

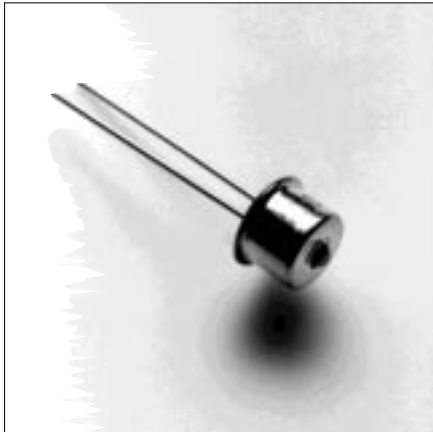
PRODUCT INFORMATION

870nm

1A229
High-Performance LED

Battery-Operated Equipment

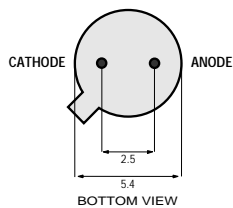
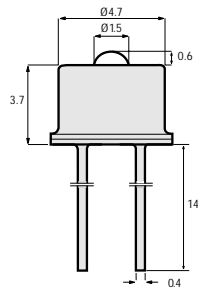
This device operates at very low drive current, which makes it well suited for battery-operated equipment. In fact, it can be driven directly by TTL circuitry.



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} | 2 | 3 | | μW | $I_F=5\text{ mA}$ (Note 1) Fiber: 50/125 μm |
| Rise and Fall Time (10-90%) | t_r, t_f | | 85 | 100 | ns | $I_F=5\text{ mA}$ (no bias) Graded Index NA=0.20 |
| Bandwidth (3dB _e) | f_c | | 4 | | MHz | $I_F=5\text{ mA}$ |
| Peak Wavelength | λ_p | 850 | 870 | 890 | nm | $I_F=5\text{ mA}$ |
| Spectral Width (FWHM) | $\Delta\lambda$ | | 60 | | nm | $I_F=5\text{ mA}$ |
| Forward Voltage (Fig. 4) | V_F | | 1.4 | 1.6 | V | $I_F=5\text{ mA}$ |
| Reverse Current | I_R | | | 1 | 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.



All dimensions in mm

The anode is in electrical contact with the case.

TO-46 Package With Lens

Absolute Maximum Ratings

| PARAMETER | SYMBOL | LIMIT |
|------------------------------------------------------------------------|-------------------|---------------|
| Storage Temperature | T_{stg} | -55 to +125°C |
| Operating Temperature | T_{op} | -55 to +125°C |
| Electrical Power Dissipation | P_{tot} | 16 mW |
| Continuous Forward Current ($f \leq 10\text{ kHz}$) | I_F | 10 mA |
| Peak Forward Current (duty cycle $\leq 50\%$, $f \geq 1\text{ MHz}$) | I_{FRM} | 20 mA |
| Reverse Voltage | V_R | 1.5 V |
| Soldering Temperature (2mm from the case for 10 sec) | T_{slid} | 260°C |

Thermal Characteristics

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|-----------------------------------------|-----------------|------|------|------|-------|
| Temperature Coefficient - Optical Power | dP/dT_j | | -0.6 | | %/°C |
| Temperature Coefficient - Wavelength | $d\lambda/dT_j$ | | 0.3 | | nm/°C |

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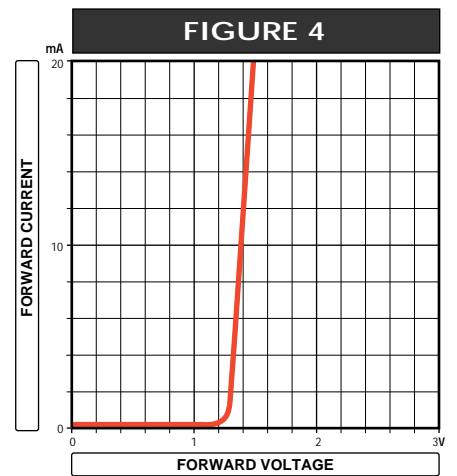
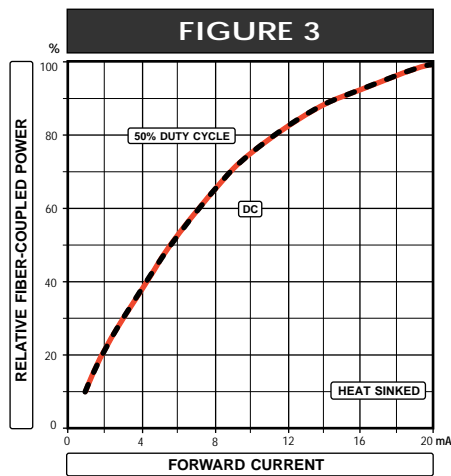
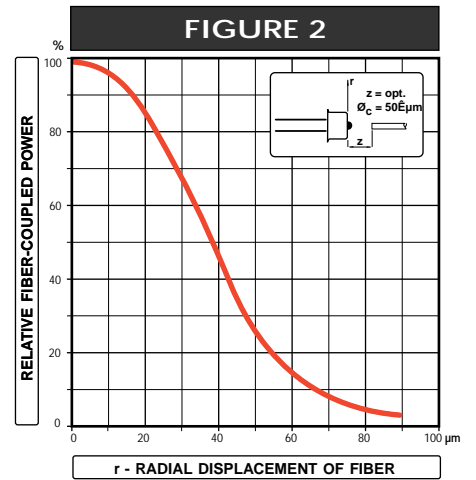
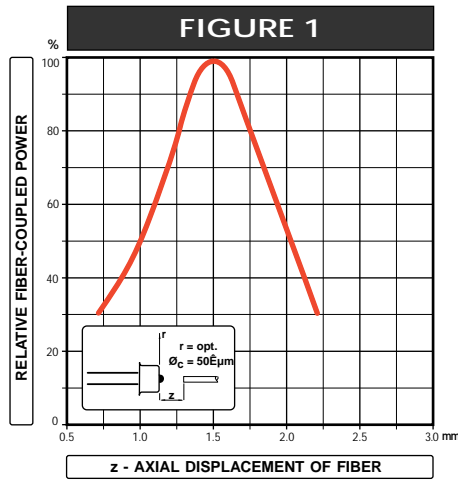


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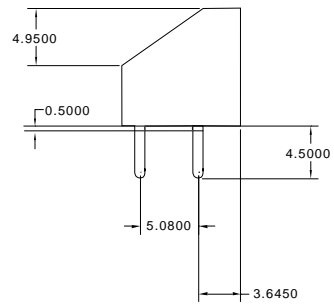
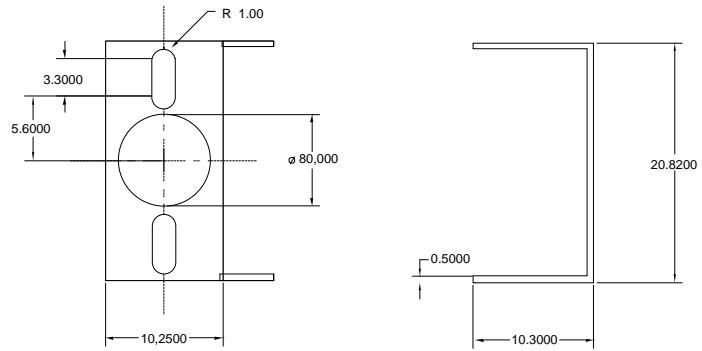
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| Typical Fiber-Coupled Power | | | |
|-------------------------------------------------------|---------------------------------|-------------------------------|-------------------------------|
| Core Diameter/Cladding Diameter Numerical Aperture | | | |
| 50/125 μm 0.20 | 62.5/125 μm 0.275 | 100/140 μm 0.29 | 200/230 μm 0.37 |
| 3 μW | 8 μW | 15 μW | 20 μW |

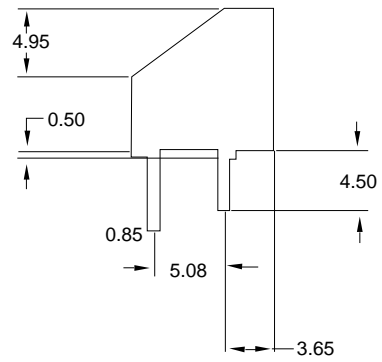
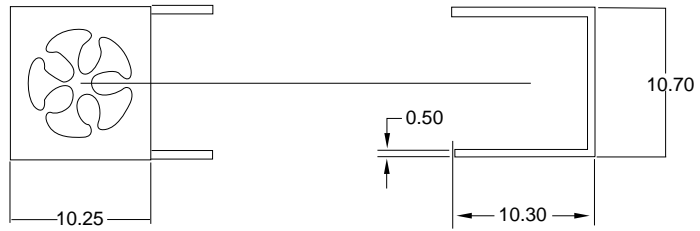
Table 1



Clip for SC-2A



Clip for Pigtail-3A

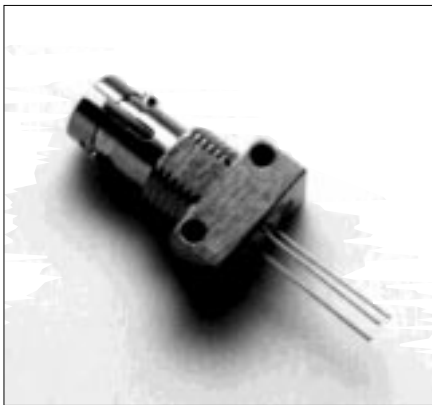


PRODUCT INFORMATION

ST-2A Package

Emitter or Detector in ST® Package

Mitel emitters and detectors can be provided in this low-profile ST® package. The device is electrically isolated from the ST® receptacle to facilitate electrical connection. And optimum fiber-coupled power or responsivity is ensured by active alignment against the fiber.



Absolute Maximum Ratings

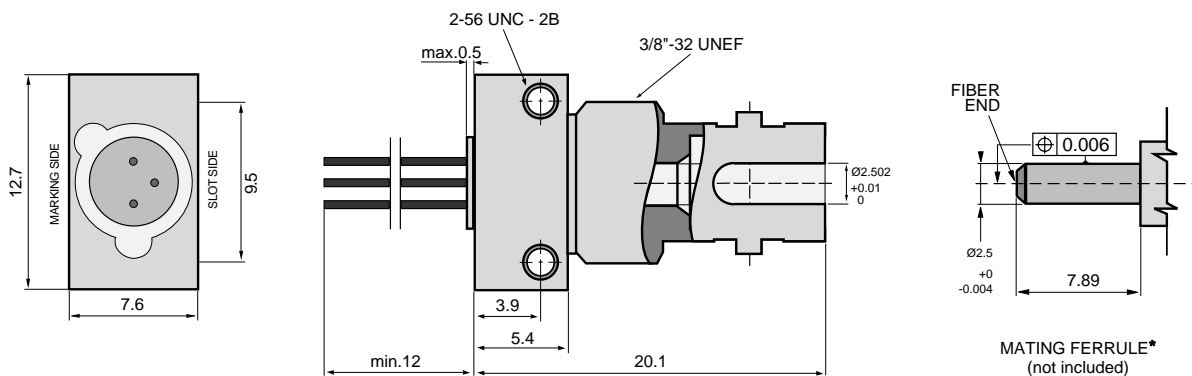
| PARAMETER | SYMBOL | LIMIT |
|---------------------------------------------------|-------------------|--------------|
| Operating & Storage Temperature ST-2A (Note 1) | T_{stg}, T_{op} | -40 to +85°C |

Note 1: Temperature range can be extended to -55° to +125°C on request.

Thermal Characteristics

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|-----------------------------------------------------|------------|------|------|------|------|
| Thermal Resistance - Infinite Heat Sink (Note 2) | R_{thcc} | | | 40 | °C/W |
| Thermal Resistance - No Heat Sink (Note 2) | R_{thca} | | | 200 | °C/W |
| Thermal Resistance - On PC Board (Note 2) | R_{thca} | | 80 | | °C/W |

Note 2: Add R_{thjc} for emitter or detector to estimate the total thermal resistance.



All Dimensions in mm

*The fiber-coupled power/responsivity is guaranteed to meet the LED/PIN data sheet - provided a ferrule meeting this specification is used.

Mechanical Outline of Diode in ST-2A Housing

(ST is a registered trademark of AT&T)

103326 1994-09-20



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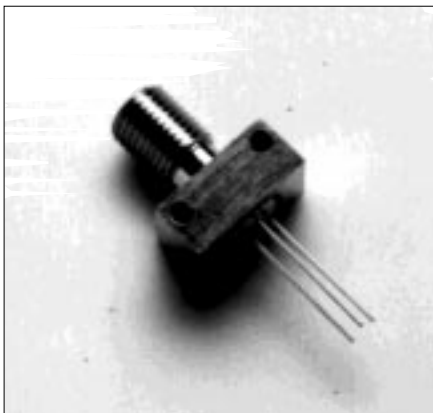
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PRODUCT INFORMATION

SMA-2A Package

Emitter or Detector in SMA Package

Mitel emitters and detectors can be provided in this low-profile SMA package. The device is electrically isolated from the SMA receptacle to facilitate electrical connection. And optimum fiber-coupled power or responsivity is ensured by active alignment against the fiber.



Absolute Maximum Ratings

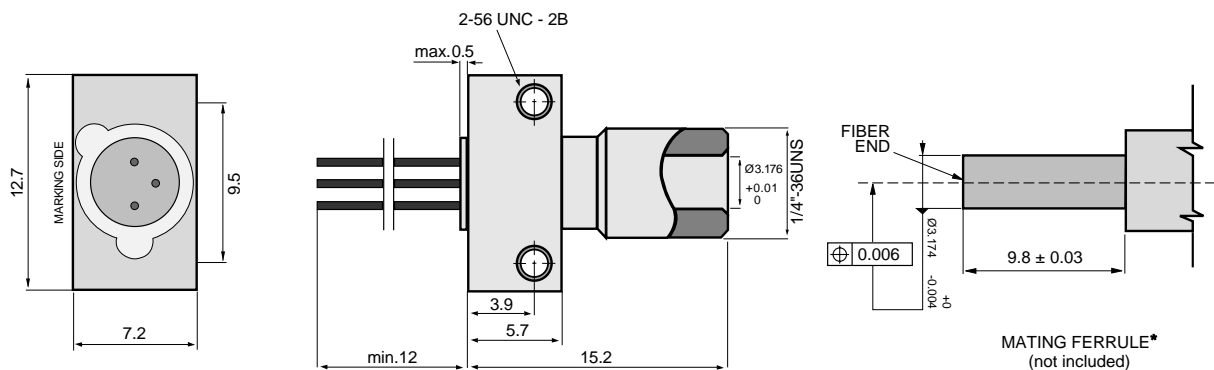
| PARAMETER | SYMBOL | LIMIT |
|----------------------------------------------------|-------------------|--------------|
| Operating & Storage Temperature SMA-2A (Note 1) | T_{stg}, T_{op} | -40 to +85°C |

Note 1: Temperature range can be extended to -55° to +125°C on request.

Thermal Characteristics

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|-----------------------------------------------------|------------|------|------|------|------|
| Thermal Resistance - Infinite Heat Sink (Note 2) | R_{thcc} | | | 40 | °C/W |
| Thermal Resistance - No Heat Sink (Note 2) | R_{thca} | | | 200 | °C/W |
| Thermal Resistance - On PC Board (Note 2) | R_{thca} | | 80 | | °C/W |

Note 2: Add R_{thjc} for emitter or detector to estimate the total thermal resistance.



All Dimensions in mm

*The fiber-coupled power/responsivity is guaranteed to meet the LED/PIN data sheet - provided a ferrule meeting this specification is used.

Mechanical Outline of Diode in SMA-2A Housing

103325 1994-09-20



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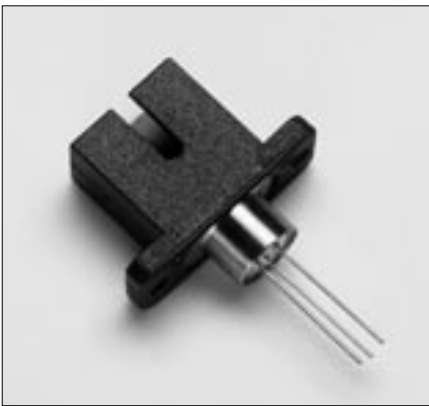
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PRODUCT INFORMATION

SC-2A Package

Emitter or Detector in SC Package

Mitel emitters and detectors can be provided in this low-profile SC package. The device is electrically isolated from the SC receptacle to facilitate electrical connection. And optimum fiber-coupled power or responsivity is ensured by active alignment against the fiber.



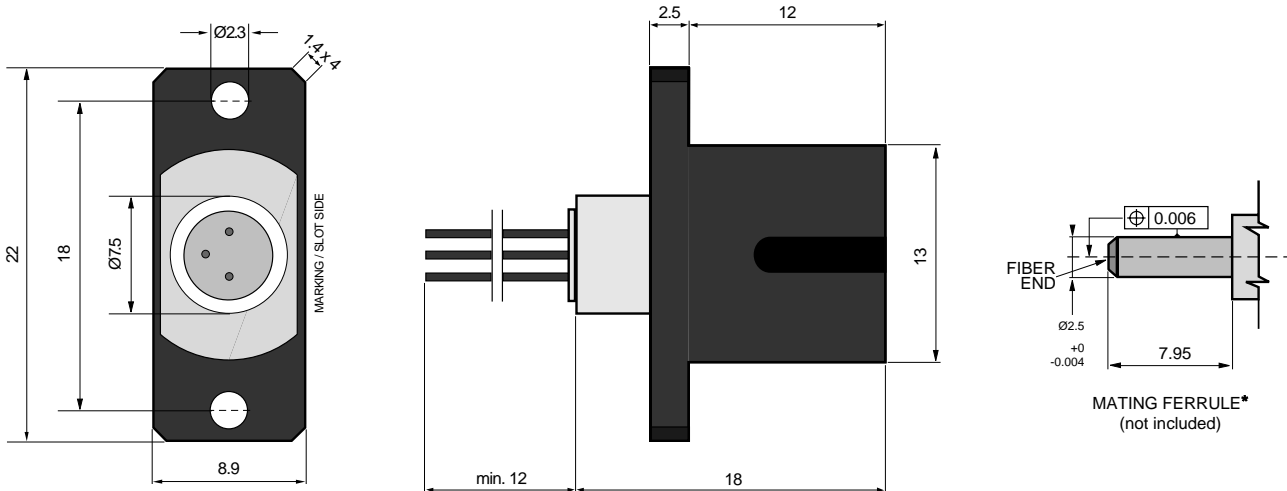
Absolute Maximum Ratings

| PARAMETER | SYMBOL | LIMIT |
|---------------------------------|-------------------|--------------|
| Operating & Storage Temperature | T_{stg}, T_{op} | -40 to +85°C |

Thermal Characteristics

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|--------------------------------------------------|------------|------|------|------|------|
| Thermal Resistance - Infinite Heat Sink (Note 1) | R_{thcc} | | | 40 | °C/W |
| Thermal Resistance - No Heat Sink (Note 1) | R_{thca} | | | 200 | °C/W |
| Thermal Resistance - On PC Board (Note 1) | R_{thca} | | 125 | | °C/W |

Note 1: Add R_{thjc} for emitter or detector to estimate the total thermal resistance.



All Dimensions in mm

* The fiber-coupled power/responsivity is guaranteed to meet the LED/PIN data sheet - provided a ferrule meeting this specification is used.

Mechanical Outline of Diode in SC-2A Housing

105967 1994-09-20



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PRODUCT INFORMATION

Pigtail-3A Package

Emitter or Detector in Pigtail Package

Mitel emitters and detectors can be provided in this pigtail package with a wide selection of fiber types. The device is electrically isolated from the pigtail receptacle to facilitate electrical connection. And optimum fiber-coupled power or responsivity is ensured by active alignment against the fiber. A special design maximizes the return loss for detectors in this package.



Absolute Maximum Ratings

| PARAMETER | SYMBOL | LIMIT |
|----------------------------------------------|-------------------|--------------|
| Operating & Storage Temperature (Note 1 & 2) | T_{stg}, T_{op} | -40 to +85°C |

Note 1: Temperature range can be extended to -55/+125°C on request.

Note 2: Temperature range may be limited by the specification of the fiber.

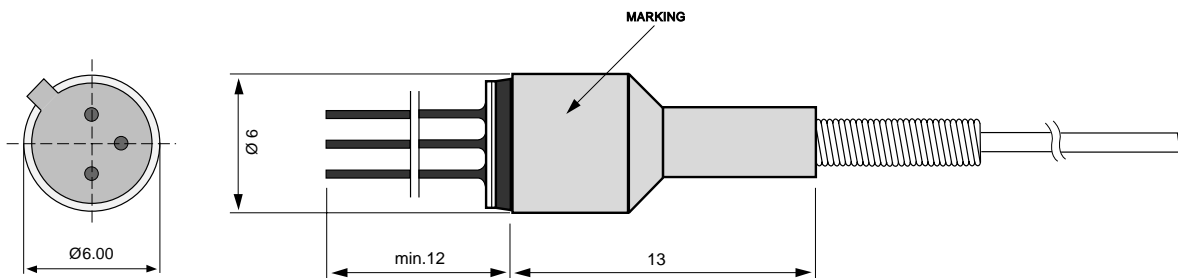
Thermal Characteristics

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|--------------------------------------------------|------------|------|------|------|------|
| Thermal Resistance - Infinite Heat Sink (Note 3) | R_{thcc} | | | 25 | °C/W |
| Thermal Resistance - No Heat Sink (Note 3) | R_{thca} | | | 250 | °C/W |
| Thermal Resistance - On PC-Board (Note 3) | R_{thca} | | 120 | | °C/W |

Note 3: Add R_{thjc} for LED to estimate the total thermal resistance.

Optical Characteristics

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|---------------------------------------|--------|------|------|------|------|
| Return Loss 10/125µm fiber (PIN only) | RL | 40 | 55 | | dB |



All Dimensions in mm

Mechanical Outline of Diode in PIGTAIL-3A Housing

105429 1997-07-03



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PRODUCT INFORMATION

FC-2A Package

Emitter or Detector in FC Package

Mitel emitters and detectors can be provided in this low-profile FC package. The device is electrically isolated from the FC receptacle to facilitate electrical connection. And optimum fiber-coupled power or responsivity is ensured by active alignment against the fiber.



Absolute Maximum Ratings

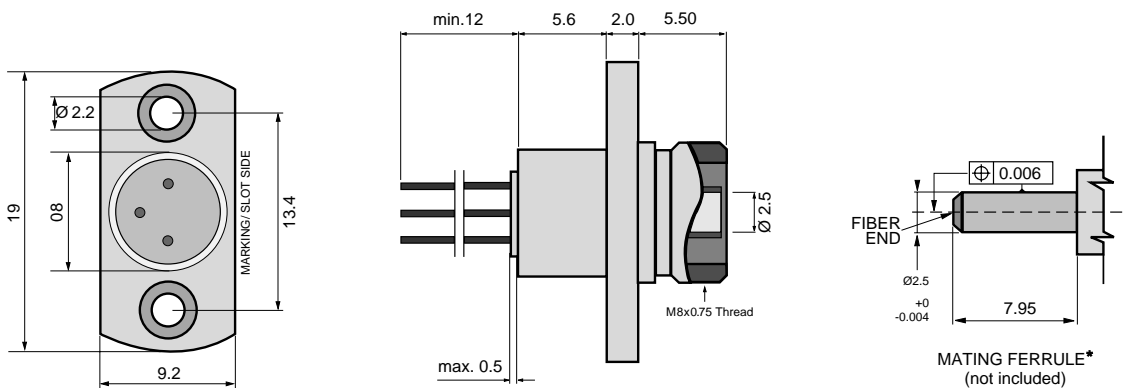
| PARAMETER | SYMBOL | LIMIT |
|---------------------------------------------------|-------------------|--------------|
| Operating & Storage Temperature FC-2A (Note 1) | T_{stg}, T_{op} | -40 to +85°C |

Note 1: Temperature range can be extended to -55° to +125°C on request.

Thermal Characteristics

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|-----------------------------------------------------|------------|------|------|------|------|
| Thermal Resistance - Infinite Heat Sink (Note 2) | R_{thcc} | | | 40 | °C/W |
| Thermal Resistance - No Heat Sink (Note 2) | R_{thca} | | | 200 | °C/W |
| Thermal Resistance - On PC Board (Note 2) | R_{thca} | | 80 | | °C/W |

Note 2: Add R_{thjc} for emitter or detector to estimate the total thermal resistance.



All Dimensions in mm

* The fiber-coupled power/responsivity is guaranteed to meet the LED/PIN data sheet - provided a ferrule meeting this specification is used.

Mechanical Outline of Diode in FC-2A Housing

105515 1994-09-20



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