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BAR DIGIT LED DISPLAY

**LBD336D-XX**

# DATA SHEET

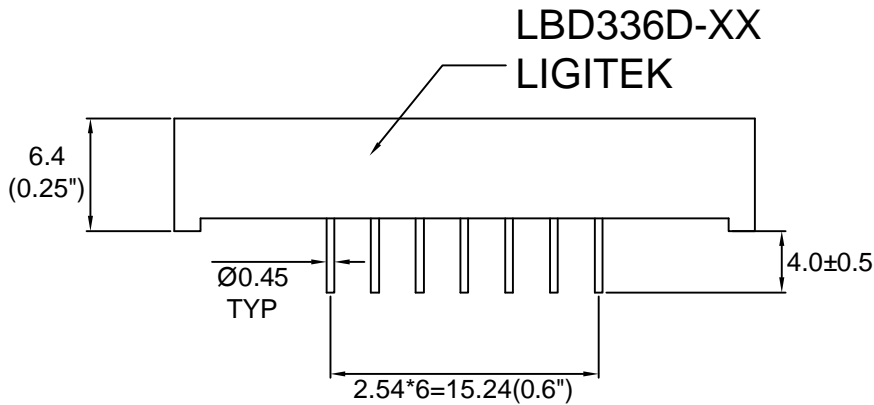
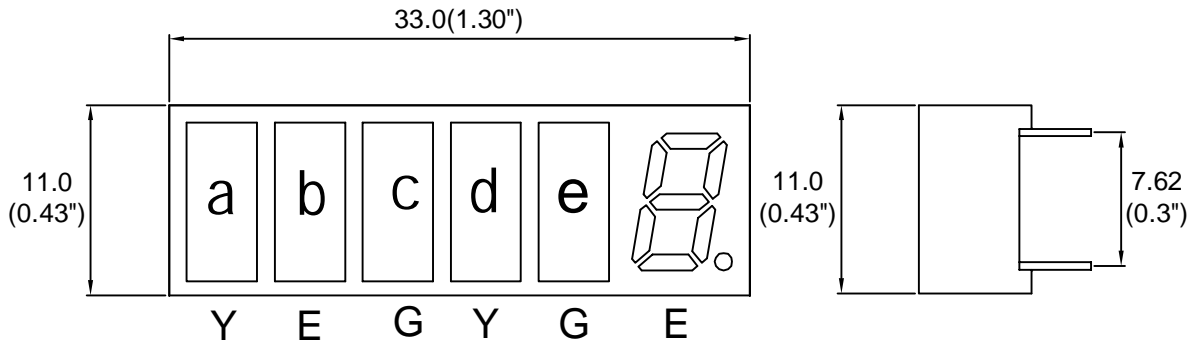
DOC. NO : QW0905-LBD336D-XX

REV. : B

DATE : 29 - Apr. - 2006



### Package Dimensions



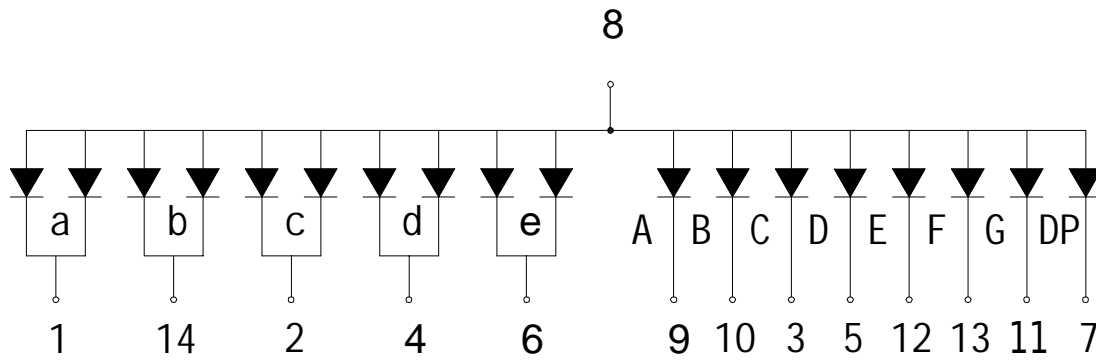
PIN NO. 1 →

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



Internal Circuit Diagram

LBD336D-XX





### Electrical Connection

PIN NO.	LBD336D-XX
1.	Cathode a
2.	Cathode c
3.	Cathode C
4.	Cathode d
5.	Cathode D
6.	Cathode e
7.	Cathode DP
8.	Common Anode
9.	Cathode A
10.	Cathode B
11.	Cathode G
12.	Cathode E
13.	Cathode F
14.	Cathode b



Absolute Maximum Ratings at Ta=25 °C

Parameter	Symbol	Ratings			UNIT
		Y	E	G	
Forward Current Per Chip	IF	20	30	30	mA
Peak Forward Current Per Chip (Duty 1/10,0.1ms Pulse Width)	IFP	80	120	120	mA
Power Dissipation Per Chip	PD	60	100	100	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.	
LBD336D-XX	GaAsP/GaP	Yellow	Common Anode	585	35	1.7	2.1	2.6	12.8	21.5	2:1
	GaAsP/GaP	Orange		635	45	1.7	2.1	2.6	7.2	12.8	
	GaP	Green		565	30	1.7	2.1	2.6	12.8	21.5	

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	Vf	volt	If=20mA
Luminous Intensity Per Chip	Iv	mcd	If=20mA
Peak Wavelength	$\lambda P$	nm	If=20mA
Spectral Line Half-Width	$\Delta \lambda$	nm	If=20mA
Reverse Current Any Chip	Ir	$\mu A$	Vr=5V
Luminous Intensity Matching Ratio	IV-M		



### Typical Electro-Optical Characteristics Curve

Y CHIP

Fig.1 Forward current vs. Forward Voltage

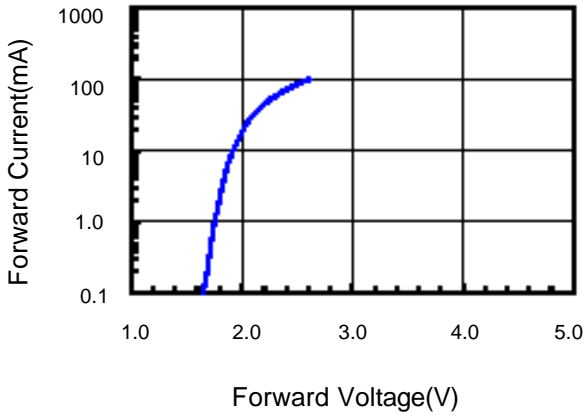


Fig.2 Relative Intensity vs. Forward Current

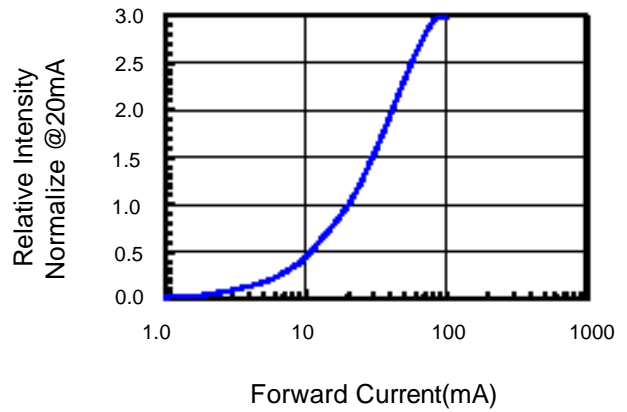


Fig.3 Forward Voltage vs. Temperature

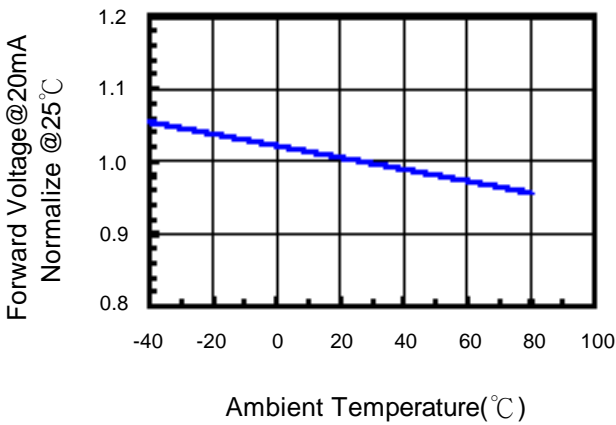


Fig.4 Relative Intensity vs. Temperature

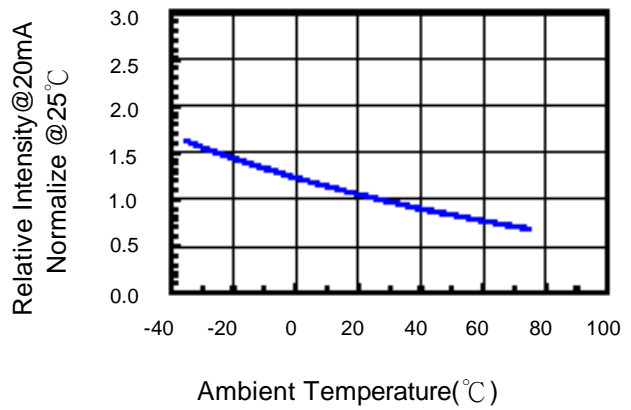
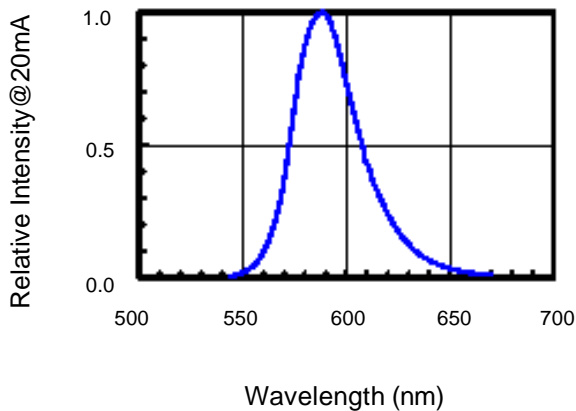


Fig.5 Relative Intensity vs. Wavelength





### Typical Electro-Optical Characteristics Curve

E CHIP

Fig.1 Forward current vs. Forward Voltage

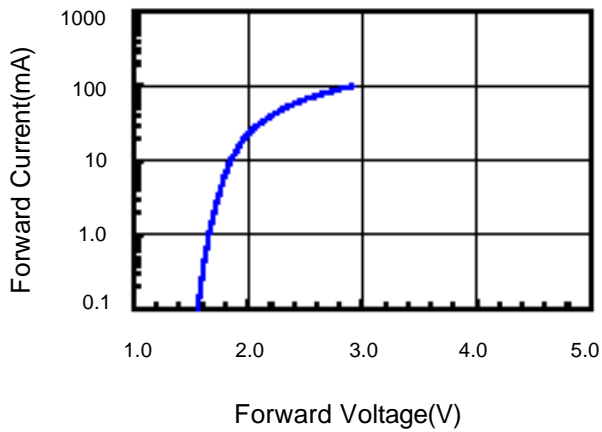


Fig.2 Relative Intensity vs. Forward Current

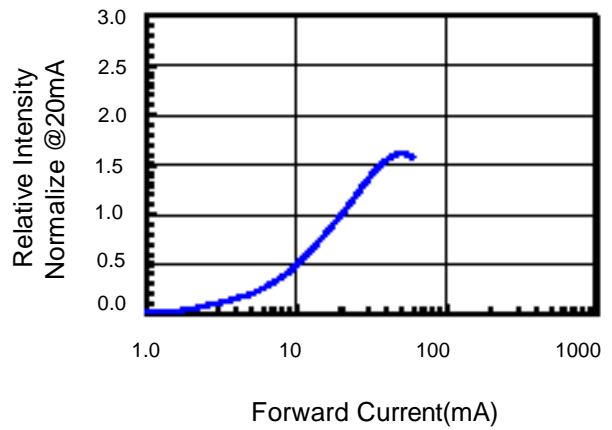


Fig.3 Forward Voltage vs. Temperature

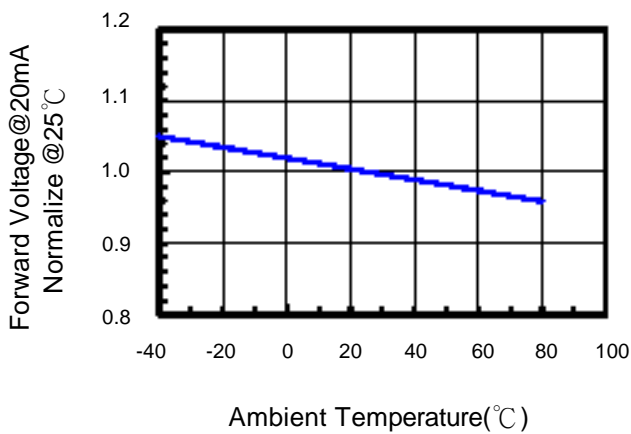


Fig.4 Relative Intensity vs. Temperature

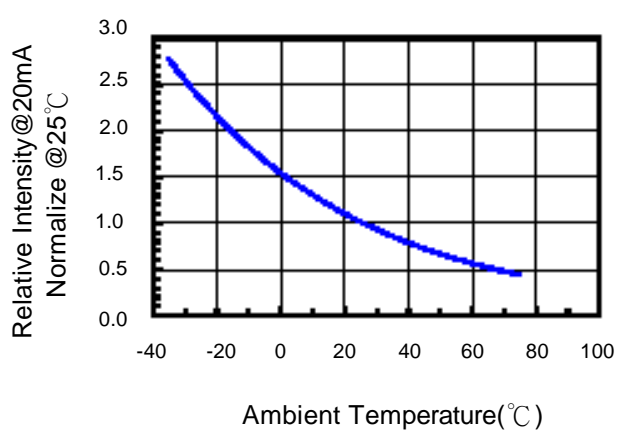
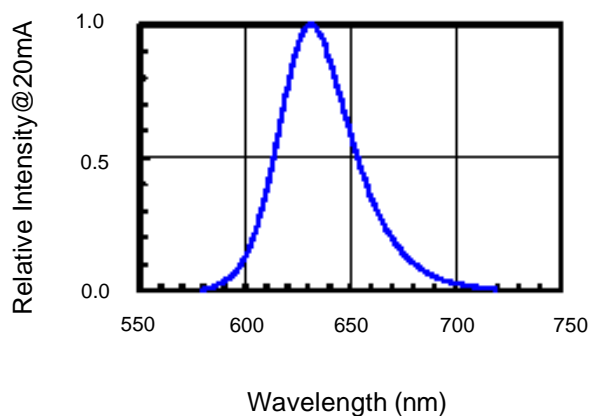


Fig.5 Relative Intensity vs. Wavelength







### Typical Electro-Optical Characteristics Curve

G CHIP

Fig.1 Forward current vs. Forward Voltage

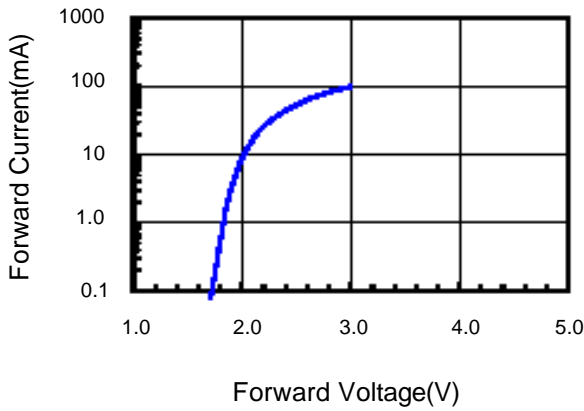


Fig.2 Relative Intensity vs. Forward Current

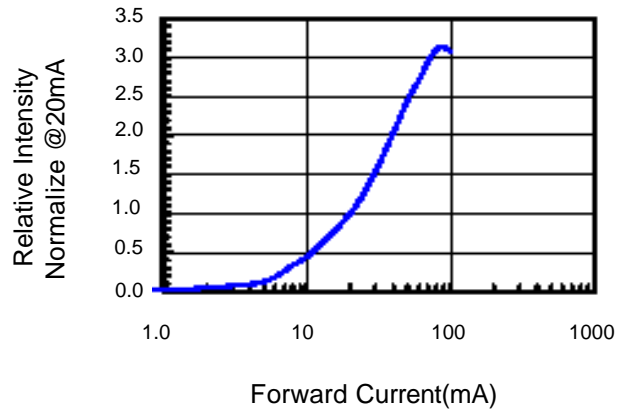


Fig.3 Forward Voltage vs. Temperature

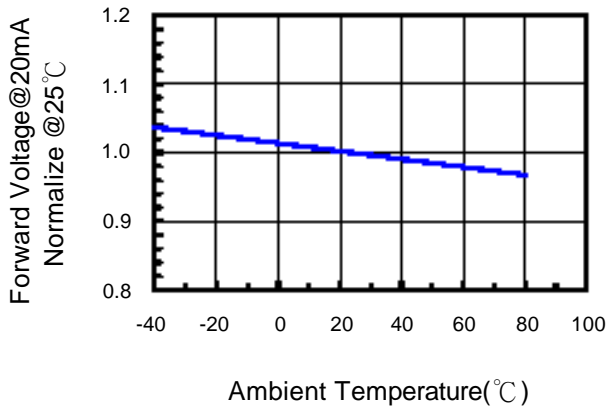


Fig.4 Relative Intensity vs. Temperature

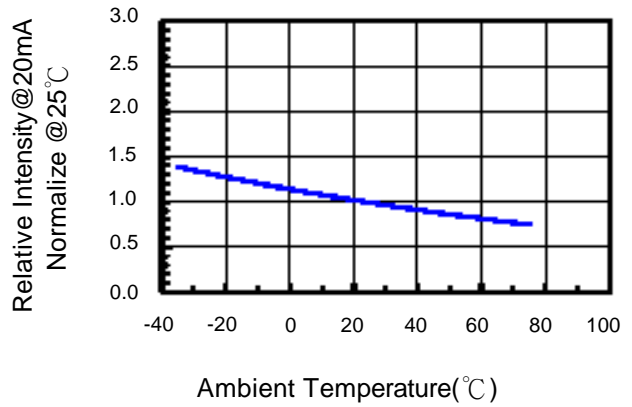
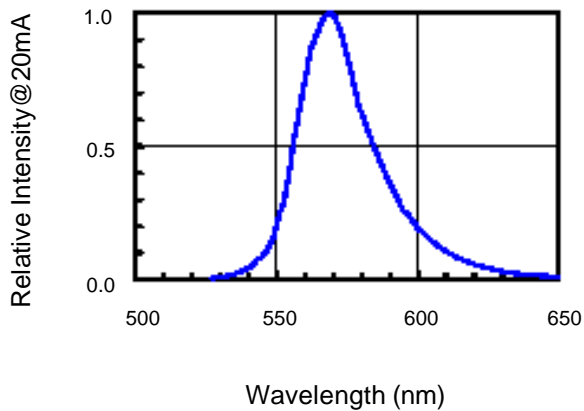


Fig.5 Relative Intensity vs. Wavelength





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