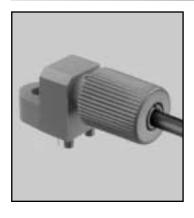
Plastic Fiber Optic Red VCSEL



DESCRIPTION

The IF-E100 is a high-speed red VCSEL (vertical cavity surface emitting laser) housed in a "connector-less" style plastic fiber optic package. The output spectrum of the IF-E100 is produced by a GaAlAs die that peaks at a wavelength of 670 nm, one of the optimal transmission windows of PMMA plastic optical fiber. The device package features an internal micro-lens and a precision-molded PBT housing to ensure efficient optical coupling into standard 1000 μm core plastic fiber cable.

APPLICATION HIGHLIGHTS

The fast transition times of the IF-E100 make it suitable for very high-speed digital data links. Link distances in excess of 100 meters at data rates of 1 Gbps are possible using the Eska Mega® 1000 μm core plastic fiber. The low electrical threshold and very fast bandwidth of this device make plastic optical fiber a design choice previously unavailable.

APPLICATIONS

- ➤ PC-to-Peripheral Data Links
- ➤ Motor Controller Triggering
- ➤ Giga-Bit Local Area Networks
- ➤ Medical Instruments
- Automotive Electronics
- ➤ Digitized Video
- ➤ Electronic Games
- ➤ Robotics Communications
- ➤ Isolation from Lightning and Voltage Transients

FEATURES

- ◆ No Optical Design Required
- ♦ Mates with Eska Mega® 1000 µm Core Jacketed Plastic Fiber Cable
- ◆ Internal Micro-lens for Efficient Coupling
- ◆ Inexpensive Plastic Connector Housing
- ◆ Connector-Less Fiber Termination and Connection
- ◆ Interference-Free Transmission from Light-Tight Housing
- ◆ Low Threshold Current
- ◆ Very Fast Transition Times
- ♦ Visible Light Output

MAXIMUM RATINGS

 $(T_A = 25^{\circ}C)$

Operating and Storage
Temperature Range
(T_{OP}, T_{STG}).....-40° to 85°C

Junction Temperature (T_J) 85°C

Soldering Temperature
(2 mm from case bottom)
(Ts) t≤5s240°C

 $(P_{TOT}) T_A = 25^{\circ}C \dots 100 \text{ mW}$ De-rate Above 25°C \dots 1.75 mW/°C

CHARACTERISTICS $(T_A=25^{\circ}C)$

| Parameter | Symbol | Min. | Тур. | Max. | Unit |
|---|---------------------------------|-----------|--------|------|-----------|
| Peak Wavelength | $\lambda_{	ext{PEAK}}$ | 660 | 673 | 680 | nm |
| Spectral Bandwidth (50% of I _{MAX}) | Δλ | - | .2 | .3 | nm |
| Output Power Coupled into Plastic Fiber (1 mm core diameter). Lens to Fiber Distance ≤0.1 mm, 10 cm polished fiber, I _F =20 mA | $\Phi_{	ext{min}}$ | 1000 0 | - - | | μW dBm |
| Switching Times (10% to 90% and 90% to 10%) (R_L =47 Ω , I_F =prebiased above threshold) | t _r , t _f | - | - | 1 | ns |
| Operating Current | I _F | - | 7.0 | 10.0 | mA |
| Forward Voltage (I _F =20 mA) | V _f | 2.0 | 2.1 | 2.2 | V |
| Threshold Current | I_{TH} | 1.5 | 3.0 | 4.0 | mA |
| Threshold Voltage | V_{TH} | 2.0 | 2.1 | 2.4 | V |
| Slope Efficiency | η | .2 | .3 | .45 | mW mA |