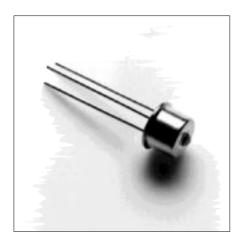
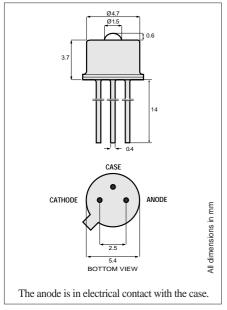
	880nm	1A277A High-Performanc
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e LED

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





TO-46 Package With Lens

FM and Baseband Video

Optical and Electrical Characteristics (25° C Case Temperature)							
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION	DN
Fiber-Coupled Power (Fig. 1, 2, & 3) (Table 1)	P _{fiber}	100	130		μW	$I_{\rm F}$ =100mA (Note 1)	Fiber:
Rise and Fall Time (10-90%)	$t_{\rm r}, t_{\rm f}$		1.5	2	ns	<i>I</i> _F =100mA (no bias)	62.5/125μm Graded
Bandwidth (3dB _{el})	fc		250		MHz	$I_{\rm F}$ =100 mA	Index
Harmonic Distortion	-H ₂		40		dB	$I_{\rm F} = 100 {\rm mA}$	NA=0.275
(nonlinearity)	-H ₃		50		dB	m=0.8 f=10 MHz	
Thermal Droop (nonlinearity) (Note 2)	ΙΔΡΙ		4		%	$I_{\rm F}$ =100 mA	
Peak Wavelength	λ _p	860	880	900	nm	$I_{\rm F}$ =100 mA	
Spectral Width (FWHM)	Δλ		60		nm	$I_{\rm F}$ =100 mA	
Forward Voltage (Fig.5)	V _F		1.8	2.2	V	$I_{\rm F}$ =100 mA	
Reverse Current	IR			20	μA	V _R =1V	
Capacitance	С		250		pF	$V_{\rm R}$ =0V, f=1 M	ЛНz

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

Note 2: Transient decline in optical power due to self-heating.

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}	250 mW			
Continuous Forward Current (f≤10 kHz)	I _F	110 mA			
Peak Forward Current (duty cycle≤50%, f≥1 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			

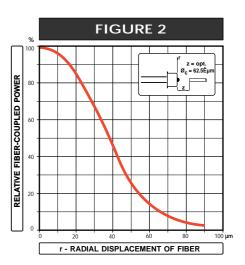
Thermal Characteristics

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/dTj		-0.6		%/°C
Temperature Coefficient - Wavelength	$d\lambda/dT_{j}$		0.3		nm/°C

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1A277A High-Performance LED 880nm



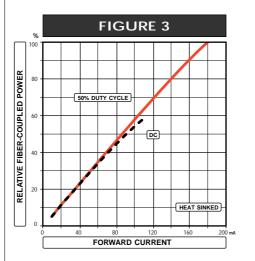


FIGURE 1

r r = opt. Ø_c = 62.5ʵ

1.3

z - AXIAL DISPLACEMENT OF FIBER

2.5

2.0

Ţ ___v

1.0

%

100

80

60

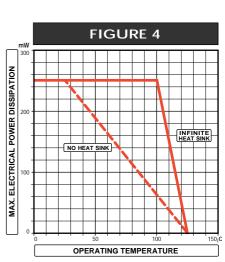
40

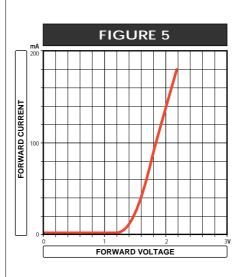
20

0.5

ſ

RELATIVE FIBER-COUPLED POWER

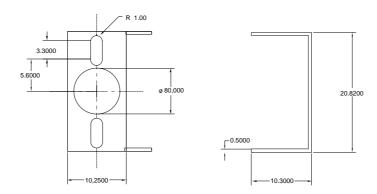


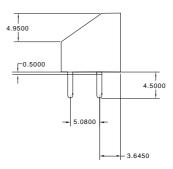


Typical Fiber-Coupled Power							
Core Diameter/Cladding Diameter Numerical Aperture							
50/125 μm 0.20	62.5/125 μm 0.275	100/140 μm 0.29	200/230 µm 0.37				
45μW 130μW 225μW 300μW							
Table 1							

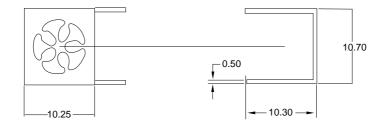
Table

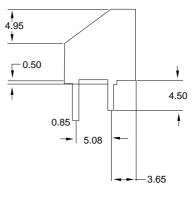
Clip for SC-2A





Clip for Pigtail-3A





ST-2A	
Package	

Emitter or Detector in ST® Package

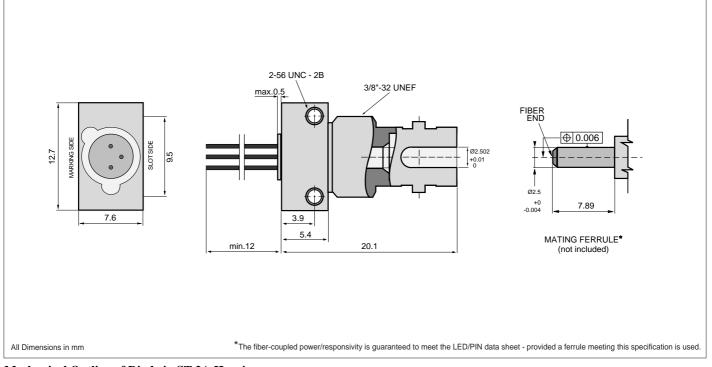
Mitel emitters and detectors can be provided in this low-profile ST® package. The device is electrically isolated from the ST[®] receptacle to facilitate electrical connection. And optimum fiber-coupled power or responsivity is ensured by active alignment against the fiber.



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)	Rthca		80		°C/W

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



Mechanical Outline of Diode in ST-2A Housing (ST is a registered trademark of AT&T)

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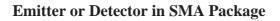


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SMA-2A
Package

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.

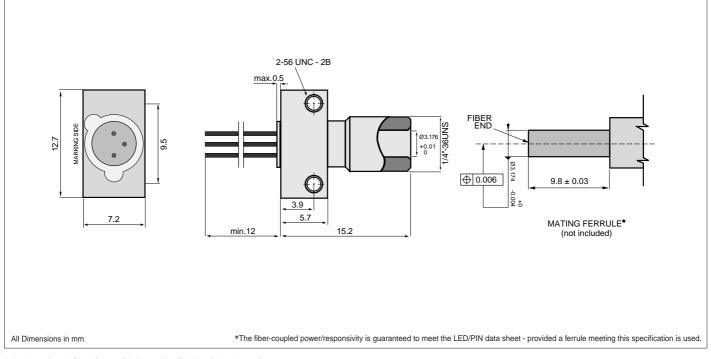


Absolute Maximum Ratings						
PARAMETER	SYMBOL	LIMIT				
Operating & Storage Temperature SMA-2A (Note 1)	$T_{\rm stg}, T_{\rm op}$	-40 to +85°C				

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)	Rthca		80		°C/W

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



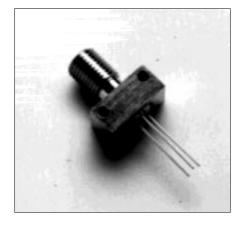
Mechanical Outline of Diode in SMA-2A Housing

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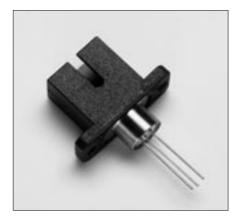
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SC-2A	١
Package	

Emitter or Detector in SC Package

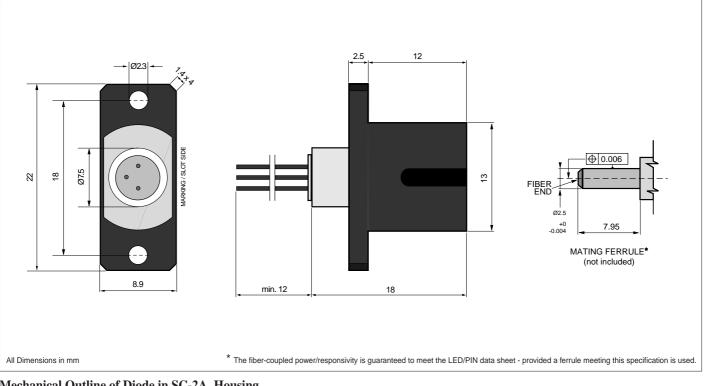
Mitel emitters and detectors can be provided in this low-profile SC package. The device is electrically isolated from the SC receptacle to facilitate electrical connection. And optimum fiber-coupled power or responsivity is ensured by active alignment against the fiber ..



Absolute Maximum Ratings						
PARAMETER	SYMBOL	LIMIT				
Operating & Storage Temperature	$T_{\rm stg}, T_{\rm op}$	$-40 \text{ to } +85^{\circ}\text{C}$				

Thermal Characteristics						
PARAMETER	SYMBOL	MIN.	TYP.	MAX.	UNIT	
Thermal Resistance - Infinite Heat Sink (Note 1)	<i>R</i> _{thcc}			40	°C/W	
Thermal Resistance - No Heat Sink (Note 1)	<i>R</i> _{thca}			200	°C/W	
Thermal Resistance - On PC Board (Note 1)	Rthca		125		°C/W	

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



Mechanical Outline of Diode in SC-2A Housing

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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.



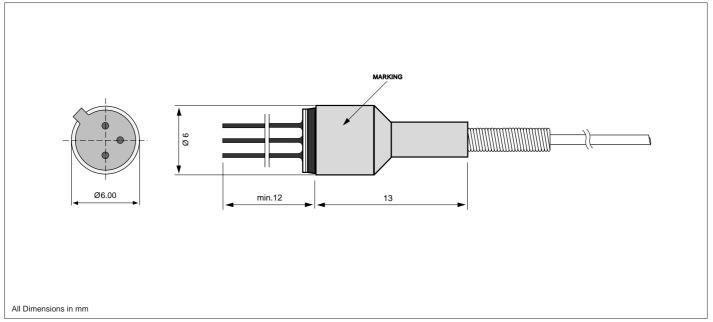
Absolute Maximum Ratings PARAMETER SYMBOL LIMIT $-40 \text{ to } +85^{\circ}\text{C}$ Operating & Storage Temperature (Note 1 & 2) $T_{\rm stg}, T_{\rm op}$

Note 1: Temperature range can be extended to $-55/+125^{\circ}C$ 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)	<i>R</i> _{thcc}			25	°C/W	
Thermal Resistance - No Heat Sink (Note 3)	<i>R</i> _{thca}			250	°C/W	
Thermal Resistance - On PC-Board (Note 3)	<i>R</i> _{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



Mechanical Outline of Diode in PIGTAIL-3A Housing

105429 1997-07-03



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FC-	-2A
Packa	age

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.



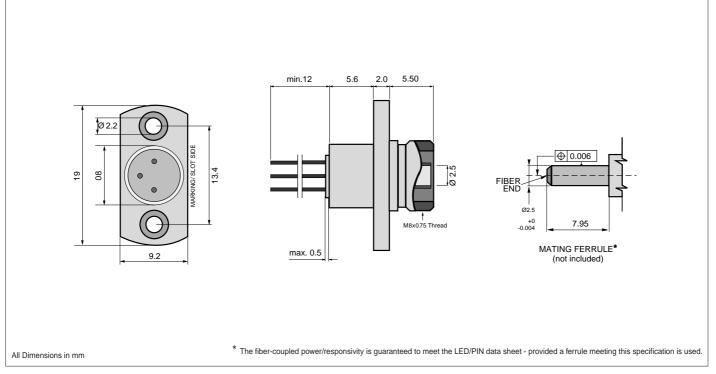
Emitter or Detector in FC Package

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

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)	Rthca		80		°C/W	

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



Mechanical Outline of Diode in FC-2A Housing

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