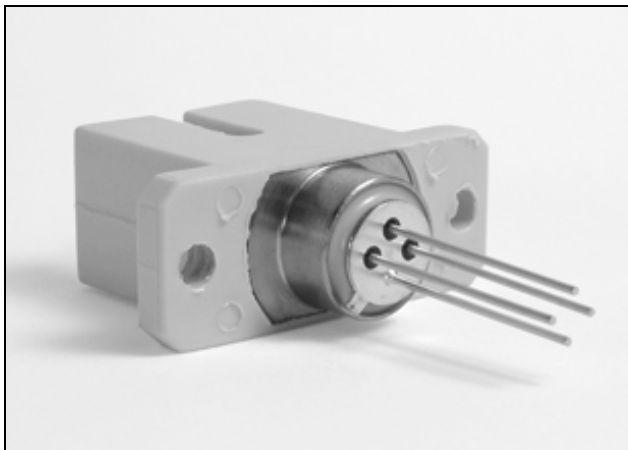


December 2003



Features

- Uncooled 1300 nm Fabry-Perot Laser Diode
- Wide operating temperature range -40°C to +85°C
- High reliability
- Built-in monitor diode
- 622 Mbps
- Ball lens or receptable type of packaging

Applications

- Telecommunications applications, SONET OC-3, OC-12, SDH STM-1 and STM-4
- Optical communications systems

Ordering Information

ZL60401TBD	TO-56 with lens
ZL60401TDD	ST type connector
ZL60401TED	SC type connector
ZL60401TFD	FC type connector

-40°C to +85°C

Description

The Fabry-Perot Laser Diode Receptacle type series is designed for use with SC, FC and ST type fiber connectors as source in telecom and datacom applications.

The ZL60401 is a 1310 nm MQW (Multiple Quantum Well) Fabry-Perot laser diode, integrated with a monitor diode.

The hermetically sealed package includes a ball lens for improved coupling efficiency.

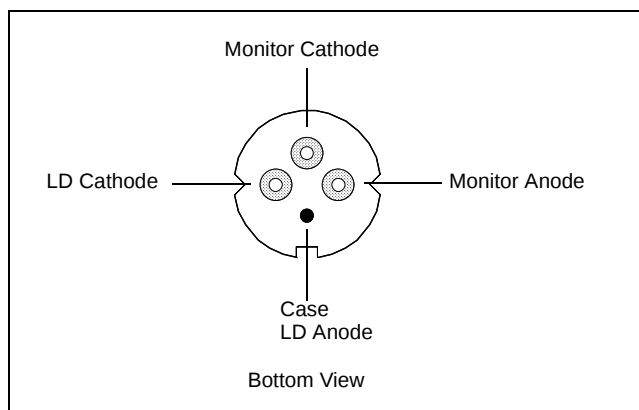


Figure 1 - PIN Diagram

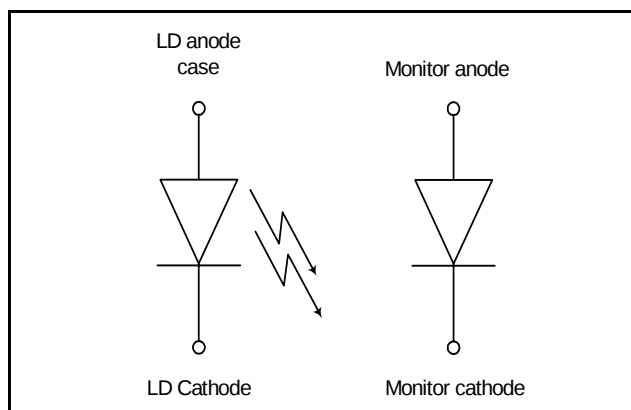


Figure 2 - Functional Schematic

Electrical and Optical Characteristics ($T_C = 25^\circ\text{C}$)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Threshold Current	I_{th}	CW		10	15	mA
Operating Voltage	V_{op}	CW, $I_f = I_{th} + 20\text{ mA}$		1.3	1.5	V
Optical Output Power	P_f	CW, $I_f = I_{th} + 20\text{ mA}$		0.6		mW
Wavelength	λ	CW, $I_{th} + 20\text{ mA}$	1290	1310	1330	nm
Spectral Width	$\Delta\lambda$	CW, $I_{th} + 20\text{ mA}$		1	3	nm
Rise and Fall Times	t_r, t_f	$I_f = I_{th} + 20\text{ mA}$, 20-80%			500	ps
Tracking Error	$\Delta P_f / P_f$	APC, $0 - +70^\circ\text{C}$ $-40^\circ\text{C} - +85^\circ\text{C}$	-1.5 -2.5		1.5 2.5	dB
Monitor Current	I_D	CW, $I_{th} + 20\text{ mA}$, $V_{RD} = 1\text{ V}$	100			μA
Monitor Dark Current	I_D	$V_{RD} = 5\text{ V}$			1	μA
Monitor Capacitance	C_D	$V_{RD} = 5\text{ V}$, $f = 1\text{ MHz}$		10	15	pF

Absolute Maximum Ratings

Parameter	Symbol	Rating	Unit
LD Reverse Voltage	V_{RL}	2	V
PD Reverse Voltage	V_{RD}	20	V
PD Forward Current	I_f	2.0	mA
Operating Temperature	T_{op}	$-40 - +85$	$^\circ\text{C}$
Storage Temperature	T_{stg}	$-40 - +85$	$^\circ\text{C}$

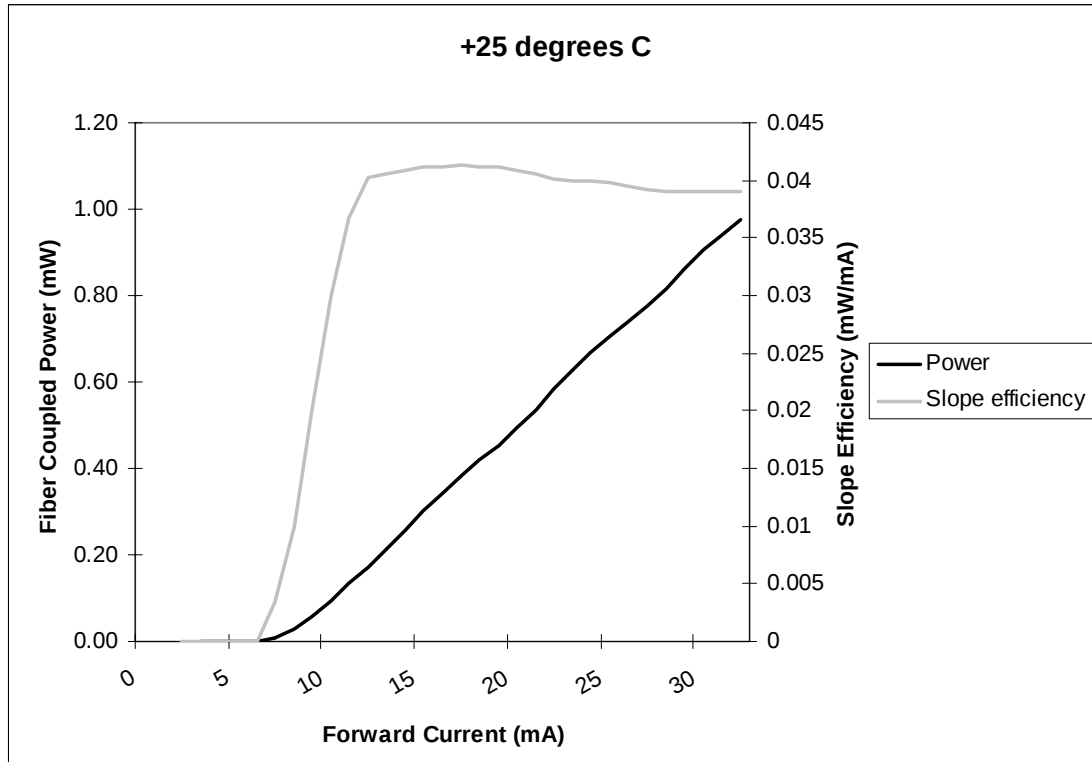


Figure 3 - Typical Fiber Coupled Power and Slope Efficiency at Room Temperature

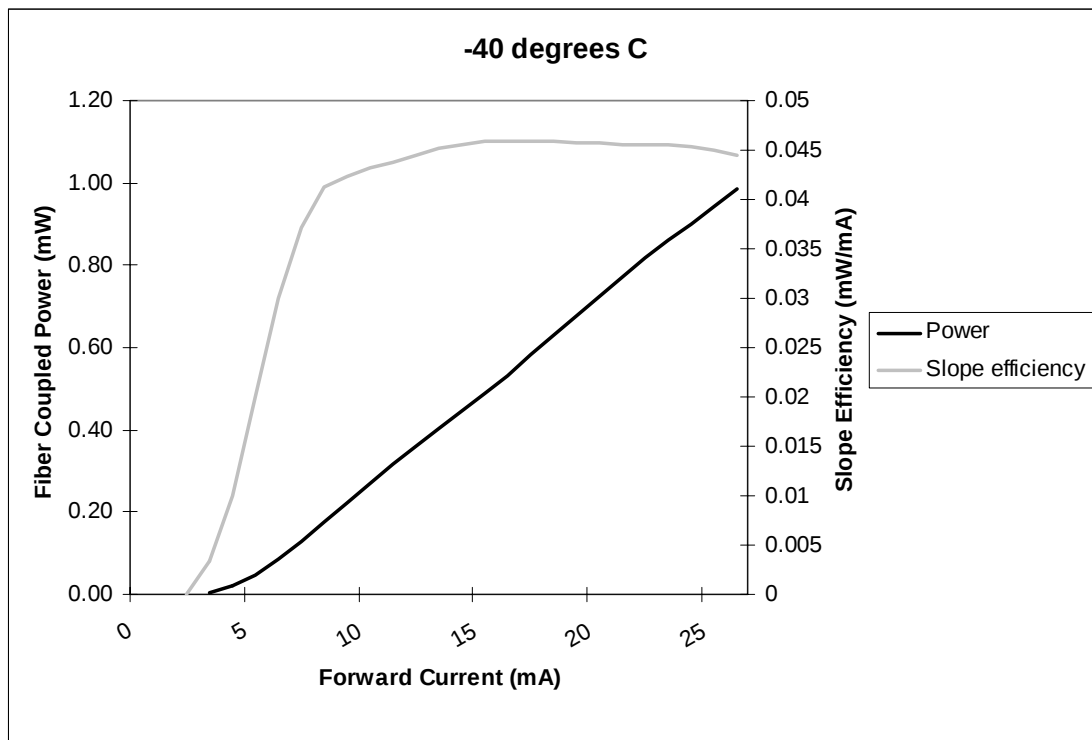


Figure 4 - Typical Fiber Coupled Power and Slope Efficiency at Low Temperature

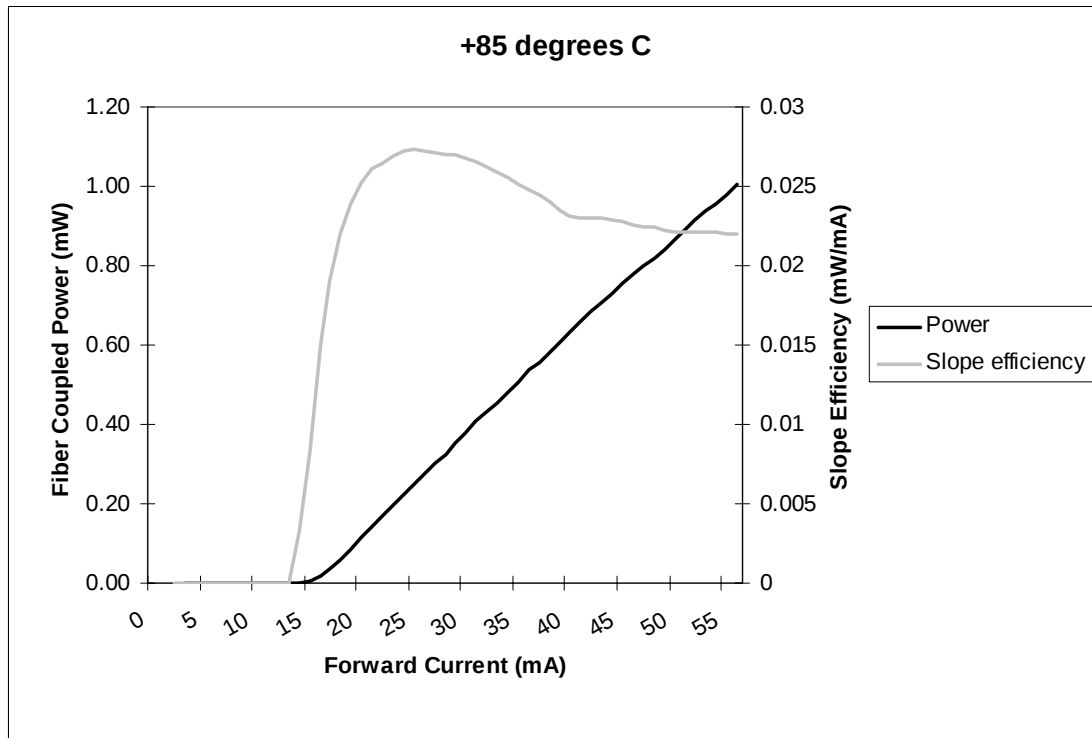
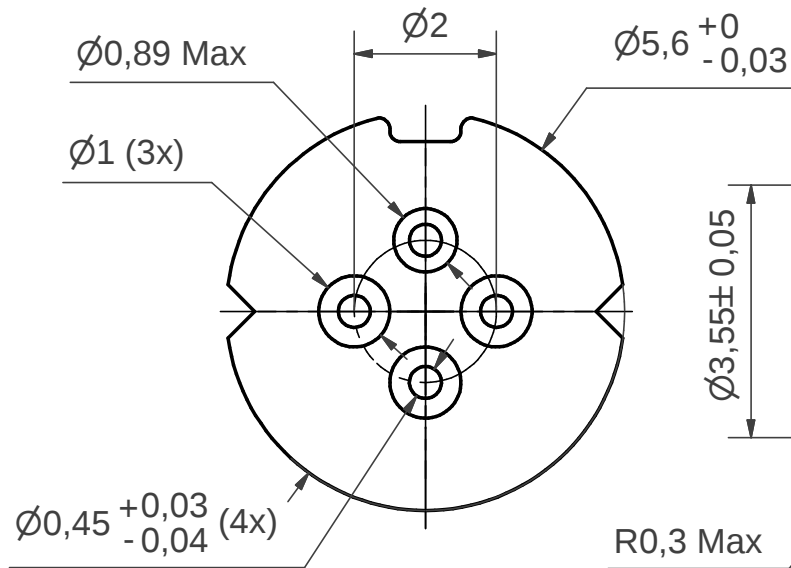
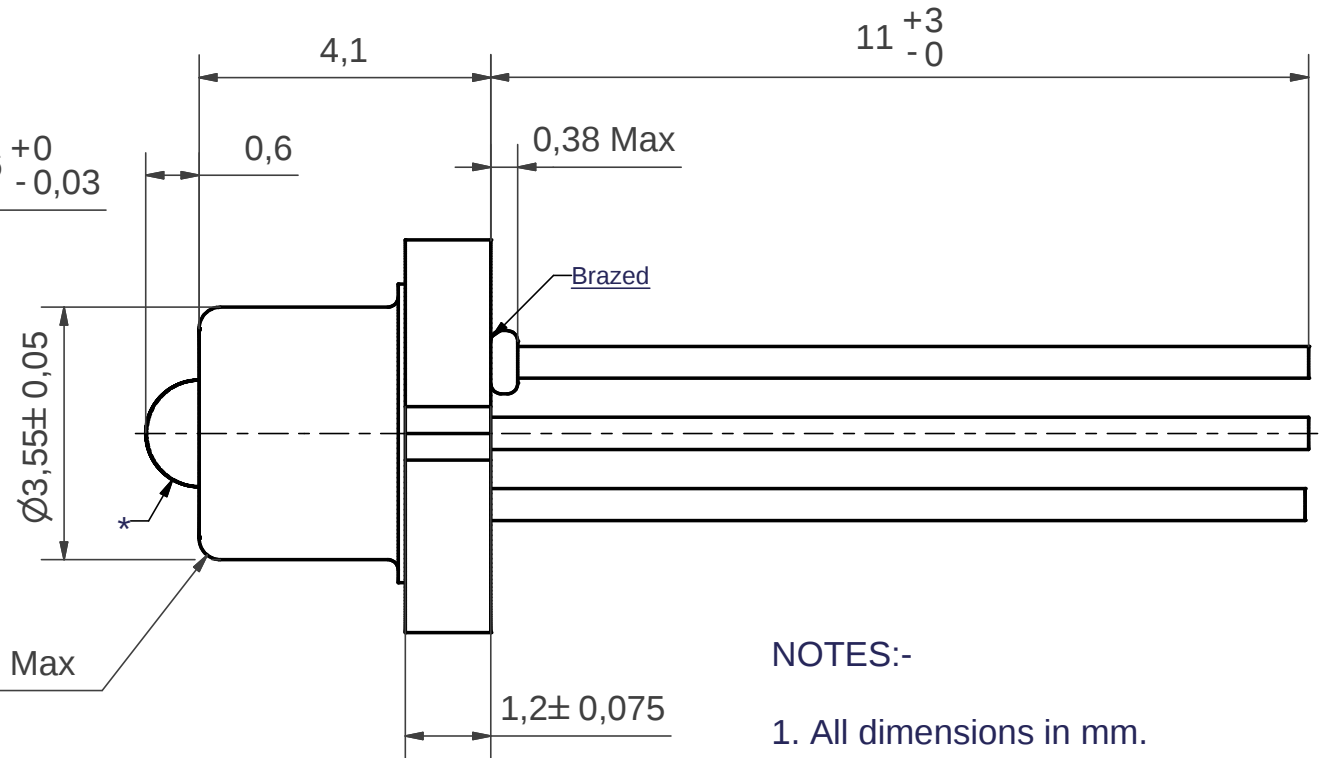


Figure 5 - Typical Fiber Coupled Power and Slope Efficiency at High Temperature

BOTTOM VIEW (10 : 1)



SIDE VIEW



NOTES:-

1. All dimensions in mm.
2. General tol. ISO-2768-mK.
3. Coating: Case: Ni 3-7 μm .
Header: Ni 2-4 μm / Au 0,5 μm .

* Lens $\varnothing 1,5 \pm 0,002$

Projection Method

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ISSUE	1			
ACN	101615 rev1			
DATE	21-NOV-03			
APPRD.	MD/MA			

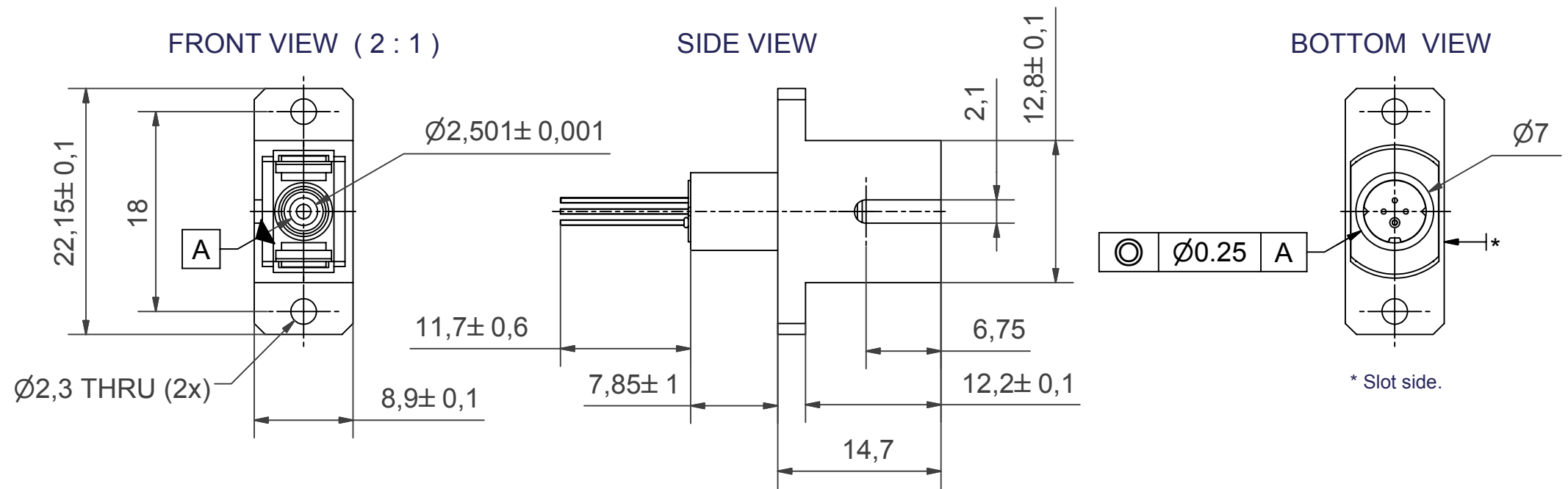


Previous package codes

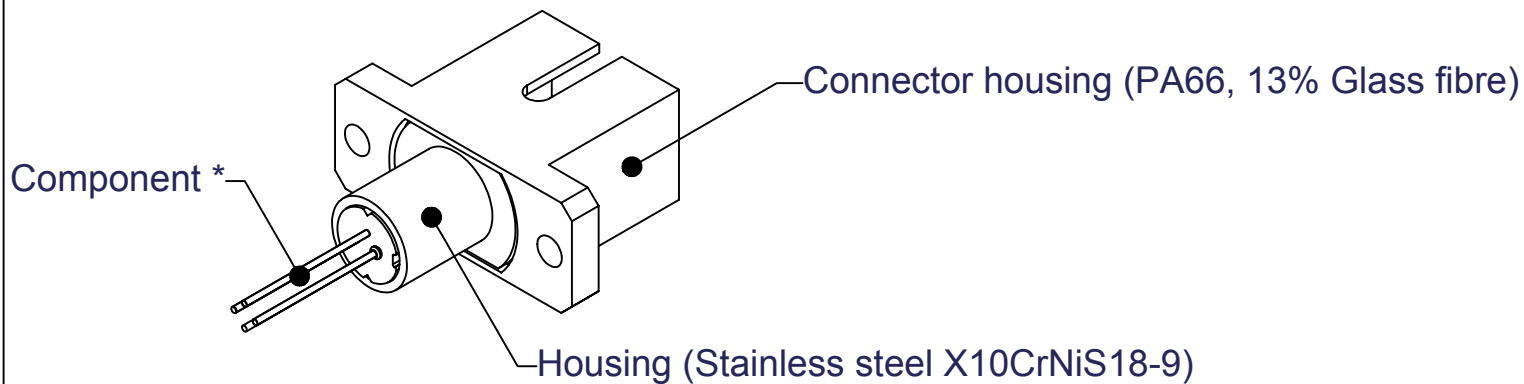
Package code **TB**

Drawing type
Package Drawing, TO-56 with lens

Title
101615



ISOMETRIC VIEW



NOTES:-

1. All dimensions in mm.
2. General tol. ISO-2768-mK.

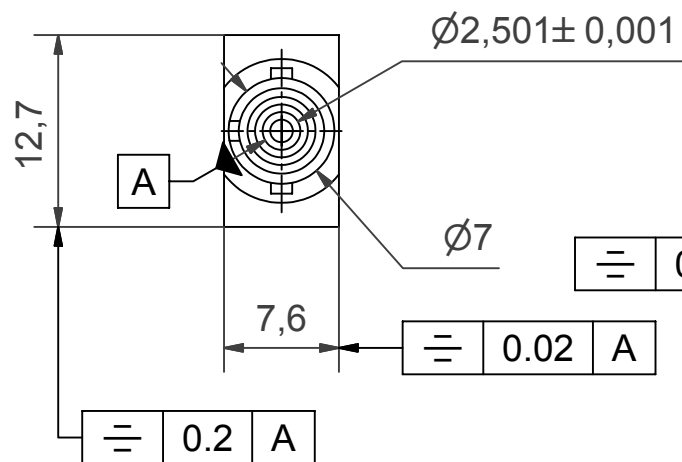
* For details of the component, see separate data sheet and/or package drawing.

Projection

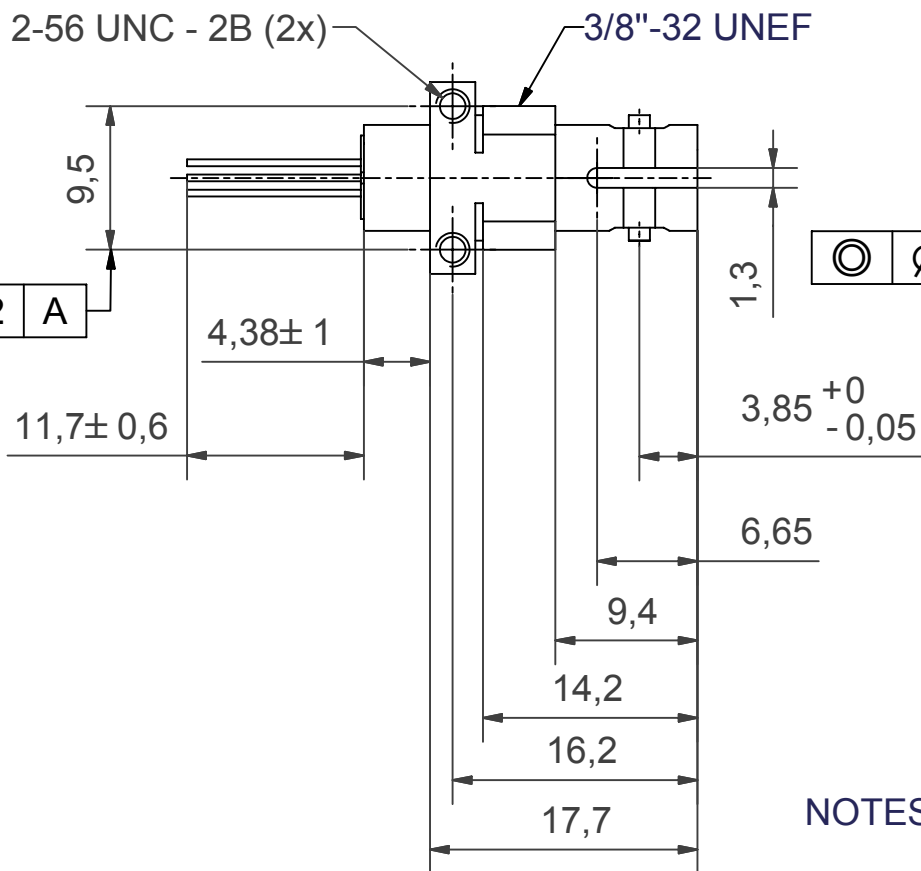
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ISSUE	1				Previous package codes	Drawing type
ACN	101512rev 1					TO-56 Package Outline in SC Connector housing
DATE	17-NOV-03					Title
APPRD.	PD\US					101512



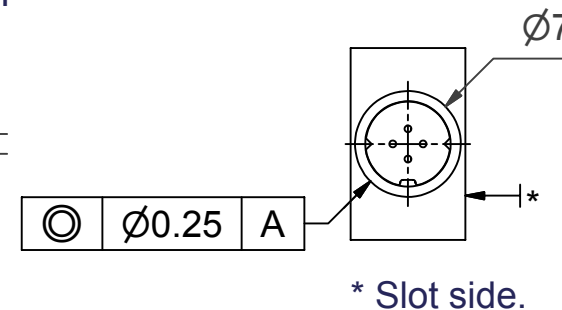
FRONT VIEW (2 : 1)



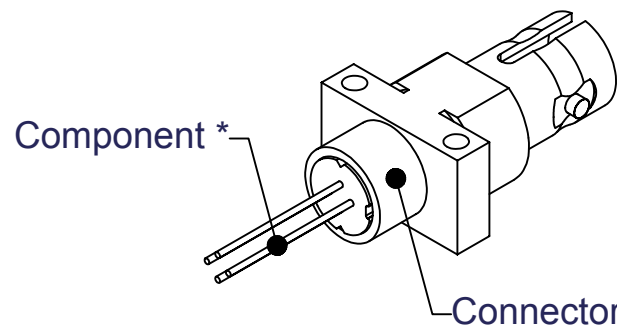
SIDE VIEW



BOTTOM VIEW



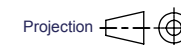
ISOMETRIC VIEW



NOTES:-

1. All dimensions in mm.
2. General tol. $\pm 0,1$ mm.

* For details of the component, see separate data sheet and/or package drawing.



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ISSUE	1			
ACN	101514 rev1			
DATE	17-NOV-03			
APPRD.	PD\US			



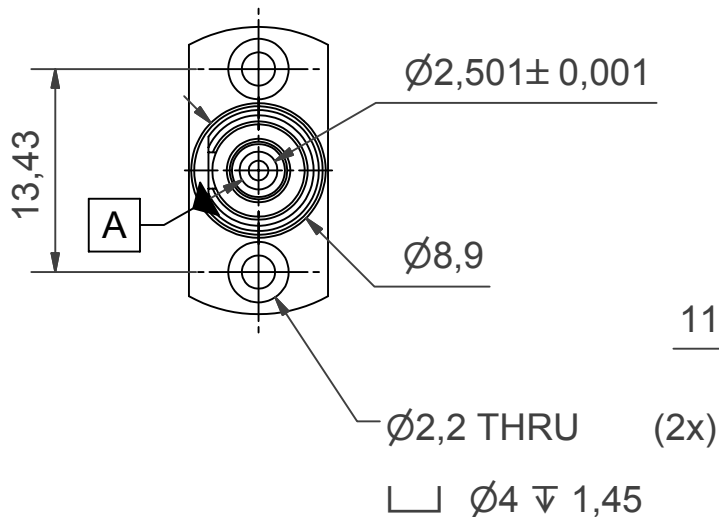
Previous package codes

Package code **TD**

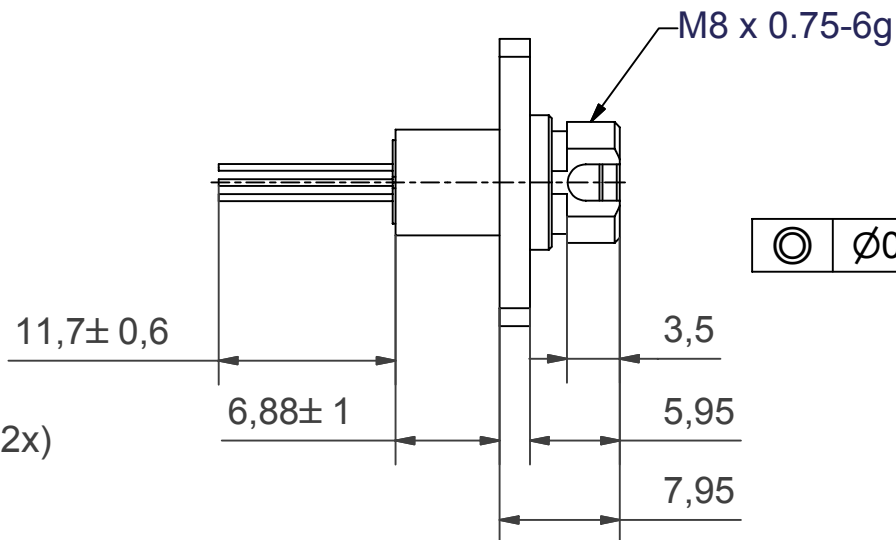
Drawing type
TO-56 Package Outline in ST
Connector housing

Title **101514**

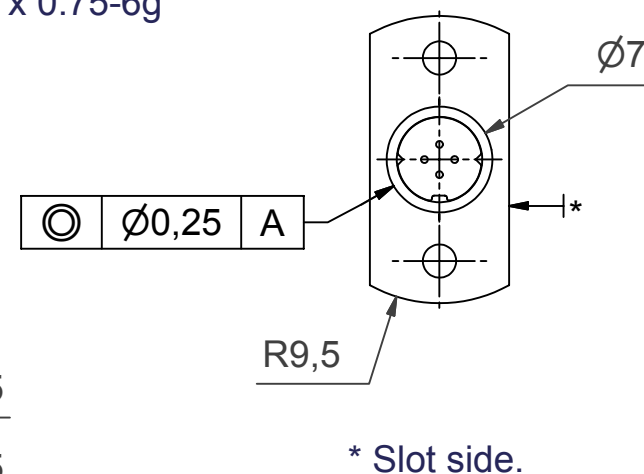
FRONT VIEW (2 : 1)



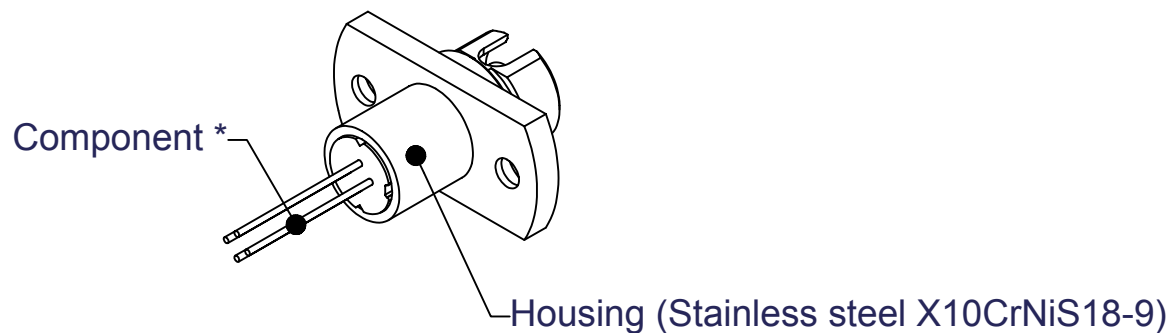
SIDE VIEW



BOTTOM VIEW



ISOMETRIC VIEW



NOTES:-

1. All dimensions in mm.
2. General tol. ISO-2768-mK.

* For details of the component, see separate data sheet and/or package drawing.

Projection

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ISSUE	1			
ACN	101513 rev1			
DATE	17-NOV-03			
APPRD.	PD\US			



Previous package codes

Package code **TF**

Drawing type
TO-56 Package Outline in FC
Connector housing

Title
101513



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