

Ordering Information

ZL60402TBD TO-56 with lens
 ZL60402TDD ST type connector
 ZL60402TED SC type connector
 ZL60402TFD 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 ZL60402 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.

Features

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

Applications

- Telecommunications applications, SONET OC-48, SDH STM-16
- Optical communications systems

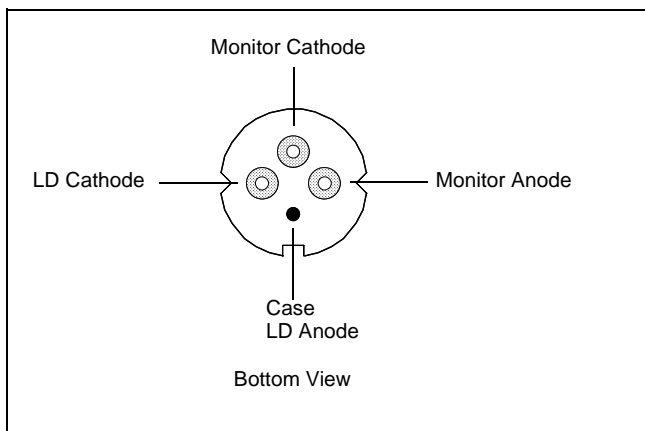


Figure 1 - PIN Diagram

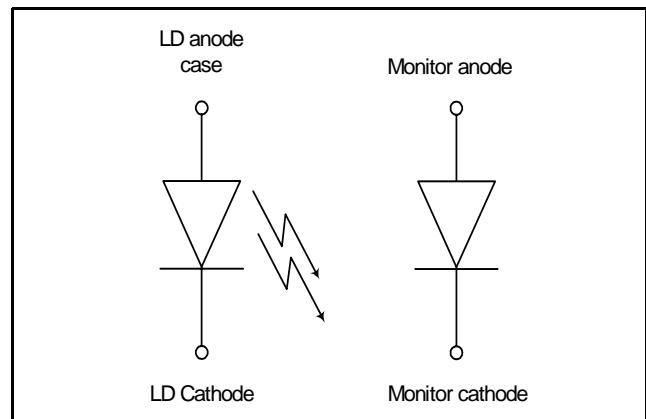


Figure 2 - Functional Schematic

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%			150	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	$^\circ\text{C}$

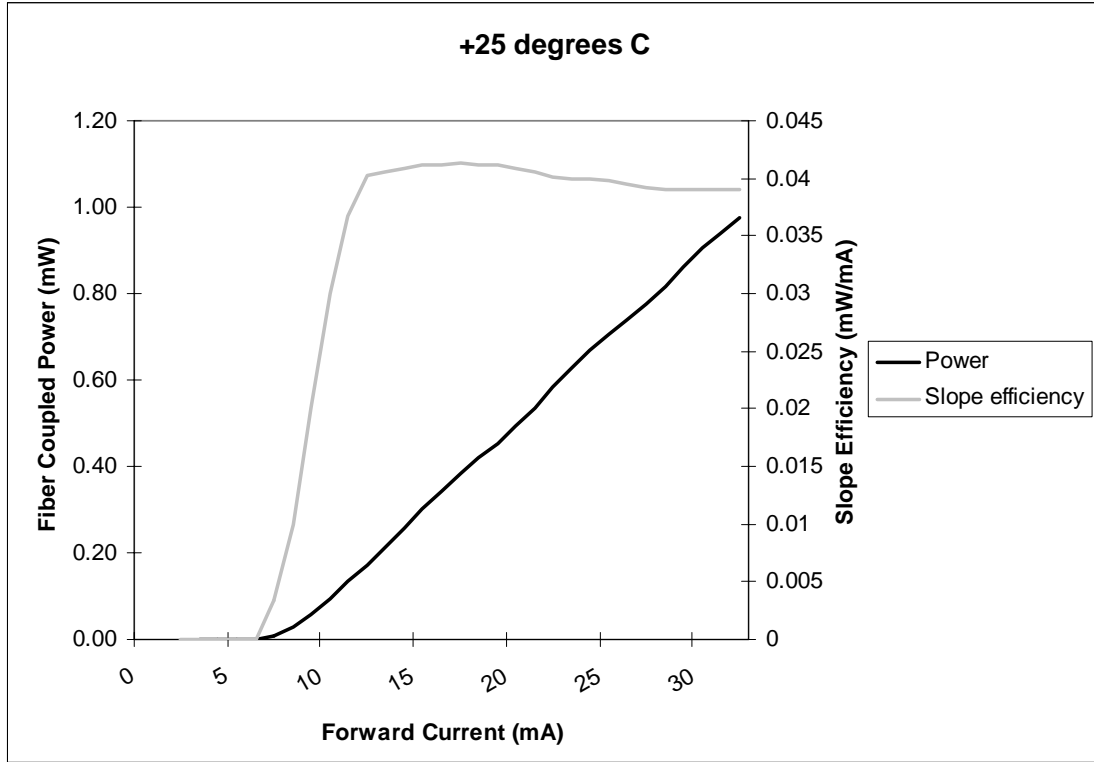


Figure 3 - Typical Fiber Coupled Power and Slope Efficiency at Room Temperature

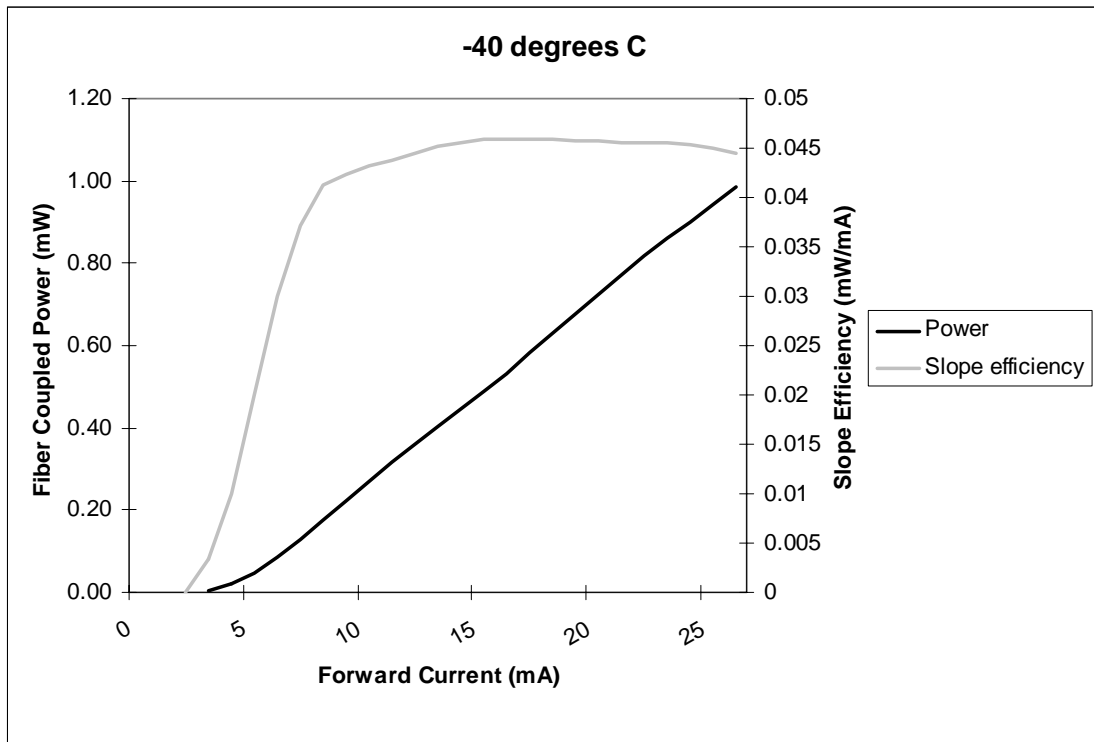


Figure 4 - Typical Fiber Coupled Power and Slope Efficiency at Low Temperature

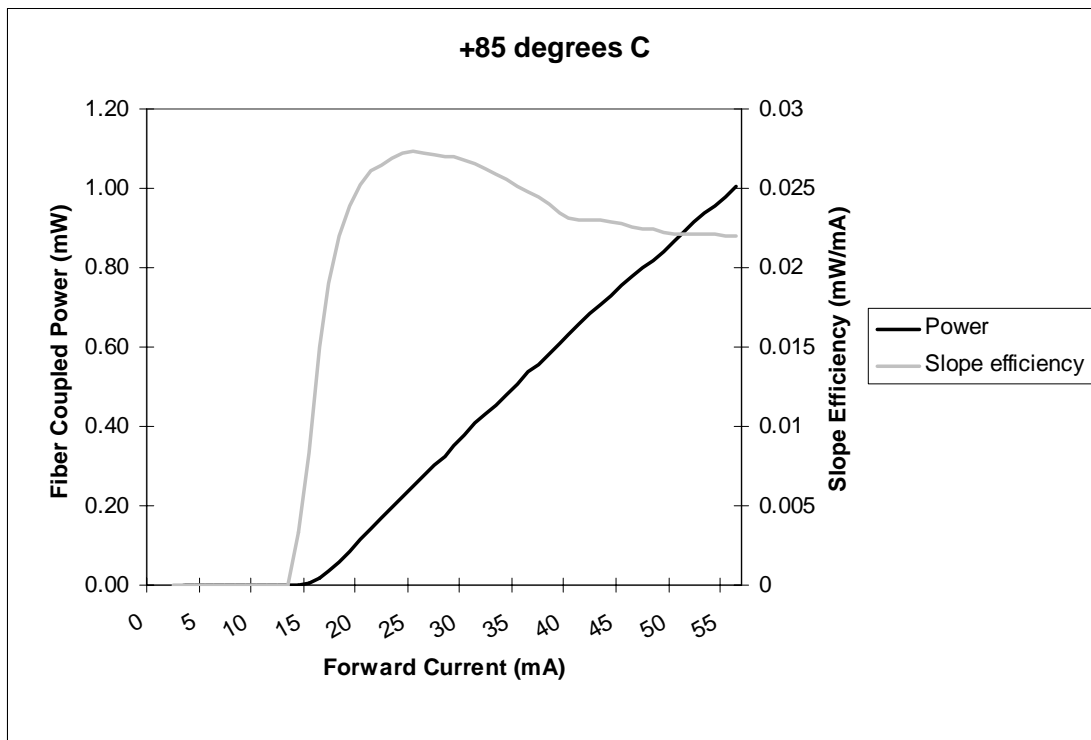
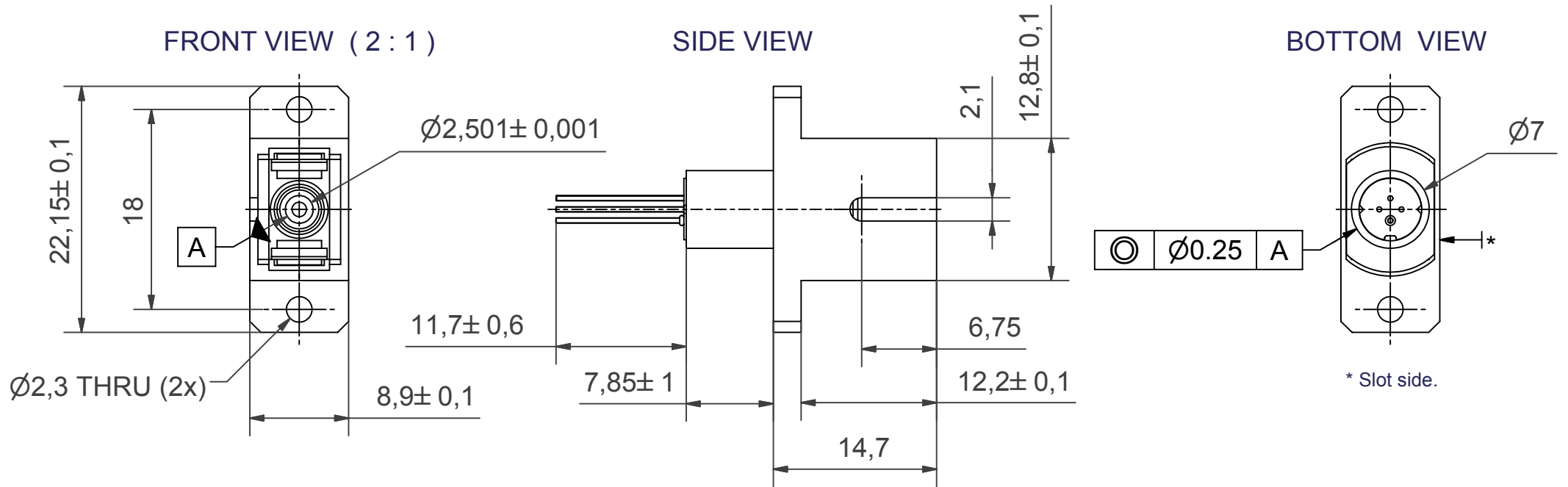
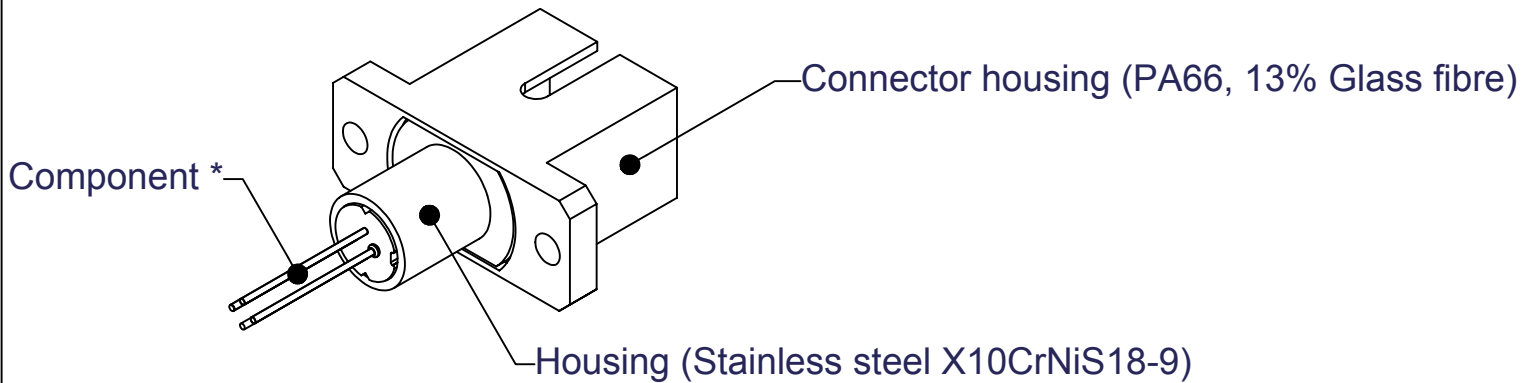


Figure 5 - Typical Fiber Coupled Power and Slope Efficiency at High Temperature



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

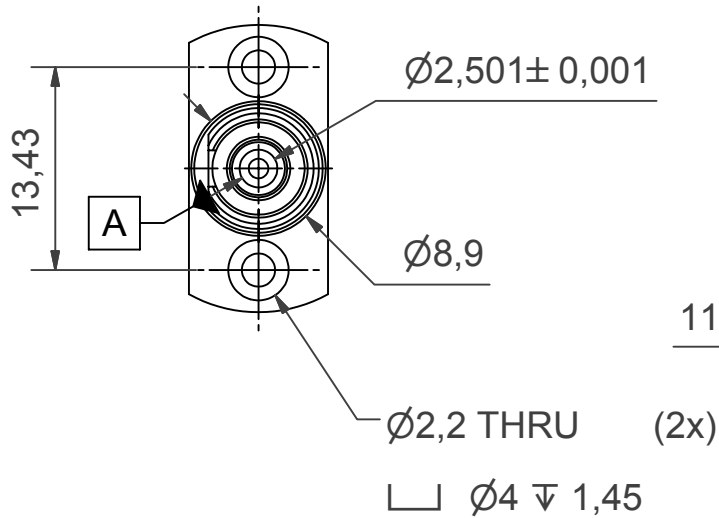
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ISSUE	1			
ACN	101512rev 1			
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APPRD.	PD\US			

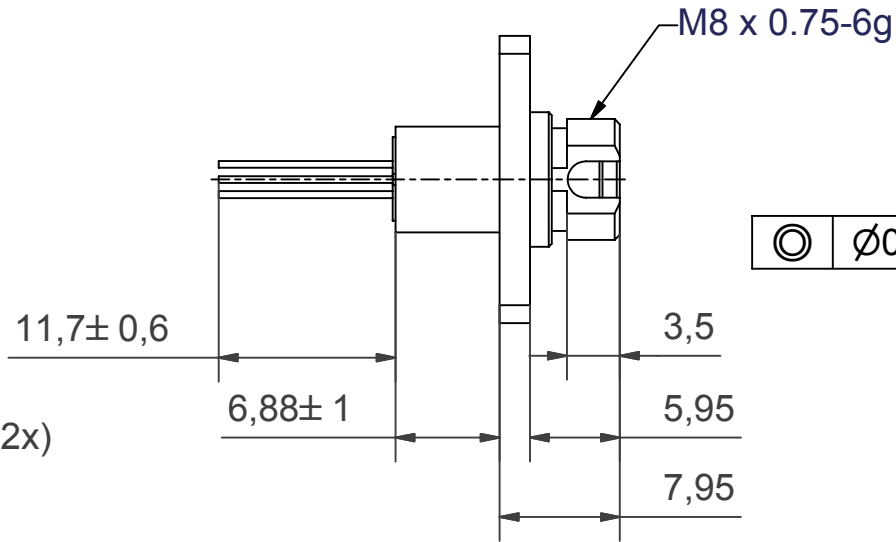


	Package code TE
Previous package codes	Drawing type TO-56 Package Outline in SC Connector housing
	Title 101512

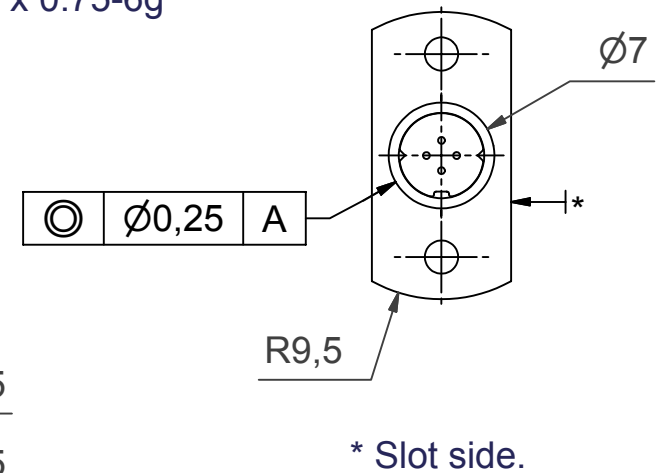
FRONT VIEW (2 : 1)



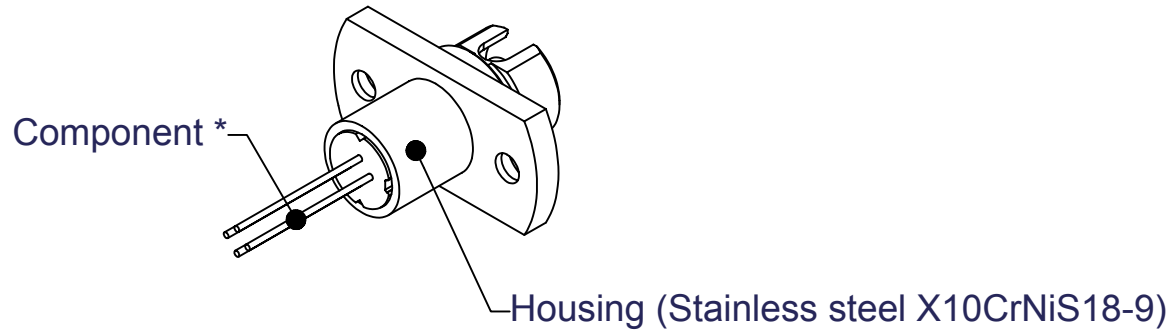
SIDE VIEW



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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Previous package codes

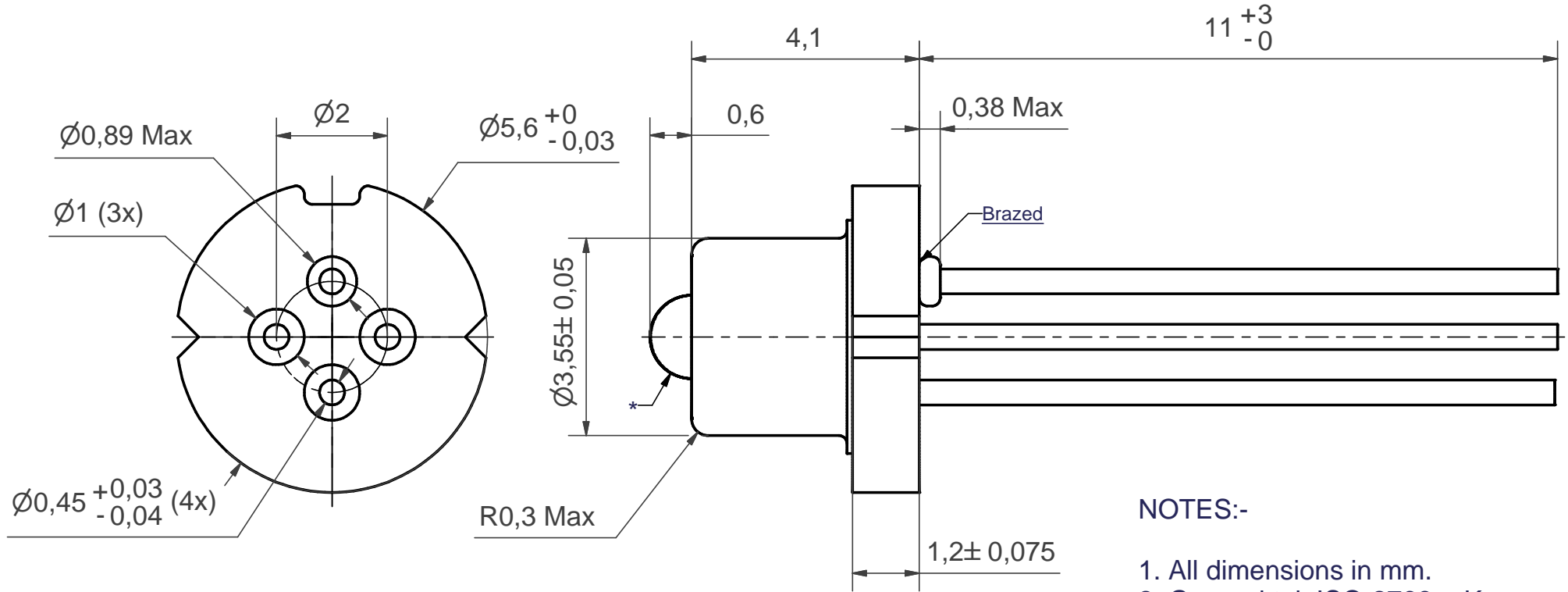
Package code **TF**

Drawing type
TO-56 Package Outline in FC
Connector housing

Title
101513

BOTTOM VIEW (10 : 1)

SIDE VIEW



NOTES:-

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

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

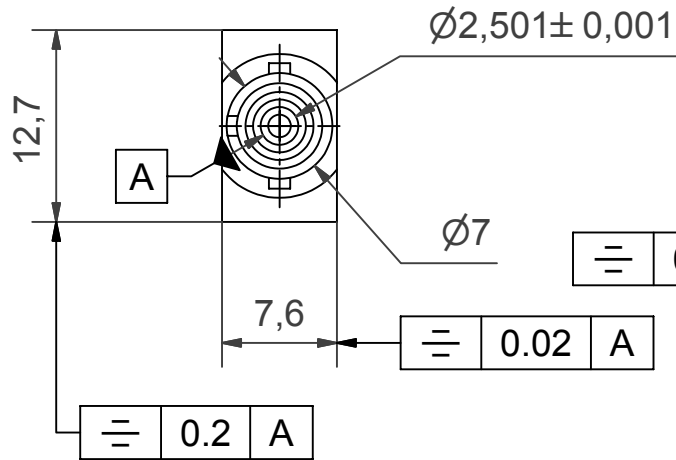
Projection Method

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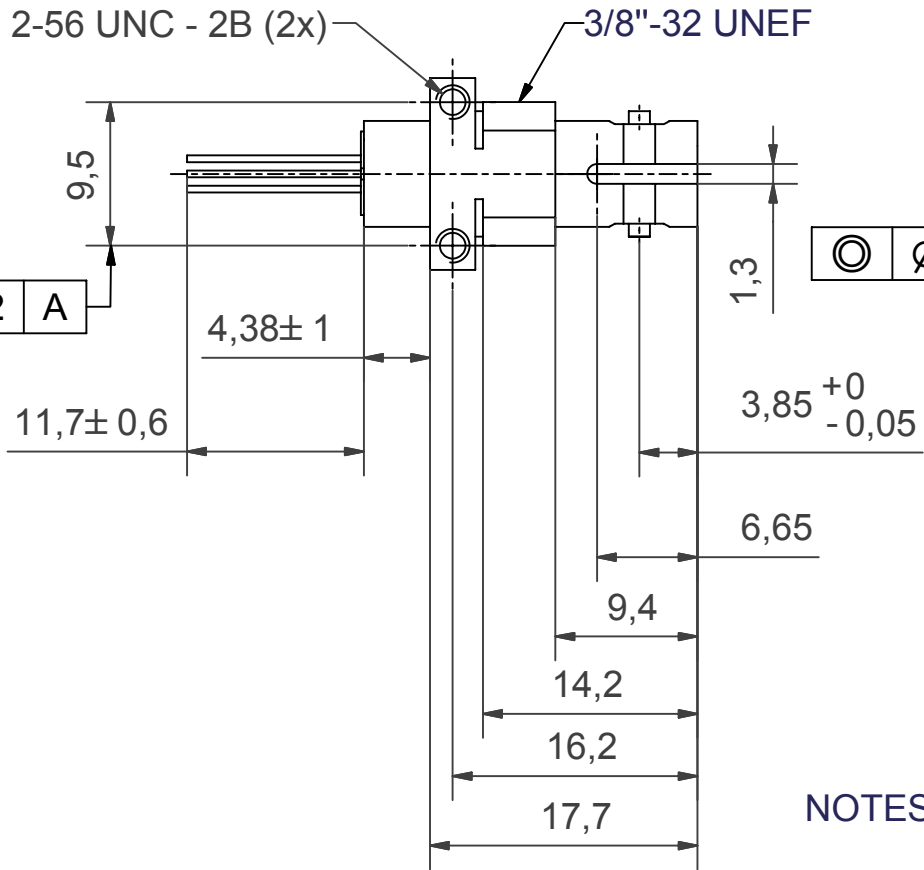


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Previous package codes	Drawing type Package Drawing, TO-56 with lens
	Title 101615

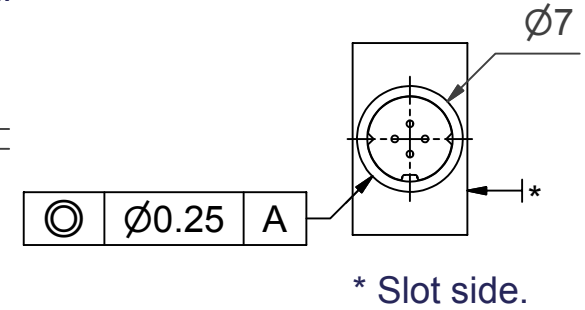
FRONT VIEW (2 : 1)



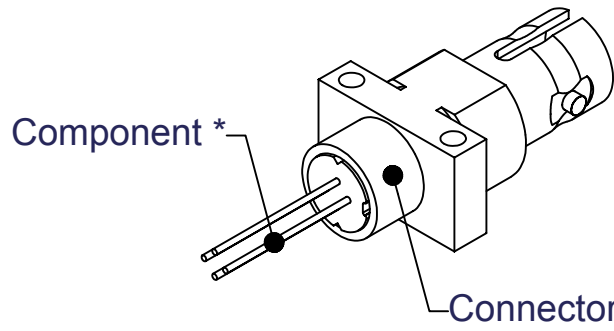
SIDE VIEW



BOTTOM VIEW



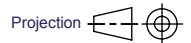
ISOMETRIC VIEW



NOTES:-

1. All dimensions in mm.
2. General tol. ±0.1 mm.

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



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Previous package codes

Package code **TD**

Drawing type
TO-56 Package Outline in ST
Connector housing

Title
101514



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