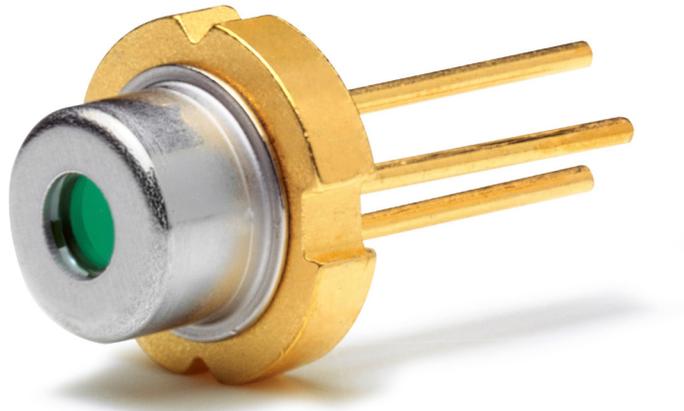


PACKAGED LIDAR LASER DIODE

905 nm ns Pulsed Multi-junction Laser Diode Chip in TO-56 Can Metal Package

The Coherent SS905A13-TO-01 edge emitting laser diode series in TO-56 metal can has been designed to provide high peak output power in ns range from a triple-junction quantum well structure as source for next generation LiDAR applications in automotive, industrial and consumer.



FEATURES

- Typical 140W peak (single emitter emission)
- Short pulse operation up to 100ns, 0.1% duty cycle
- 905nm peak wavelength emission
- Highly reliable triple-junction epitaxial structure
- Emitting area of 200 μ m x 10 μ m
- Chip cavity length of 600 μ m
- RoHS & REACH compliant

APPLICATIONS

- Industrial and Consumer LiDAR applications
- Range finding in industrial and consumer
- Surveillance, safety monitoring
- Automotive applications (no AEC-Q qual applied)

Specification

Electro-Optical Characteristics

Conditions, unless otherwise stated:

Operating current = 40 A (max); Pulse width = 100 ns; f = 1 kHz, Duty Cycle = 0.01%, Operating T = 25 °C;

Parameter	Min	Typ	Max	Unit
Operating Power @ 40A	110	140		W
Operating Current			40	A
Threshold Current		0.7		A
Operating Voltage		11.5	15	V
Centroid Wavelength	895	905	915	nm
Spectral Width (FWHM)		7		nm
Divergence Parallel (FWHM)		10		°
Divergence Perpendicular (FWHM)		25		°
Temperature Coefficient (-40-85°C) for Centroid Wavelength		0.25		nm/K
Temperature Coefficient for Optical Power		-0.1		%/K
Typical Switching Time (rise/fall-time, tr/ta)		1		ns
Thermal resistance junction solder point ^[1]		38		K/W

Notes: [1]. Mounted on 16mm² pad PCB

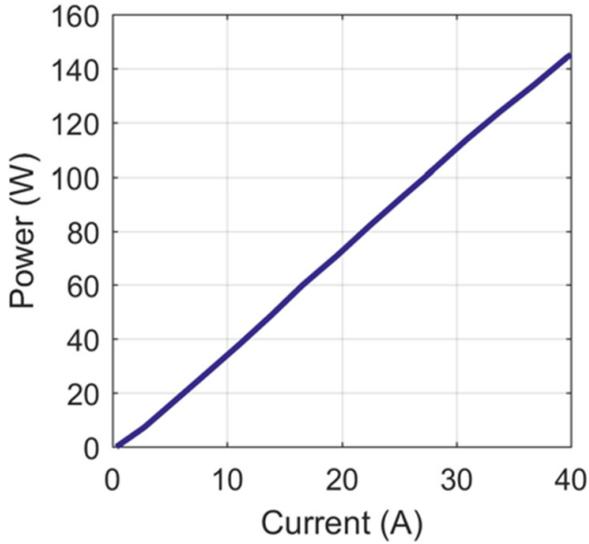
Absolute Maximum Ratings

The absolute maximum ratings are applied conditions for which the units are expected to fully recover their specified performance. The values represent use-conditions in the end-application.

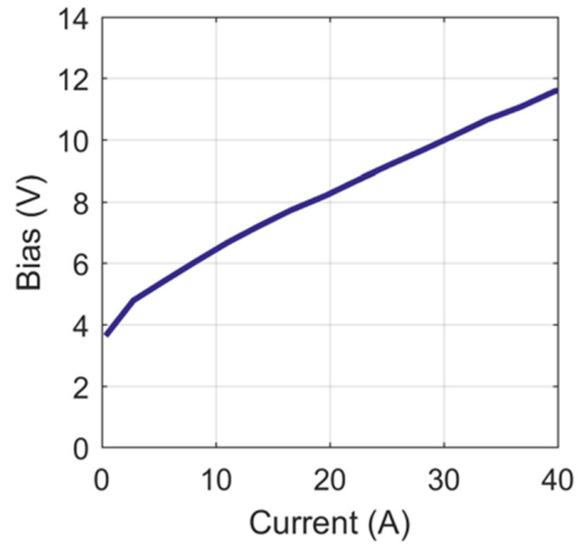
Parameter	Min	Max	Unit
Operating Temperature (T)	-40	85	°C
Storage Temperature (T)	-40	100	°C
Pulse Width (T _{ambient} from -40°C to 85°C)		100	ns
Duty Cycle (T _{ambient} from -40°C to 85°C)		0.1	%
Maximum Current (T _{ambient} from -40°C to 85°C)		40	A
Reverse Voltage (T _{ambient} = 25 °C)		5	V
Maximum Junction Temperature		125	°C
Soldering Temperature (for 10 sec max, 2mm from bottom edge of case)		260	°C

Electro-Optical Characterization

Optical Output Power & Operating Voltage

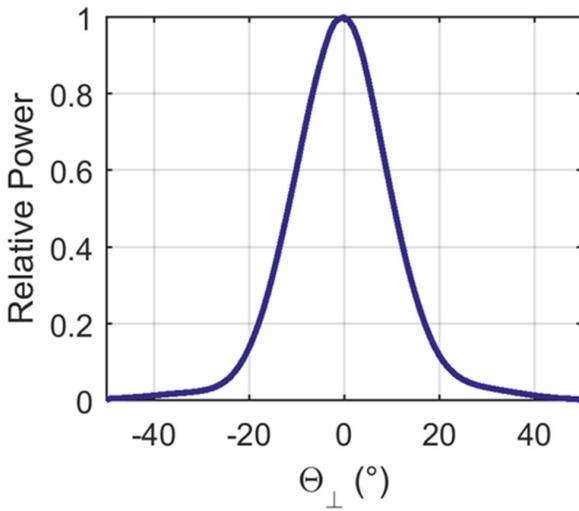


Typical peak output power over operating current measured at $T_{\text{ambient}}=25^{\circ}\text{C}$, 100ns, 0.01%DC

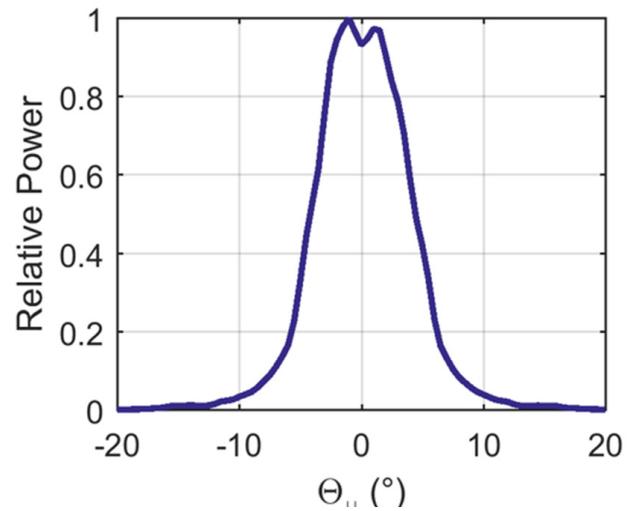


Typical forward voltage over operating current measured at $T_{\text{ambient}}=25^{\circ}\text{C}$, 100ns, 0.01%DC

Far-Field Distribution



Far-field distribution perpendicular to pn junction, 40A, 100ns, 0.01% DC



Far-field distribution parallel to pn junction, 40A, 100ns, 0.01% DC

Mechanical Dimensions of TO-56 Package (mm)

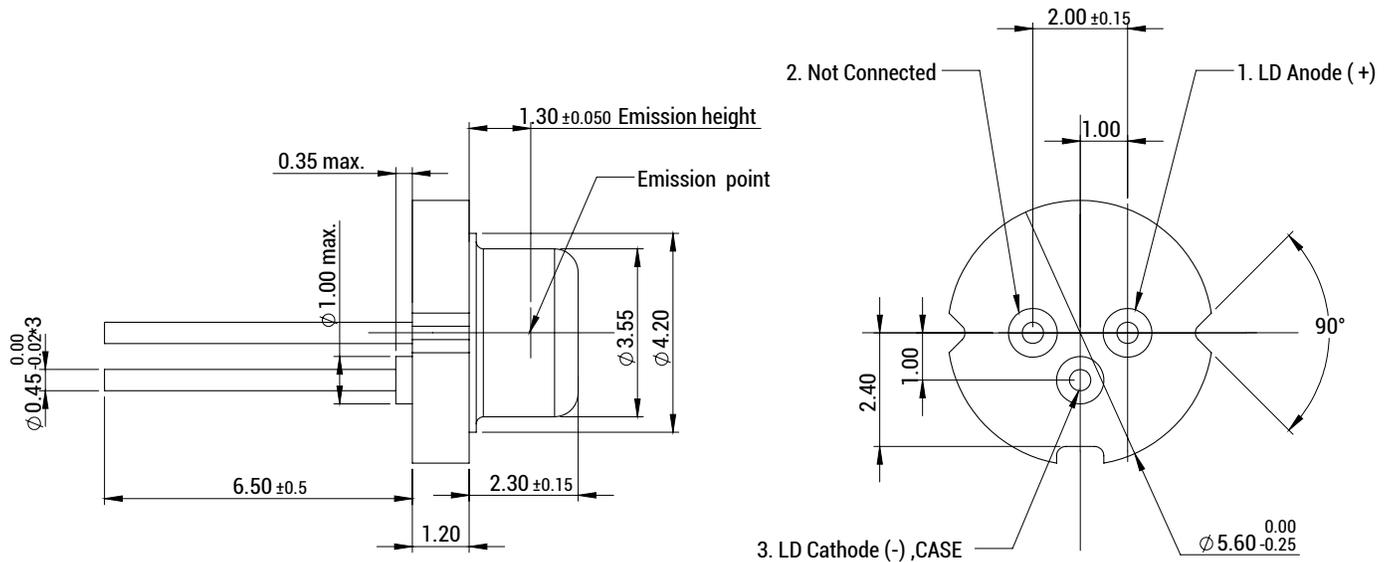


Figure 1: Technical drawing of TO-56 package including dimensions
left: side view, right: bottom view, General Tolerance +/- 0.1 mm, Lead finish Au

Delivery Specification

Product Code	Description	Shipment Packaging
SS905A13-TO-01	905 nm ns Pulsed Multi-junction Laser Diode Chip in TO-56 metal can	in Tray (w/ 200 units)

Important Notice

Performance figures, data and any illustrative material provided in this data sheet are typical and must be specifically confirmed in writing by Coherent before they become applicable to any particular order or contract. In accordance with the Coherent Laser Enterprise policy of continuous improvement specifications may change without notice. Further details are available from any Coherent Laser Enterprise sales representative.

ROHS and Reach Compliance

Coherent is fully committed to environment protection, human health and sustainable development and has set in place a comprehensive program for removing polluting and hazardous substances from all of its products. The relevant evidence of RoHS and REACH compliance is held as part of our controlled documentation for each of our compliant products.

Safety & Laser Radiation

Caution: Laser light emitted from this device is invisible and may be harmful to the human eye. Do not stare into the beam or view directly with optical instruments when the device is in operation. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1.

