

Transmitters for use with ESKA™ Products: MIC-L91A
Description and Features

The MIC-L91A is a high-output, medium speed infrared LED housed in a connector-less style plastic fiber optic package. The output spectrum peaks at 950 nm for this product. The device package features an internal micro-lens and a precision-molded PBT housing, ensuring efficient optical coupling with standard 1000 μm core plastic fiber cable.

| | |
|--|---|
| Excellent linearity | Requires no optical design |
| Mates with standard 1000 μm core jacketed plastic fiber optic cable | Light-tight housing provides interference-free transmission |
| Uses inexpensive plastic connector housing | Internal micro-lens makes for efficient optical coupling |
| Connector-free fiber termination and connection | |

Applications
Highlights

The high output and fast transition times of the MIC-L91A make it suitable for low-cost analog and digital data links. Used with an MIC-D96 photologic detector, the MIC-L91A can achieve data rates of 500 kbps at link distances up to 7 m. The drive circuit design is simpler than that required for laser diodes, making this product an excellent low-cost alternative in a variety of analog and digital applications.

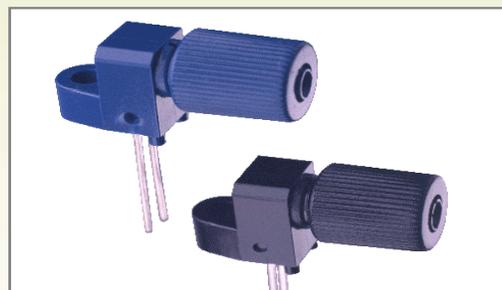
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|--|--|
| Low-cost analog and digital data links | Robotics communications |
| Digitized audio | EMC / EMI signal isolation |
| Motor controller triggering | Electronic games |
| Optical sensors | Intra-system links: Board-to-board, rack-to-rack |
| Medical instruments | |

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

| Parameters | Symbol | Min. | Typ. | Max. | Unit |
|---|---|-----------|-------------|-------------|----------------------|
| Peak Wavelength | λ_{PEAK} | -- | 950 | -- | nm |
| Spectral Bandwidth 50% of I_{MAX} | $\Delta \lambda$ | -- | ± 20 | -- | nm |
| Output Power Coupled into Plastic Fiber (1 mm core diameter) Distance of lens to fiber: ≤ 0.1 mm, 1 m SH4001 fiber, $I_F=20$ mA | Φ_{min} | 50 -13 | 70 -11.6 | 95 -10.2 | μW dBm |
| Switching Times 10% to 90% and 90% to 10% $R_L=47\Omega$, $I_F=10$ mA | t_r , t_f | -- | 1.0 | -- | μs |
| Capacitance $F=1$ MHz | C_O | -- | 25 | -- | pF |
| Forward Voltage | V_f ($I_F=20\text{mA}$) ($I_F=20\text{mA}$) | -- | 1.2 1.24 | 1.5 1.5 | V |

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

| | |
|---|-----------------------------------|
| Temperature Range for Operation and for Storage ($T_{\text{OP}}, T_{\text{STG}}$) | -40° to 85°C |
| Junction Temperature (T_J) | 85°C |
| Soldering Temperature (2mm from case bottom) (T_S) $t_S \leq 5\text{s}$ | 240°C |
| Reverse Voltage (V_R) | 3V |
| Power Dissipation (P_{TOT}) $T_A=25^\circ\text{C}$ | 100mW |
| Forward Current DC (I_F) IF-E91A | 50mA |
| Surge Current (I_{FSM}) $t \leq 10 \mu\text{sec}$ IF-E91A | 2A |
| De-rate above 25°C | $1.33\text{mW}/^\circ\text{C}$ |



The information contained herein is presented as a guide to product selection. It is subject to change without notice, and should not be regarded as a representation, warranty or guarantee with regard to the quality, characteristics or use of this product

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Receivers for use with ESKA™ Products: **MIC-L91A**

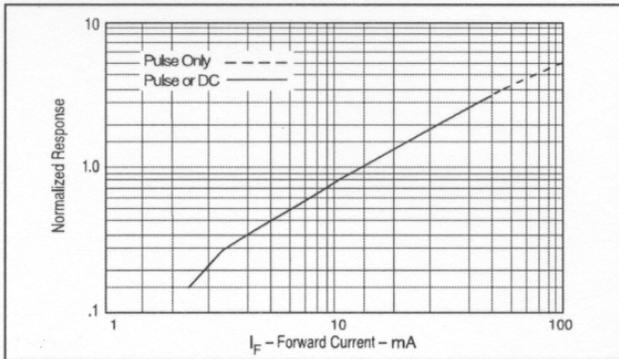


FIGURE 1. Normalized power launched versus forward current.

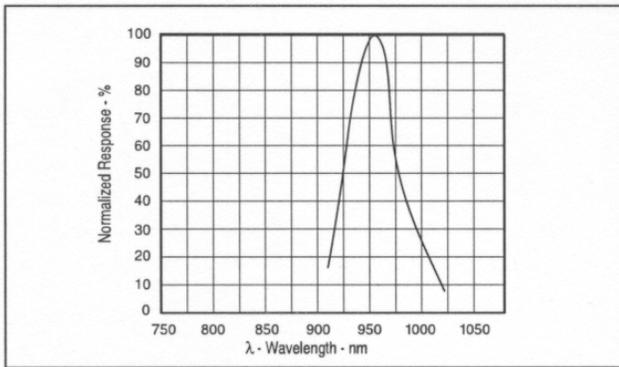


FIGURE 2. Typical spectral output vs. wavelength.

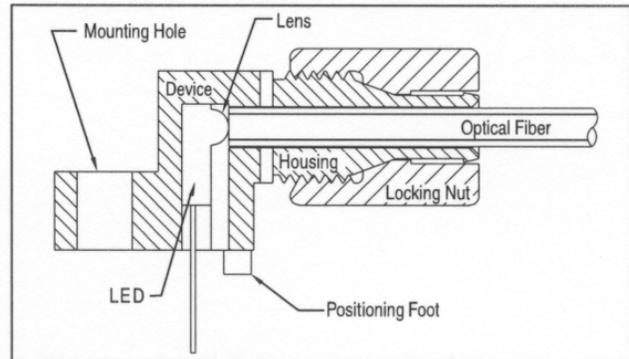


FIGURE 3. Cross-section of fiber optic device.

FIBER TERMINATION INSTRUCTIONS

1. Cut off the ends of the optical fiber with a single-edge razor blade or sharp knife. Try to obtain a precise 90-degree angle (square).
2. Insert the fiber through the locking nut and into the connector until the core tip seats against the internal micro-lens.
3. Screw the connector locking nut down to a snug fit, locking the fiber in place.

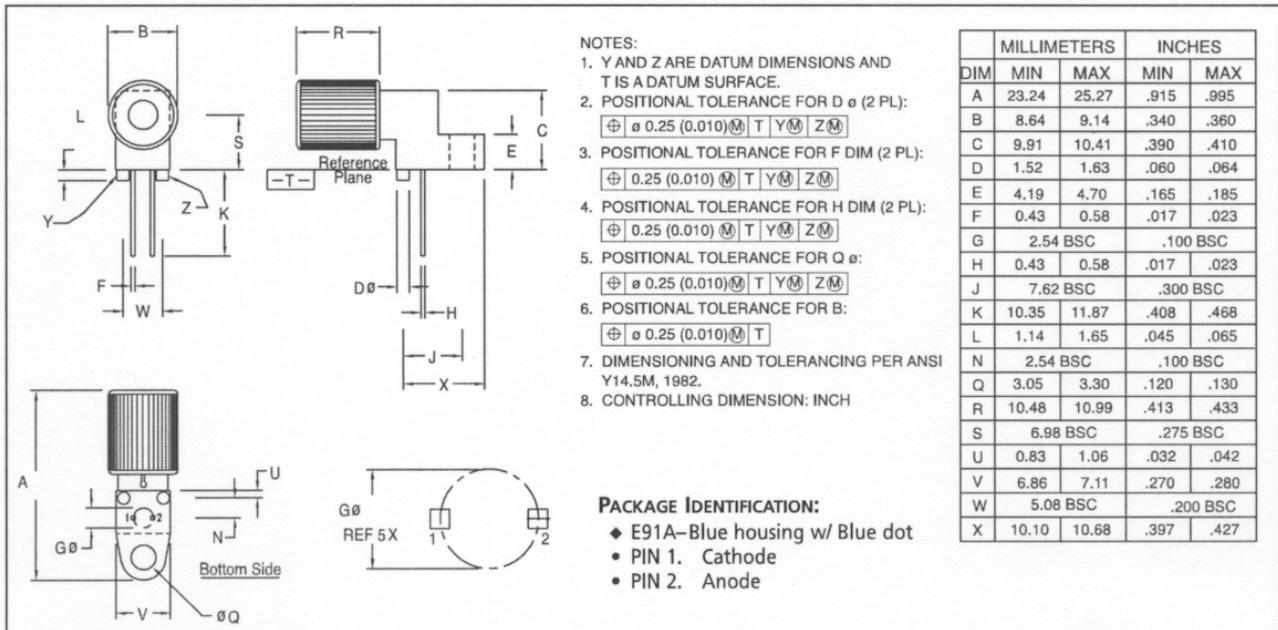


FIGURE 4. Case outline.

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