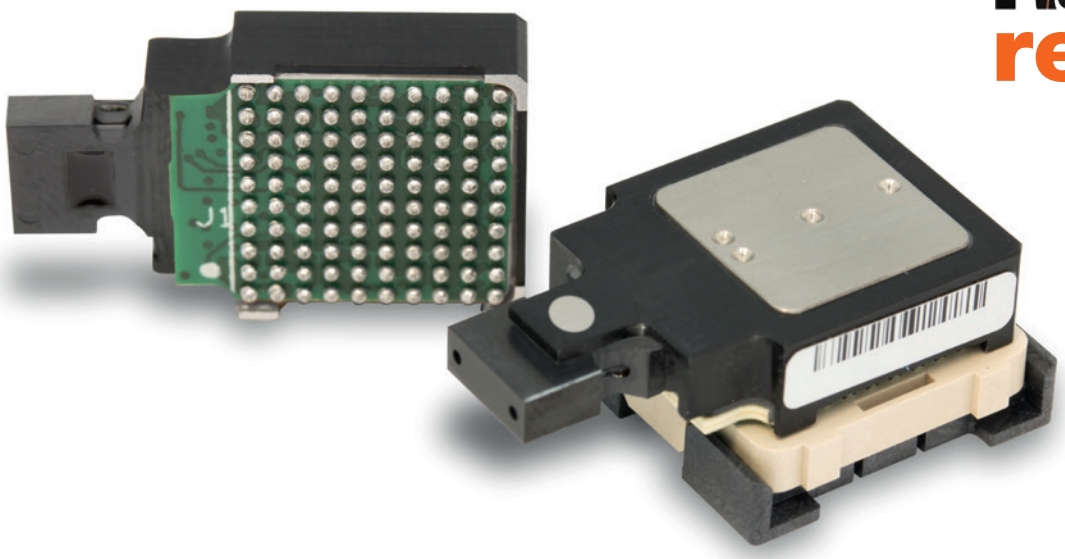
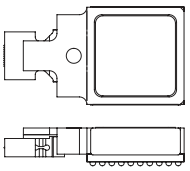
REFLEXPHOTONICS®

The most rugged high-performance embedded parallel optics.

12.5G

Radiation resistant





Real size for *Space*ABLE SM 50G and 150G.

*Space*ABLE SM 50G and 150G

Radiation-resistant optical transceivers

*Space*ABLE™ SM radiation resistant transceivers are engineered to withstand radiation doses >100 krad (Si). The *Space*ABLE 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. Component pre-screening can be done for every batch of transceivers sold for this application.

Key advantages

- **Small**: Less than 5 mm high (SMT version)
- **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 °C.
- **Performance**: up to 12.5 Gbps/channel from –40 °C to 100 °C
- **Sensitivity**: –9 dBm for BER 10^{-12}
- **Low power consumption**: 85 mW/channel (<10 pJ per bit)

Configurations

- 4TRX (50G, full duplex)
- 12TX or 12 RX (150G)

Applications

- High-throughput communication satellites
- LEO satellite constellations
- GEO satellites (with extended lifetime option)
- Board-to-board and payload-to-payload connections
- High I/O density, high BW communication links

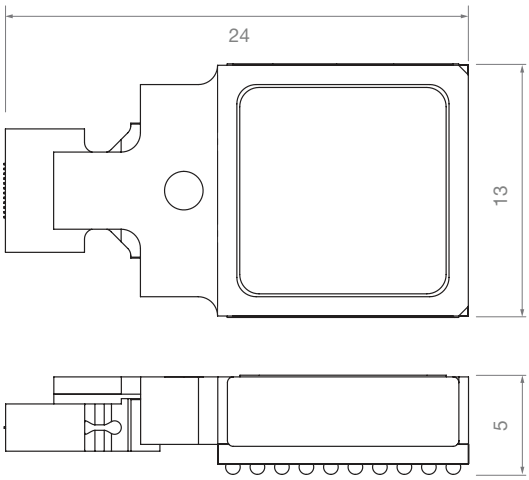
smiths interconnect

*Space*ABLE SM 50G (full duplex) and 150G features

- 4 TRX (4+4)-lane per device (50G, full duplex)
- 12 TX or 12 RX channel per device (150G)
- Multimode 850 nm wavelength laser
- Standard MT parallel fiber connector
- Surface mountable or pluggable
- RoHS or tin-lead
- Monitoring: LOS, RSSI, temperature, etc
- Available in extended industrial grade temperature range (–40 °C to 100 °C)

Space qualification tests summary

- **Proton testing:** Total Non-Ionizing Dose (TNID)
- **Heavy ion testing:** Single Event Effect & Latch-up (SEE and SEL)
- **Gamma Ray using Cobalt-60:** Total Ionizing Dose (TID)
- **Random vibration**: NASA GEVS, GSFC-STD-7000A
- **TVAC**: Vacuum < 5E-5 hPa
- **Outgassing**: ECSS-Q-ST-70-02C



Drawing of *Space*ABLE SM (measurements given in mm).

*Space*ABLE SM ordering information

Part Number	Product Description	Channels	Bandwidth* (Gbps/ channel)	Sensitivity (dBm)	BER	Mounting	Operating Temperature (°C)
SMX04P518332101	*Space*ABLE SM 4TRX transmit/receive	4+4	12.5	–9	E^{-12}	RoHS Pluggable	–40 to 100
SMT12P518333001	*Space*ABLE SM 12TX transmitter	12	12.5	n.a.	E^{-12}	RoHS Pluggable	–40 to 100
SMR12P518330101	*Space*ABLE SM 12RX receiver	12	12.5	–9	E^{-12}	RoHS Pluggable	–40 to 100
SMX04P518432101	*Space*ABLE SM 4TRX transmit/receive	4+4	12.5	–9	E^{-12}	Leaded Pluggable	–40 to 100
SMT12P518433001	*Space*ABLE SM 12TX transmitter	12	12.5	n.a.	E^{-12}	Leaded Pluggable	–40 to 100
SMR12P518430101	*Space*ABLE SM 12RX receiver	12	12.5	–9	E^{-12}	Leaded Pluggable	–40 to 100
SMX04P518232101	*Space*ABLE SM 4TRX transmit/receive	4+4	12.5	–9	E^{-12}	Leaded SMT	–40 to 100
SMT12P518233001	*Space*ABLE SM 12TX transmitter	12	12.5	n.a.	E^{-12}	Leaded SMT	–40 to 100
SMR12P518230101	*Space*ABLE SM 12RX receiver	12	12.5	–9	E^{-12}	Leaded SMT	–40 to 100

*: Operation over 10.3125 Gbps requires custom register settings in order to meet all the optical specifications.

www.reflexphotonics.com

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Reflex Photonics is certified to ISO 9001