SIEMENS

**1300 nm Laser in Coaxial Package with SM-Pigtail, High Power**

**STH 51004X**
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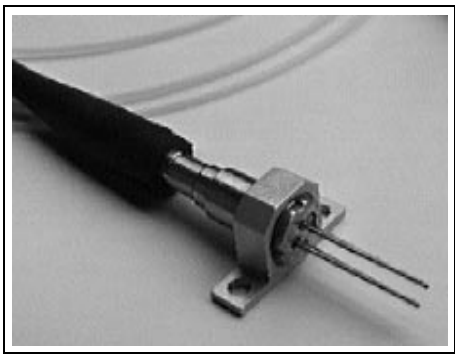
- Designed for application in fiber-optic networks
- Laser Diode with Multi-Quantum Well structure
- Suitable for bit rates up to 1 Gbit/s
- Ternary photodiode at rear mirror for monitoring and control of radiant power
- Hermetically sealed subcomponent, similar to TO 18
- SM Pigtail with optional flange



| Type | Ordering Code | Connector/Flange |
|---|---|---|
| STH 51004G | Q62702-P3002 | FC / without flange |
| STH 51004A | Q62702-Pxxxx | DIN / without flange |
| STH 51005G | Q62702-P3083 | FC / with flange |
| STH 51005A | Q62702-Pxxxx | DIN / with flange |

**Component with other connector types on request.**

### Maximum Ratings

Output power ratings refer to the SM fiber output. The operating temperature of the submount is identical to the case temperature.

| Parameter | Symbol | Values | Unit |
|---|---|---|---|
| **Module** | | | |
| Operating temperature range at case | $T_C$ | – 40 … + 85 | °C |
| Storage temperature range | $T_{stg}$ | – 40 … + 85 | °C |
| Soldering temperature<br>$t_{max}$ = 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 | $\Phi_e$ | 4 | mW |
| Reverse voltage | $V_{R\ max}$ | 2 | V |

**Maximum Ratings** (cont'd)

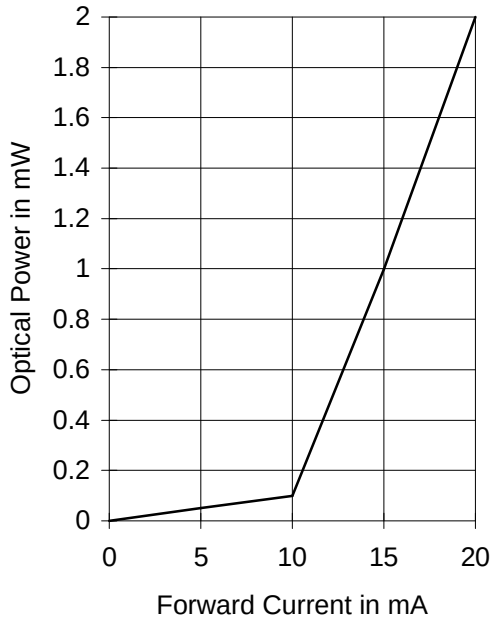
| Parameter | Symbol | Values | Unit |
|---|---|---|---|
| **Monitor Diode** | | | |
| Reverse voltage | $V_{R\ max}$ | 10 | V |

**Characteristics**

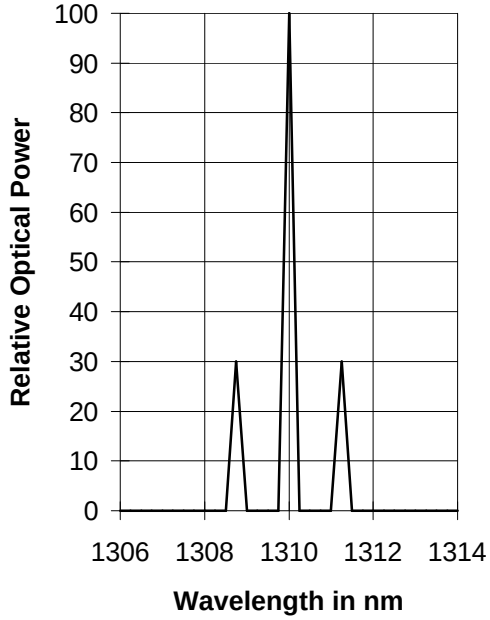
All optical data refer to a coupled 10/125 µm SM fiber, $T_C$ = 25 °C.

| Parameter | Symbol | Values | Unit |
|---|---|---|---|
| **Laser Diode** | | | |
| Optical output power | $\Phi_e$ | > 2.4 | mW |
| Emission wavelength center of range $\Phi_e$ = 0.5 mW | $\lambda$ | 1280 … 1330 | nm |
| Spectral bandwidth $\Phi_e$ = 0.5 mW (RMS) | $\Delta\lambda$ | < 5 | nm |
| Threshold current (– 40 … + 85 °C) | $I_{th}$ | 2 … 45 | mA |
| Forward voltage $\Phi_e$ = 0.5 mW | $V_F$ | < 1.5 | V |
| Radiant power at threshold | $\Phi_{eth}$ | < 80 | µW |
| Slope efficiency | $\eta$ | 40 … 160 | 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 V, $\Phi_e$ = 0 | $I_R$ | < 500 | nA |
| Photo current, $\Phi_e$ = 0.5 mW | $I_P$ | 100 … 1000 | µA |

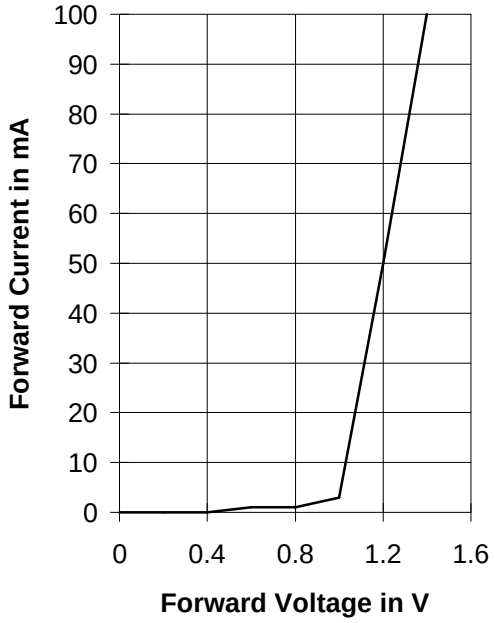
**Laser Diode**
Radiant Power in Singlemode Fiber



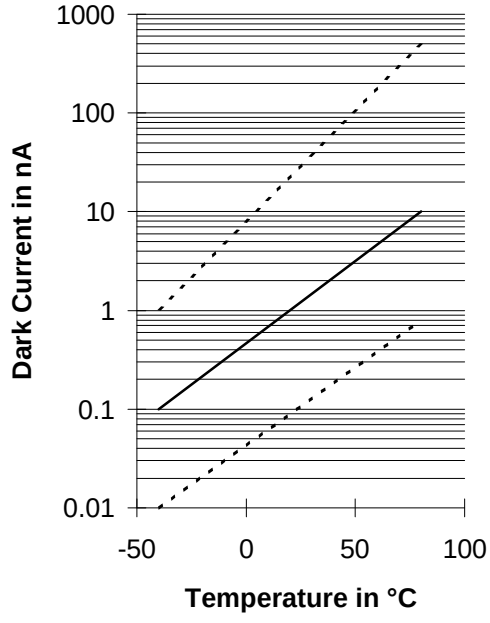

**Relative Radiant Power**
$\Phi_e = f(\lambda)$



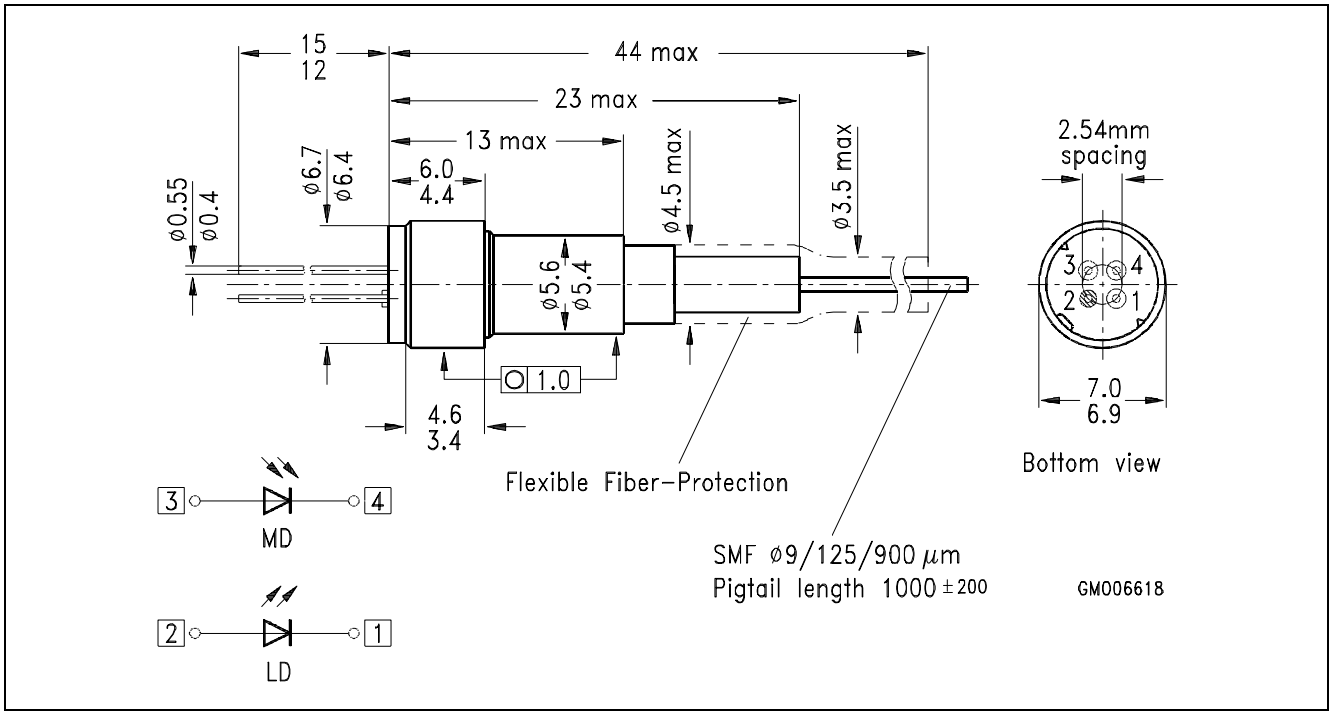

**Laser Forward Current**
$I_F = f(V_F)$




**Monitor Diode Dark Current $I_R = f(T_A)$**
$\Phi_{port} = 0$, $V_R = 5$ V



## Package Outlines (Dimensions in mm)

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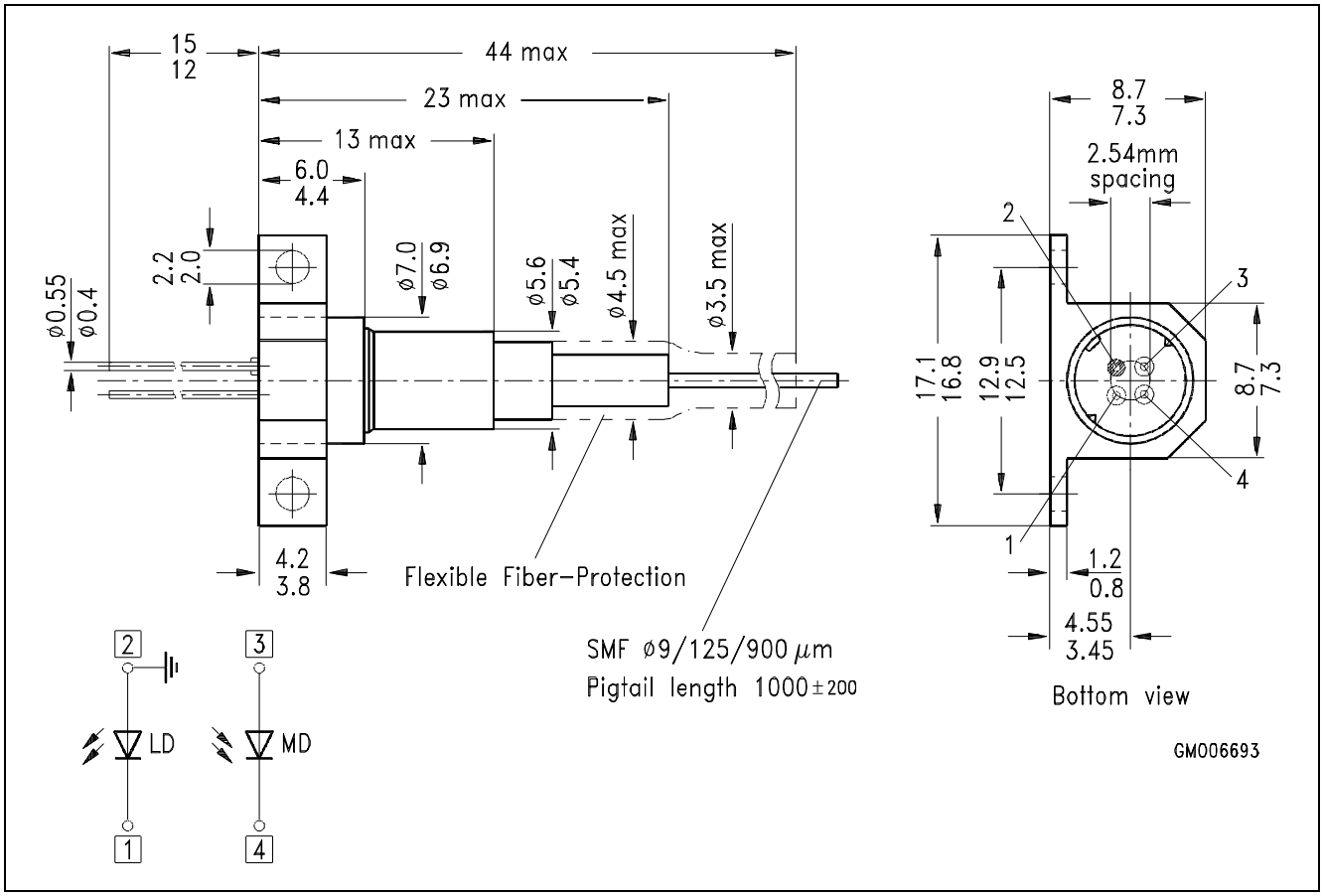


**STH 51005X (with flange)**