

# PRODUCT INFORMATION

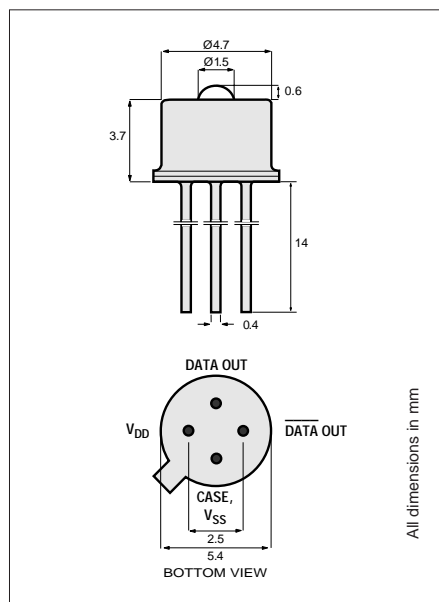
850nm

**8C449**  
PIN/Preamp

**Datacom, General Purpose, Analog Applications**

**PRELIMINARY/β**

This device consists of a PIN photodiode and a transimpedance amplifier assembled in a TO-46 package. It is designed for short-distance ATM up to 155 Mbps. The preamplifier's linearity and absence of automatic gain control makes it ideal also for analog applications and applications with bursty signals. Its double-lens optical system is designed for single-mode fiber as well as for multimode fiber with core diameter up to 62.5μm.



**TO-46 Package With Lens**

## Optical and Electrical Characteristics (25° C Case Temperature)

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Responsivity, single ended differential	$R$	3 6	5 10	8 16	kV/W	$\lambda=850$ nm $P_f=10$ μW
Bandwidth (3dB <sub>el</sub> )	$f_c$	100	175		MHz	
Noise-Equivalent Power	$NEP$			65	nW	$\lambda=850$ nm
Sensitivity (BER 10 <sup>-9</sup> )	$S$		-34		dBm	$\lambda=850$ nm Extinction Ratio=0
Dynamic Range			25		dB	
Output Resistance (differential)	$R_O$		50		Ω	
Power Supply Current	$I_{DD}$			35	mA	

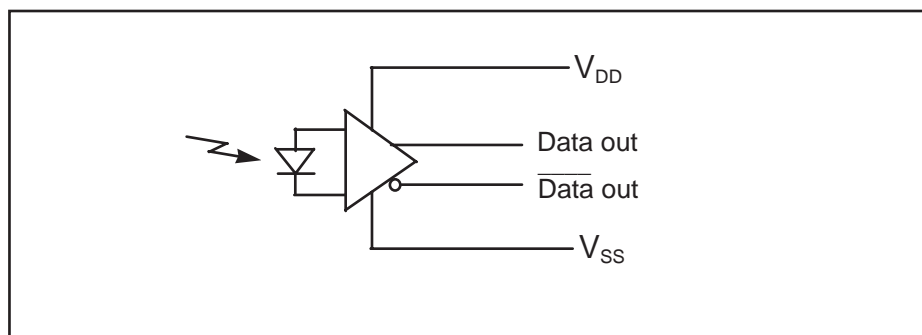
**Operating Conditions:** See table below. Fiber: Single-mode to multimode 62.5/125μm.

## Absolute Maximum Ratings

PARAMETER	SYMBOL	MIN.	MAX.	UNIT
Supply Voltage	$V_{DD}-V_{SS}$	0	6.0	V
Operating Temperature	$T_{op}$	-40	85	°C
Storage Temperature	$T_{stg}$	-55	125	°C

## Recommended Operating Conditions

PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT
Supply Voltage	$V_{DD}-V_{SS}$	4.5	5.0	5.5	V
Output Differential Load	$R_L$	1	3		kΩ



**Functional schematic**

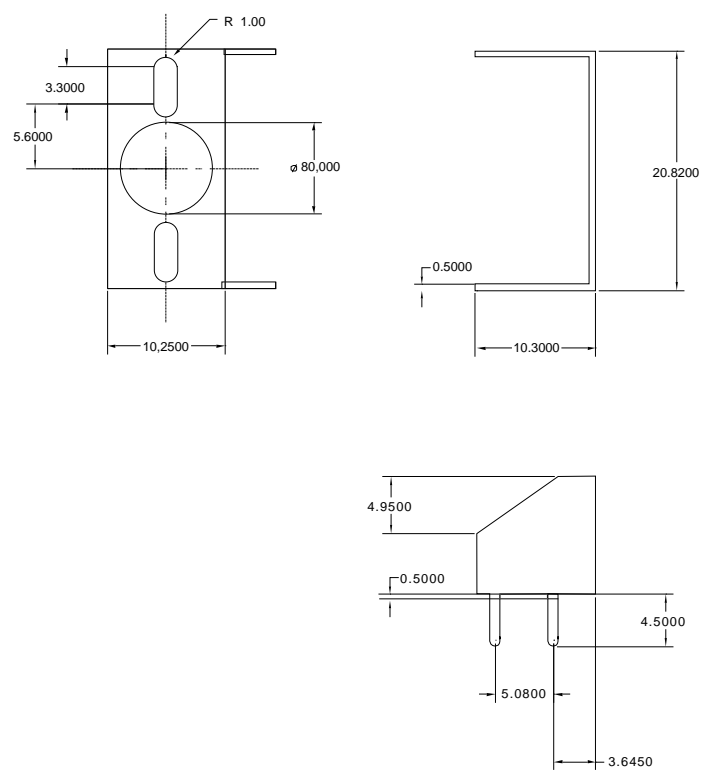
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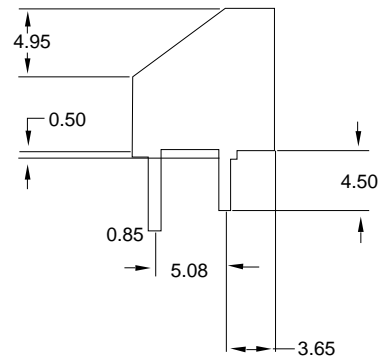
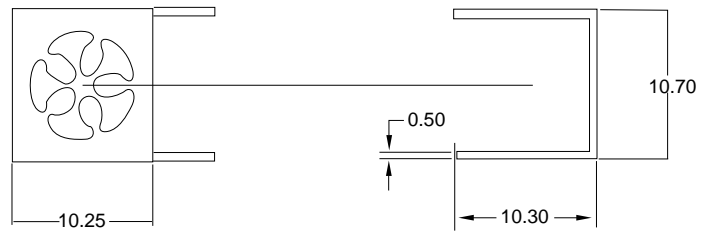
**Europe:** Tel (46) 8 58 02 45 00 Fax (46) 8 58 02 01 10  
Tel (44) 1291 436180 Fax (44) 1291 436771

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

# Clip for SC-2A



## Clip for Pigtail-3A

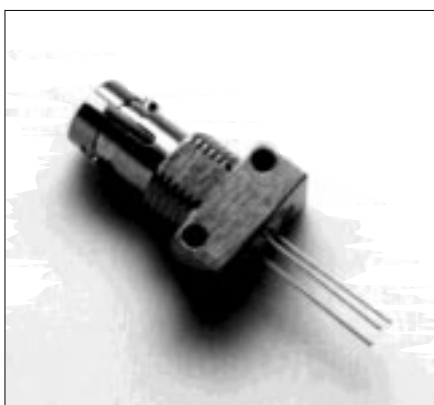


# PRODUCT INFORMATION

## 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

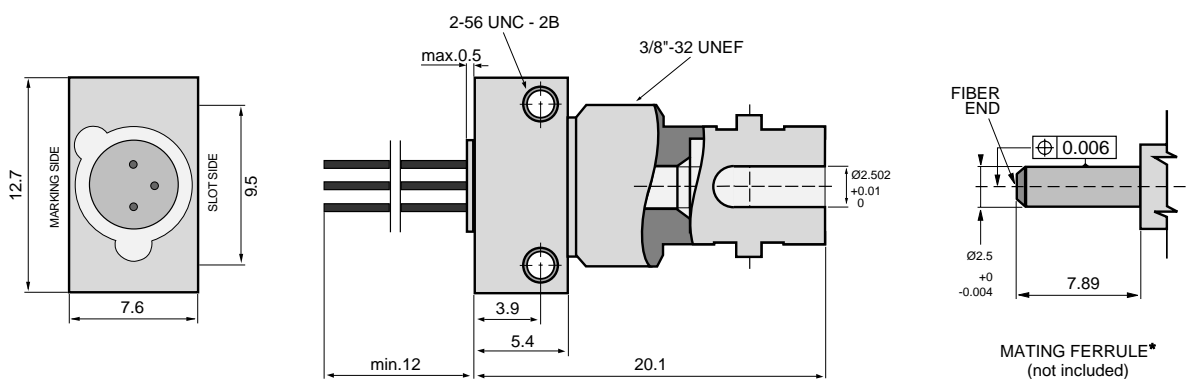
PARAMETER	SYMBOL	LIMIT
Operating & Storage Temperature ST-2A (Note 1)	$T_{stg}, T_{op}$	-40 to +85°C

**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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Tel (44) 1291 436180 Fax (44) 1291 436771

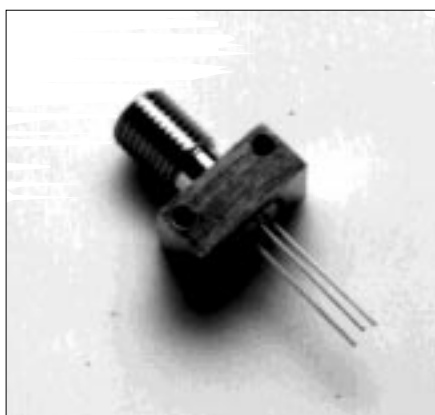
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# PRODUCT INFORMATION

## 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

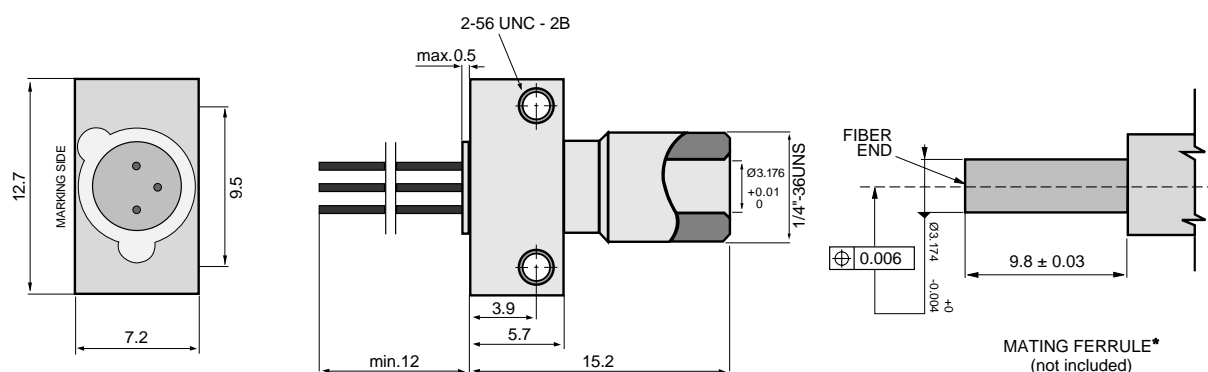
PARAMETER	SYMBOL	LIMIT
Operating & Storage Temperature SMA-2A (Note 1)	$T_{stg}, T_{op}$	-40 to +85°C

**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



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

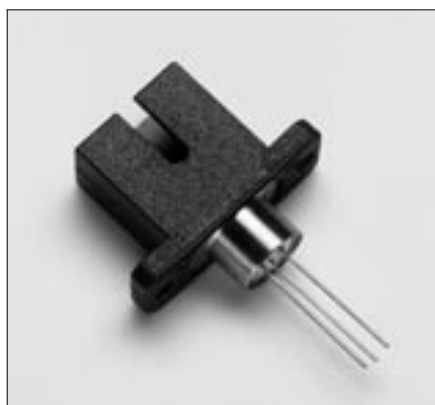
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# PRODUCT INFORMATION

## 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..



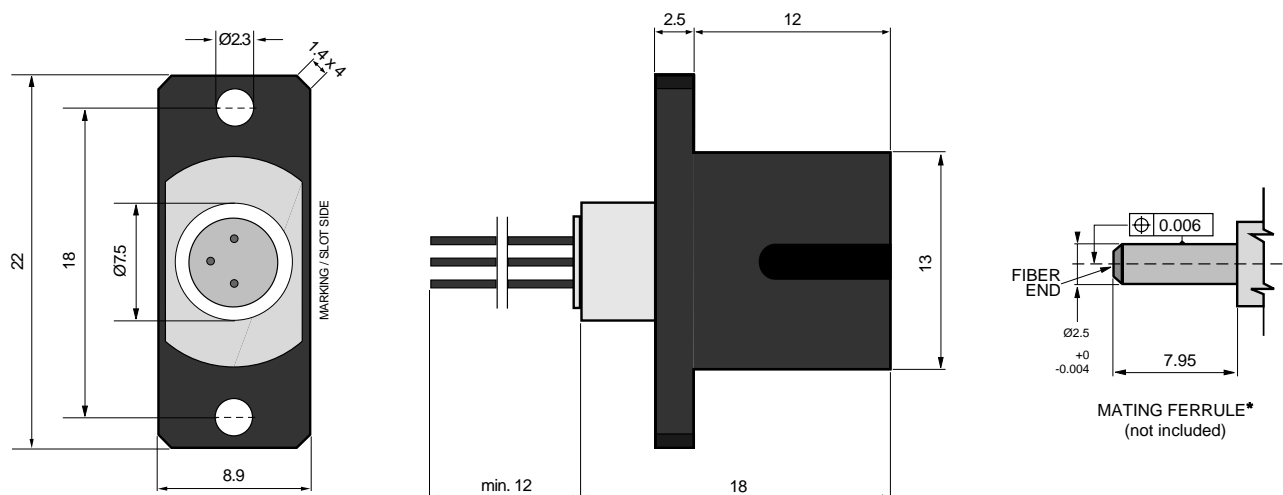
### Absolute Maximum Ratings

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

# 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.

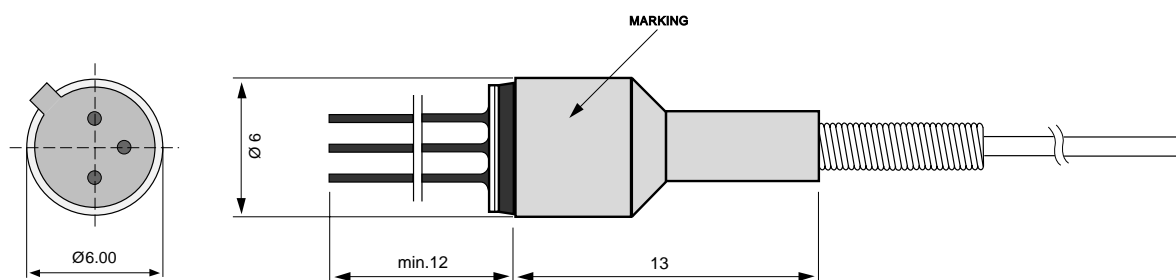
### Thermal Characteristics

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

# 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

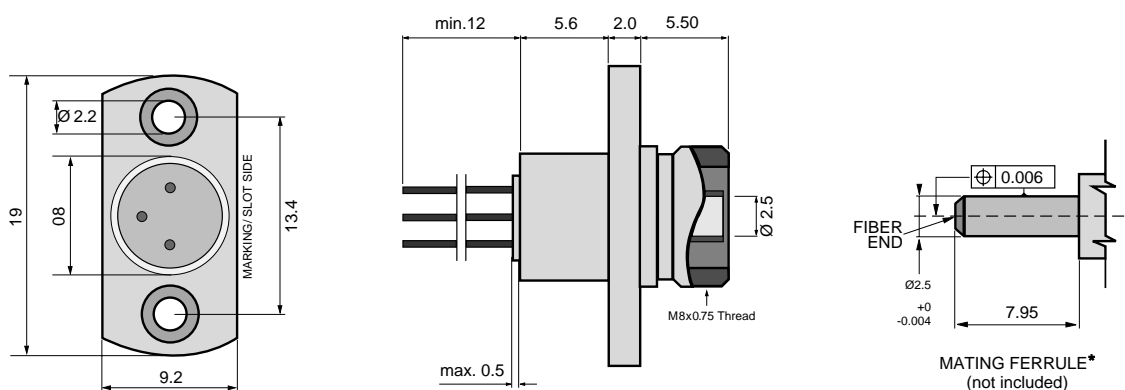
PARAMETER	SYMBOL	LIMIT
Operating & Storage Temperature FC-2A (Note 1)	$T_{stg}, T_{op}$	-40 to +85°C

**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





<http://www.mitelsemi.com>

**World Headquarters - Canada**

Tel: +1 (613) 592 2122

Fax: +1 (613) 592 6909

**North America**

Tel: +1 (770) 486 0194

Fax: +1 (770) 631 8213

**Asia/Pacific**

Tel: +65 333 6193

Fax: +65 333 6192

**Europe, Middle East,  
and Africa (EMEA)**

Tel: +44 (0) 1793 518528

Fax: +44 (0) 1793 518581

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