FAC-Series 905 nm High Power Pulsed Laser Diodes with Fast Axis Collimators

Features
- Fast axis collimation
- Hermetic package
- Extremely robust
- High reliability

Applications
- Laser range finding
- Surveying equipment
- Laser radar
- Security barrier

Optical Characteristics at $t_{RT}=21°C$, $I_{FM}$

<table>
<thead>
<tr>
<th></th>
<th>Min</th>
<th>Typ</th>
<th>Max</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wavelength of peak radiant intensity $\lambda$</td>
<td>895</td>
<td>905</td>
<td>915</td>
<td>nm</td>
</tr>
<tr>
<td>Spectral width $\Delta \lambda$ at 50% intensity points at $I_{FM}$</td>
<td>8</td>
<td></td>
<td></td>
<td>nm</td>
</tr>
<tr>
<td>Wavelength temperature coefficient</td>
<td>0.27</td>
<td></td>
<td></td>
<td>nm/°C</td>
</tr>
</tbody>
</table>
| Divergence, w.r.t. junction plane  
  Parallel, $\|$ | 12 |     |     | Degrees mrad |
| Perpendicular, $\bot$ with 590 µm EFL lens | 36 |     |     |        |

Germany & Other Countries
Laser Components GmbH
Tel: +49 8142 2864 – 0
Fax: +49 8142 2864 – 11
info@lasercomponents.com
www.lasercomponents.com

France
Laser Components S.A.S
Tel: +33 1 39 59 25 25
Fax: +33 1 39 59 53 50
info@lasercomponents.fr
www.lasercomponents.fr

United Kingdom
Laser Components (UK) Ltd
Tel: +44 1245 491 499
Fax: +44 1245 491 801
info@lasercomponents.co.uk
www.lasercomponents.co.uk

Nordic Countries
Laser Components Nordic AB
Tel: +46 31 703 71 73
Fax: +46 31 703 71 01
info@lasercomponents.se
www.lasercomponents.se

USA
Laser Components USA, Inc.
Tel: +1 603 821 – 7040
Fax: +1 603 821 – 7041
info@lasercomponents.com
www.lasercomponents.com
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Typical Product Characteristics

Conditions are \( t_{RT} = 21^\circ C \), \( t_w = 150 \text{ ns} \), \( P_r = 3.33 \text{ kHz} \)

<table>
<thead>
<tr>
<th></th>
<th>905D1S3J03X</th>
<th>905D1S3J06X</th>
<th>905D1S3J09X</th>
</tr>
</thead>
<tbody>
<tr>
<td>( P_0 ) at ( I_{FM} ) (min.)</td>
<td>23 W</td>
<td>45 W</td>
<td>65 W</td>
</tr>
<tr>
<td>Emitting area</td>
<td>85 ( \times ) 10 µm</td>
<td>160 ( \times ) 10 µm</td>
<td>235 ( \times ) 10 µm</td>
</tr>
<tr>
<td>Max. current ( I_{FM} )</td>
<td>11 A</td>
<td>22 A</td>
<td>30 A</td>
</tr>
<tr>
<td>Threshold, ( I_{TH} )</td>
<td>300 mA</td>
<td>500 mA</td>
<td>800 mA</td>
</tr>
<tr>
<td>Forward voltage at ( I_{FM} )</td>
<td>12 V</td>
<td>11 V</td>
<td>11 V</td>
</tr>
</tbody>
</table>

Absolute Maximum Ratings

<table>
<thead>
<tr>
<th>Maximum ratings</th>
<th>Limiting values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak forward current (</td>
<td>50 A</td>
</tr>
<tr>
<td>( I_{FM} ) )</td>
<td></td>
</tr>
<tr>
<td>Peak reverse voltage</td>
<td>6 V</td>
</tr>
<tr>
<td>Pulse duration</td>
<td>150 ns</td>
</tr>
<tr>
<td>Duty factor</td>
<td>0.10%</td>
</tr>
<tr>
<td>Temperature</td>
<td></td>
</tr>
<tr>
<td>- Storage</td>
<td>-55°C to + 100°C</td>
</tr>
<tr>
<td>- Operating</td>
<td>-45°C to + 85°C</td>
</tr>
<tr>
<td>Lead soldering</td>
<td></td>
</tr>
<tr>
<td>- 5 seconds max at</td>
<td>200°C</td>
</tr>
</tbody>
</table>
Curves

Fig. 1: 905D1S3J0XX Power vs. Forward Current

Fig. 2: Spectral Intensity Distribution

Fig. 3: Output Power vs. Temperature

Fig. 4: Wavelength vs. Temperature

Fig. 5: 905D1S3J Series Static Vf

Fig. 6: Near Field
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**Product Number Designations**

- **Contact Stripe Width**
  - 03 = 75 µm
  - 06 = 150 µm
  - 09 = 225 µm

- **Lens Configuration**
  - B = 590 µm EFL lens. 5 mrad typical

**Package Drawings**

- **Package S TO-18**

**Contact Information**

Laser Components GmbH
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Tel: +44 1245 491 499
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info@lasercomponents.co.uk
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Laser Components Nordic AB
Tel: +46 31 703 71 73
Fax: +46 31 703 71 01
info@lasercomponents.se
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Tel: +1 603 821 – 7040
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Product Changes
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Ordering Information
Products can be ordered directly from LASER COMPONENTS or its representatives. For a complete listing of representatives, visit our website at www.lasercomponents.com
Custom designed products are available on request.

Laser Safety

Personal Hazard:
Depending on the mode of operation, these devices emit highly concentrated non visible infrared light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1 “Safety of laser products”.

Handling Precautions:
Products are subject to the risks normally associated with sensitive electronic devices including static discharge, transients, and overload.

DANGER
INVISIBLE LASER RADIATION - AVOID DIRECT EXPOSURE TO BEAM
MAX. PEAK POWER 65 WATTS
WAVELENGTH 905 nm
CLASS IIIb LASER PRODUCT