GH0781JA2C

High Power Laser Diode for MAX. ×32 Speed CD-R Drive(784nm-pulse 180mW)

Features
(1) Maximum optical power output: 120mW (CW)
(2) High power (pulse MAX. 180mW), MAX. ×32 speed writing
(3) High coupling efficiency.
The ellipticity (θ⊥/θ∥) is close to 1.
(4) Wavelength: TYP. 784nm
(5) φ5.6mm package

Applications
(1) CD-R drives
(2) CD-RW drives

Outline Dimensions
(Unit: mm)

Absolute Maximum Ratings
(Tc=25°C ⊳)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Rating</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Optical power output</td>
<td>Po</td>
<td>120</td>
<td>mW</td>
</tr>
<tr>
<td>Optical power output (pulse)</td>
<td>Pp</td>
<td>180</td>
<td>mW</td>
</tr>
<tr>
<td>Reverse voltage Laser</td>
<td>Vrl</td>
<td>2</td>
<td>V</td>
</tr>
<tr>
<td>Operating temperature CW</td>
<td>Topc(c)</td>
<td>-10 to +65</td>
<td>°C</td>
</tr>
<tr>
<td>Operating temperature Pulse</td>
<td>Topp(c)</td>
<td>-10 to +75</td>
<td>°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>Tstg</td>
<td>-40 to +85</td>
<td>°C</td>
</tr>
<tr>
<td>Soldering temperature</td>
<td>Tsld</td>
<td>300</td>
<td>°C</td>
</tr>
</tbody>
</table>

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Internet
Internet address for Electronic Components Group: http://sharp-world.com/ecg/
## Laser Diodes

### GH0781JA2C

#### Electro-optical Characteristics\(^1\)  (Tc=25°C)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Symbol</th>
<th>Conditions</th>
<th>MIN.</th>
<th>TYP.</th>
<th>MAX.</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Threshold current</td>
<td>( I_{th} )</td>
<td>-</td>
<td>-</td>
<td>30</td>
<td>40</td>
<td>mA</td>
</tr>
<tr>
<td>Operating current</td>
<td>( I_{op} )</td>
<td>-</td>
<td>-</td>
<td>141</td>
<td>167</td>
<td>mA</td>
</tr>
<tr>
<td>Operating voltage</td>
<td>( V_{op} )</td>
<td>-</td>
<td>-</td>
<td>2.1</td>
<td>2.5</td>
<td>V</td>
</tr>
<tr>
<td>Wavelength</td>
<td>( \lambda )</td>
<td>Po=100mW</td>
<td>780</td>
<td>784</td>
<td>787</td>
<td>nm</td>
</tr>
<tr>
<td>Half intensity angle</td>
<td>( \theta_{//} )</td>
<td>Po=100mW</td>
<td>7.8</td>
<td>8.7</td>
<td>9.6</td>
<td>°</td>
</tr>
<tr>
<td></td>
<td>( \theta_{⊥} )</td>
<td>Po=100mW</td>
<td>14.5</td>
<td>16</td>
<td>17.5</td>
<td>°</td>
</tr>
<tr>
<td>Ripple</td>
<td>( R_l )</td>
<td>-</td>
<td>-</td>
<td>2.5</td>
<td>+20%</td>
<td>%</td>
</tr>
<tr>
<td>Misalignment angle</td>
<td>( \Delta \theta_{//} )</td>
<td>Po=100mW</td>
<td>-1.5</td>
<td>-</td>
<td>+1.5</td>
<td>°</td>
</tr>
<tr>
<td></td>
<td>( \Delta \theta_{⊥} )</td>
<td>Po=100mW</td>
<td>-2.5</td>
<td>-</td>
<td>+2.5</td>
<td>°</td>
</tr>
<tr>
<td>Differential efficiency</td>
<td>( \eta_d )</td>
<td>Po=100mW</td>
<td>0.8</td>
<td>0.9</td>
<td>1.2</td>
<td>mW/mA</td>
</tr>
<tr>
<td>Interference pattern intensity</td>
<td>( \alpha )</td>
<td>Po=100mW</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>Kink</td>
<td>( K-LI )</td>
<td>P1=36mW, P2=108mW, P3=180mW</td>
<td>-</td>
<td>-</td>
<td>10</td>
<td>%</td>
</tr>
<tr>
<td>Polarization ratio</td>
<td>( P_t )</td>
<td>Po=3mW, NA=0.13</td>
<td>20</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

- Initial value, CW (Continuous Wave) drive
- Angle at 50% peak intensity (full-width at half-maximum)
- Parallel to the junction plane (X-Z plane)
- Perpendicular to the junction plane (Y-Z plane)
- \( R=\Delta P/P \): the maximum deviation of the far field pattern from its approximate curve \( P \): the peak of the approximate curve
- Pulse drive (Pulse width : 0.5µs, Duty : 50%)

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* Please refer to the chapter "Handling Precautions"
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