver

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:

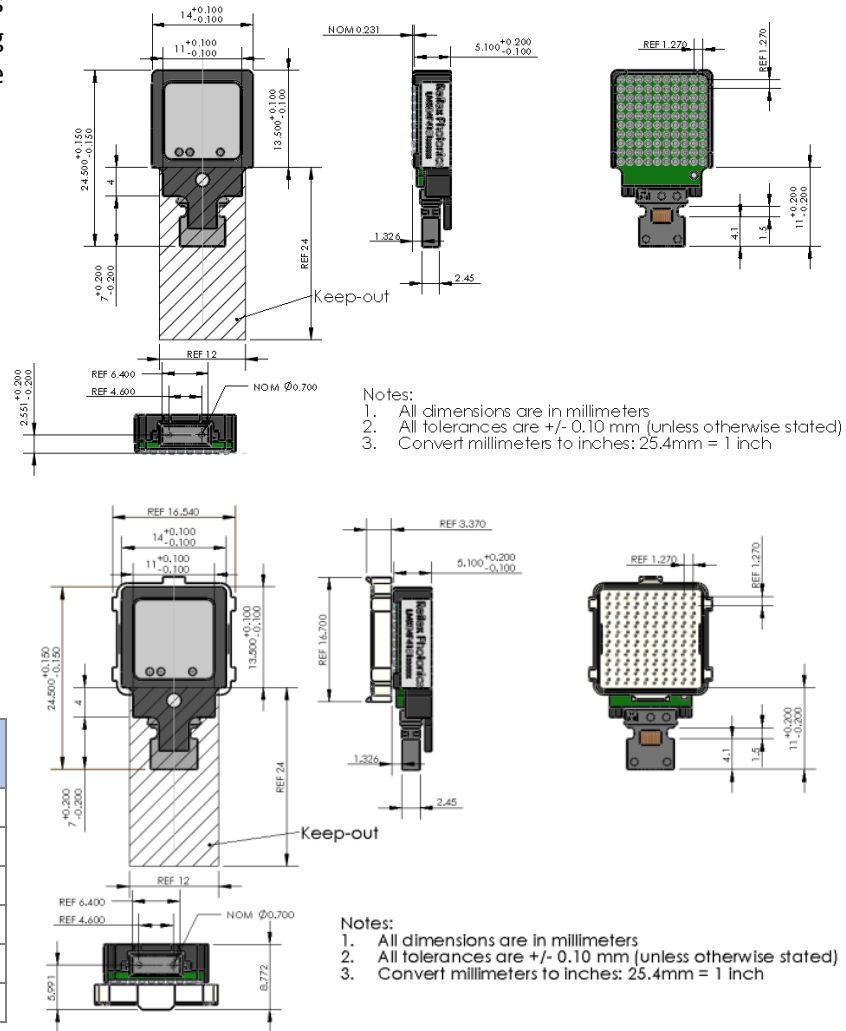


Outside view of the LightABLE™ LM SR4 Transceiver module MT receptacle

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



LightABLE™ LM SR4 module dimensions

PRODUCT VARIANTS

LightABLE™ 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

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