

OPTO-FIRE™ (multi-mode)

High Speed Micro Optical Transceiver for Critical Applications in Harsh Environments



Applications

The API OPTO-FIRE™ incorporates and improves critical data communication systems for Military and Commercial Aerospace, Land and Sea vehicles.

Applications also exist within harsh environments such as Oil & Gas, Renewable Energy and Mining for reliable data transfer in permanent installations.

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

Mechanical & Environmental Specifications

Weight (gm)	~12 gms
Size (mm)	25 x 25 x 6.9
Connectors	MT ferrule
Fibre	12 Chl Multimode Ribbon Fibre
Fibre assembly length	Customer specific
Operating Temperature	-50°C to +100°C
Junction temp	+15 degC
Storage Temperature	-40°C to +125°C

Features

- 4 chl Transmit @ 850nm Multi-mode.
- 4 chl Receive @ 850nm Multi-mode.
- Hermetic package to MIL STD 883 method 1014 A &C
- Wide operating temperature range -50°C to +100°C for enhanced reliability.
- Low to high speed secure data communications over multi-mode fibre (20Mbps to 12.5Gbps).
- Stable performance (<1dB Tx optical output) across the full operating temperature range.
- Protocol agnostic giving flexibility to system design.
- AC coupled electrical interface.
- Ultra low power consumption (100mW/channel @+3.3V) for minimised power drain.
- Radiation Tolerant Circuitry for harsh environments.
- ITAR FREE.

Technical Specifications

Parameter	Typical Performance	Units
Optical Wavelength	850	nm
Transmit average optical power (per chl)	-3	dBm
Transmit average optical power stability (per chl)	±0.5	dB
Transmit optical extinction ratio (per chl)	6.5	dB
Transmit eye mask margin at 2GbFC (per chl)	45	%
Transmit eye mask margin at 8GbFB (per chl)	20	%
Transmit total jitter generation at 2GbFC (per chl)	90	pS
Transmit deterministic total jitter generation at 2GbFC (per chl)	20	pS
Receiver sensitivity 2GbFC (per chl)	-18	dBm
Receiver sensitivity 10.3GbFC (per chl)	-13	dBm
Receiver overload (per chl)	Error Free	dBm
Receiver data out total jitter generation (per chl)	< 100	pS
Receiver data out deterministic jitter generation	< 20	pS
Power supply current	≈100	mA

Receive Sensitivity at BER 10⁻¹²

Product is manufactured and qualified in accordance with MIL PRF 38534 Class E (mix of both class H&K) / MIL STD 883

Mechanical Drawing

