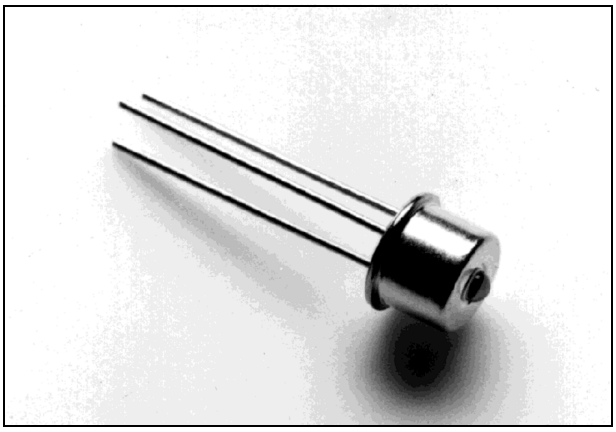
MF359

780nm - 55MHz High Performance LED

Data Sheet

August 2003



Ordering Information

MF359	TO-46 Package
MF359 ST	ST Housing
MF359 SMA	SMA Housing

-40°C to +85°C

Note: Rated Fiber coupled power apply only on the TO-46 package, for housing options fiber coupled power is typically 10% less.

Features

- 780nm Surface-Emitting LED
- 55MHz Bandwidth
- Designed for 62.5/125µm fiber
- Low thermal droop

Applications

- Baseband Video
- Sensors
- General Purpose

Description

The low thermal droop of this device allows baseband video transmission with minimum distortion. The double-lens optical system provides for optimum coupling of power into the fiber. It matches with the MF446 PIN Photodiode.

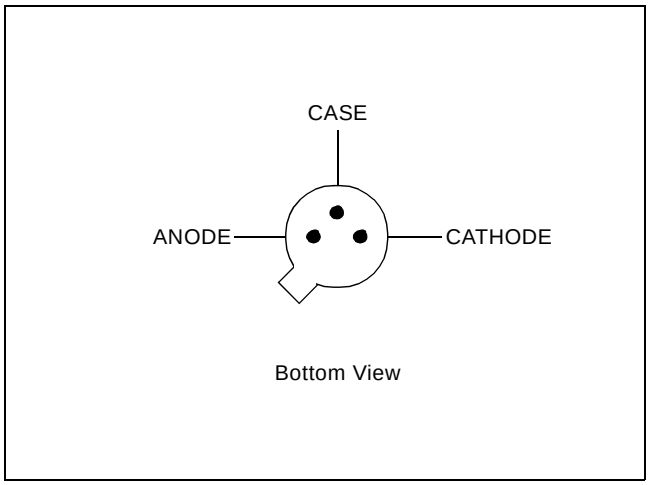


Figure 1 - Pin Diagram

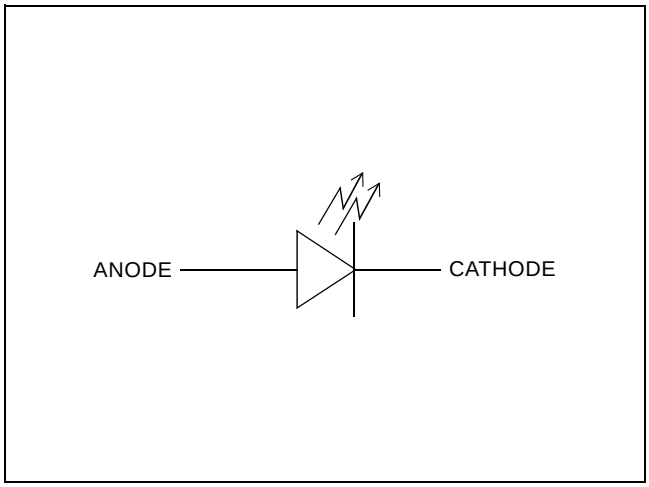


Figure 2 - Functional Schematic

Optical and Electrical Characteristics - Case Temperature 25°C

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition	
Fiber-Coupled Power	P_{fiber}	80	120		µW	I_F=80mA (Note 1)	Fiber: 62.5/ 125µm Graded Index NA=0.275
Rise and Fall Time (10-90%)	t_r,t_f		6	8	ns	I_F=80mA (no bias)	
Bandwidth (3dB_{el})	f_c		55		MHz	I_F=80mA	
Thermal Droop (non linearity) (Note 2)	IΔPI		2		%	I_F=80mA	
Peak Wavelength	λ_p	760	780	800	nm	I_F=80mA	
Spectral Width (FWHM)	$\Delta\lambda$		50		nm	I_F=80mA	
Forward Voltage (Figure 7)	V_F		2.2	2.6	V	I_F=80mA	
Reverse Current	I_R			20	µA	V_R=1V	
Capacitance	C		250		pF	V_R-0V, f=1MHz	

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 (derating: Figure 6)	T_{op}	-40 to +85°C
Electrical Power Dissipation (derating: Figure 6)	P_{tot}	300 mW
Continuous Forward Current (f<10kHz)	I_F	110 mA
Peak Forward Current (duty cycle<50%,f>1MHz	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		-0.5		%/°C
Temperature Coefficient - Wavelength	$d\lambda/dT_j$		0.3		nm/°C

Typical Fiber-Coupled Power

Core Diameter/Cladding Diameter Numerical Aperture			
50/125µm 0.20	62.5/125µm 0.275	100/140µm 0.29	200/230µm 0.37
60µW	120µW	250µW	400µW

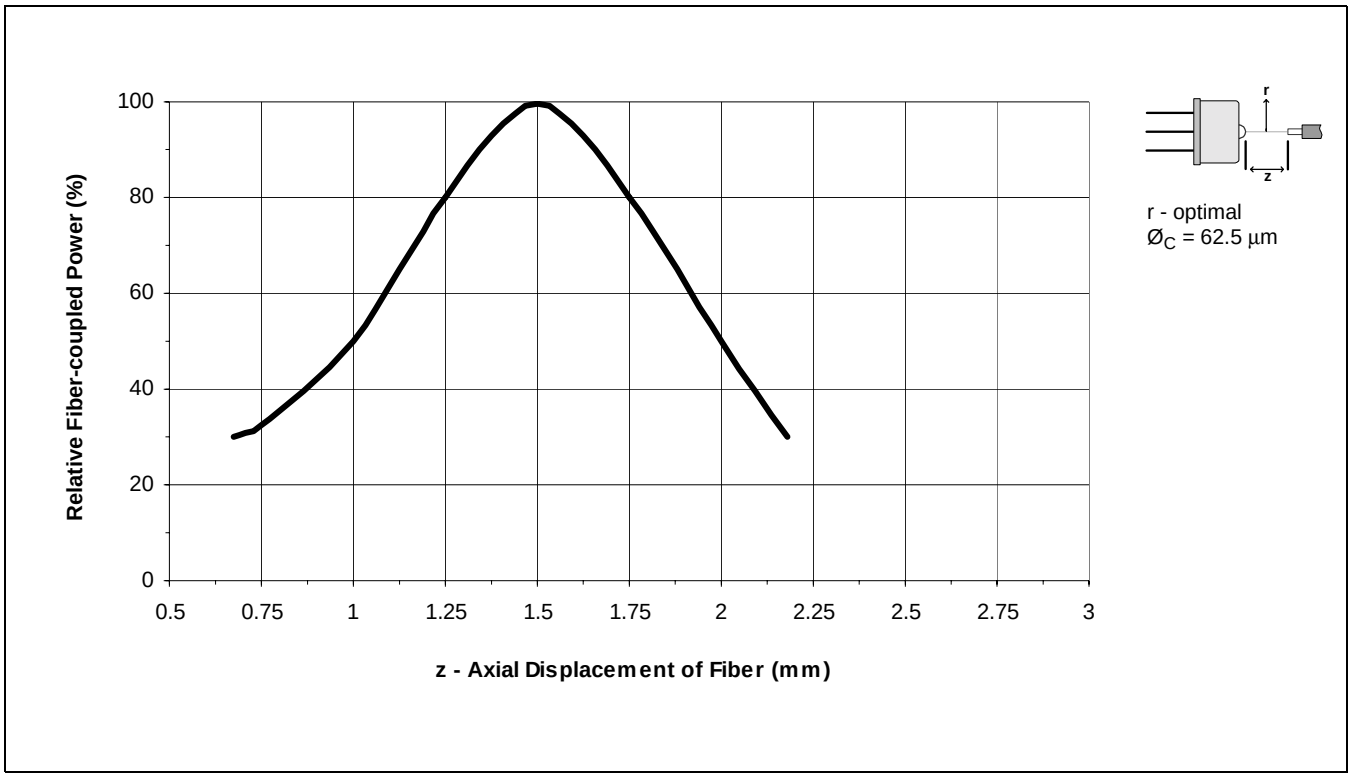


Figure 3 - Relative Fiber-coupled Power vs. z - Axial Displacement of Fiber

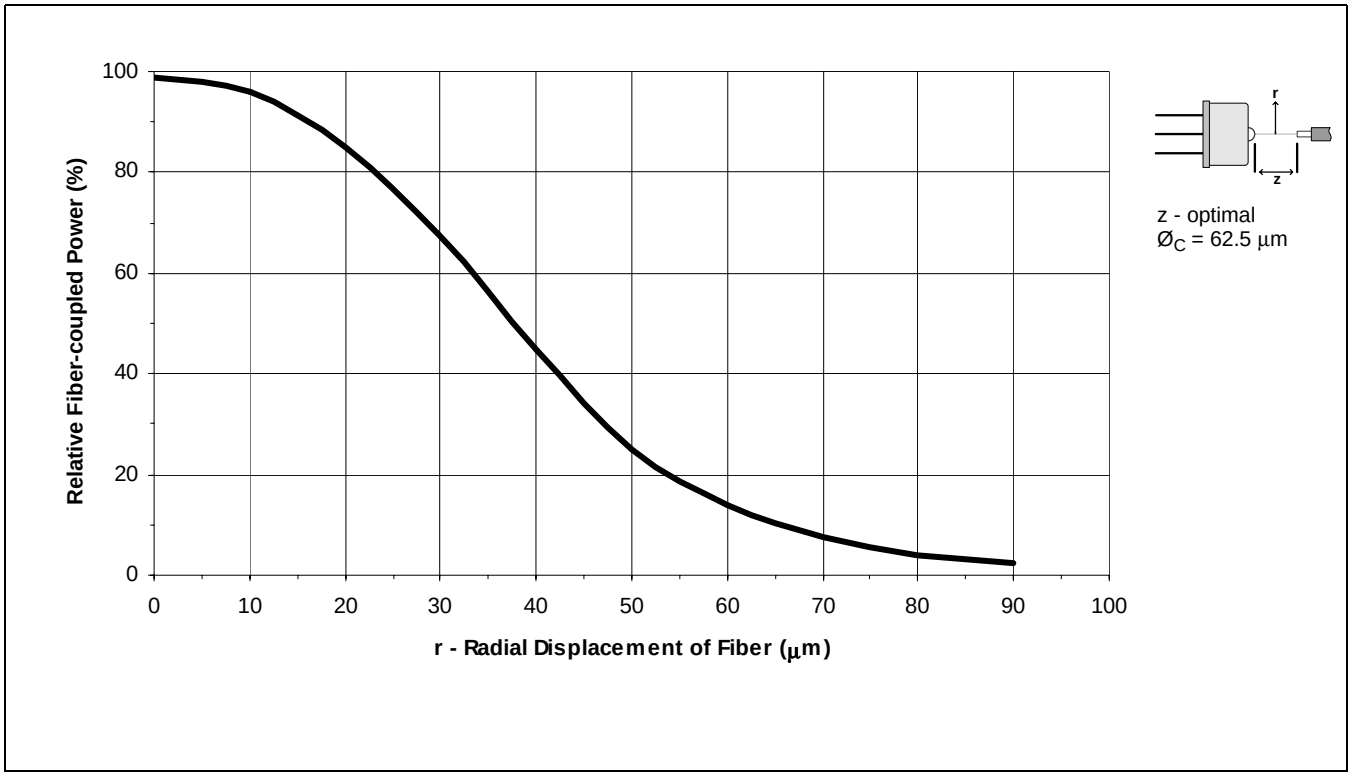


Figure 4 - Relative Fiber-coupled Power vs. r - Radial Displacement of Fiber

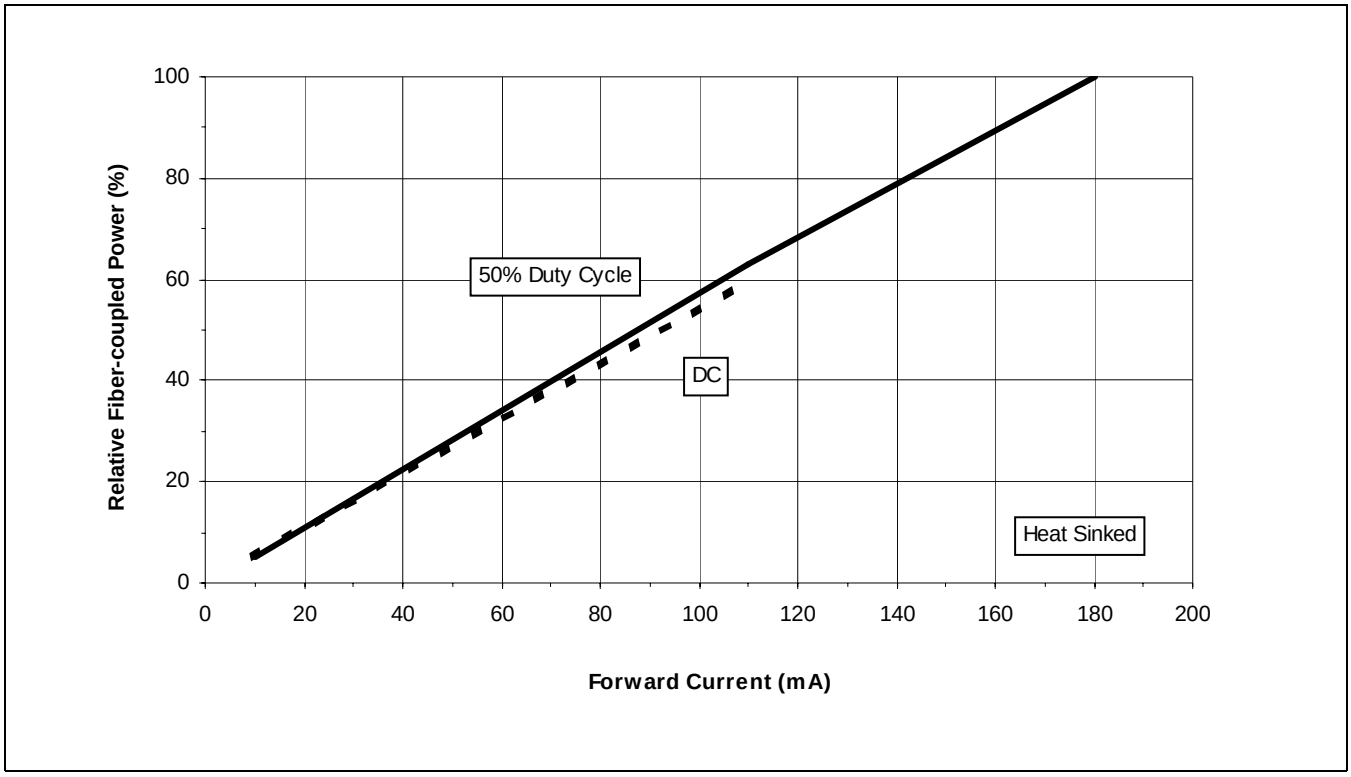


Figure 5 - Relative Fiber-coupled Power vs. Forward Current

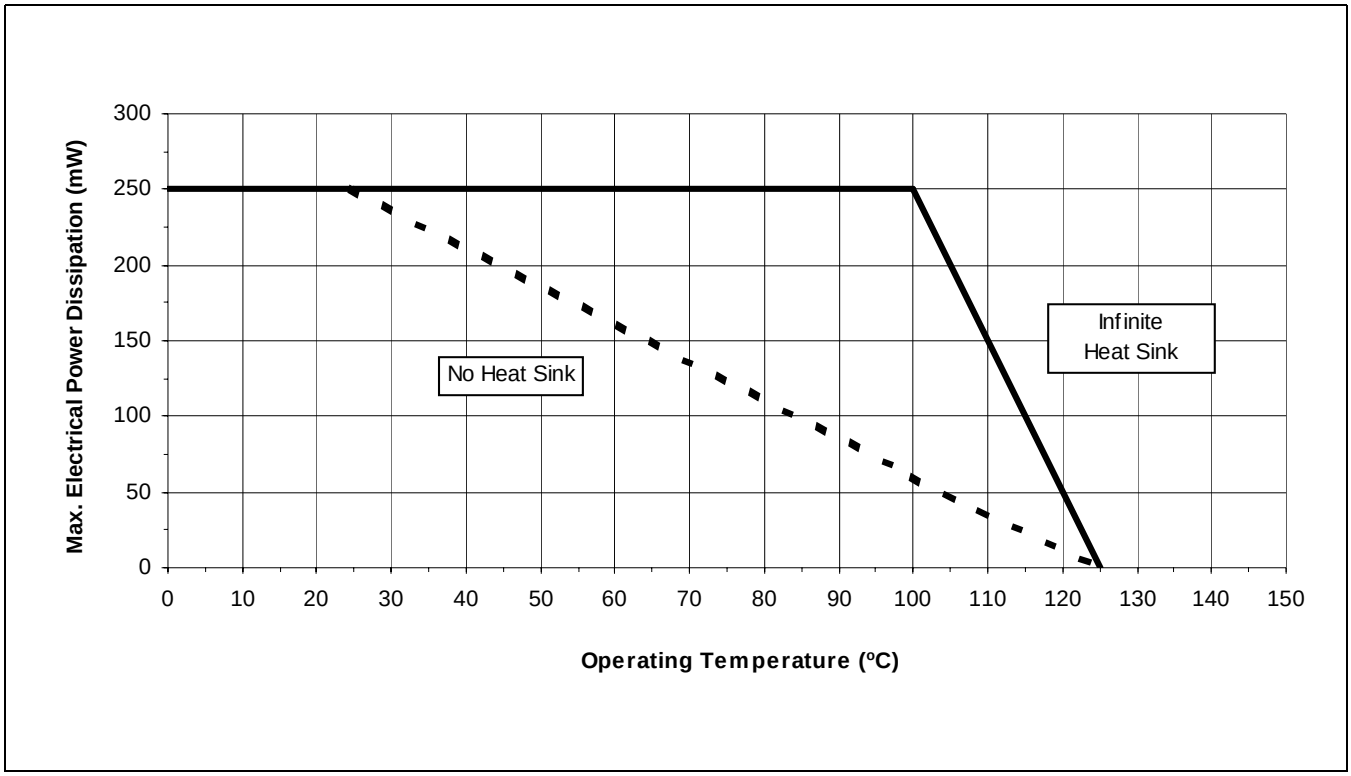


Figure 6 - Max. Electrical Power Dissipation vs. Operating Temperature

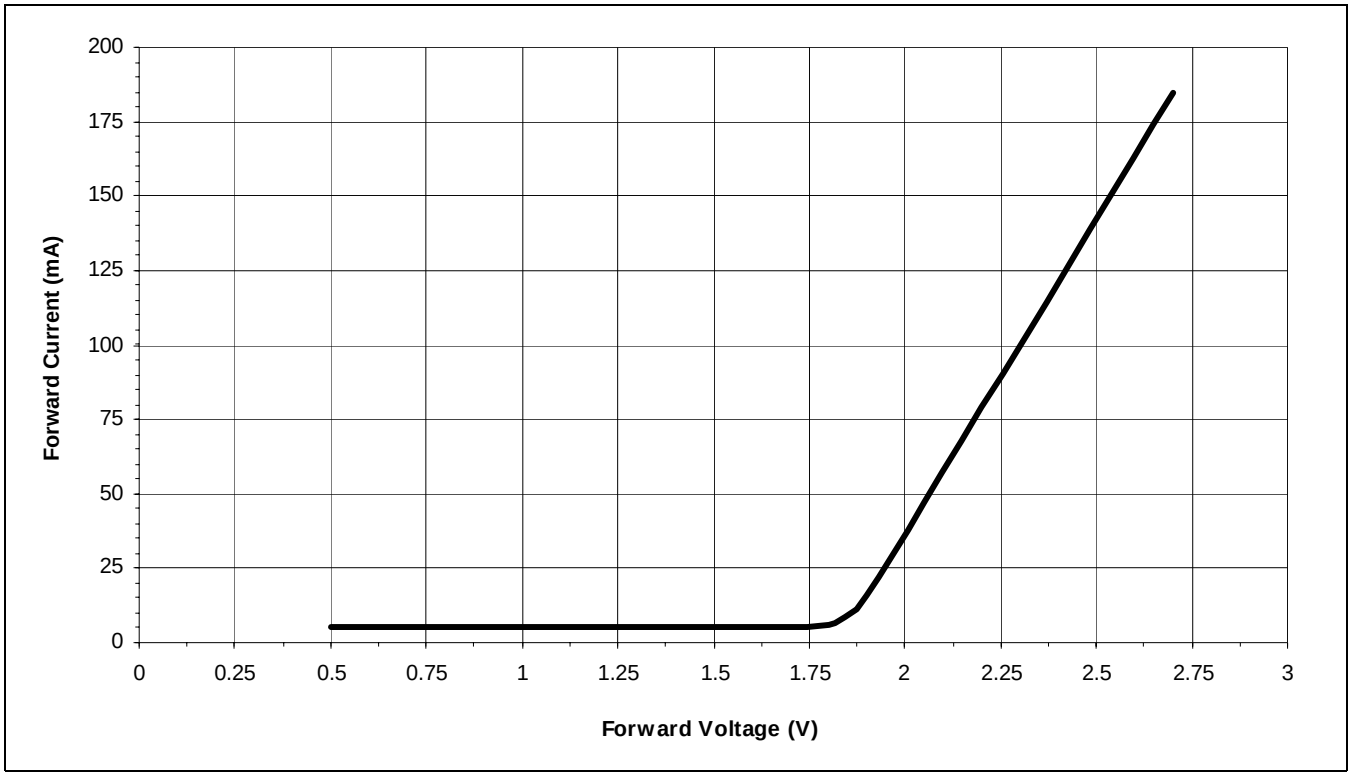
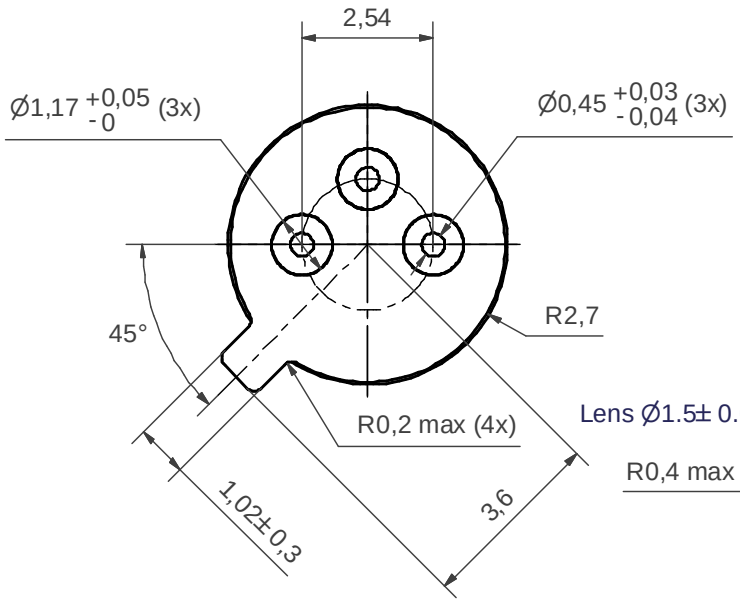
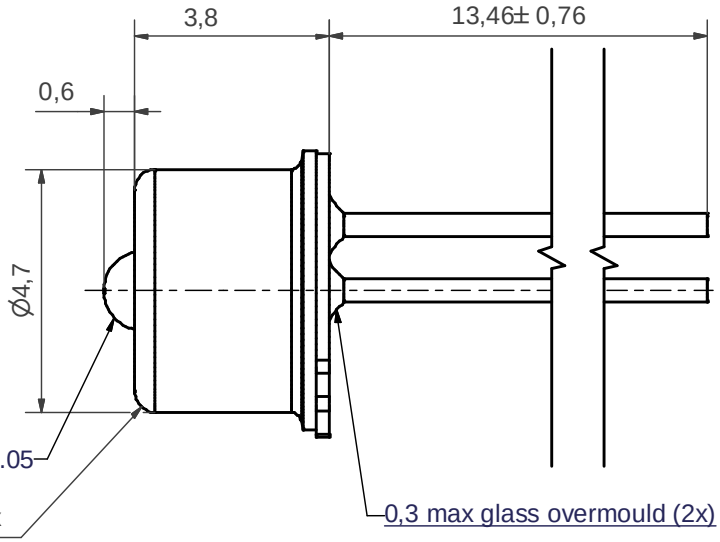


Figure 7 - Forward Current vs. Forward Voltage

BOTTOM VIEW (10 : 1)



SIDE VIEW



NOTES:-

1. All dimensions in mm.
2. General tol. ISO-2768-mK.
3. Coating: Case: Ni 1,5-2,5 µm.
   Header: Ni 2-3 µm / Au min 1,32 µm.

ISSUE	1			
ACN	JS004076R1A			
DATE	22-MAR-03			
APPRD.	TD/BE			

ZARLINK SEMICONDUCTOR

	Package code TB
Previous package codes	Drawing type Package drawing, TO-46 with lens
	Title JS004076

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