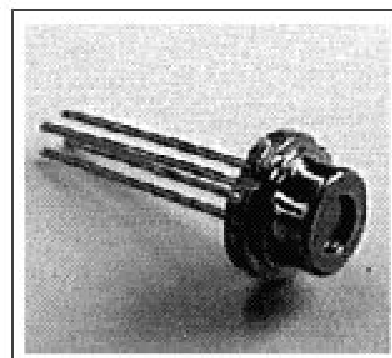


1300 nm Laser in Coaxial TO-Package

STH 51001Z

- Designed for application in fiber-optic networks
- Laser diode with Multi-Quantum Well structure
- Suitable for bit rates up to 1 Gbit/s
- Ternary photodiode at rear mirror for monitoring and control of radiant power
- Hermetically sealed subcomponent, similar to TO 18



Type	Ordering Code
STH 51002Z	Q62702-P3013

Component with other pinout on request.

Component with integrated Silicon-Optics for direct high efficiency single mode fiber coupling on request.

Maximum Ratings

Output power ratings refer to the optical port. The operating temperature of the submount is identical to the case temperature.

Parameter	Symbol	Values	Unit
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Module

Operating temperature range at case	T_C	- 40 ... + 85	°C
Storage temperature range	T_{stg}	- 40 ... + 85	°C
Soldering temperature $t_{max} = 10$ s, 2 mm distance from bottom edge of case	T_S	260	°C

Laserdiode

Direct forward current	I_F max	120	mA
Radiant power CW	Φ_e	10	mW
Reverse voltage	V_R max	2	V

Maximum Ratings (cont'd)

Parameter	Symbol	Values	Unit
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Monitor Diode

Reverse voltage	$V_{R \max}$	10	V
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Characteristics

Parameter	Symbol	Values	Unit
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Laser Diode

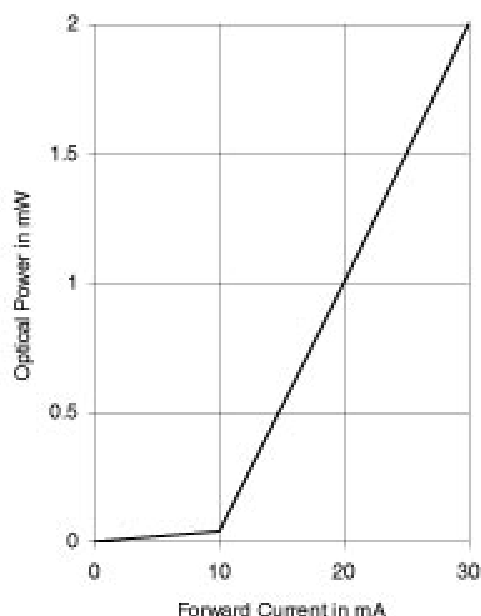
Optical output power	Φ_e	5	mW
Emission wavelength center of range $\Phi_e = 2 \text{ mW}$	λ	1280 ... 1330	nm
Spectral bandwidth $\Phi_e = 2 \text{ mW}$ (RMS)	$\Delta\lambda$	< 5	nm
Threshold current	I_{th}	< 15	mA
Forward voltage $\Phi_e = 2 \text{ mW}$	V_F	< 1.5	V
Radiant power at threshold	Φ_{eth}	< 50	μW
Slope efficiency	η	> 100	mW/A
Differential series resistance	r_S	< 8	Ω
Rise time/fall time	t_R, t_F	< 1	ns

Monitor Diode

Dark current, $V_R = 5 \text{ V}$, $\Phi_e = 0$	I_R	< 500	nA
Photocurrent, $\Phi_e = 2 \text{ mW}$	I_P	150 ... 1500	μA

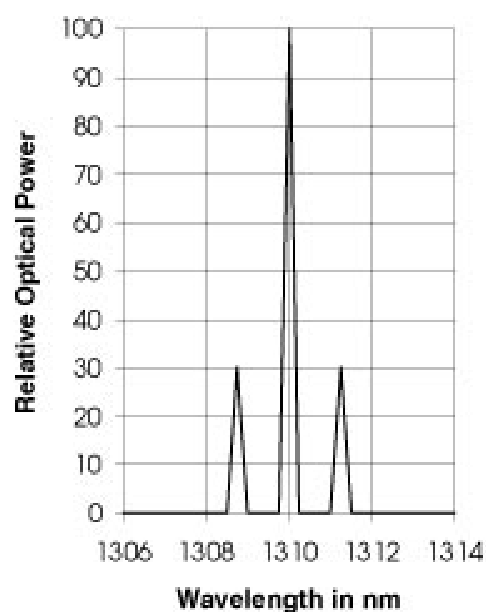
Laser Diode

Radiant Power in Singlemode Fiber



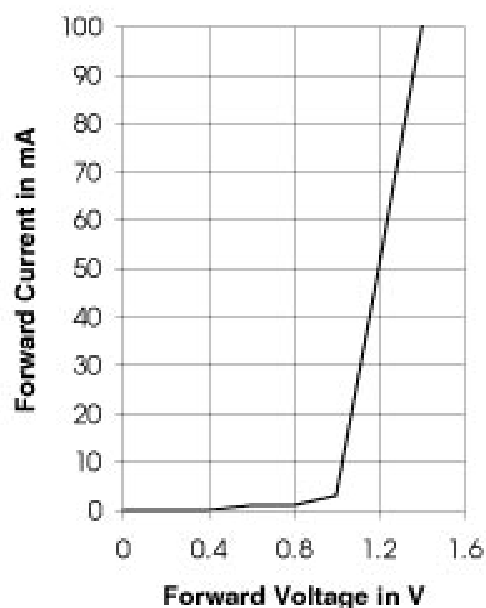
Relative Radiant Power

$$\Phi_e = f(\lambda)$$



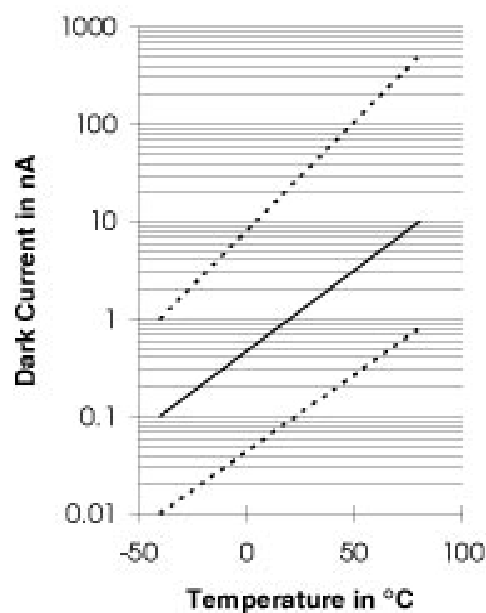
Laser Forward Current

$$I_F = f(V_F)$$

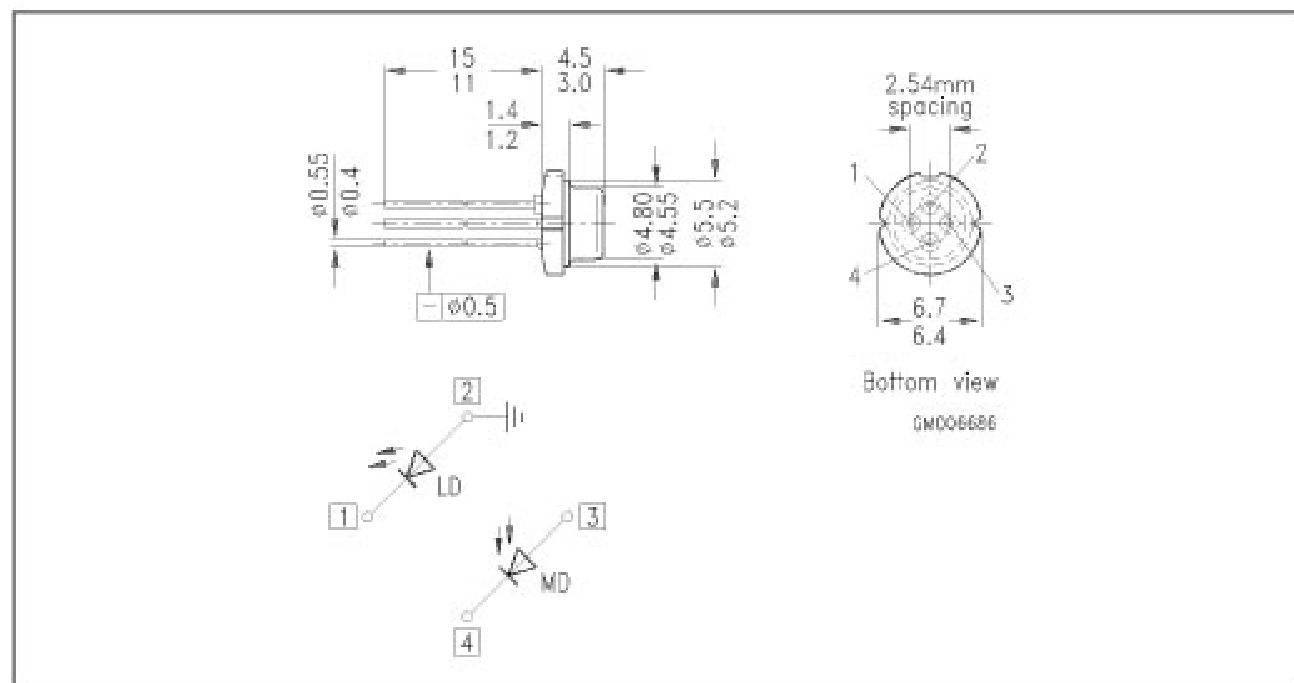


Monitor Diode Dark Current $I_R = f(T_A)$

$$\Phi_{\text{port}} = 0, V_R = 5 \text{ V}$$



Package Outlines (Dimensions in mm)



STH 51001Z