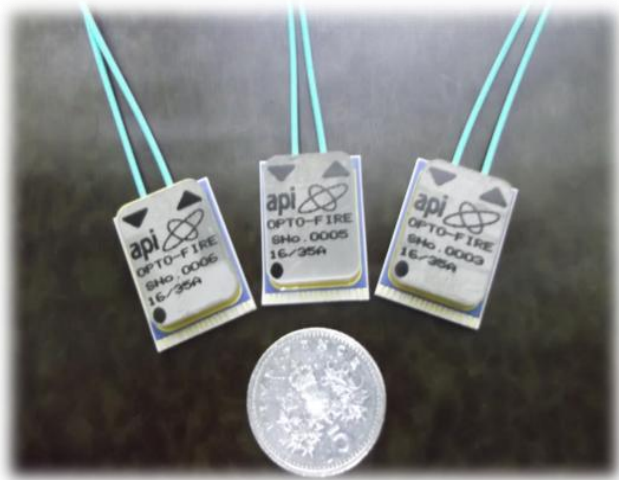


# Optical Core™

Micro Optical Transceiver for Harsh Environments



Core Envelope 8.5x8.0x1.3mm

## Applications:

The API Optical Core simply incorporates into critical data communication systems for Military and Commercial Aerospace, Land and Sea vehicles. Opportunities also exist within Oil, Gas and Mining permanent installations for reliable data transfer in the harshest of environments.

Expansion is also possible to provide fibre optic sensing & monitoring systems where security, safety, and reliability are critical.

## Mechanical & Environmental Specifications

Weight (gm)	1.5
Size (mm)	8.5x8.0x1.3
Connectors	FC/SC/LC/MU single fibre MT/MTP ribbon fibre
Operating Temperature	-50°C to +100°C
Storage Temperature	-40°C to +125°C

## Features:

- Single channel core covers data transfer rates from 20Mbps to 12.5Gbps providing future proof system integration
- -50°C to +100°C expanded operating temperature for enhanced reliability
- Proven error free performance over 1.1km of multimode fibre
- Stable performance (<1dB Tx optical output) across the full operating temperature range
- Protocol agnostic giving flexibility to system design
- Ultra low power consumption (100mW/channel @3.3V) for minimised power drain
- Single, dual, triple, and quad channel units are available on same small footprint reducing integration dimensions
- Radiation Tolerant Circuitry for harsh environments
- ITAR FREE

## Technical Specifications

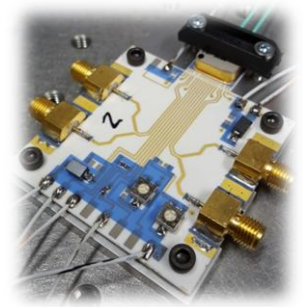
Parameter	Typical Performance	Units
Optical Wavelength	840 – 860	nm
Transmit average optical power	-3	dBm
Transmit average optical power stability	0.5	dB
Transmit optical extinction ratio	7	dB
Transmit eye mask margin at 2GbFC	45	%
Transmit eye mask margin at 8GbFB	20	%
Transmit total jitter generation at 2GbFC	90	pS
Transmit deterministic total jitter generation at 2GbFC	20	pS
Receiver sensitivity 2GbFC	-22	dBm
Receiver sensitivity 8GbFC	-16	dBm
Receiver overload	Error Free	dBm
Receiver data out total jitter generation	< 100	pS
Receiver data out deterministic jitter generation	< 20	pS
Power supply current	30	mA

**Product Summary**

API Technologies’ Micro Optical Transceiver for Harsh Environments provides a uniquely flexible core to design and build into communication systems & media converter style solutions targeted at the harsh environment sector. By working with the engineering teams at API it is possible to enhance systems and develop robust and future proof microelectronic packages aligned to customers individual specification which are robust and future proof.

The core design enables API to deliver:

- Ease of use products and services that are factory configured and require minimal external circuitry and control systems.
- A device that has been designed and manufactured in the UK in accordance with MIL PRF-38534 Class H&K.
- Evaluation and Test Boards are available.

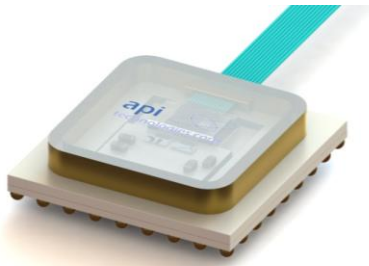


Available Evaluation Board

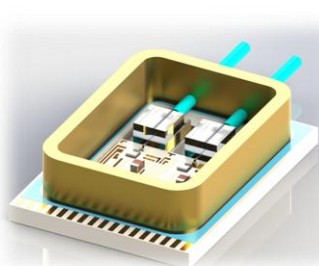
**Design Capabilities**

API Technologies’ product design capabilities include laser beam profiling, optical coupling and alignment (active scan and passive) solutions, optical test systems and product design verification. API also can provide RF/Microwave and optical design & simulation, hermetic hybrid sealed packaging and chip & wire clean room assembly. API Technologies’ is a respected leader in High Temperature electronics packaging in Commercial and Military Aerospace and the Oil and Gas industry sectors.

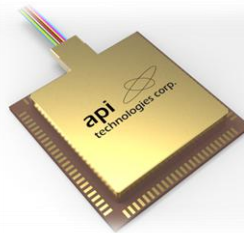
**Packaging Concepts**



Hermetic BGA Package



Hermetic BGA Multi Core Package



Hermetic HTCC Package



Media Converter with Internal Optical Core

**Test capabilities**

API’s dedicated and independent Test House is DLA and UKAS accredited and carries out testing in accordance with MIL-STD-883 and MIL-STD-202. It is continuously developing capabilities and test methods in response to customer requirements.