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SINGLE DIGIT LED DISPLAY (0.39 Inch)



Lead-Free Parts

**LSD3B64S-XX-PF**

**DATA SHEET**

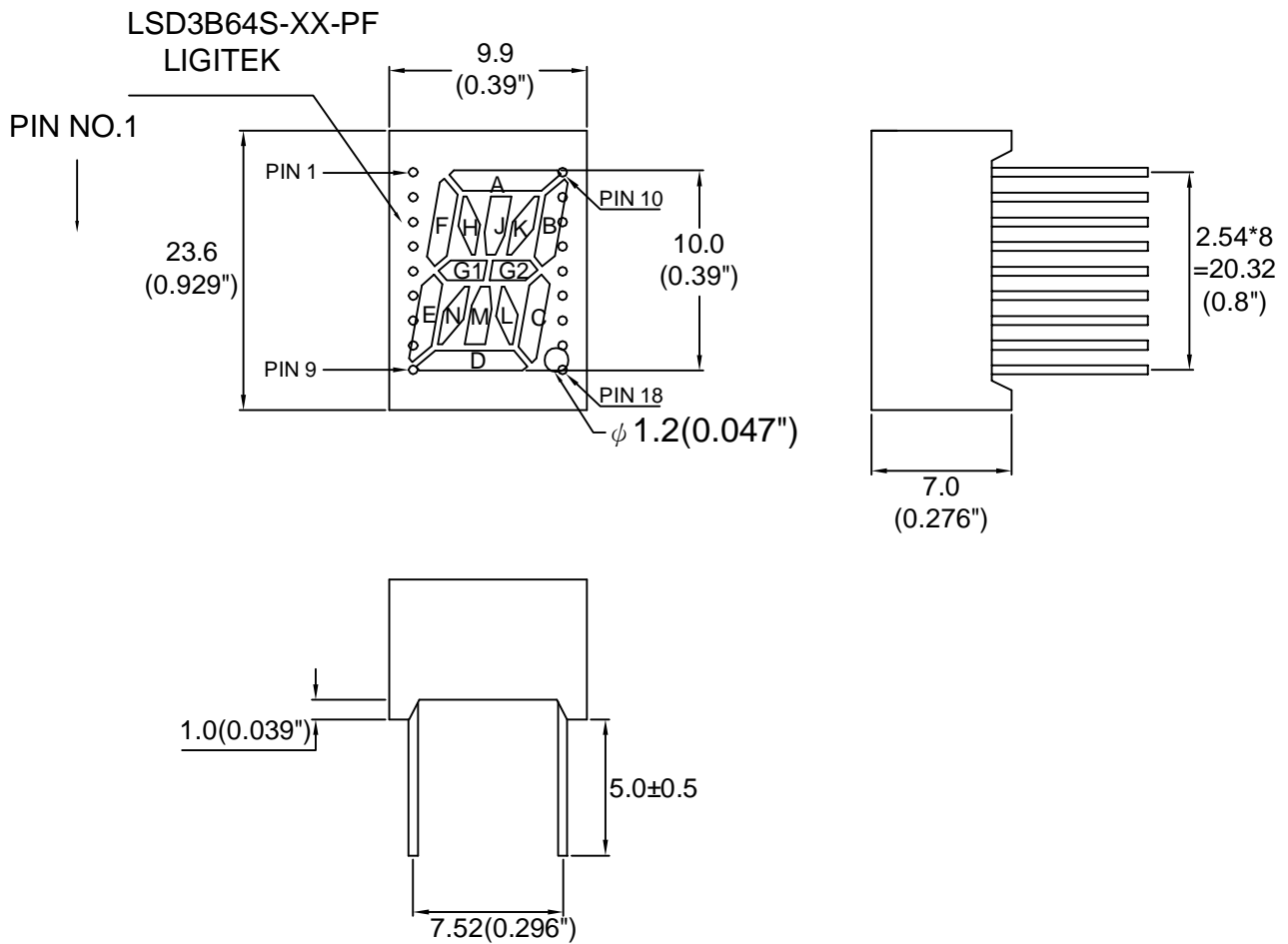
DOC. NO : QW0905-LSD3B64S-XX-PF

REV. : A

DATE : 13 - Jun. - 2008



### Package Dimensions



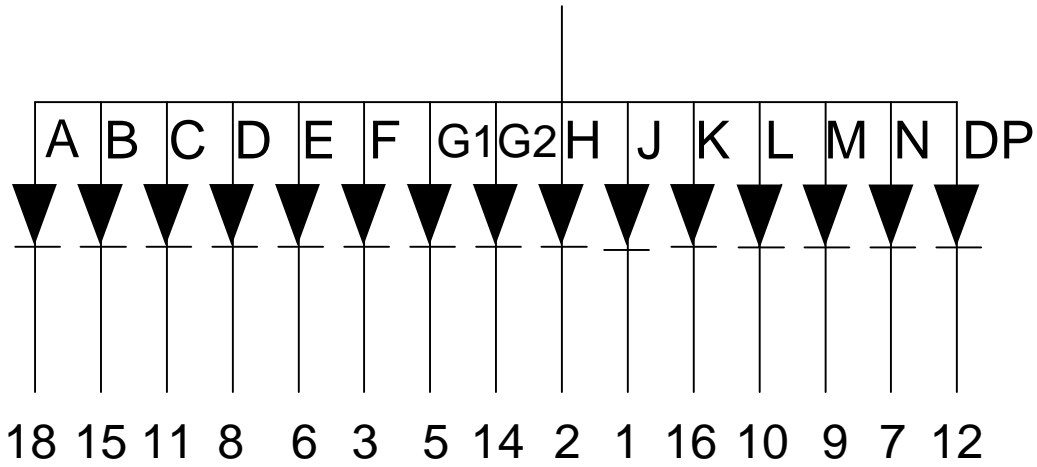
Note : 1.All dimension are in millimeters and (Inch) tolerance is  $\pm 0.25\text{mm}$  unless otherwise noted.  
2.Specifications are subject to change without notice.



Internal Circuit Diagram

# LSD3B64S-XX-PF

4. 13. 17





### Electrical Connection

PIN NO.	LSD3B64S-XX-PF	PIN NO.	LSD3B64S-XX-PF
1	Cathode J	10	Cathode L
2	Cathode H	11	Cathode C
3	Cathode F	12	Cathode DP
4	Common Anode	13	Common Anode
5	Cathode G1	14	Cathode G2
6	Cathode E	15	Cathode B
7	Cathode N	16	Cathode K
8	Cathode D	17	Common Anode
9	Cathode M	18	Cathode A

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

Parameter	Symbol	Ratings		UNIT
		SE		
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	80		mW
Reverse Current Per Any Chip	Ir	10		μA
Operating Temperature	Topr	-25 ~ +85		°C
Storage Temperature	Tstg	-25 ~ +85		°C
Solder Temperature 1/16 Inch Below Seating Plane For 3 Seconds At 260 °C				

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

PART NO	CHIP		common cathode or anode	λ P (nm)	Δ λ (nm)	Electrical					IV-M
	Material	Emitted				Vf(v)			Iv(mcd)		
						Min.	Typ.	Max.	Min.	Typ.	
LSD3B64S-XX-PF	GaAsP/GaP	Orange	Common Anode	610	45	1.7	2.1	2.6	0.8	1.35	2:1

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

**Test Condition For Each Parameter**

Parameter	Symbol	Unit	Test Condition
Forward Voltage Per Chip	V <sub>f</sub>	volt	I <sub>f</sub> =20mA
Luminous Intensity Per Chip	I <sub>v</sub>	mcd	I <sub>f</sub> =10mA
Peak Wavelength	$\lambda P$	nm	I <sub>f</sub> =20mA
Spectral Line Half-Width	$\Delta \lambda$	nm	I <sub>f</sub> =20mA
Reverse Current Any Chip	I <sub>r</sub>	$\mu A$	V <sub>r</sub> =5V
Luminous Intensity Matching Ratio	IV-M		



### Typical Electro-Optical Characteristics Curve

#### SE CHIP

Fig.1 Forward current vs. Forward Voltage

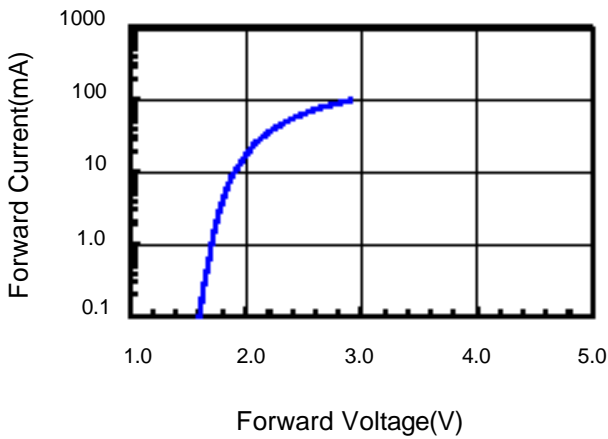


Fig.2 Relative Intensity vs. Forward Current

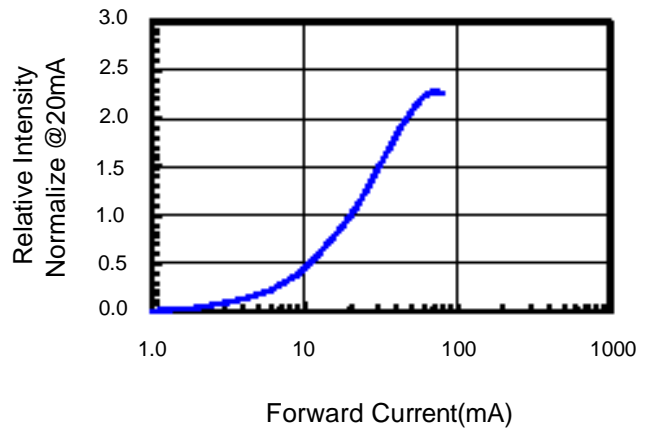


Fig.3 Forward Voltage vs. Temperature

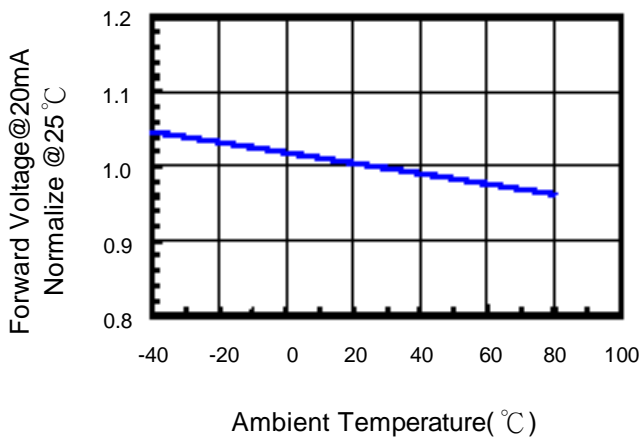


Fig.4 Relative Intensity vs. Temperature

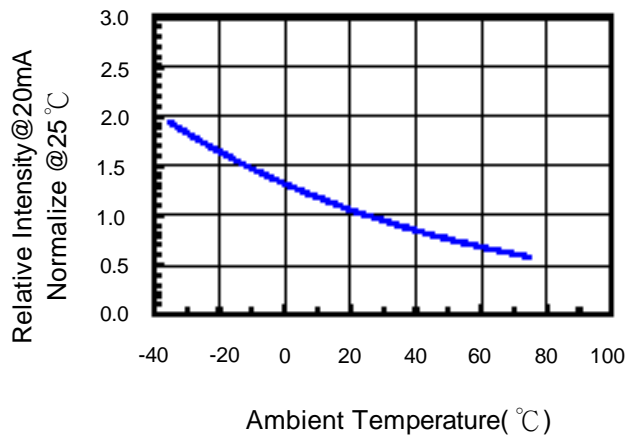
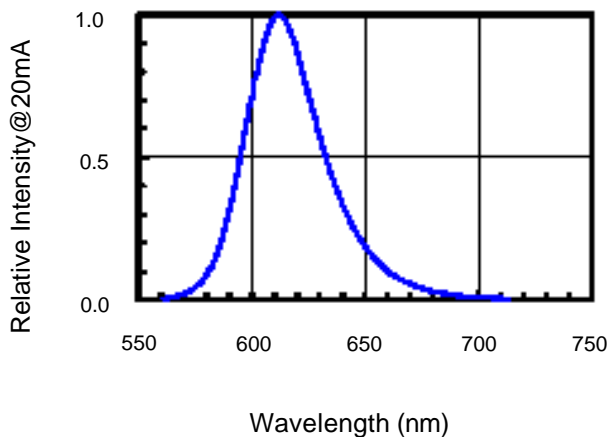


Fig.5 Relative Intensity vs. Wavelength





### Soldering Condition(Pb-Free)

#### 1.Iron:

Soldering Iron:30W Max

Temperature 350° C Max

Soldering Time:3 Seconds Max(One time only)

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

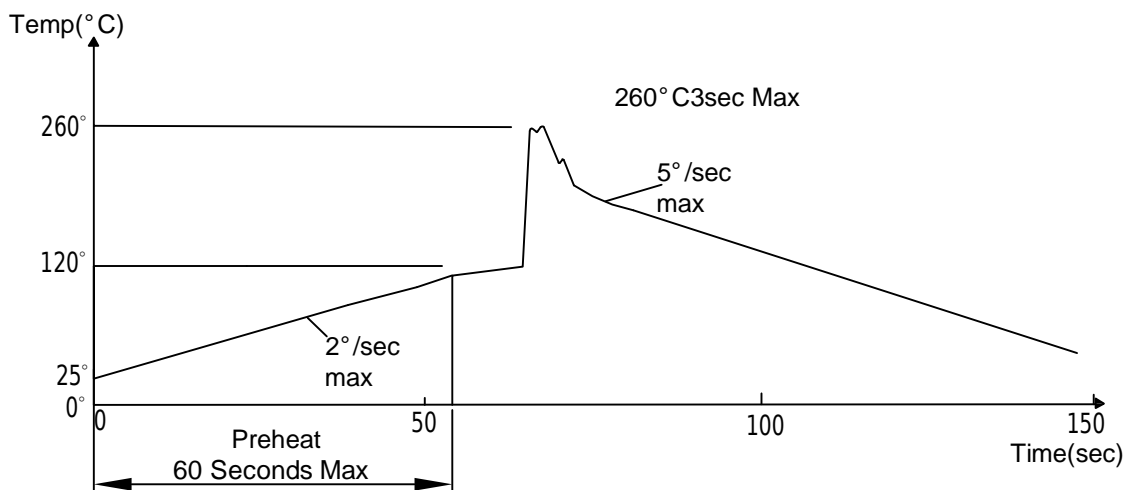
2° C/sec(max)

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



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=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