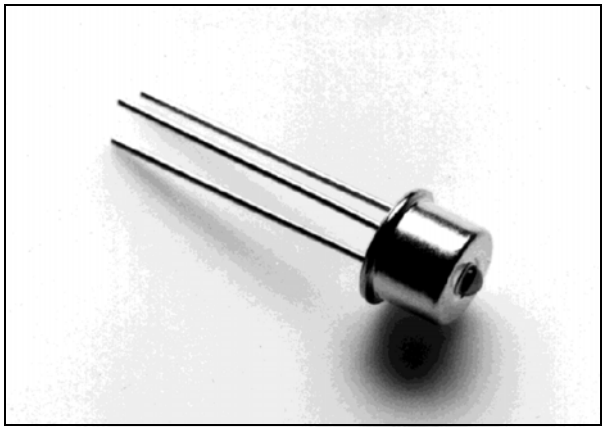
MF436

1300 nm - 50 MHz High Performance LED

Data Sheet

October 2004



Ordering Information

MF436	TO-46 Package
MF436 ST	ST Housing
MF436 FC	FC 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

- 1310 nm Surface-Emitting LED
- 50 MHz Bandwidth
- Designed for 62.5/125 µm fiber
- High power

Applications

- Sensors
- Test Equipment
- Signal transmission

Description

This device generates very high power which makes it ideal for many sensors and signal transmission applications. It operates in a wide range of temperatures, and can satisfy virtually any environmental specification. The double-lens optical system results in optimum coupling of power into the fiber.

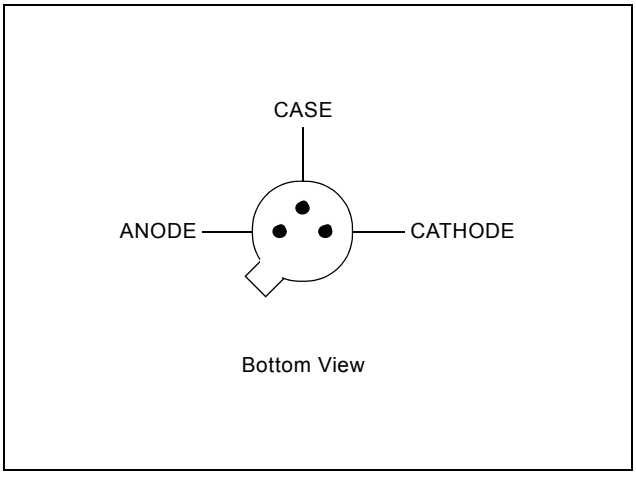


Figure 1 - Pin Diagram

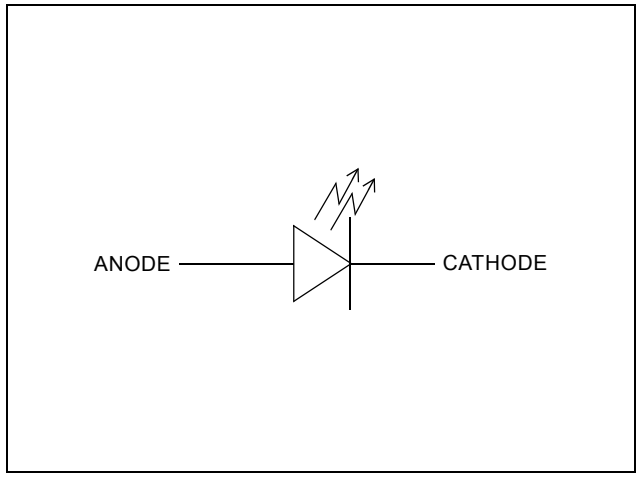


Figure 2 - Functional Schematic

Optical and Electrical Characteristics - Case Temperature 25°C

Parameter	Symbol	Min.	Typ.	Max.	Unit	Test Condition
Fiber-Coupled Power (Figures 3, 4 and 5) (Table 1)	P_{fiber}	20	27		μW	I_F=80mA, Note 1 Fiber: 50/125μm NA=0.20
		70	80		μW	I_F=80mA, Note 1 Fiber: 62.5/125μm NA=0.275
Rise and Fall Time (10-90%)	t_r,t_f		7	10	ns	I_F=80mA (no bias)
Bandwidth (3 dB_{el})	f_c		50		MHz	I_F=80mA
Peak Wavelength	λ_p	1270	1300	1350	nm	I_F=80mA
Spectral Width (FWHM)	$\Delta\lambda$		145	165	nm	I_F=80mA
Forward Voltage (Figure 5)	V_F		1.5	2	V	I_F=80mA
Reverse Current	I_R			100	μA	V_R=1V
Capacitance	C		200		pF	V_R-0V, f=1MHz

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	T_{op}	-40 to +85°C
Electrical Power Dissipation (Figure 4)	P_{tot}	160 mW
Continuous Forward Current (f<10 kHz)	I_F	90 mA
Peak Forward Current (duty cycle<50%,f>1 MHz	I_{FRM}	130 mA
Reverse Voltage	V_R	0.5 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}			150	°C/W
Thermal Resistance - No Heat Sink	R_{thja}			450	°C/W
Temperature Coefficient - Optical Power	dP/dT_j		-0.6		%/°C
Temperature Coefficient - Wavelength	$d\lambda/dT_j$		0.45		nm/°C
Temperature Coefficient - Spectral Width	$d\Delta\lambda/dT_j$		0.25		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
27 μW	80 μW	140 μW

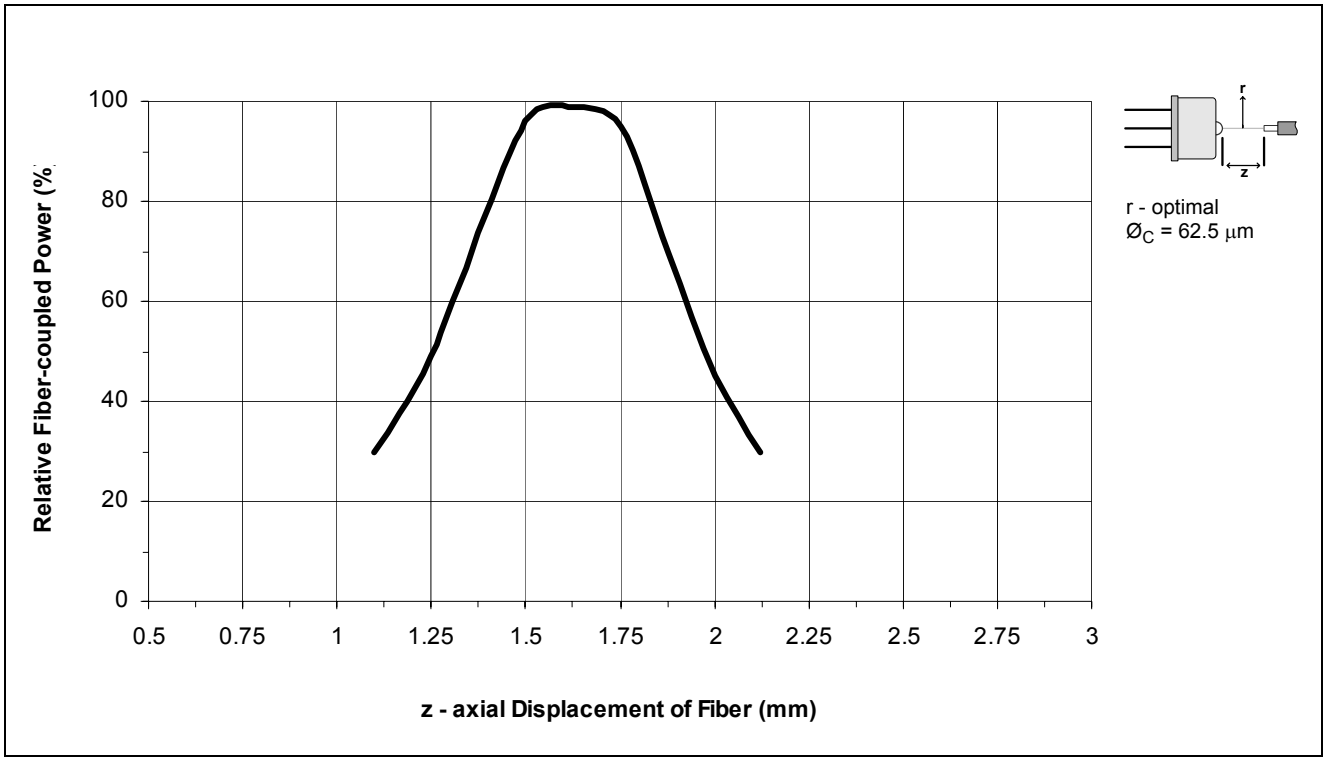


Figure 3 - z - Axial Displacement of Fiber

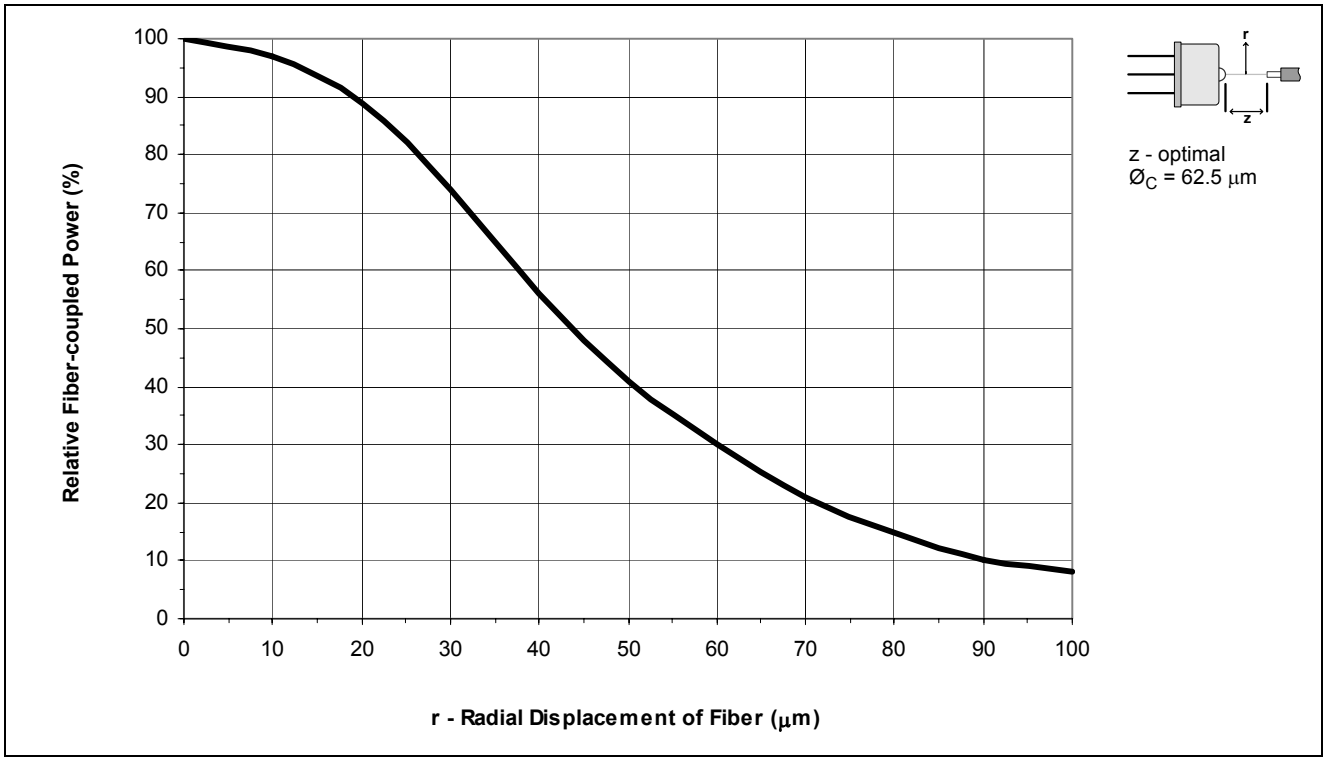


Figure 4 - r - Radial Displacement of Fiber

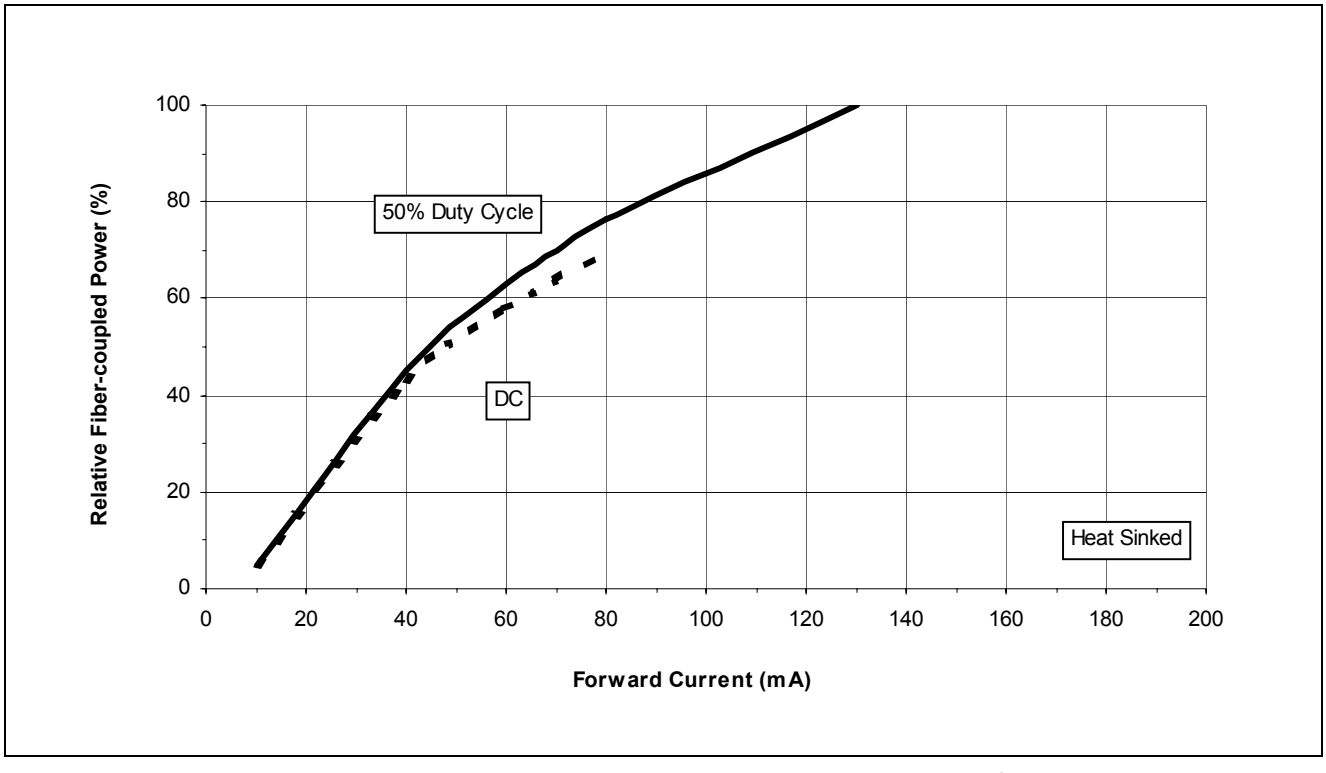


Figure 5 - Relative Fiber-coupled Power vs. Forward Current

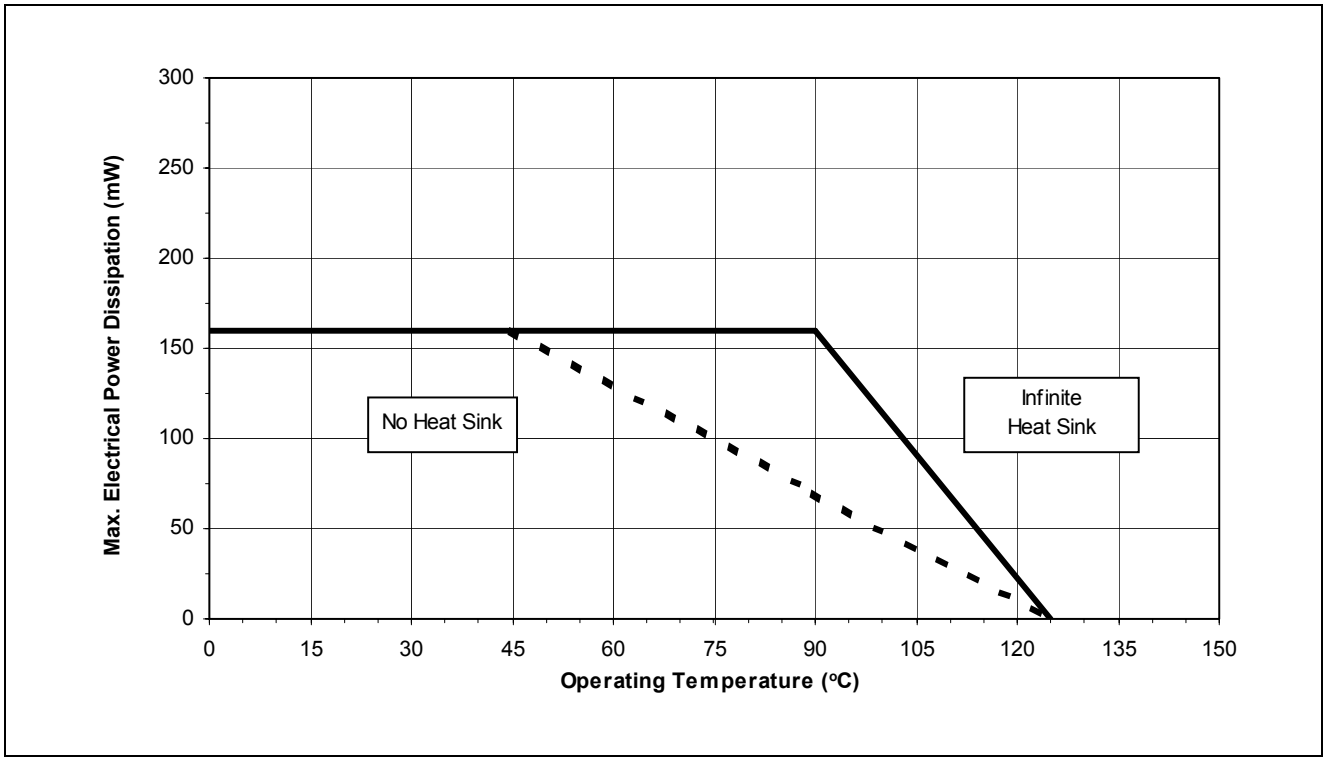


Figure 6 - Max. Electrical Power Dissipation vs. Operating Temperature

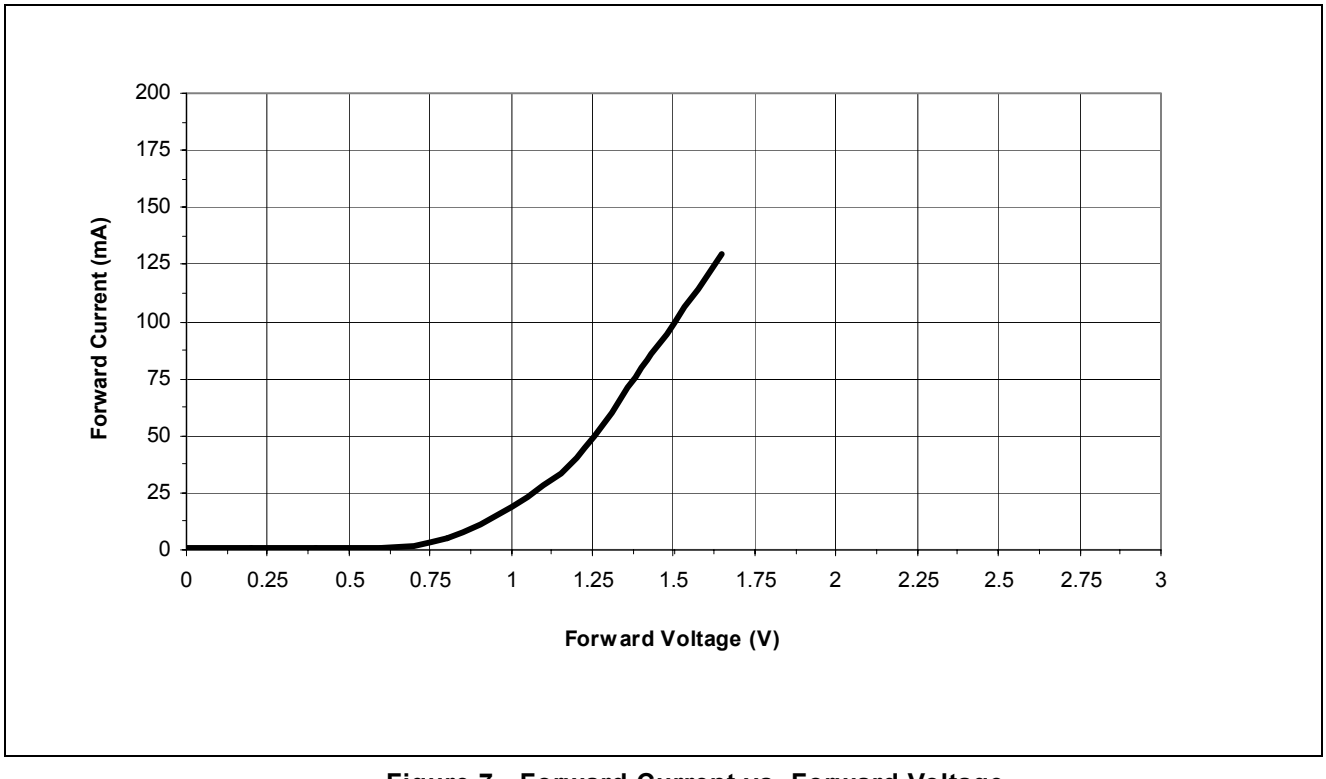
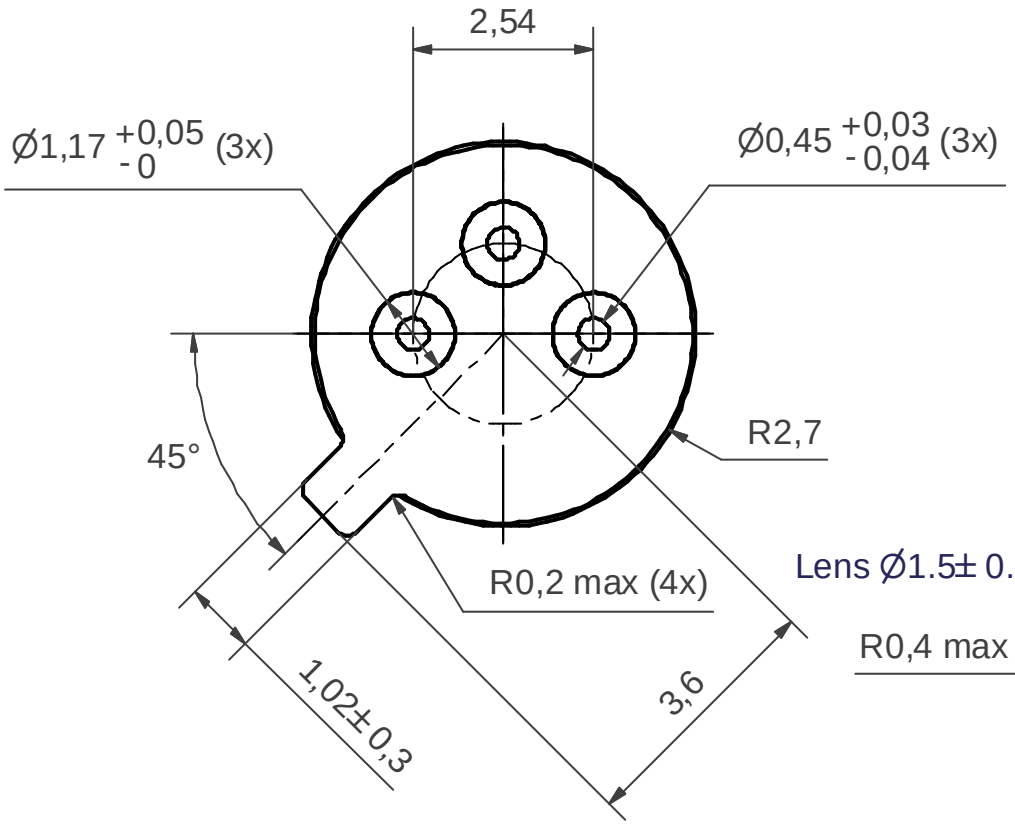
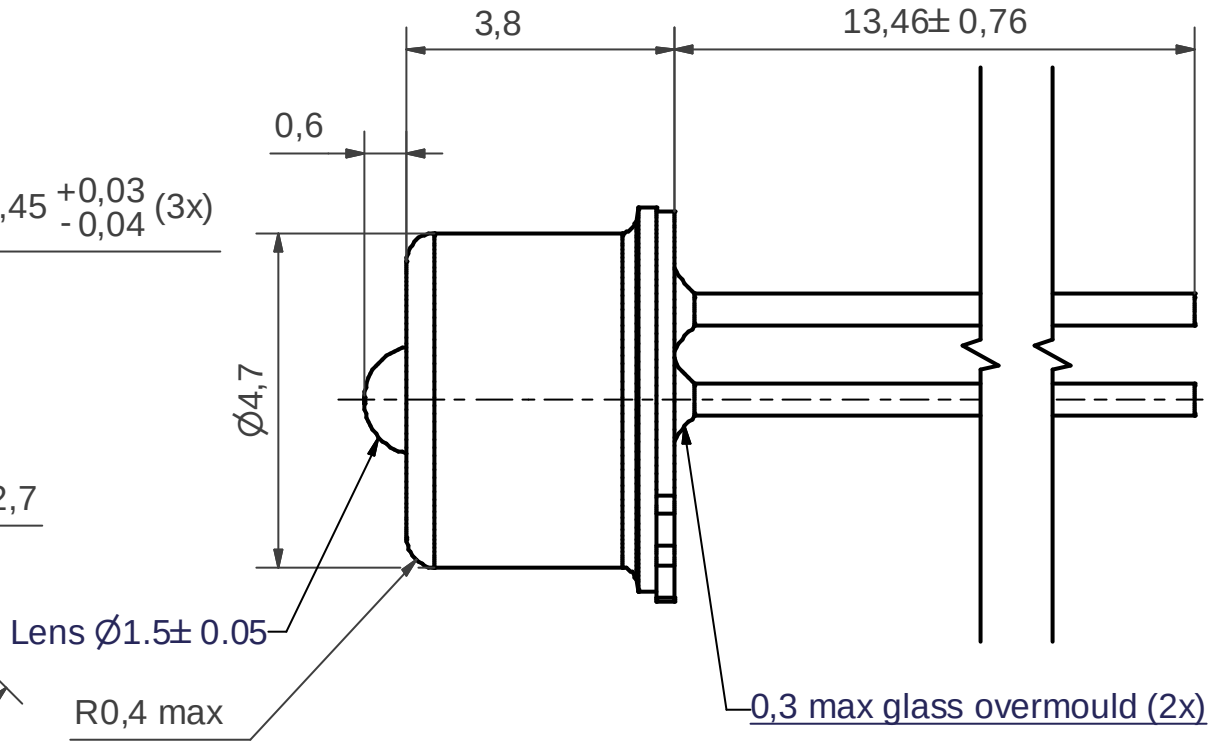


Figure 7 - Forward Current vs. Forward Voltage

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

Previous package codes

Package code TB

Drawing type
Package drawing, TO-46 with lens

Title JS004076

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