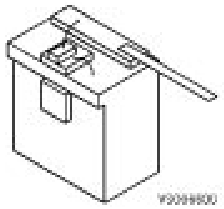
SIEMENS

GaAlAs-Laser Diode 1000 mW

SFH 480402
SFH 480403

Features

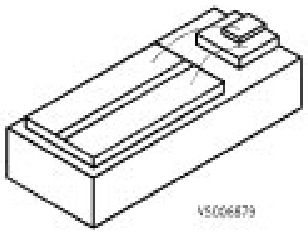
- Monochromatic, coherent radiation source for pulse and cw-operation
- MOCVD quantum-well structure
- Dielectric asymmetric coated laser mirrors
- Emissionwidth: 200 µm



SFH 480402

Applications

- Pumping of Nd-YAG-Lasers
- Medical applications
- Testing and measurement applications



SFH 480403

Type	Ordering code
SFH 480402	Q62702-P358
SFH 480403	Q62702-P1616

Maximum Ratings

Parameter	Symbol	Values	Unit
Laser Diode (T_{sub} = 25 °C)			
cw-output power [1]	Φ_{eCW}	1050	mW
Pulse-output power [1] τ <150 µs, duty cycle ≤1 %	Φ_{epuls}	1300	mW
Reverse voltage	V_R	3	V
Operating temperature [2]	T_{sub}	– 10 … + 60	°C
Storage temperature [2]	T_{stg}	(– 40) … + 70	°C
Maximum soldering temperature, 10 s max.	T_S	140	°C

1) in NA=0.6
2) bedewing is to exclude

Characteristics (T_{sub} = 25 °C)

Parameter	Symbol	Values (typ.)	Unit
Laser Diode, cw-operations			
Recommended operating temperature	T	+ 10 ... + 35	°C
Emission wavelength	λ_{peak}	809 ± 5	nm
Spectral width	$\Delta\lambda$	2	nm
cw-output power [1]	Φ_{eCW}	1000	mW
Threshold current	I_{th}	450	mA
Differential efficiency [1]	η	0.75	W/A
Operating current	I_{op}	1780	mA
Operating voltage	V_{op}	2.0	V
Differential serial resistance	r_s	0.2 (< 0.4)	Ω
Characteristic temperature for threshold current [2]	T_0	150	K
Temperature coefficient of operating current	TC_I	0.5	%/K
Temperature coefficient of wavelength	TC_λ	0.25 ... 0.30	nm/K
Thermal resistance; pn-junction - heat sink	$R_{thJ\,HTG}$	9	K/W

1) in NA=0.6
2) Thermal behaviour of I_{th} can be modeled as $I_{th2} = I_{th1} \exp (T_2 - T_1)/T_0$

Test certificate
Each laser diode is supplied with technical information about

- Radiant power
- Threshold current
- Differential efficiency
- Operating current and operating voltage
- Emission wavelength

Notes for operation

Overload protection
The specified values apply only as long as the diode is not overloaded.
Pulse spikes from the power supply unit, for example, even if they last only a few nanoseconds may cause irreversible damage to the laser diode. Such spikes may occur when the power supply is turned on or off or they may reach the laser diode from the line via coupling capacitance of electronically controlled devices.
The power supply should therefore be provided with appropriate protection circuits.

Handling of package
It is recommended to observe the same rules as for handling MOS-devices to avoid electro-static induced damage.

Eye protection
This Laser diode is a **Class 4 Laser** product.
For safety measures refer to the relevant safety regulations.

Handling Notes

1) Mounting

For soldering, glueing or clamping, these guidelines must be followed:

- max. soldering temperature: 140 °C
- max. soldering time: 10 s

- max. curing temperature for adhesives: 100 °C

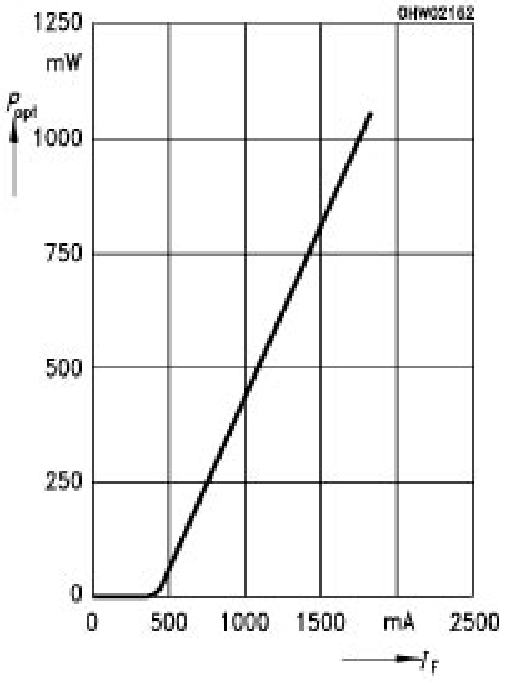
deformations of the heat sink by clamping must absolutely be avoided.

2) Electrical connection

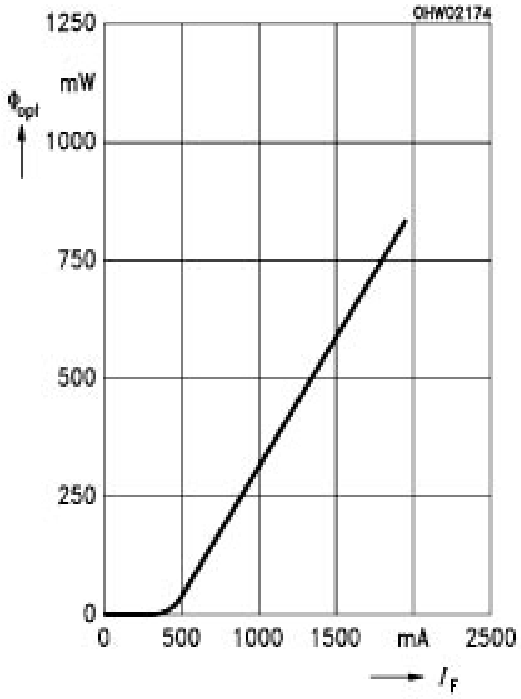
The cathode can be bonded by spot-welding, clamping or soldering. In all cases the ESD guidelines must be followed. For soldering of the cathode (Au-lead) only SN-free solder can be used (otherwise embrittlement of the Au-lead can occur).

Optical Characteristics (T_{sub} = 25 °C)

Radiant power $\Phi_{opt} = f(I_F)$

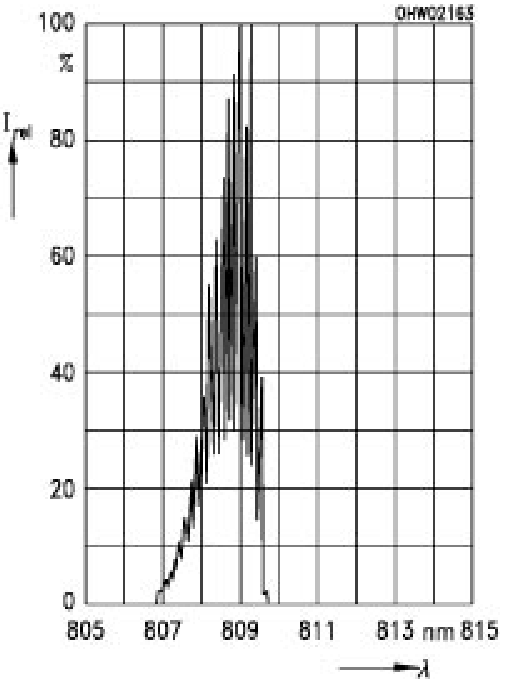


Mode spectrum $I_{rel} = f(\lambda)$



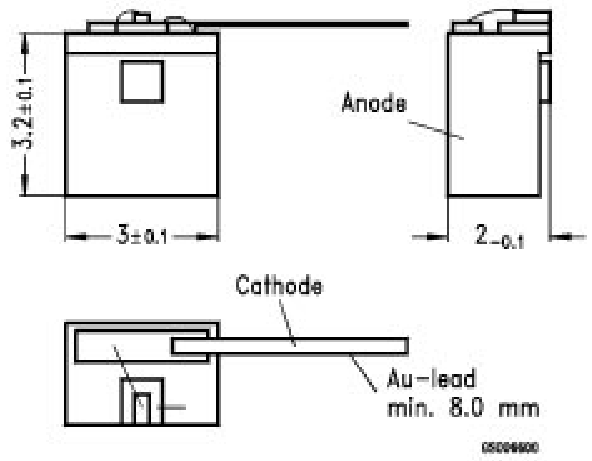
Farfield distribution $I_{rel} = f(\varphi)$

parallel to pn-junction



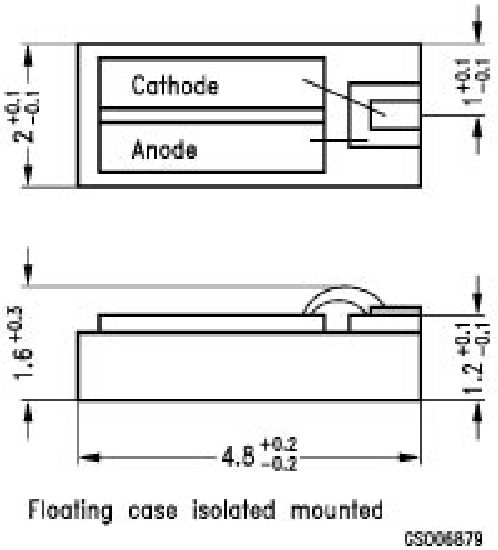
Maßzeichnung
Package Outlines

SFH 480402



Dimensions in mm

SFH 480403



Dimensions in mm