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 LightABLE™ 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 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. This allows short electrical traces from the Host ASIC connect high-speed electrical data signals to the Reflex LightABLE™ LM SR4 optical engine to be implemented.

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.

* 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 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

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](image)

<table>
<thead>
<tr>
<th>MT Fiber #</th>
<th>Lane Assignment</th>
<th>MT Fiber #</th>
<th>Lane Assignment</th>
</tr>
</thead>
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<td>1</td>
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<td>2</td>
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<tr>
<td>6</td>
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<td>12</td>
<td>TX1</td>
</tr>
</tbody>
</table>

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

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

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

The LightABLE™ 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 LightABLE™ 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
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

PRODUCT VARIANTS

LightABLE™ 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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