

High power Red LD for Laser Projection

HL63283HD 637nm, CW 1.2W/Pulse 1.5W

USHIO OPTO SEMICONDUCTORS, INC.

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HL63283HD : Maximum ratings and Specifications

✓ **Pulse 1.5W at single emitter structure**

Features

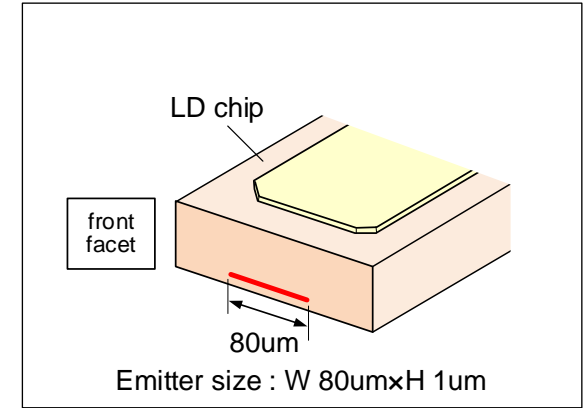
❑ **Output power : CW 1.2W / Pulse 1.5W**

❑ **Short wavelength : 637nm Typ.**

❑ **Single emitter : easy to collimate,**

easy to increase coupling efficiency

❑ **Optical and Electrical characteristics (Tc = 25°C)**



LD chip enlarged view around front facet

Item		Min	Typ	Max	Unit	Test condition
Optical output power	CW	1.2	-	-	W	-
	Pulse	1.5	-	-	W	-
Threshold current		-	0.34	0.44	A	Po=1.2W
Operating current		-	1.3	1.6	W	Po=1.2W
Operating voltage		-	2.3	1.6	V	Po=1.2W
Beam divergence	Horizontal	3	10	20	°	Po=1.2W, FWHM
	Vertical	23	33	43	°	
Wavelength		632	637	641	nm	Po=1.2W

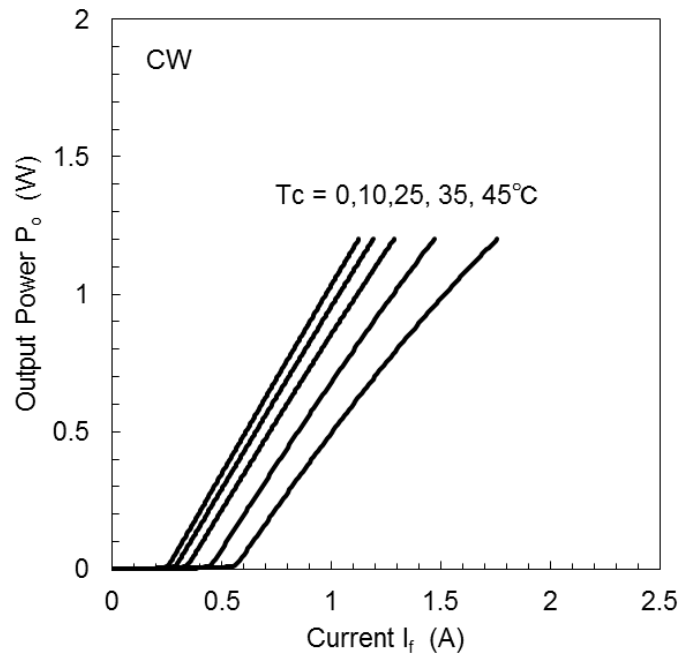
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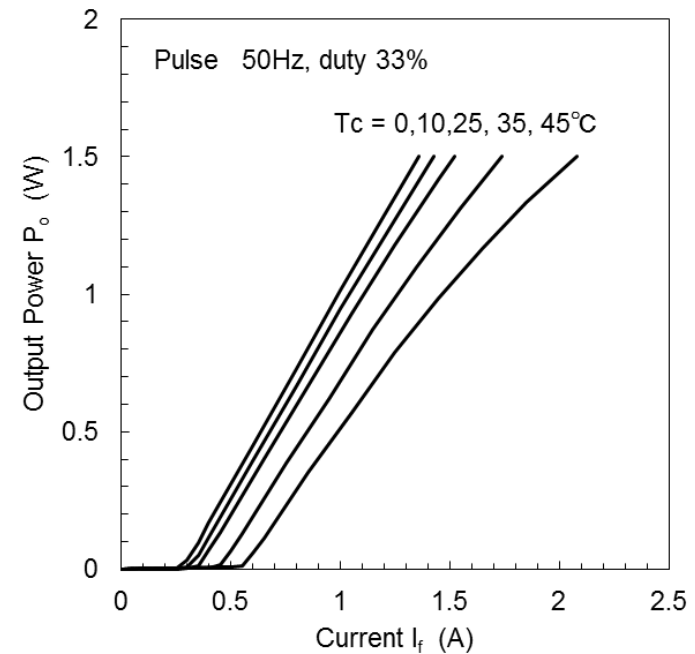
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Typical characteristics curves : I-L characteristics

- ✓ Low operating current : 1.3A Typ. at 25°C
- ✓ High wall plug efficiency : 40% Typ. at 25°C
- ✓ High wall plug efficiency : 27% Typ. at 45°C



CW operation



Pulsed operation

(Note 1) Pulse condition : $f = 50 \text{ Hz}$, duty = 33%

(Note 2) Operating temperature is defined as case temperature T_c .

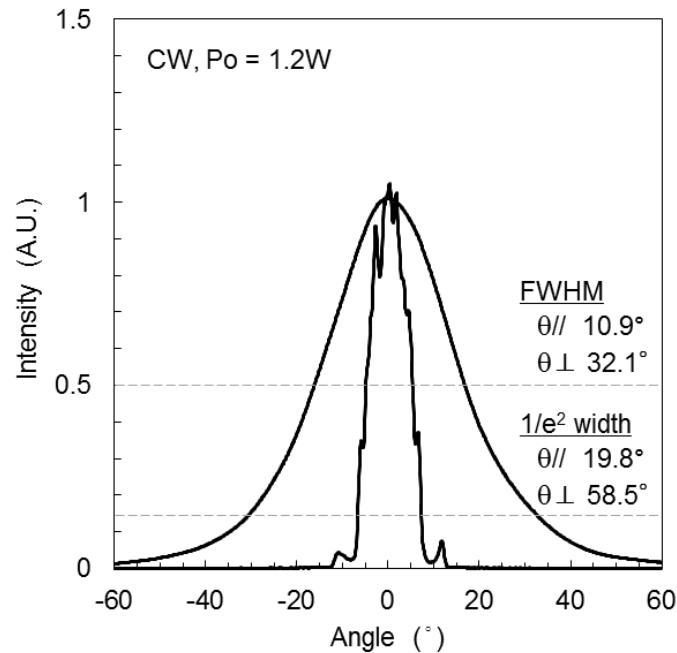
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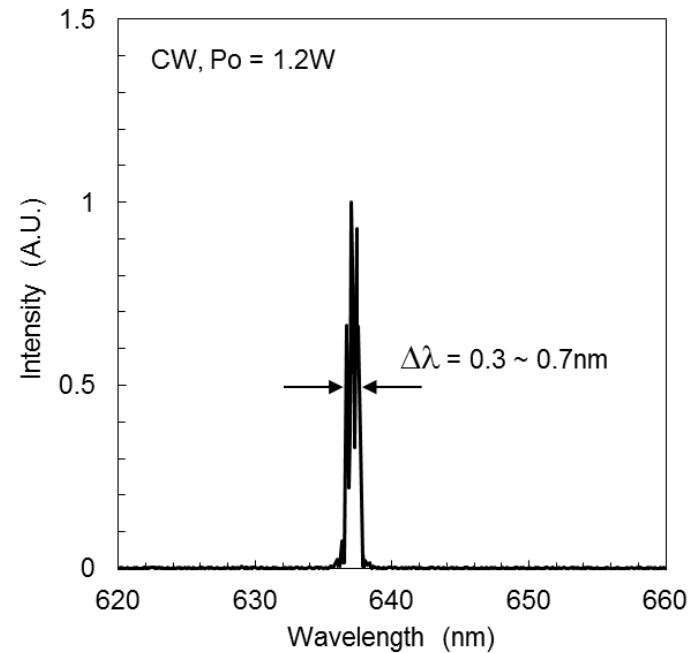
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Typical characteristics curves : Far field pattern, Lasing spectrum

- ✓ FWHM : V-FWHM = 32°typ., H-FWHM = 10°typ.
- ✓ Spectrum width FWHM = 0.3 ~ 0.7nm



Far field pattern



Lasing spectrum

(Note 1) Test condition : Tc = 25 °C, CW, Po = 1.2W

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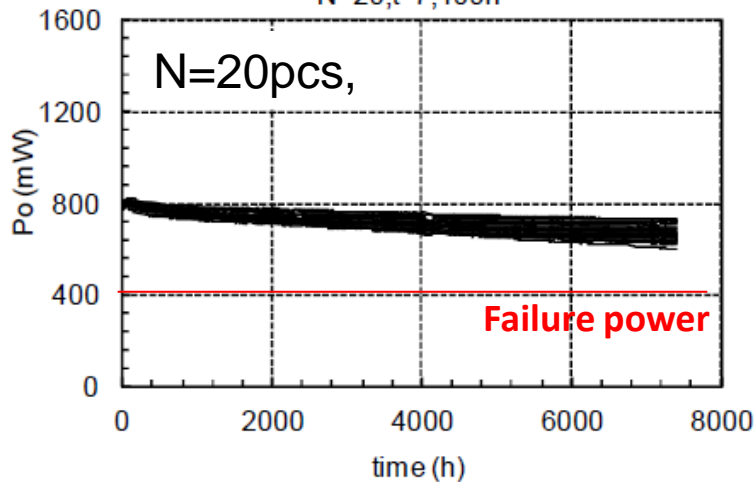
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Life test results

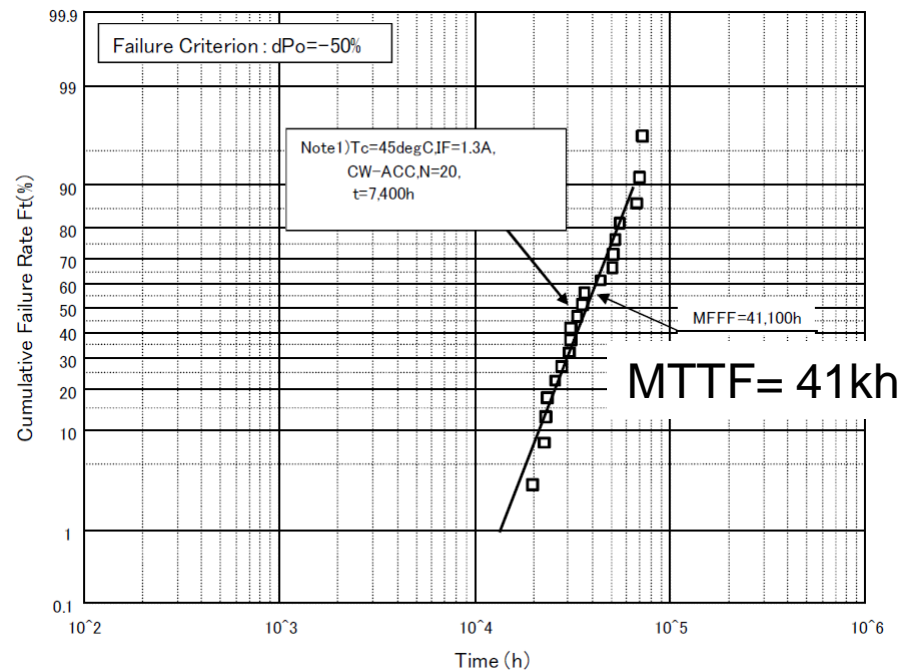
✓ High reliability : MTTF over 41,000 hours at 45°C, I_o = 1.3A

Life test 7,400h

Test condition; T_c=45degC, I_F=1.3A, CW-ACC,
N=20, t=7,400h



Life estimation



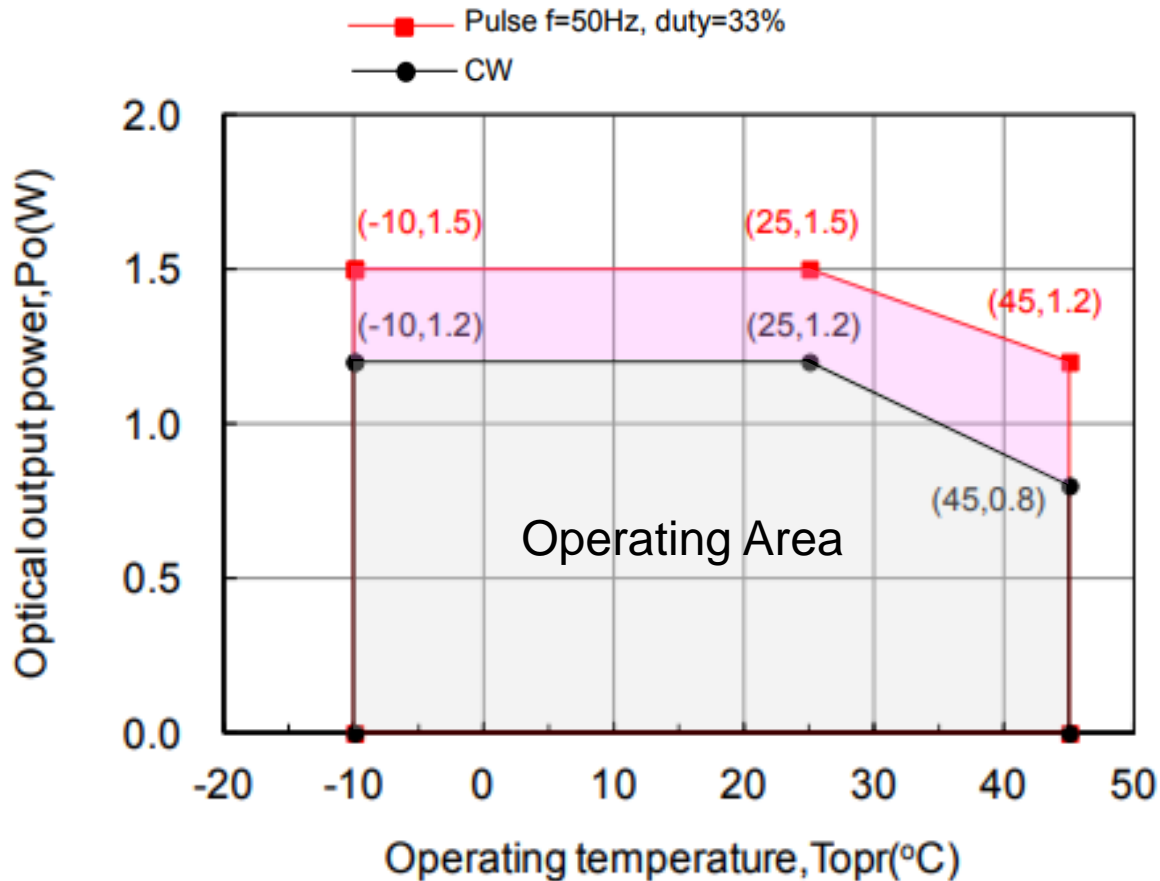
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Expected Life Time

- ✓ Life(MTTF)=20,000hr over at the following operating area.



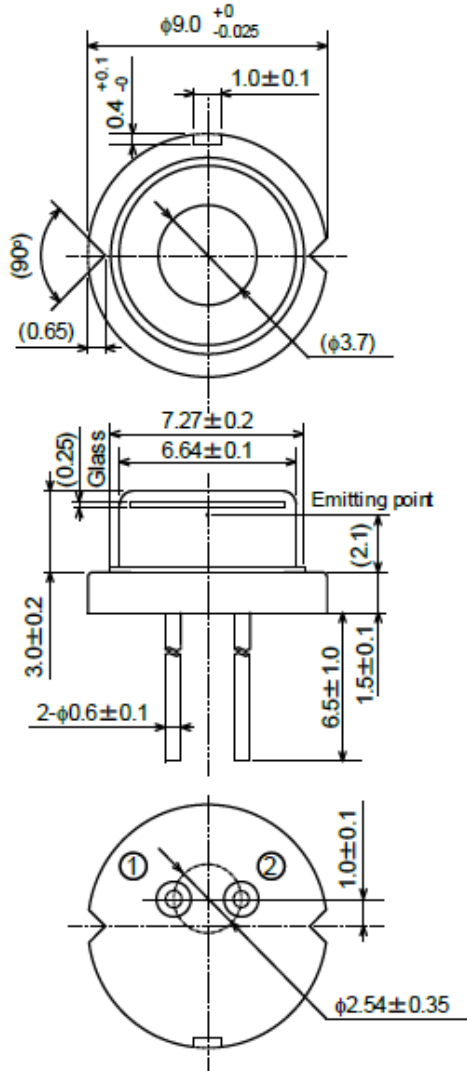
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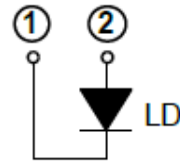
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Product outline

□ Outline



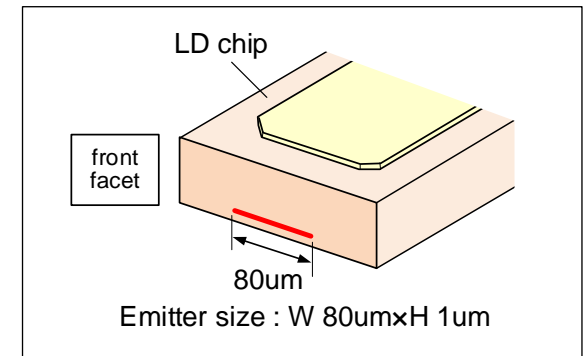
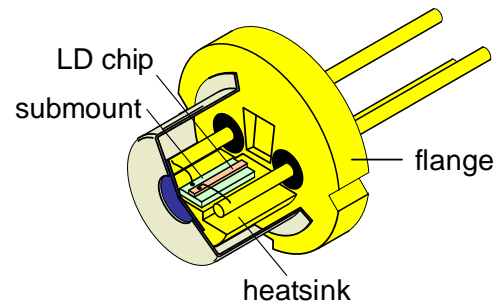
□ Internal circuit



□ Outline photograph



□ Emitter information



LD chip enlarged view around front facet

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