

## Pulsed Laser Diode in Plastic Package 10 W Peak (Class 3 Laser Product)

**SPL PLxx**  
(SFH 4884xx)

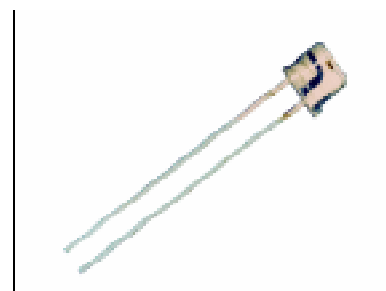
### Preliminary

#### Features

- Low cost plastic package
- Reliable strained InGaAs/GaAs material
- High power large-optical-cavity structure
- Single emitting area  $200\text{ }\mu\text{m} \times 2\text{ }\mu\text{m}$

#### Applications

- Range finding
- Security, surveillance
- Illumination, ignition
- Testing and measurement



| Type                 | Old Type<br>(as of Oct. 1996) | Wavelength <sup>*)</sup> | Ordering Code              |
|----------------------|-------------------------------|--------------------------|----------------------------|
| SPL PL85<br>SPL PL90 | SFH 488425<br>—               | 850 nm<br>904 nm         | Q62702-P1759<br>on request |

<sup>\*)</sup> Other wavelengths in the range of 780 nm ... 980 nm are available on request.

#### Maximum Ratings

( $T_A = 25\text{ }^{\circ}\text{C}$ )

| Parameter                                                                           | Symbol    | Values |      |       | Unit               |
|-------------------------------------------------------------------------------------|-----------|--------|------|-------|--------------------|
|                                                                                     |           | min.   | typ. | max.  |                    |
| Forward current                                                                     | $I_F$     | —      | —    | 20    | A                  |
| Pulse width (FWHM)                                                                  | $t_p$     | —      | —    | 100   | ns                 |
| Duty factor                                                                         | $D$       | —      | 0.1  | —     | %                  |
| Reverse voltage                                                                     | $V_R$     | —      | —    | 3     | V                  |
| Operating temperature                                                               | $T_{op}$  | — 20   | ...  | + 85  | $^{\circ}\text{C}$ |
| Storage temperature                                                                 | $T_{stg}$ | — 40   | ...  | + 100 | $^{\circ}\text{C}$ |
| Soldering temperature<br>( $t_{m,ax} = 5\text{ s}$ , 2 mm from bottom edge of case) | $T_s$     | —      | —    | 260   | $^{\circ}\text{C}$ |

## Optical Characteristics

( $T_A = 25\text{ °C}$ )

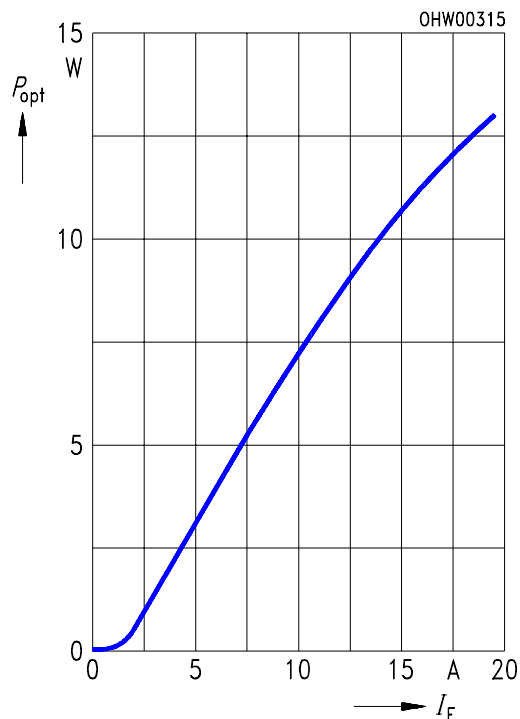
| Parameter                                           | Symbol                              | Values |                |      | Unit |
|-----------------------------------------------------|-------------------------------------|--------|----------------|------|------|
|                                                     |                                     | min.   | typ.           | max. |      |
| Emission wavelength <sup>1)</sup>                   | $\lambda$                           | 830    | 850            | 870  | nm   |
| Spectral width (FWHM) <sup>1)</sup>                 | $\Delta\lambda$                     | 4      |                |      | nm   |
| Forward current (10 W) <sup>1)</sup>                | $I_f$                               | —      | —              | 14   | A    |
| Threshold current                                   | $I_{th}$                            | —      | 1              | —    | A    |
| Forward voltage (0.1 A)                             | $V_F$                               | —      | 1.6            | —    | V    |
| Forward voltage (20 A)                              | $V_F$                               | —      | 6              | 10   | V    |
| Rise and fall time (10% ... 90%)                    | $t_r, t_f$                          | 2      | 10             | —    | ns   |
| Beam spread at 20 A (FWHM)                          | $\theta_{  } \times \theta_{\perp}$ | —      | $10 \times 30$ | —    | °    |
| Temperature coefficient of wavelength <sup>2)</sup> | $\partial\lambda / \partial T$      | 0.25   | 0.27           | 0.30 | nm/K |
| Temperature coefficient of optical power            | $\partial P / \partial T$           | —      | — 0.5          | —    | %/K  |
| Thermal resistance                                  | $R_{th JA}$                         | —      | 160            | —    | K/W  |

1) Standard operating conditions refer to pulses of 50 ns at 10 kHz rate with 10 W peak power into NA = 0.5

2) Depending on emission wavelength.

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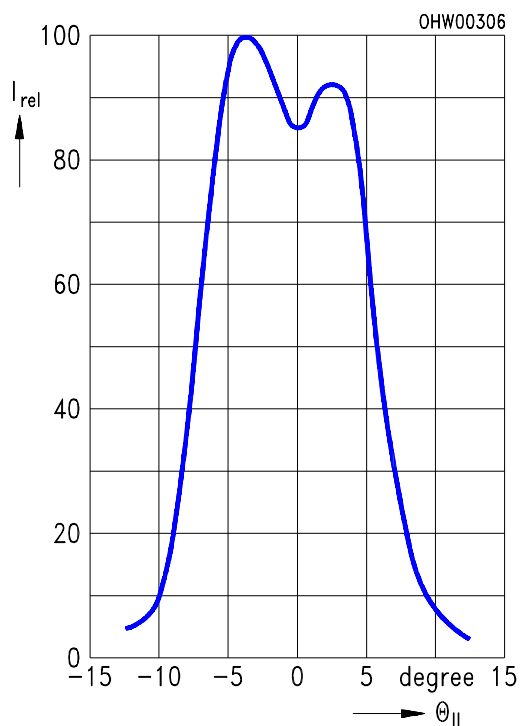
### Radiant Power $P_{cw}$ vs. $I_F$



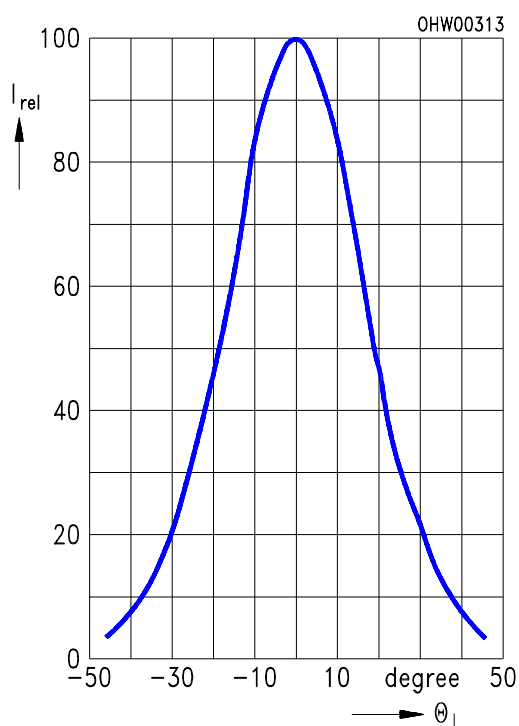
### Permissible pulse handling capability; $I_F$ vs. $t$ ; Parameter D (duty cycle)

Max. forward current vs pulse length  $I_F$  vs.  $\tau$ ; parameter D duty cycle is under evaluation

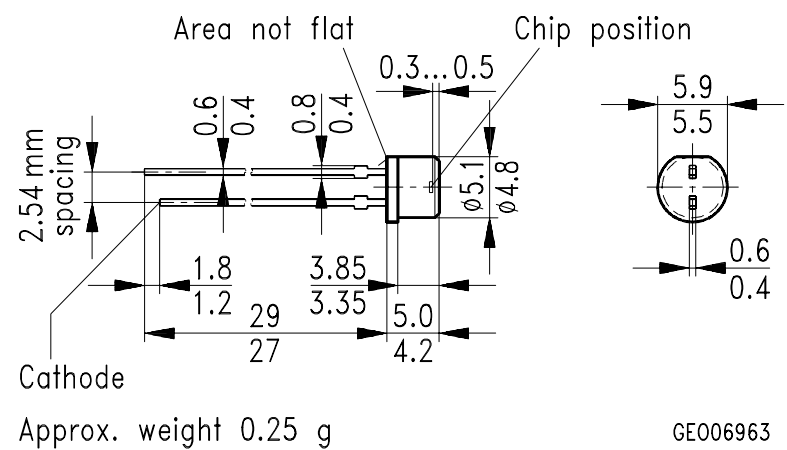
### Farfield Distribution Parallel to Junction $I_{rel}$ vs. $\theta_{||}$



### Farfield Distribution Parallel to Junction $I_{rel}$ vs. $\theta_{||}$



**Package Outlines**  
(Dimensions in mm, unless specified)



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