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LIGHT BAR LED DISPLAY



Lead-Free Parts

LBD2413-XX-PF

DATA SHEET

DOC. NO : QW0905-LBD2413-XX-PF

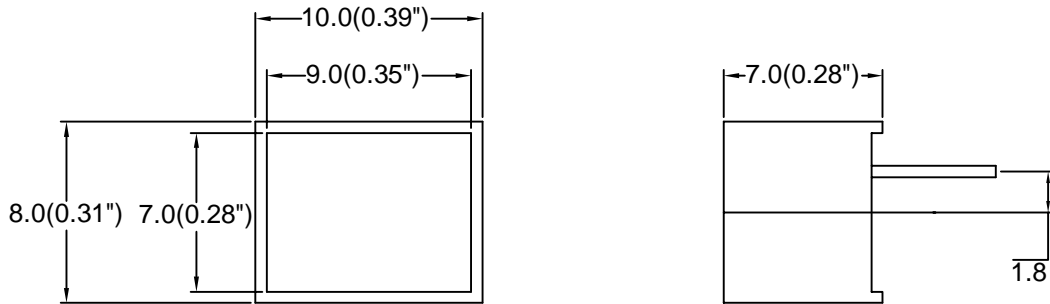
REV. : A

DATE : 11 - May.- 2009

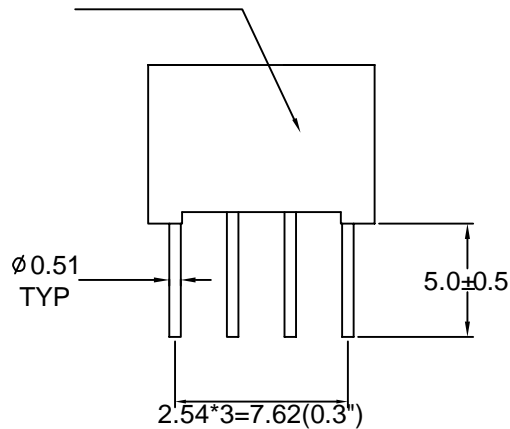




Package Dimensions



LBD2413-XX-PF
LIGITEK



PIN NO.1 →

Note : 1.All dimension are in millimeters and (Inch) tolerance is ± 0.25 mm unless otherwise noted.
2.Specifications are subject to change without notice.



Internal Circuit Diagram

LBD2413-XX-PF



Electrical Connection

PIN NO.	LBD2413-XX-PF
1	Anode
2	Cathode
3	Anode
4	Cathode



Absolute Maximum Ratings at Ta=25 °C

Parameter	Symbol	Ratings	UNIT
		Y	
Forward Current Per Chip	IF	20	mA
Peak Forward Current Per Chip (Duty 1/10,0.1ms Pulse Width)	IFP	80	mA
Power Dissipation Per Chip	PD	60	mW
Reverse Current Per Any Chip	Ir	10	μA
Operating Temperature	Topr	-25 ~ +85	°C
Storage Temperature	Tstg	-25 ~ +85	°C

Part Selection And Application Information(Ratings at 25°C)

PART NO	CHIP		common cathode or anode	λP (nm)	$\Delta \lambda$ (nm)	Electrical					IV-M
	Material	Emitted				Vf(v)			Iv(mcd)		
						Min.	Typ.	Max.	Min.	Typ.	
LBD2413-XX-PF	GaAsP/GaP	Yellow	Common Cathode	585	35	1.7	2.0	2.6	4.0	7.2	2:1

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



Test Condition For Each Parameter

Parameter	Symbol	Unit	Test Condition
Forward Voltage Per Chip	V _f	volt	I _f =20mA
Luminous Intensity	I _v	mcd	I _f =20mA
Peak Wavelength	λ _P	nm	I _f =20mA
Spectral Line Half-Width	Δλ	nm	I _f =20mA
Reverse Current Any Chip	I _r	μA	V _r =5V
Luminous Intensity Matching Ratio	IV-M		



Typical Electro-Optical Characteristics Curve

Y CHIP

Fig.1 Forward current vs. Forward Voltage

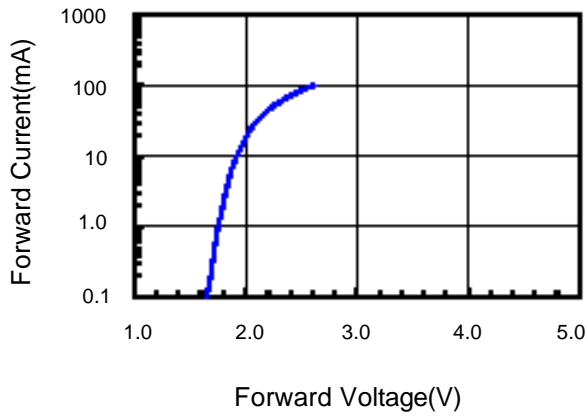


Fig.2 Relative Intensity vs. Forward Current

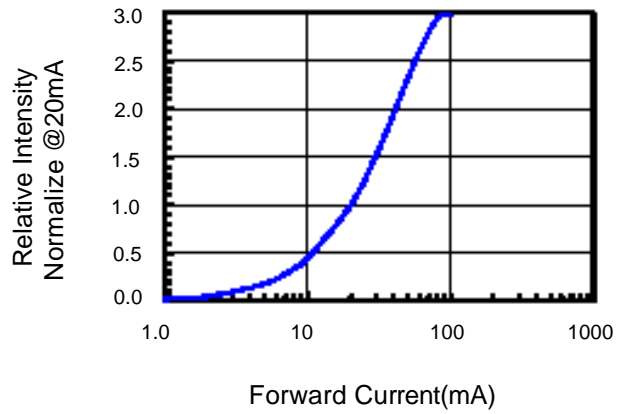


Fig.3 Forward Voltage vs. Temperature

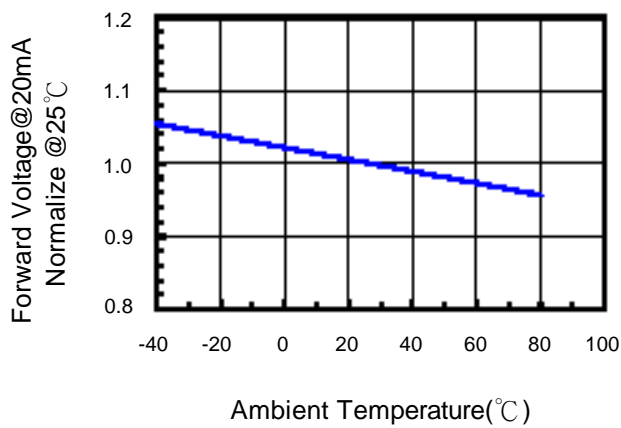


Fig.4 Relative Intensity vs. Temperature

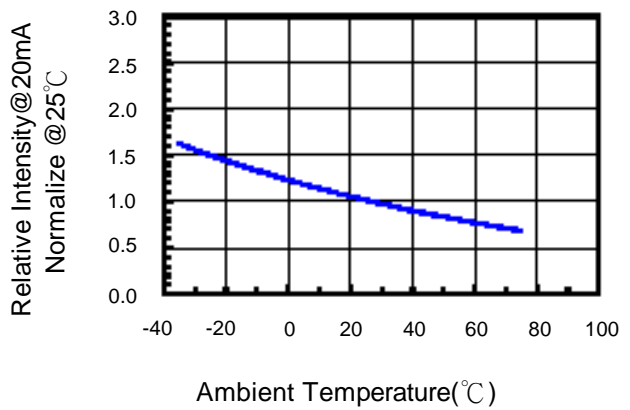
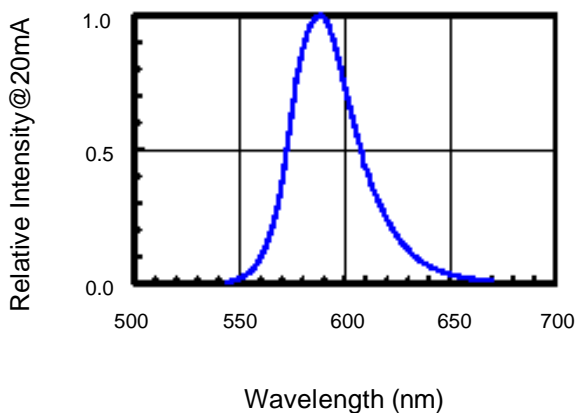


Fig.5 Relative Intensity vs. Wavelength





Soldering Condition(Pb-Free)

1.Iron:

Soldering Iron:30W Max

Temperature 350° C Max

Soldering Time:3 Seconds Max(One Time)

Distance:Solder Temperature 1/16 Inch Below Seating
Plane For 3 Seconds At 260° C

2.Wave Soldering Profile

Dip Soldering

Preheat: 120° C Max

Preheat time: 60seconds Max

Ramp-up

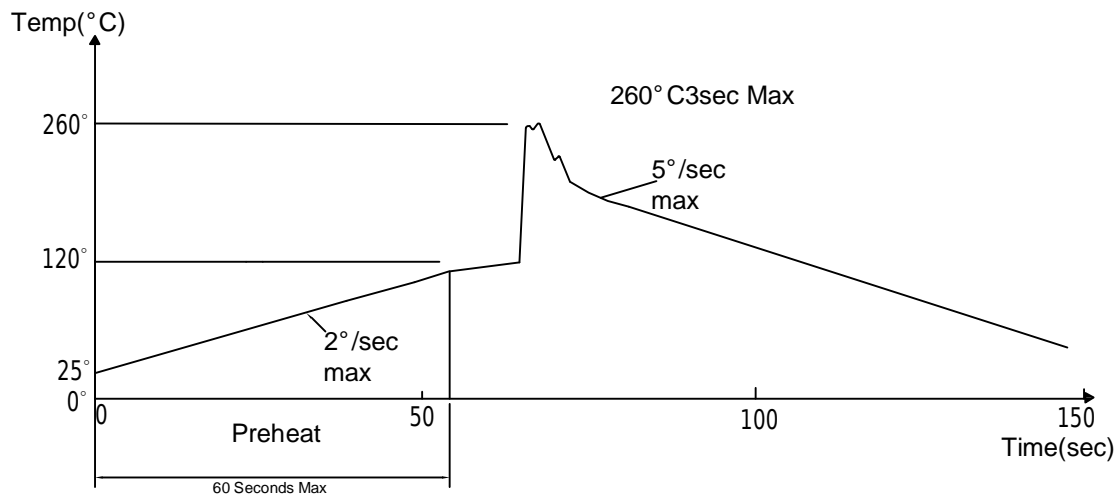
2° C/sec(max)

Ramp-Down:-5° C/sec(max)

Solder Bath:260° C Max

Dipping Time:3 seconds Max

Distance:Solder Temperature 1/16 Inch Below Seating
Plane For 3 Seconds At 260° C



**Reliability Test:**

Test Item	Test Condition	Description	Reference Standard
Operating Life Test	1.Under Room Temperature 2.If=10mA 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