

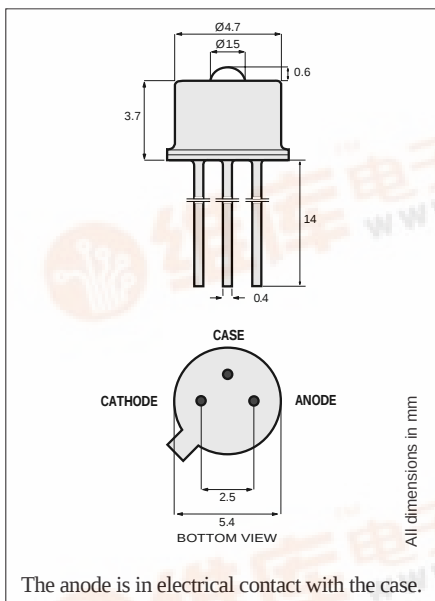
PRODUCT INFORMATION

870nm

1A184A
High-Performance LED

FM Video

The low harmonic distortion makes this device ideal for subcarrier FM video applications. Video transmission can be accomplished with minimum distortion. The double-lens optical system provides for optimum coupling of power into the fiber.



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}	40	55		μW	$I_F = 100 \text{ mA}$	Fiber:
Rise and Fall Time (10-90%)	t_r, t_f		2.5	3	ns	$I_F = 100 \text{ mA}$ (no bias)	50/125 μm
Bandwidth (3dB _e)	f_c		140		MHz	$I_F = 100 \text{ mA}$	Graded
Harmonic Distortion (nonlinearity)	$-H_2$		40		dB	$I_F = 80 \text{ mA}$ $m = 0.8$ $f = 10 \text{ MHz}$	Index
	$-H_3$		45		dB		NA=0.20
Peak Wavelength	λ_p	850	870	890	nm	$I_F = 100 \text{ mA}$	
Spectral Width (FWHM)	$\Delta\lambda$		60		nm	$I_F = 100 \text{ mA}$	
Forward Voltage (Fig.5)	V_F		1.8	2.2	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 see (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 10sec)	T_{sld}	260° C

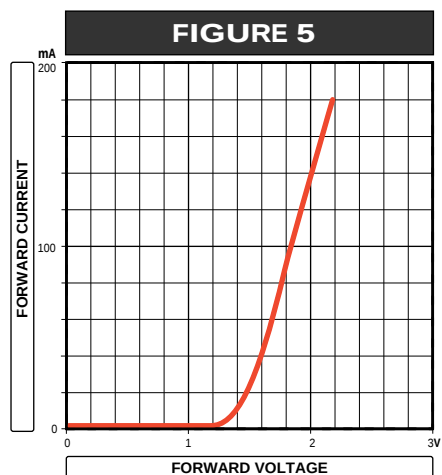
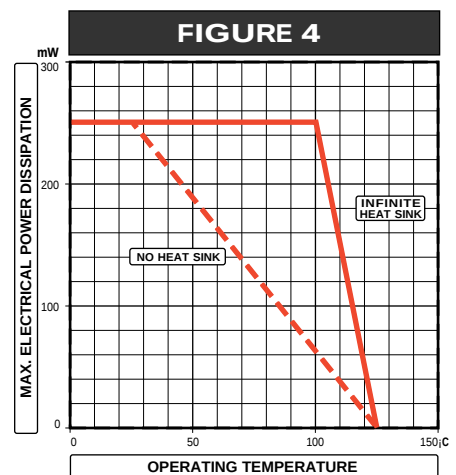
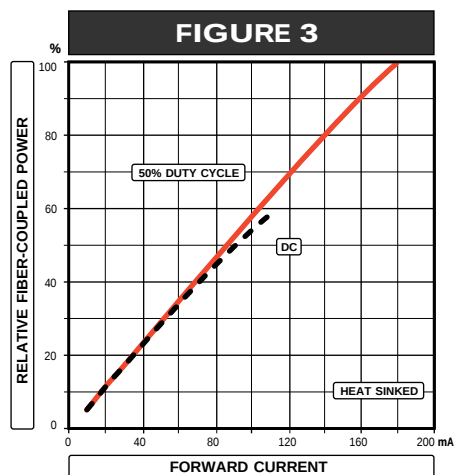
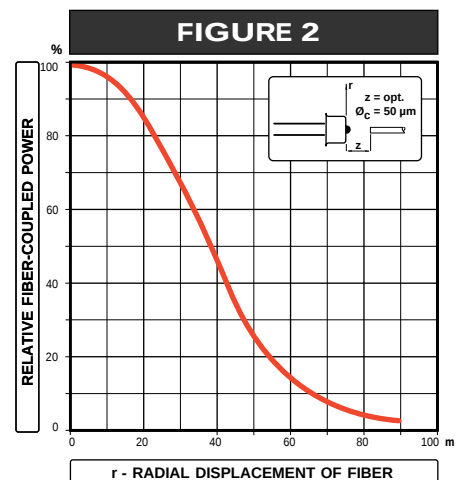
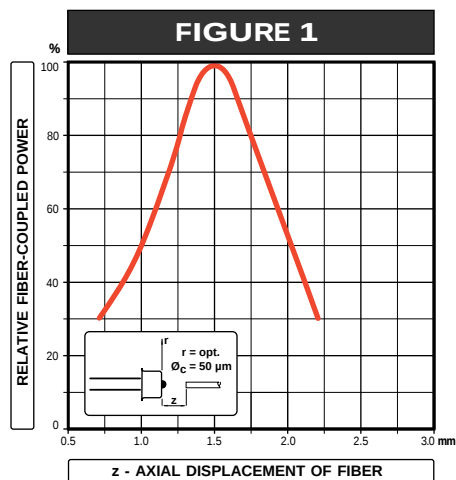
Thermal Characteristics

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		-0.6		%/°C
Temperature Coefficient - Wavelength	$d\lambda/dT_j$		0.3		nm/°C

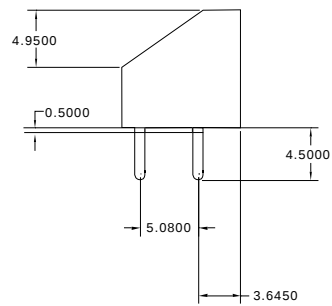
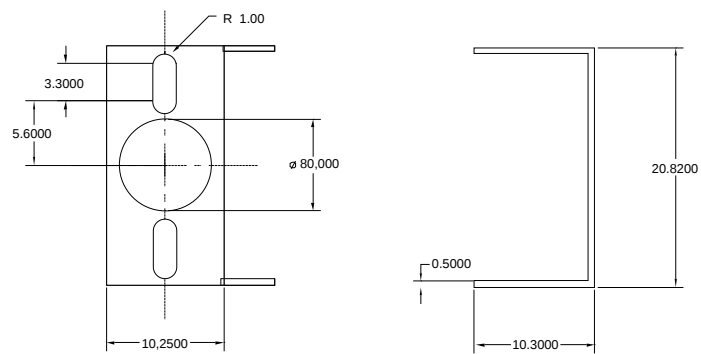
Typical Fiber-Coupled Power

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
55 μW	150 μW	300 μW	390 μW

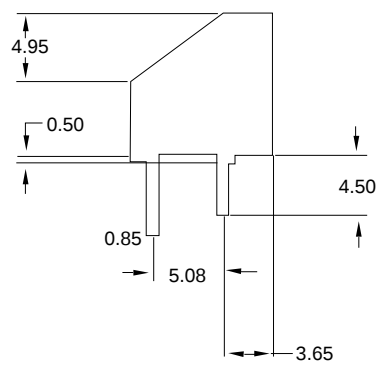
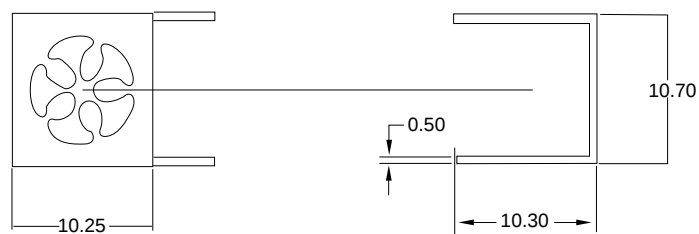
Table 1



Clip for SC-2A



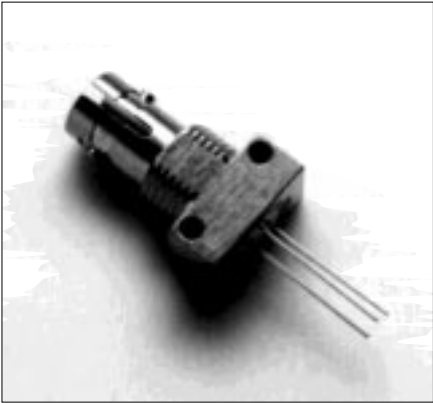
Clip for Pigtail-3A



PRODUCT INFORMATION

ST-2A Package	Emitter or Detector in ST® Package
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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.

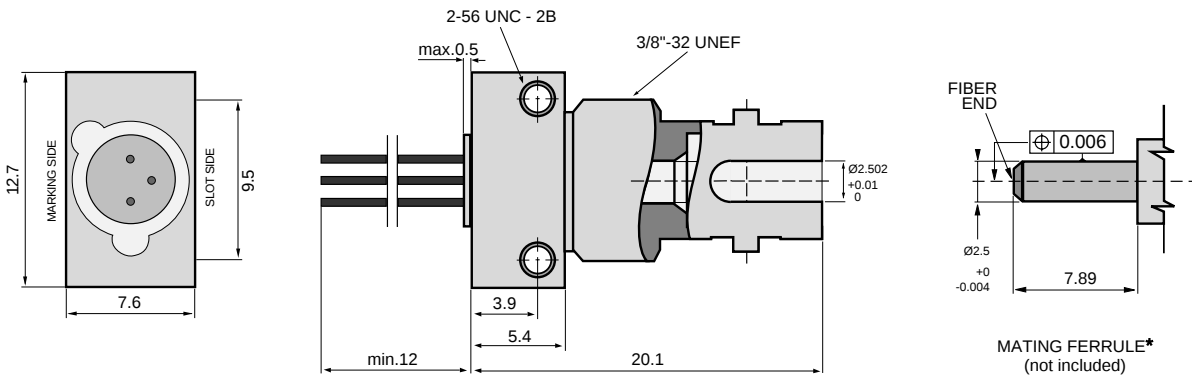


Absolute Maximum Ratings		
PARAMETER	SYMBOL	LIMIT
Operating & Storage Temperature ST-2A (Note 1)	T_{stg}, T_{op}	-40 to +85°C

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

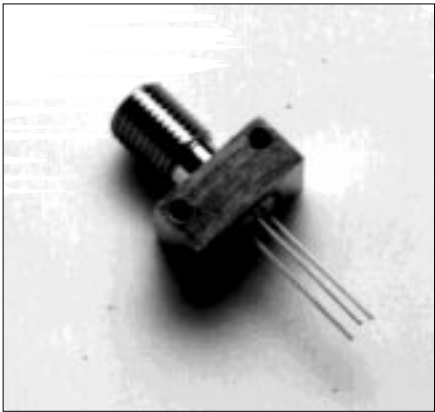
(ST is a registered trademark of AT&T)

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

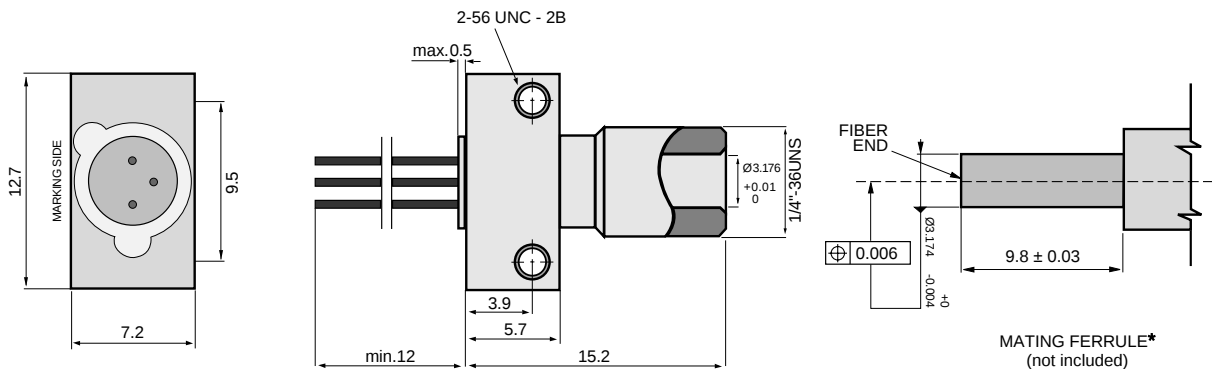
PARAMETER	SYMBOL	LIMIT
Operating & Storage Temperature SMA-2A (Note 1)	T_{stg}, T_{op}	-40 to +85°C

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

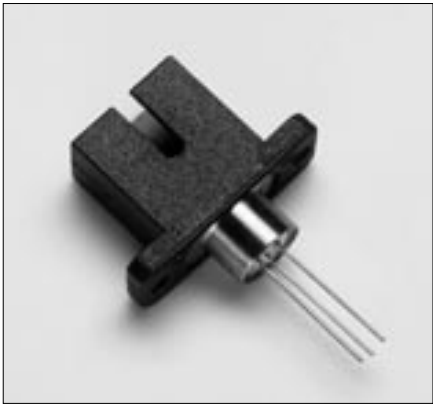
*The fiber-coupled power/responsivity is guaranteed to meet the LED/PIN data sheet - provided a ferrule meeting this specification is used.

Mechanical Outline of Diode in SMA-2A Housing

PRODUCT INFORMATION

SC-2A Package	Emitter or Detector in SC Package
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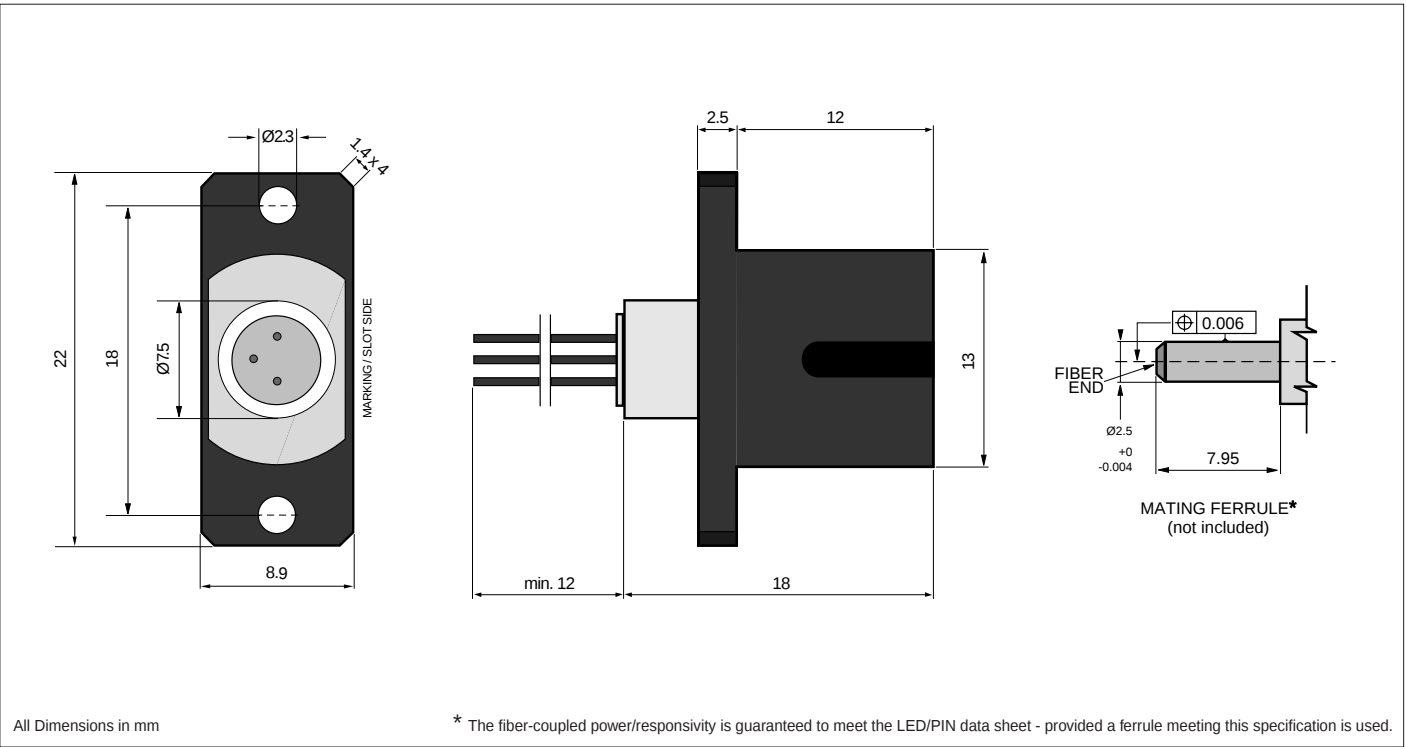
Mitel emitters and detectors can be provided in this low-profile SC package. The device is electrically isolated from the SC receptacle to facilitate electrical connection. And optimum fiber-coupled power or responsivity is ensured by active alignment against the fiber..



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.



Mechanical Outline of Diode in SC-2A Housing

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.

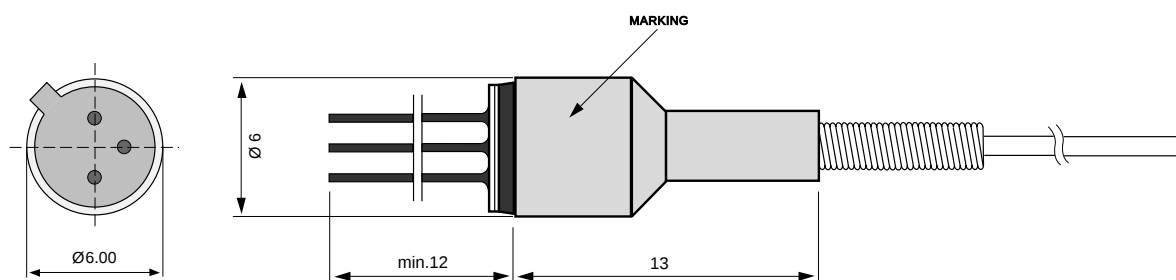
Thermal Characteristics

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

PRODUCT INFORMATION

FC-2A Package	Emitter or Detector in FC Package
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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.

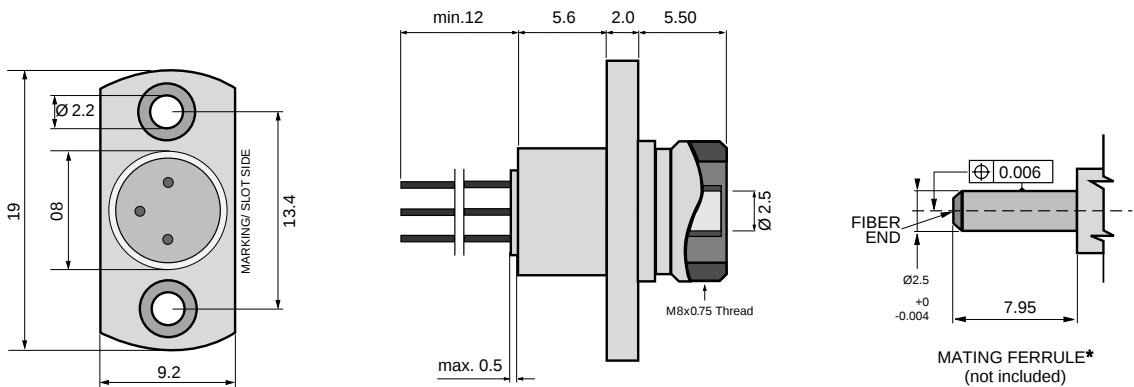


Absolute Maximum Ratings		
PARAMETER	SYMBOL	LIMIT
Operating & Storage Temperature FC-2A (Note 1)	T_{stg}, T_{op}	-40 to +85°C

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



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