

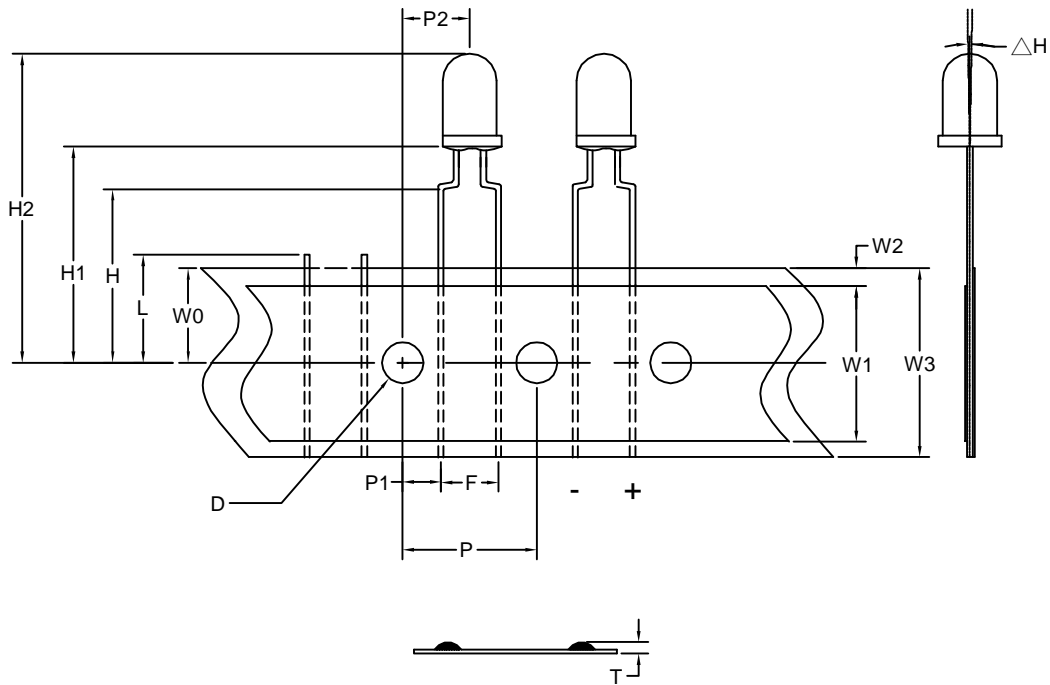
TAPE AND REEL TYPE LED LAMPS

Lead-Free Parts

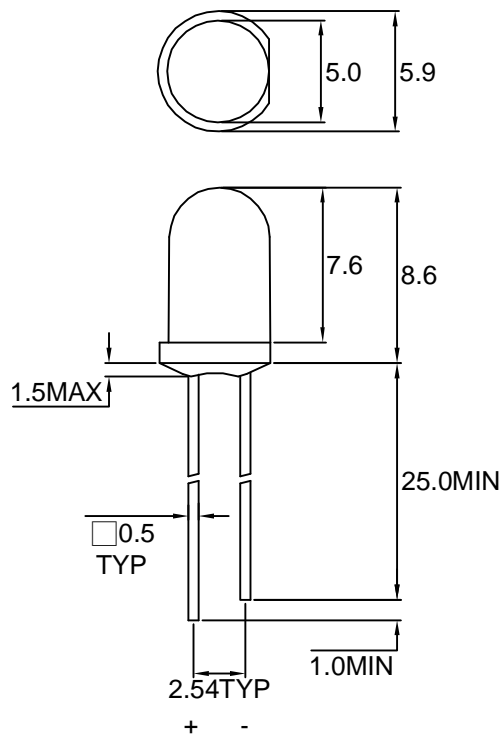
LH3330-PF/TRF-X**DATA SHEET**DOC. NO : QW0905-LH3330-PF/TRF-XREV. : ADATE : 09 - Nov. - 2007



Package Dimensions



LH3330-PF



Note : 1.All dimension are in millimeter tolerance is $\pm 0.25\text{mm}$ unless otherwise noted.
2.Specifications are subject to change without notice.

**Absolute Maximum Ratings at Ta=25 °C**

Parameter	Symbol	Ratings	UNIT
		H	
Forward Current	IF	15	mA
Peak Forward Current Duty 1/10@10KHz	IFP	60	mA
Power Dissipation	PD	40	mW
Reverse Current @5V	Ir	10	μA
Operating Temperature	Topr	-40 ~ +85	°C
Storage Temperature	Tstg	-40 ~ +100	°C

Typical Electrical & Optical Characteristics (Ta=25 °C)

PART NO	MATERIAL	COLOR		Peak wave length λ Pnm	Spectral halfwidth Δ λ nm	Forward voltage @20mA(V)		Luminous intensity @10mA(mcd)		Viewing angle 2θ 1/2 (deg)
		Emitted	Lens			Min.	Max.	Min.	Typ.	
LH3330-PF/TRF-X	GaP	Red	Red Diffused	697	90	1.7	2.6	3.0	4.5	28

Note : 1. The forward voltage data did not including ±0.1V testing tolerance.
2. The luminous intensity data did not including ±15% testing tolerance.



• Dimensions Symbol Information

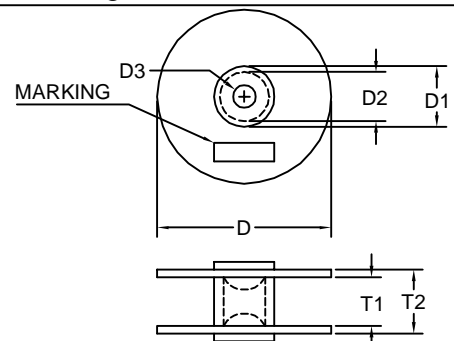
SYMBOL ITEMS	OPTION CODE	SYMBOL	SPECIFICATIONS			
			Minimum		Maximum	
			mm	inch	mm	inch
Tape Feed Hole Diameter	-----	D	3.8	0.15	4.2	0.17
Component Lead Pitch	-----	F	4.8	0.19	5.8	0.23
Front-To-Rear Deflection	-----	△H	-----	-----	2.0	0.08
Height Of Seating Plane	-----	H	15.5	0.61	16.5	0.65
Feed Hole To Bottom Of Component	TRF-1	H1	17.5	0.69	19.5	0.77
	TRF-2		19.0	0.75	21.0	0.83
	TRF-3		22.5	0.89	24.5	0.96
	TRF-4		25.5	1.0	26.5	1.04
	TRF-5		21.5	0.85	22.5	0.89
	TRF-6		20.2	0.8	21.2	0.83
	TRF-7		17.125	0.67	21.125	0.83
	TRF-8		20.0	0.79	22.5	0.89
	TRF-9		26.0	1.02	28.0	1.1
	TRF-11		24.0	0.94	26.0	1.02
	TRF-12		21.0	0.83	23.0	0.91
Feed Hole To Overall Component Height	-----	H2	-----	-----	36	1.42
Lead Length After Component Height	-----	L	W0		11.0	0.43
Feed Hole Pitch	-----	P	12.4	0.49	13.0	0.51
Lead Location	-----	P1	3.15	0.12	4.55	0.18
Center Of Component Location	-----	P2	5.1	0.2	7.7	0.3
Overall Taped Package Thickness	-----	T	-----	-----	1.42	0.06
Feed Hole Location	-----	W0	8.5	0.33	9.75	0.38
Adhesive Tape Width	-----	W1	14.5	0.57	15.5	0.61
Adhesive Tape Position	-----	W2	0	0	4.0	0.16
Tape Width	-----	W3	17.5	0.69	19.0	0.75

REMARK:TRF=Tape And Reel Forming Leads

• Dimensions Symbol Information

Description	Symbol	Specification			
		minimum		maximum	
		mm	inch	mm	inch
Reel Diameter	D	78.2	3.08	380	14.96
Core Diameter	D1	34.9	1.37	102	4.02
Hub Recess Inside Diameter	D2	28.6	1.13	88.0	3.46
Arbor Hole Diameter	D3	13.8	0.54	38.1	1.5
Overall Reel Thickness	T	---	---	57.2	2.25
Inside Reel Flange Thickness	T1	30.0	1.18	50.0	1.97
LH3330-PF/TRF-X		1000PCS			

• Package Dimensions





• Dimensions Symbol Information

SYMBOL ITEMS	OPTION CODE	SYMBOL	SPECIFICATIONS			
			Minimum		Maximum	
			mm	inch	mm	inch
Tape Feed Hole Diameter	-----	D	3.8	0.15	4.2	0.17
Component Lead Pitch	-----	F	4.8	0.19	5.8	0.23
Front-To-Rear Deflection	-----	△H	-----	-----	2.0	0.08
Height Of Seating Plane	-----	H	15.5	0.61	16.5	0.65
Feed Hole To Bottom Of Component	TRF-13	H1	19.0	0.75	20.0	0.79
	TRF-14		21.7	0.85	23.7	0.93
	TRF-15		22.5	0.89	23.5	0.93
	TRF-16		17.5	0.69	18.0	0.71
	TRF-17		18.5	0.73	19.5	0.77
	TRF-18		20.5	0.81	21.5	0.85
	TRF-19		25.5	1.0	27.5	1.08
	TRF-20		20.5	0.81	22.5	0.89
	TRF-21		25.0	0.98	27.0	1.06
	TRF-22		22.0	0.87	23.0	0.91
Feed Hole To Overall Component Height	-----	H2	-----	-----	36	1.42
Lead Length After Component Height	-----	L	W0		11.0	0.43
Feed Hole Pitch	-----	P	12.4	0.49	13.0	0.51
Lead Location	-----	P1	3.15	0.12	4.55	0.18
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Overall Reel Thickness	T	---	---	57.2	2.25
Inside Reel Flange Thickness	T1	30.0	1.18	50.0	1.97
LH3330-PF/TRF-X		1000PCS			

The diagram shows a top view and a side view of a reel. The top view labels the overall diameter as D, the core diameter as D1, the hub recess inside diameter as D2, and the arbor hole diameter as D3. A 'MARKING' area is indicated on the top view. The side view labels the overall thickness as T, and the inside flange thickness as T1 and T2.



Typical Electro-Optical Characteristics Curve

H CHIP

Fig.1 Forward current vs. Forward Voltage

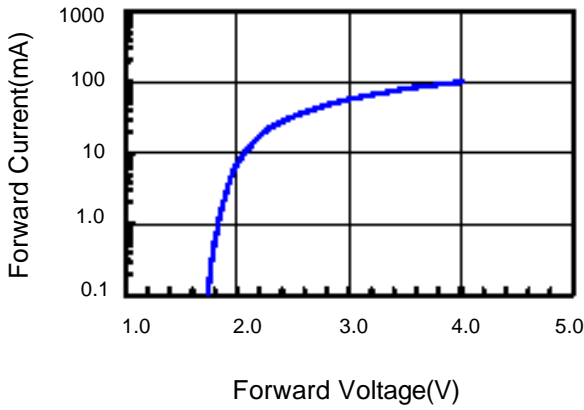


Fig.2 Relative Intensity vs. Forward Current

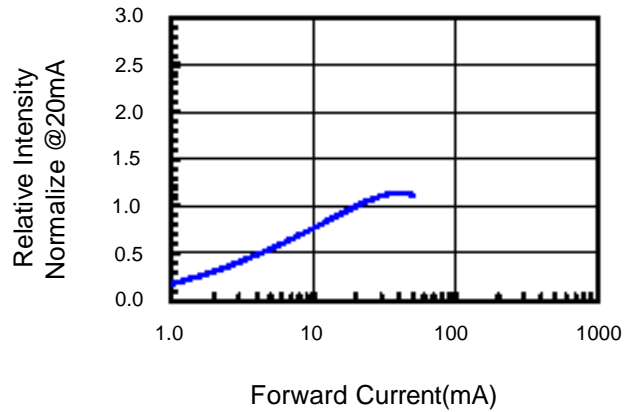


Fig.3 Forward Voltage vs. Temperature

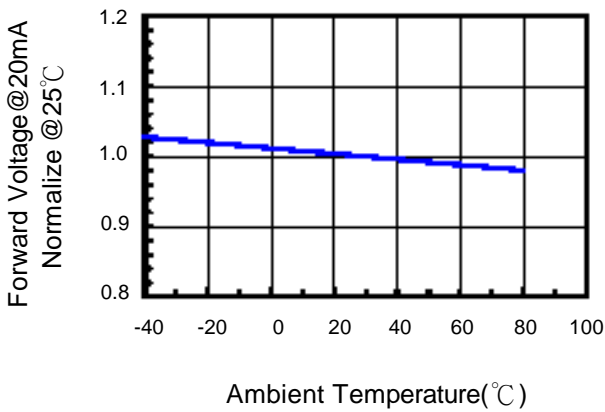


Fig.4 Relative Intensity vs. Temperature

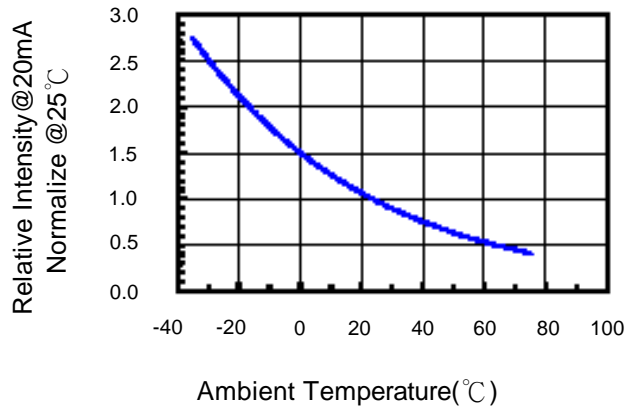


Fig.5 Relative Intensity vs. Wavelength

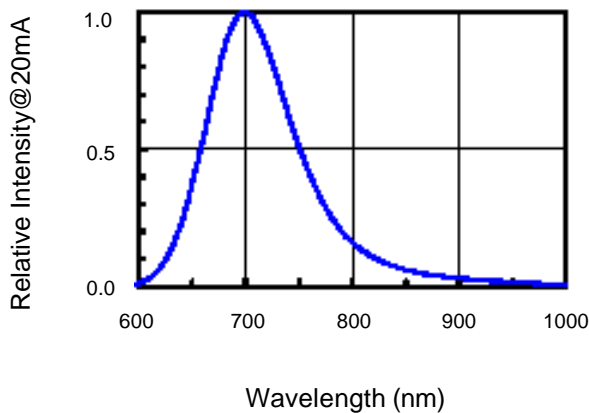
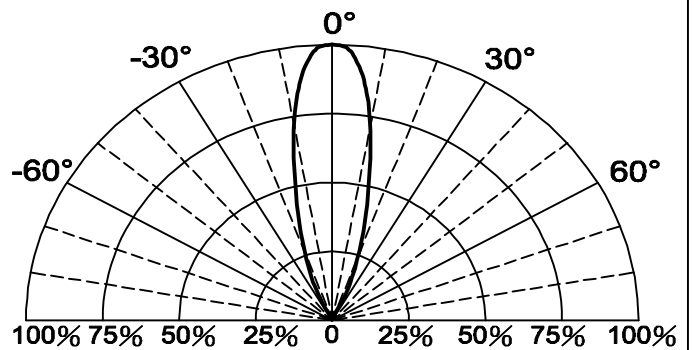


Fig.6 Directivity Radiation





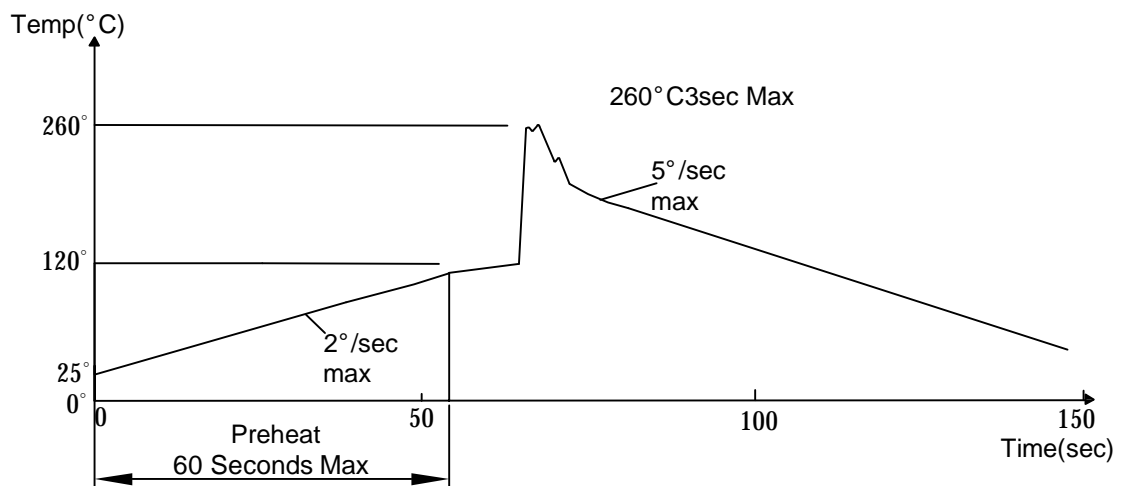
Soldering Condition(Pb-Free)

1.Iron:

- Soldering Iron:30W Max
- Temperature 350° C Max
- Soldering Time:3 Seconds Max(One time only)
- Distance:2mm Min(From solder joint to body)

2.Wave Soldering Profile

- Dip Soldering
- Preheat: 120° C Max
- Preheat time: 60seconds Max
- Ramp-up
- 2° C/sec(max)
- Ramp-Down:-5° C/sec(max)
- Solder Bath:260° C Max
- Dipping Time:3 seconds Max
- Distance:2mm Min(From solder joint to body)



- Note: 1.Wave solder should not be made more than one time.
2.You can just only select one of the soldering conditions as above.



Reliability Test:

Test Item	Test Condition	Description	Reference Standard
Operating Life Test	1.Under Room Temperature 2.If=20mA 3.t=1000 hrs (-24hrs, +72hrs)	This test is conducted for the purpose of detemining the resistance of a part in electrical and themal stressed.	MIL-STD-750: 1026 MIL-STD-883: 1005 JIS C 7021: B-1
High Temperature Storage Test	1.Ta=105 °C±5°C 2.t=1000 hrs (-24hrs, +72hrs)	The purpose of this is the resistance of the device which is laid under condition of high temperature for hours.	MIL-STD-883:1008 JIS C 7021: B-10
Low Temperature Storage Test	1.Ta=-40 °C±5°C 2.t=1000 hrs (-24hrs, +72hrs)	The purpose of this is the resistance of the device which is laid under condition of low temperature for hours.	JIS C 7021: B-12
High Temperature High Humidity Test	1.Ta=65 °C±5°C 2.RH=90 %~95% 3.t=240hrs ±2hrs	The purpose of this test is the resistance of the device under tropical for hours.	MIL-STD-202:103B JIS C 7021: B-11
Thermal Shock Test	1.Ta=105 °C±5°C & -40 °C±5°C (10min) (10min) 2.total 10 cycles	The purpose of this is the resistance of the device to sudden extreme changes in high and low temperature.	MIL-STD-202: 107D MIL-STD-750: 1051 MIL-STD-883: 1011
Solder Resistance Test	1.T.Sol=260 °C±5°C 2.Dwell time= 10 ±1sec.	This test intended to determine the thermal characteristic resistance of the device to sudden exposures at extreme changes in temperature when soldering the lead wire.	MIL-STD-202: 210A MIL-STD-750: 2031 JIS C 7021: A-1
Solderability Test	1.T.Sol=230 °C±5°C 2.Dwell time=5 ±1sec	This test intended to see soldering well performed or not.	MIL-STD-202: 208D MIL-STD-750: 2026 MIL-STD-883: 2003 JIS C 7021: A-2