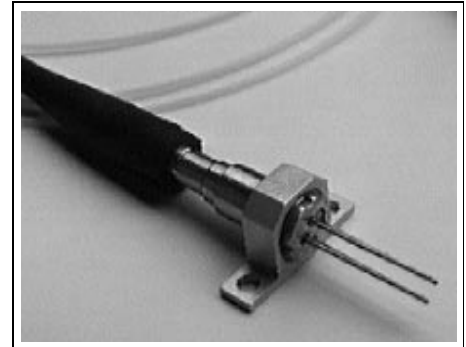


## 1300 nm Laser in Coaxial Package with SM-Pigtail, High Power

STH 51004X  
STH 51005X

- 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)

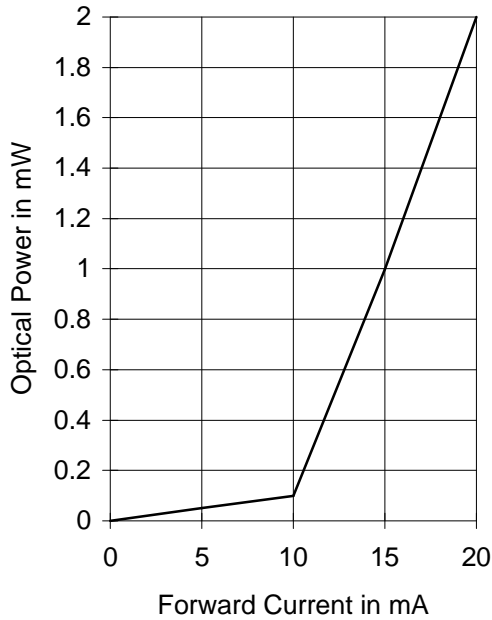
| Parameter            | Symbol       | Values | Unit |
|----------------------|--------------|--------|------|
| <b>Monitor Diode</b> |              |        |      |
| Reverse voltage      | $V_{R \max}$ | 10     | V    |

## Characteristics

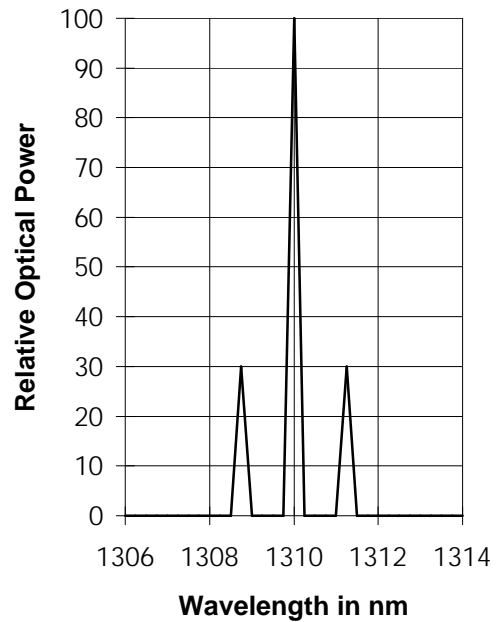
All optical data refer to a coupled 10/125  $\mu\text{m}$  SM fiber,  $T_C = 25^\circ\text{C}$ .

| Parameter  | Symbol              | Values        | Unit          |
|--|---------------------|---------------|---------------|
| <b>Laser Diode</b>   |                     |               |               |
| Optical output power   | $\Phi_e$            | > 2.4         | mW            |
| Emission wavelength center of range<br>$\Phi_e = 0.5 \text{ mW}$ | $\lambda$           | 1280 ... 1330 | nm            |
| Spectral bandwidth $\Phi_e = 0.5 \text{ mW}$ (RMS)               | $\Delta\lambda$     | < 5           | nm            |
| Threshold current ( $-40 \dots +85^\circ\text{C}$ )              | $I_{\text{th}}$     | 2 ... 45      | mA            |
| Forward voltage $\Phi_e = 0.5 \text{ mW}$                        | $V_F$               | < 1.5         | V             |
| Radiant power at threshold                                       | $\Phi_{\text{eth}}$ | < 80          | $\mu\text{W}$ |
| Slope efficiency   | $\eta$              | 40 ... 160    | mW/A          |
| Differential series resistance                                   | $r_S$               | < 8           | $\Omega$      |
| Rise time/Fall time  | $t_R, t_F$          | < 1           | ns            |
| <b>Monitor Diode</b>   |                     |               |               |
| Dark current, $V_R = 5 \text{ V}$ , $\Phi_e = 0$                 | $I_R$               | < 500         | nA            |
| Photo current, $\Phi_e = 0.5 \text{ mW}$                         | $I_P$               | 100 ... 1000  | $\mu\text{A}$ |

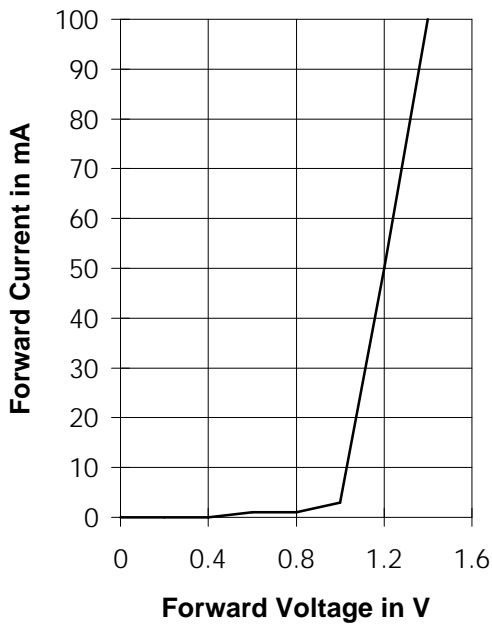
**Laser Diode**  
Radiant Power in Singlemode Fiber



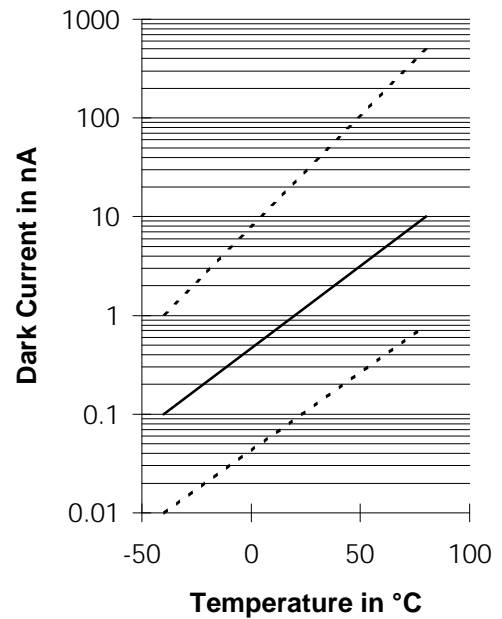
**Relative Radiant Power**  
 $\Phi_e = f(\lambda)$



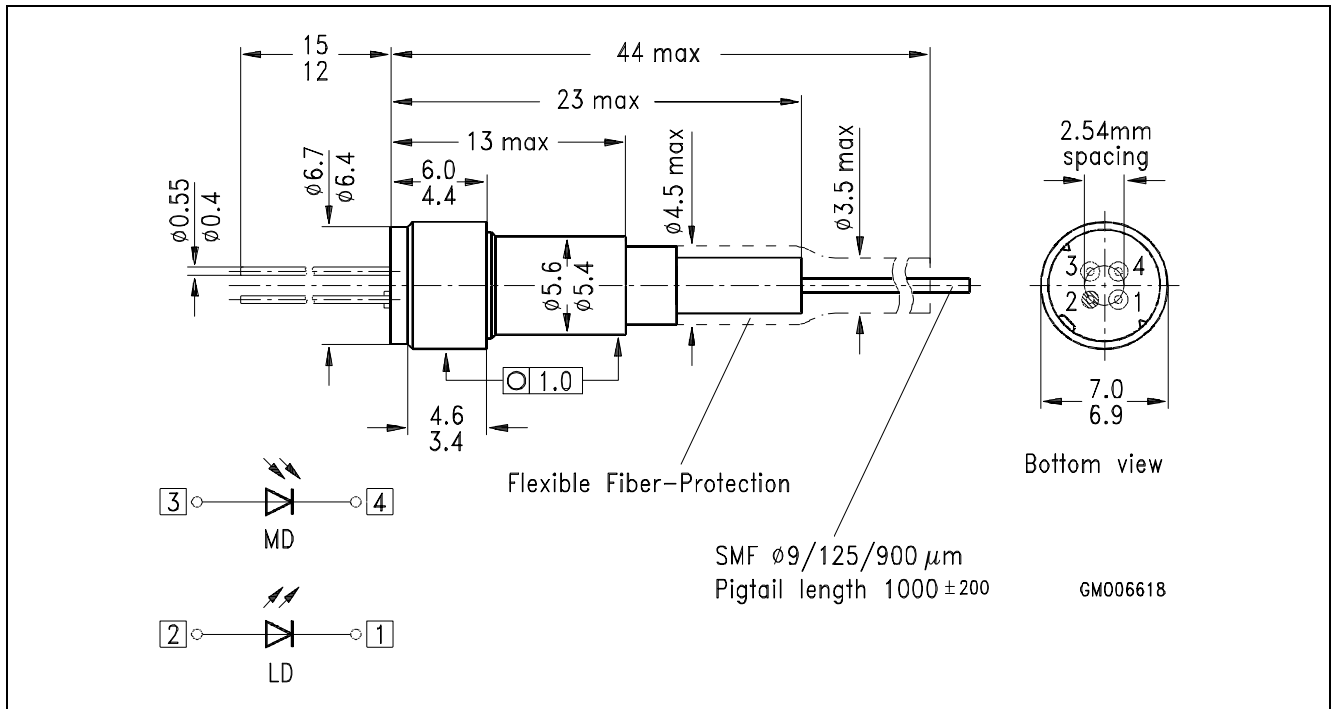
**Laser Forward Current**  
 $I_F = f(V_F)$



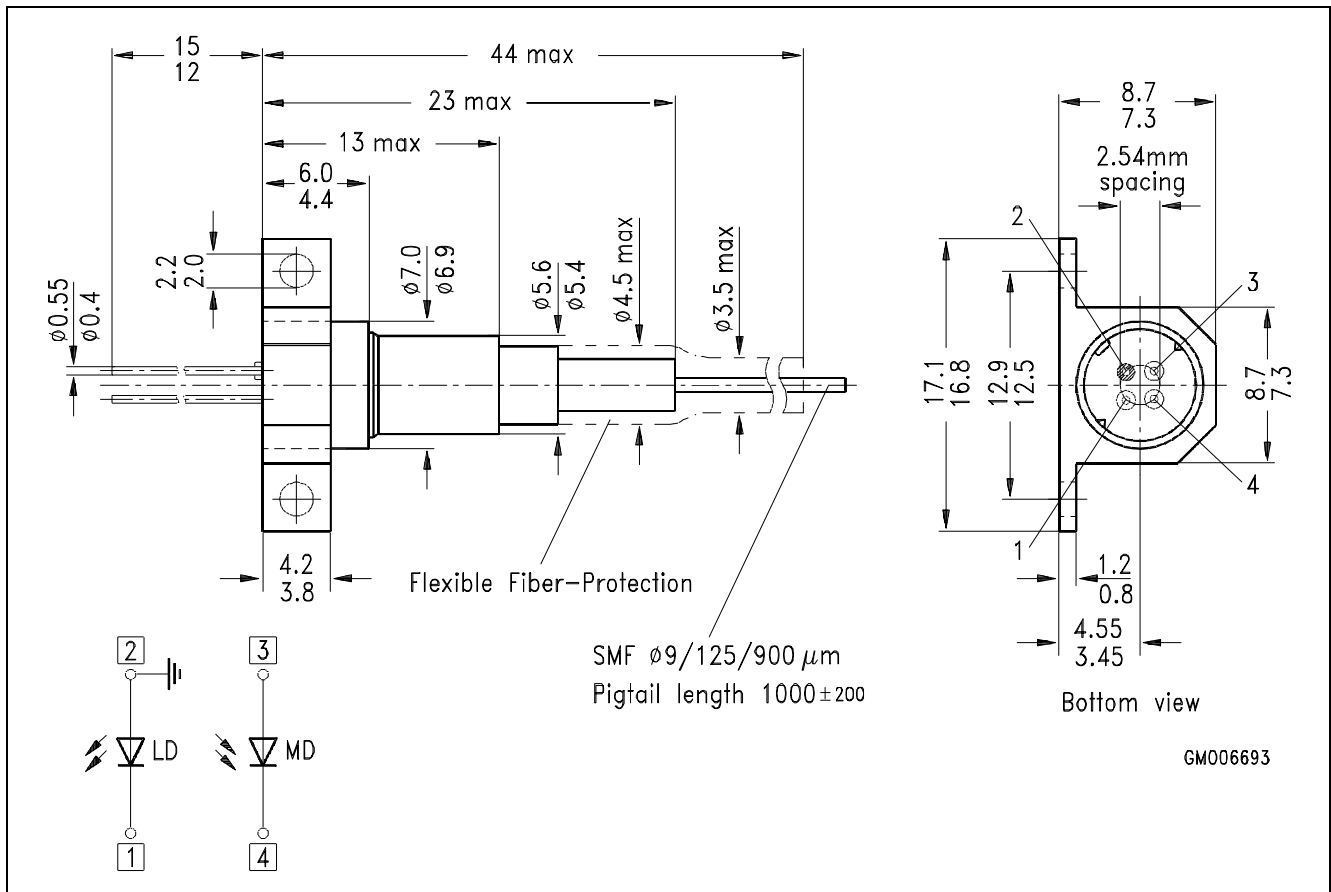
**Monitor Diode Dark Current  $I_R = f(T_A)$**   
 $\Phi_{port} = 0, V_R = 5 V$



Package Outlines (Dimensions in mm)



STH 51004X



STH 51005X (with flange)