The most rugged high-performance embedded parallel optics.

**SpaceABLE SM 50G and 150G**
Radiation-resistant optical transceivers

**Key advantages**
- **Small**: Less than 5 mm high.
- **Rugged**: Withstand radiation doses >100 krad (Si) and qualified per MIL-STD 883 shock and vibration.
- **Expected life**: Up to 20 years.
- **Cold start temperature**: –55 ºC.
- **Performance**: Up to 12.5 Gbps/lane from –40 ºC to 100 ºC.
- **BER**: As low as 10^{-15}.
- **Low power consumption**: 85 mW/lane (<10 pJ per bit)

**Configurations**
- 4 TRX (50G)
- 12 TX or 12 RX (150G)

**Applications**
- High-throughput communication satellites.
- Internet of Space.
- VPX single board computers.
- High I/O density, high BW communication links.

**SpaceABLE SM product summary**
Reflex Photonics’ SpaceABLE™ SM radiation resistant transceivers are engineered to withstand radiation doses >100 krad (Si). The SpaceABLE SM embedded optical modules are rugged devices offering high bandwidth (greater than 150 Gbps) in a chip-size package.
Furthermore, all our devices are tested following ECSS process and lot acceptance testing, and component pre-screening is done for every batch of transceivers sold for this application.
50G and 150G SpaceABLE SM features

- 4 TX plus 4 RX lane per device (50G).
- 12 TX or 12 RX lane per device (150G).
- Multimode 850 nm wavelength laser.
- Over 100 m reach on OM3 ribbon fiber.
- Standard MT parallel fiber connector.
- Surface mountable or pluggable.
- RoHS or tin-lead.
- Monitoring: LOS, RSSI, temperature etc.
- Available in industrial (~40°C to 100°C) grade temperature range.

SpaceABLE SM radiation resistant optical transceivers

The SpaceABLE™ SM modules are tested under heavy ions, protons, and Cobalt 60 electrons sources.

- Meet highest level SWaP requirement.
- Heavy-ion tested (Single Event Effect & Latch-up (SEE and SEL))
- Cobalt 60 electron source tested (MIL-STD-883G, method 1019.7) Total Ionizing Dose (TID).
- High and low energy protons tested (Total Non-Ionizing Dose (TNID)).
- Lot acceptance test.
- Following ECSS process.

In addition, SpaceABLE SM also pass standard LightABLE™ qualifications.

- Damp heat tests per MIL-STD-202, Method 103B.
- Cold storage tests per MIL-STD-810, Method 502.5.
- Thermal cycling tests per MIL-STD-883, Method 1010.8.

SpaceABLE SM ordering information

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Product Description</th>
<th>Lanes</th>
<th>Bandwidth (Gbps/lane)</th>
<th>Sensitivity (dBm)</th>
<th>BER</th>
<th>Mounting</th>
<th>Operating Temperature (ºC)</th>
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<tbody>
<tr>
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<td>SpaceABLE SM 4TRX transmit/receive</td>
<td>4+4</td>
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