

MORE LIGHT

LED Display Module | 650 nm | AlInGaP/GaAs ELM-650-992-10

Prototype

Pat US 8847241 B2

Features

- FR4 PCB
- Radiation 650 nm (Red)
- Special Chip With Various Symbols

Applications

- Rifle scope
- Sights

Lead (Pb) Free Product – RoHS Compliant

Parameters

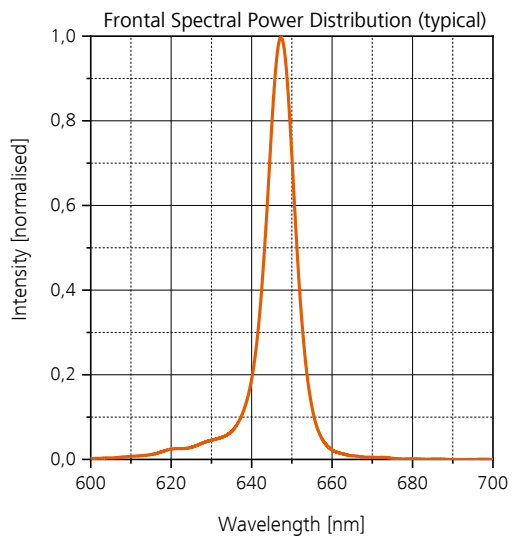
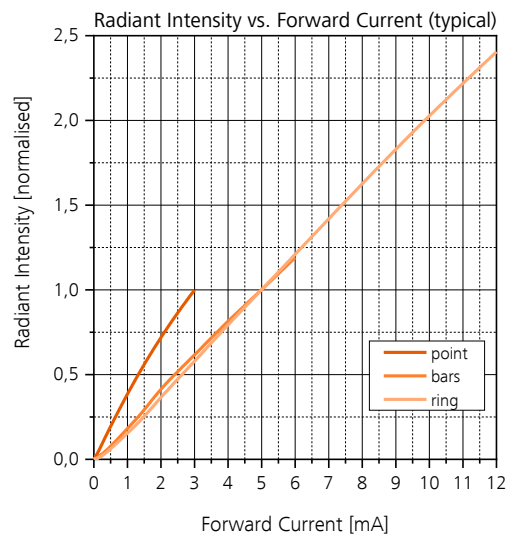
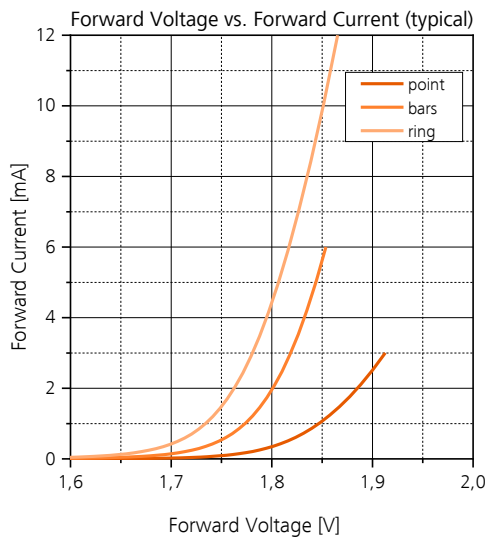
Maximum Ratings ¹		Symbol	Value	Unit
Forward Current (DC)	ring	I_F	12	mA
	bars		6	
	point		3	
Operating Temperature Range		T_{amb}	-20 to +85	°C
Storage Temperature Range		T_{stg}	-20 to +85	°C
Junction Temperature		T_j	+125	°C

Optical / Electrical Characteristics ¹		Test conditions	Symbol	Min	Typ	Max	Unit
Forward Voltage	ring	$I_F = 5$ mA	V_F		1.8		V
	bars	$I_F = 5$ mA			1.8		
	point	$I_F = 3$ mA			1.9		
Reverse Voltage		$I_R = 10$ μ A	V_R	5			V
Radiant Intensity	ring	$I_F = 5$ mA	I_e		94		μ W/sr
	bars	$I_F = 5$ mA			89		
	point	$I_F = 3$ mA			47		
Luminous Intensity	ring	$I_F = 5$ mA	I_v		8.6		mcd
	bars	$I_F = 5$ mA			8.4		
	point	$I_F = 3$ mA			4.4		
Peak Wavelength ²		$I_F = 5$ mA	λ_p		650		nm
Centroid Wavelength ²		$I_F = 5$ mA	λ_c	635	650	660	nm
Spectral Bandwidth at 50% ²		$I_F = 5$ mA	$\Delta\lambda_{0.5}$		8		nm

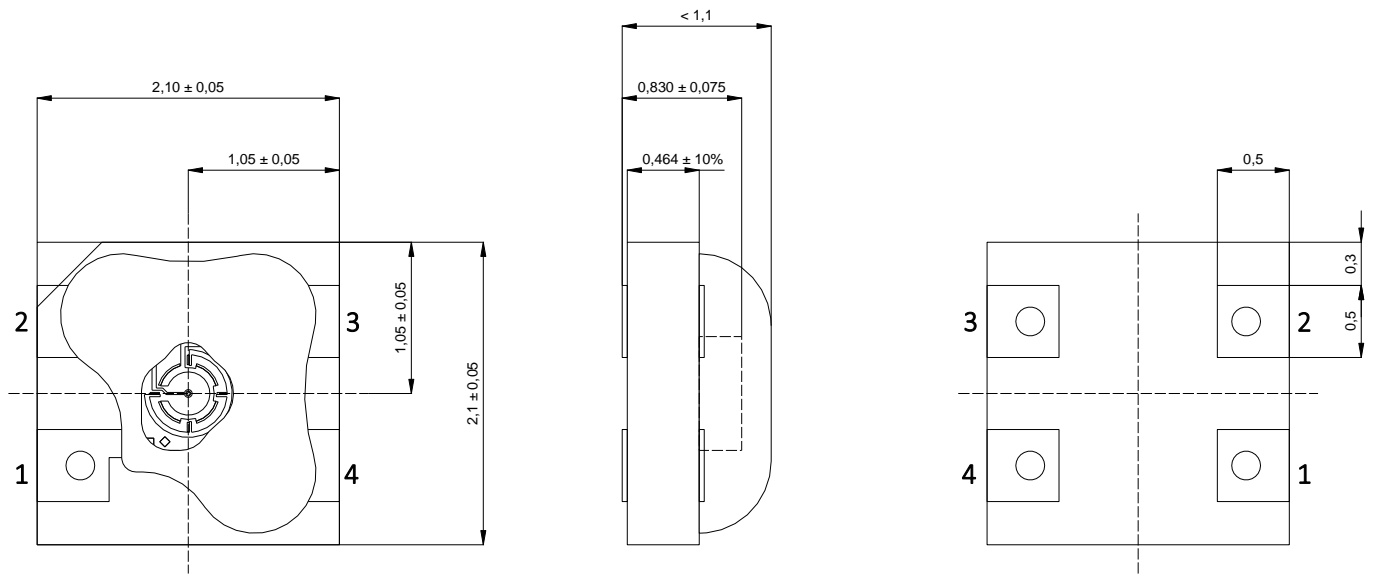
¹ $T_{amb} = 25^\circ\text{C}$, unless otherwise specified

² measured on ring on bare chip

ELM-650-992-10 | 650 nm | PCB
Parameters

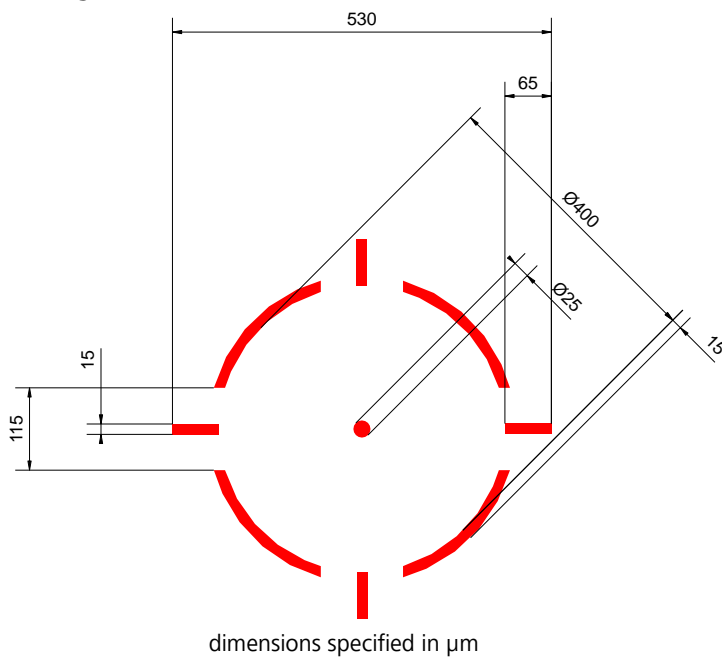


Module



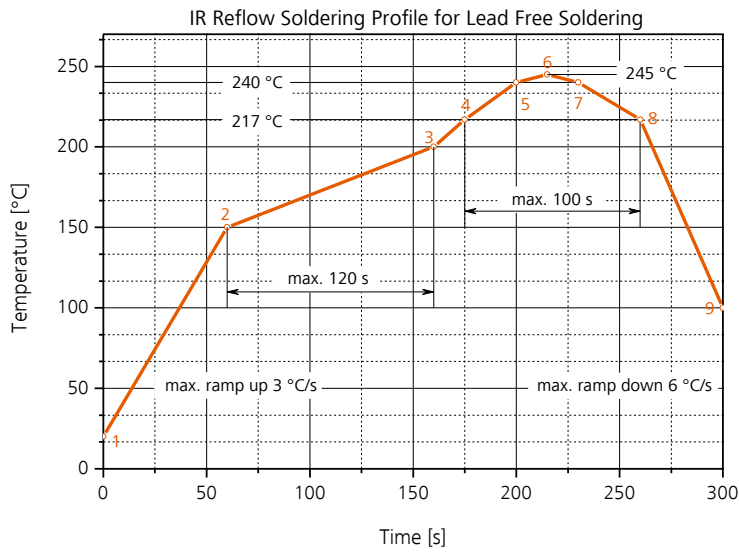
1	common cathode
2	anode (p) point
3	anode (p) ring
4	anode (p) bars

Emitting Areas



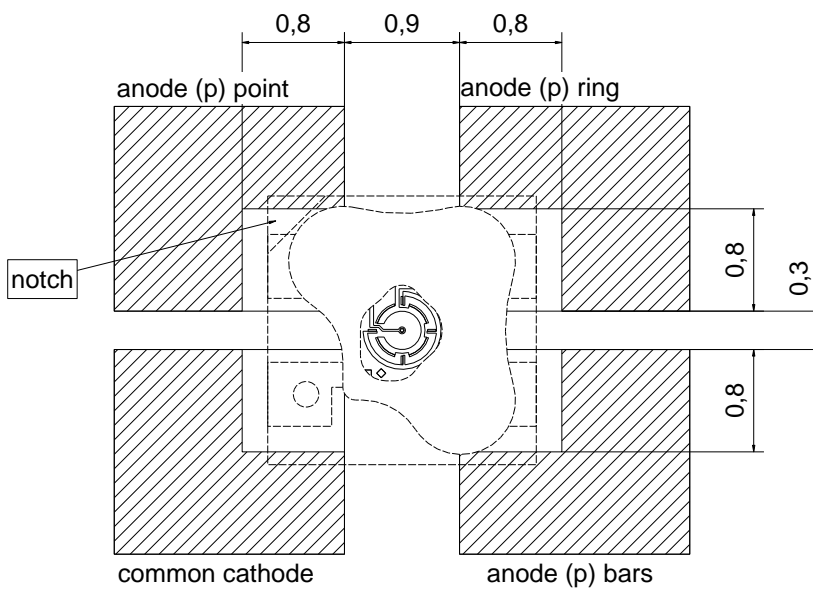
Drive options	Symbol
1	
2	
3	
4	
5	
6	
7	

ELM-650-992-10 | 650 nm | PCB
Soldering Conditions



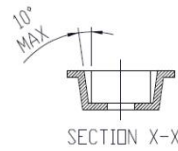
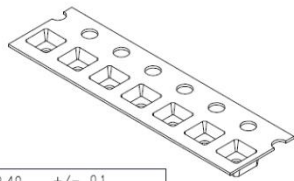
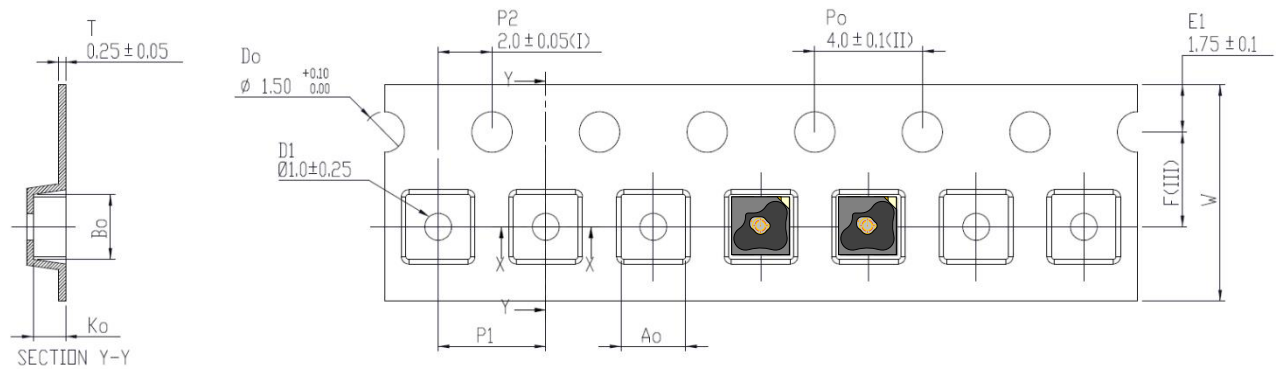
according to JEDEC J-STD-020D

Recommended Solder Pad



dimensions specified in mm

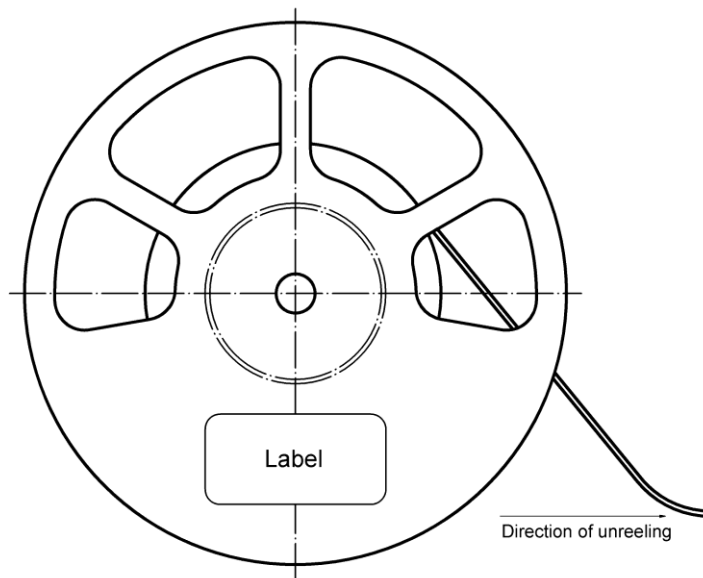
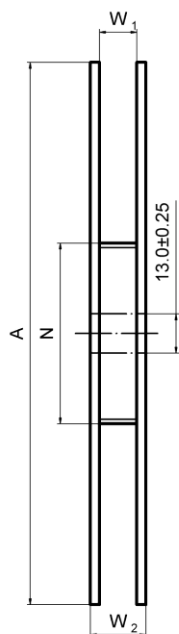
Dimensions conform to IEC 60286-3, EIA 481-D



Ao	2.40	+/- 0.1
Bo	2.40	+/- 0.1
Ko	1.20	+/- 0.1
F	3.50	+/- 0.05
P1	4.00	+/- 0.1
W	8.00	+0.3/-0.1

- (I) Measured from centreline of sprocket hole to centreline of pocket.
- (II) Cumulative tolerance of 10 sprocket holes is ± 0.20 .
- (III) Measured from centreline of sprocket hole to centreline of pocket.

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.



A	180
N	60
W ₁	12.4
W ₂	18.4

Leader: min.400
Trailer: min.160

All dimensions in mm unless otherwise stated



Packing

Devices packaged according to IPC/JEDEC J-STD-033 with moisture classification level 3

Storage on Carrier Tape		Symbol	Min	Max	Unit
Storage Temperature	Air	T _{STG}	15	40	°C
Storage Relative Humidity	Air	RH _{STG}		70	% RH
Storage Time	Air	t _{STG}		1	year

Labeling	
Manufacturer	JENOPTIK Optical Systems GmbH
Type	ELM-650-992-10
Item N°	662601
Quantity	30000 pcs
Charge	XXXXXXXX
Purchase Order N°	XXXXXXXX
RoHS compliant	Yes
Patent	US 8847241 B2
Date	dd.mm.yyyy



Attention

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer.

For further information, please contact our sales department.

Handling

LEDs have to be handled ESD sensitive.



Safety Advice*

The evaluation of eye safety occurs according to the standard CIE/IEC 62471:2006 ("Photobiological Safety of Lamps and Lamp Systems"). Within the risk grouping system of this CIE standard the LED in this data sheet is assigned into the **Group 1 – Low Risk**.

*Note: Safety classification of an optical component mainly depends on the intended application and the way the component is being used. Furthermore, all statements made to classification are based on calculations and are only valid for this LED "as it is", and at continuous operation, assuming direct view and maximum forward current. Using pulsed current or altering the light beam with additional optics may lead to different safety classifications. Therefore these remarks should be taken as recommendation and guideline only.