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TAPE AND BOX TYPE LED LAMPS



Lead-Free Parts

**LSE2040/P1-PF/TBS-X**

**DATA SHEET**

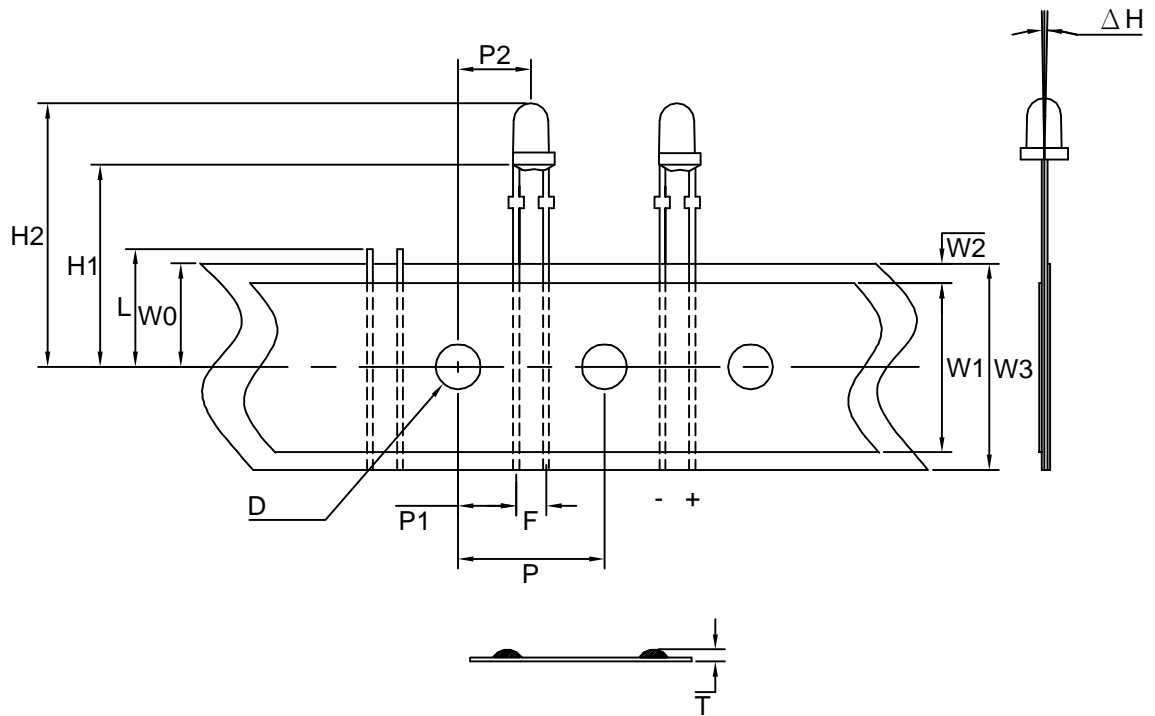
DOC. NO : QW0905-LSE2040/P1-PF/TBS-X

REV. : A

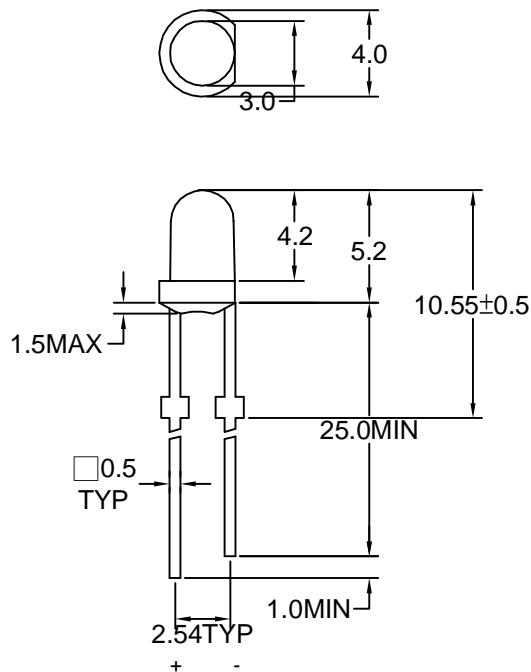
DATE : 05 - Jul. - 2006



### Package Dimensions



### LSE2040/P1-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
		SE	
Forward Current	IF	20	mA
Peak Forward Current Duty 1/10@10KHz	IFP	80	mA
Power Dissipation	PD	80	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.	
LSE2040/P1-PF/TBS-X	GaAsP/GaP	Orange	Orange Diffused	610	45	1.7	2.6	8.0	12	36

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



• Dimension Symbol Information

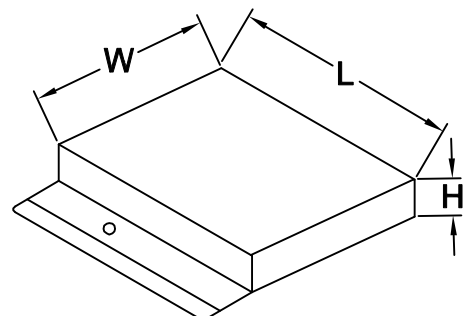
SYMBOL ITEMS	OPTION CODE	SYMBOL	SPECIFICATIONS			
			Minimum		Maximum	
			mm	inch	mm	inch
Tape Feed Hole Diameter	-----	D	3.8	0.15	4.2	0.17
Component Lead Pitch	-----	F	2.3	0.09	3.0	0.12
Front-To-Rear Deflection	-----	$\Delta H$	-----	-----	2.0	0.08
Feed Hole To Bottom Of Component	TBS-1	H1	17.5	0.69	18.5	0.73
	TBS-2		21.5	0.85	22.5	0.89
	TBS-3		25.5	1.0	26.5	1.04
	TBS-5		22.5	0.89	23.5	0.93
	TBS-6		19.9	0.78	20.9	0.82
	TBS-7		24.0	0.94	25.0	0.98
	TBS-8		24.5	0.96	25.5	1.0
	TBS-9		19.0	0.75	20.0	0.79
	TBS-10		18.4	0.72	19.4	0.76
	TBS-11		21.0	0.83	22.0	0.87
	TBS-12		20.5	0.81	21.5	0.85
	TBS-13		18.0	0.71	19.0	0.75
	Feed Hole To Overall Component Height		-----	H2	-----	-----
Lead Length After Component Height	-----	L	W0		11	0.43
Feed Hole Pitch	-----	P	12.4	0.49	13	0.51
Lead Location	-----	P1	4.4	0.17	5.8	0.23
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	0.75

REMARK:TBS=Tape And Box Straight Leads

• Dimensions Symbol Information

• Package Dimensions

Description	Symbol	Specification			
		minimum		maximum	
		mm	inch	mm	inch
Overall Length	L	330	13.0	340	13.4
Overall Width	W	265	10.4	275	10.8
Overall Thickness	H	50	1.97	60	2.4
Quantity/Box	2500PCS				





# Typical Electro-Optical Characteristics Curve

## SE CHIP

Fig.1 Forward current vs. Forward Voltage

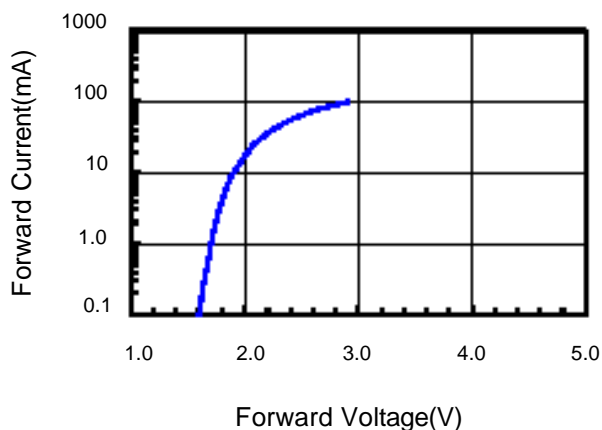


Fig.2 Relative Intensity vs. Forward Current

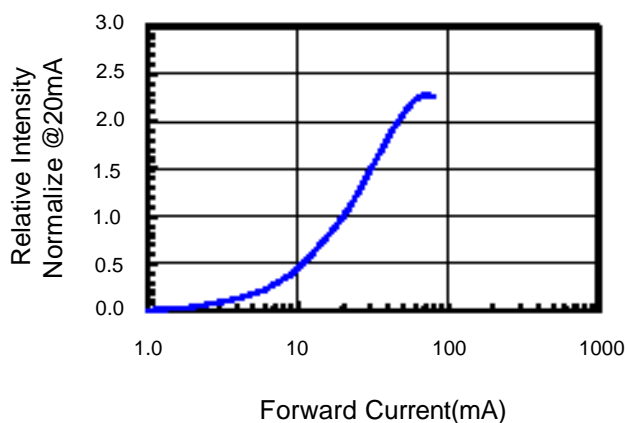


Fig.3 Forward Voltage vs. Temperature

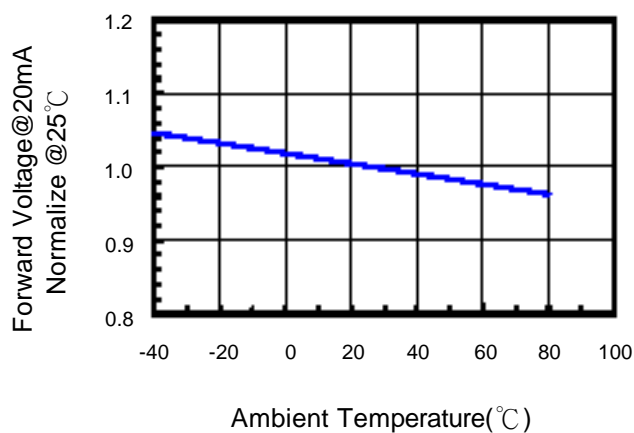


Fig.4 Relative Intensity vs. Temperature

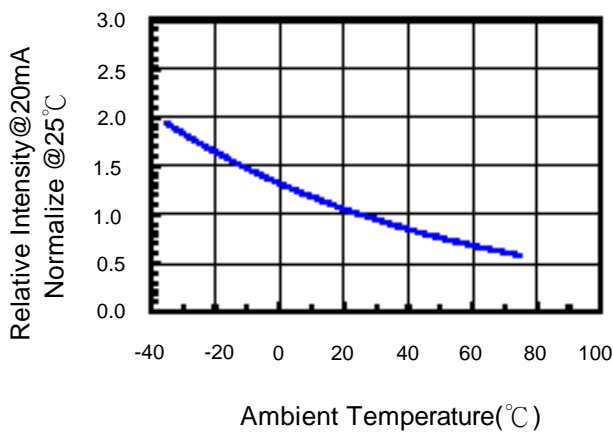
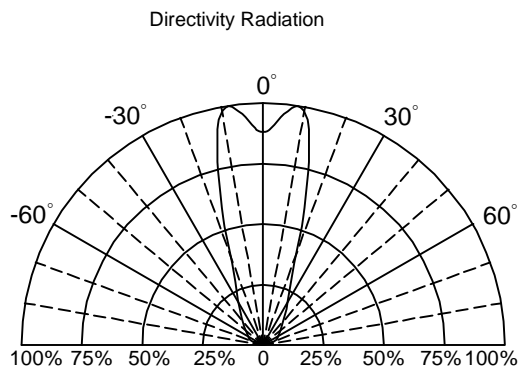
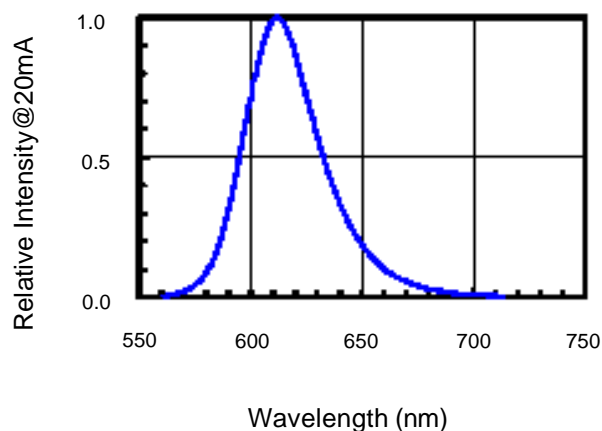


Fig.5 Relative Intensity vs. Wavelength





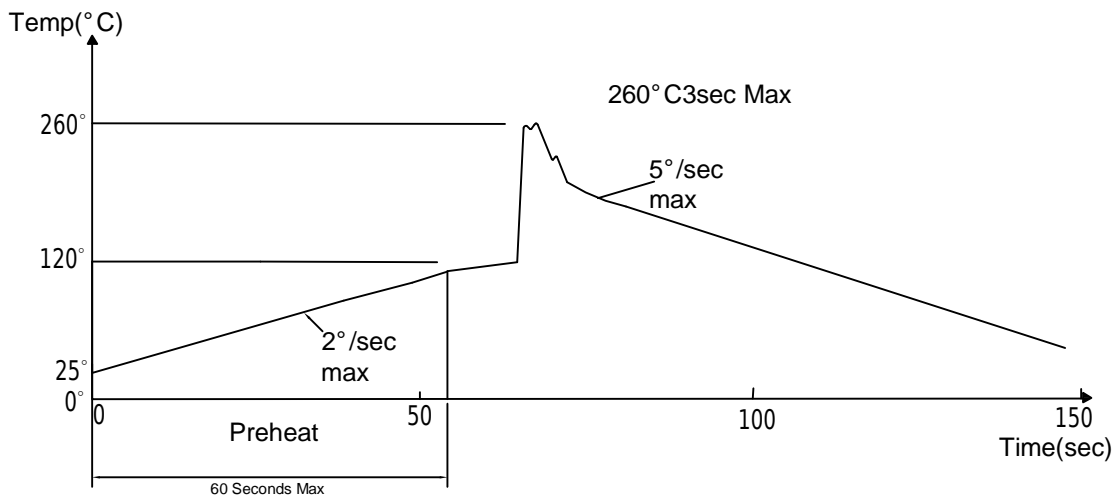
### Soldering Condition(Pb-Free)

#### 1.Iron:

Soldering Iron:30W Max  
Temperature 350° C Max  
Soldering Time:3 Seconds Max(One Time)  
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)



**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 determining the resistance of a part in electrical and thermal 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