

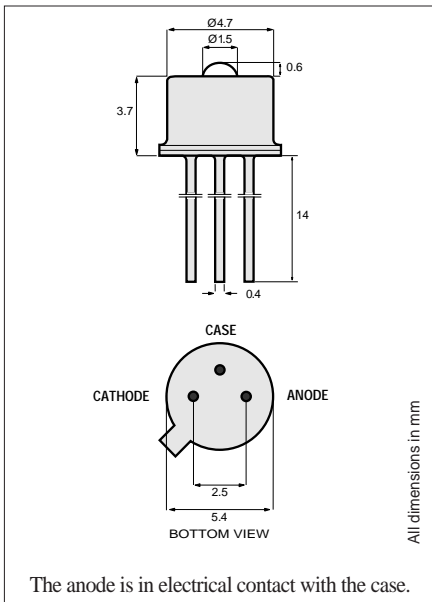
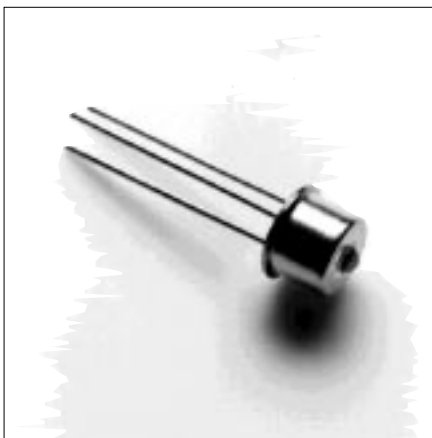
PRODUCT INFORMATION

810nm

1A272
High-Performance LED

Avionics, Military Datacom

This high speed device is optimized at 810 nm wavelength which is of particular interest for use in radiation-hardened fiber. It operates in a wide temperature range and delivers very high power to 200 μm core fiber, making it ideal in avionics and military datacom applications.



TO-46 Package With Lens

Optical and Electrical Characteristics (25° C Case Temperature)

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | TEST CONDITION |
|---|--------------------|------|------|------|---------------|--|
| Fiber-Coupled Power (Fig. 1, 2, & 3) (Table 1) | P_{fiber} | 1300 | 1600 | | μW | $I_F=100\text{ mA}$ (Note 1) Fiber: 200/280 μm |
| Rise and Fall Time (10-90%) | t_r, t_f | | 5 | 8 | ns | $I_F=100\text{ mA}$ (no bias) Step Index |
| Bandwidth (3dB _e) | f_c | | 70 | | MHz | $I_F=100\text{ mA}$ NA=0.24 |
| Peak Wavelength | λ_p | 790 | 810 | 830 | nm | $I_F=100\text{ mA}$ |
| Spectral Width (FWHM) | $\Delta\lambda$ | | 50 | | nm | $I_F=100\text{ mA}$ |
| Forward Voltage (Fig.5) | V_F | | 2.2 | 2.4 | V | $I_F=100\text{ mA}$ |
| Reverse Current | I_R | | | 20 | μA | $V_R=1\text{ V}$ |
| Capacitance | C | | 250 | | pF | $V_R=0\text{ V}, f=1\text{ MHz}$ |

Note 1: Measured at the exit of 100 meters of fiber.

Absolute Maximum Ratings

| PARAMETER | SYMBOL | LIMIT |
|--|------------------|---------------|
| Storage Temperature | T_{stg} | -55 to +125°C |
| Operating Temperature (derating: Fig.4) | T_{op} | -55 to +125°C |
| Electrical Power Dissipation (derating: Fig.4) | P_{tot} | 250 mW |
| Continuous Forward Current ($f \leq 10\text{ kHz}$) | I_F | 110 mA |
| Peak Forward Current (duty cycle $\leq 50\%$, $f \geq 1\text{ MHz}$) | I_{FRM} | 180 mA |
| Reverse Voltage | V_R | 1.5 V |
| Soldering Temperature (2mm from the case for 10 sec) | T_{sld} | 260°C |

Thermal Characteristics

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|---|-------------------|------|------|------|-------|
| Thermal Resistance - Infinite Heat Sink | R_{thjc} | | | 100 | °C/W |
| Thermal Resistance - No Heat Sink | R_{thja} | | | 400 | °C/W |
| Temperature Coefficient - Optical Power | dP/dT_j | | -0.4 | | %/°C |
| Temperature Coefficient - Wavelength | $d\lambda/dT_j$ | | 0.3 | | nm/°C |

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Europe: Tel (46) 8 58 02 45 00 Fax (46) 8 58 02 01 10
Tel (44) 1291 436180 Fax (44) 1291 436771

America: Tel 1-800-96MITEL Fax (613) 592-6909
Asia: Tel (65) 293 5312 Fax (65) 293 8527

| Typical Fiber-Coupled Power | | | | |
|--|---------------------------------|-------------------------------|-------------------------------|-------------------------------|
| Core Diameter/Cladding Diameter Numerical Aperture | | | | |
| 50/125 μm 0.20 | 62.5/125 μm 0.275 | 100/140 μm 0.29 | 200/230 μm 0.37 | 200/280 μm 0.24 |
| 60 μW | 150 μW | 600 μW | 2000 μW | 1600 μW |

Table 1

