LIGITEK

DOT MATRIX DIGIT LED DISPLAY (2.3Inch)

LMD8821/2BEGR-XX

DATA SHEET

DOC. NO : QW0905-LMD8821/2BEGR-XX

REV. : A

DATE : 08 - Feb. - 2006

LIGITEK

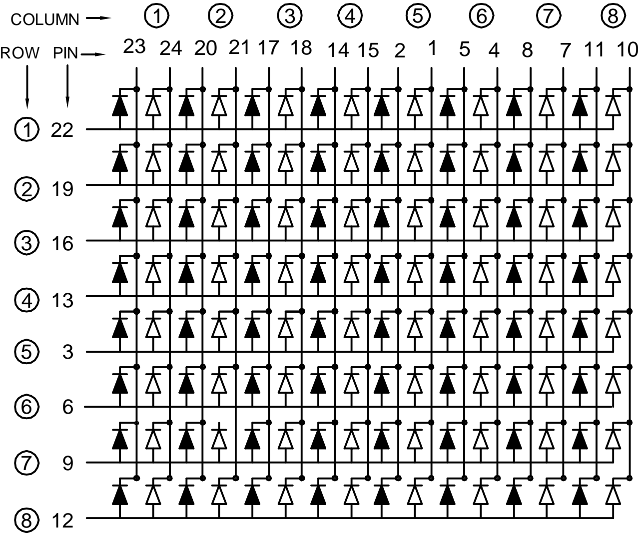
Package Dimensions

60.2(2.37")
7.54X7=52.78(2.08")
60.2 (2.37")
7.54X7 =52.78 (2.08")
9.0 (0.35")
45.75 (1.8")
LMD8821/2BEGR-XX
LIGITEK
5.5±0.5
φ 0.5 TYP
2.54*11=27.94(1.1")
PIN 1

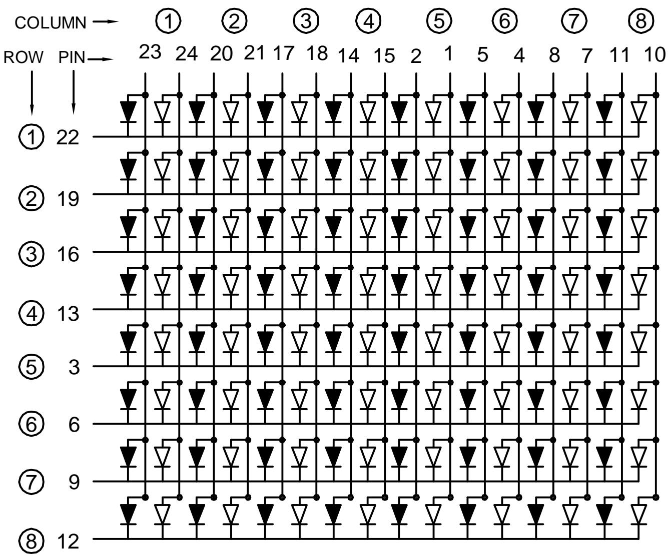
Note : 1.All dimension are in millimeters and (Inch) tolerance is ±0.25mm unless otherwise noted.
2.Specifications are subject to change without notice.

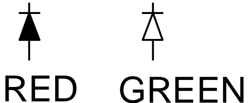
Internal Circuit Diagram

LMD8821BEGR-XX



LMD8822BEGR-XX





Electrical Connection

PIN NO.	LMD8821BEGR-XX	PIN NO.	LMD8821BEGR-XX
1	Cathode Column 5 (Green)	13	Anode Row 4
2	Cathode Column 5 (Red)	14	Cathode Column 4 (Red)
3	Anode Row 5	15	Cathode Column 4 (Green)
4	Cathode Column 6 (Green)	16	Anode Row 3
5	Cathode Column 6 (Red)	17	Cathode Column 3 (Red)
6	Anode Row 6	18	Cathode Column 3 (Green)
7	Cathode Column 7 (Green)	19	Anode Row 2
8	Cathode Column 7 (Red)	20	Cathode Column 2 (Red)
9	Anode Row 7	21	Cathode Column 2 (Green)
10	Cathode Column 8 (Green)	22	Anode Row 1
11	Cathode Column 8 (Red)	23	Cathode Column 1 (Red)
12	Anode Row 8	24	Cathode Column 1 (Green)

Electrical Connection

PIN NO.	LMD8822BEGR-XX	PIN NO.	LMD8822BEGR-XX
1	Anode Column 5 (Green)	13	Cathode Row 4
2	Anode Column 5 (Red)	14	Anode Column 4 (Red)
3	Cathode Row 5	15	Anode Column 4 (Green)
4	Anode Column 6 (Green)	16	Cathode Row 3
5	Anode Column 6 (Red)	17	Anode Column 3 (Red)
6	Cathode Row 6	18	Anode Column 3 (Green)
7	Anode Column 7 (Green)	19	Cathode Row 2
8	Anode Column 7 (Red)	20	Anode Column 2 (Red)
9	Cathode Row 7	21	Anode Column 2 (Green)
10	Anode Column 8 (Green)	22	Cathode Row 1
11	Anode Column 8 (Red)	23	Anode Column 1 (Red)
12	Cathode Row 8	24	Anode Column 1 (Green)

Absolute Maximum Ratings at Ta=25 ℃

Parameter	Symbol	Ratings		UNIT
		E	G	
Forward Current Per Chip	I_F	30	30	mA
Peak Forward Current Per Chip (Duty 1/10,0.1ms Pulse Width)	I_{FP}	120	120	mA
Power Dissipation Per Chip	PD	100	100	mW
Reverse Current Per Any Chip	Ir	10		μA
Operating Temperature	T_{opr}	-25 ~ +85		℃
Storage Temperature	Tstg	-25 ~ +85		℃
Solder Temperature 1/16 Inch Below Seating Plane For 3 Seconds At 260 ℃				

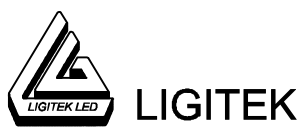
Part Selection And Application Information(Ratings at 25℃)

PART NO	CHIP		common cathode or anode	λP (nm)	△λ (nm)	Electrical					IV-M
						Vf(v)			Iv(mcd)		
	Material	Emitted				Min.	Typ.	Max.	Min.	Typ.	
LMD8821BEGR-XX	GaAsP/GaP	Orange	Common Cathode	640	45	1.7	2.1	2.6	4.0	6.1	2:1
	GaP	Green		565	30	1.7	2.1	2.6	5.0	7.2	
LMD8822BEGR-XX	GaAsP/GaP	Orange	Common Anode	640	45	1.7	2.1	2.6	4.0	6.1	
	GaP	Green		565	30	1.7	2.1	2.6	5.0	7.2	

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=10mA
Peak Wavelength	λp	nm	If=20mA
Spectral Line Half-Width	$\triangle\lambda$	nm	If=20mA
Reverse Current Any Chip	Ir	μA	Vr=5V
Luminous Intensity Matching Ratio	IV-M		



Typical Electro-Optical Characteristics Curve

E CHIP

Fig.1 Forward current vs. Forward Voltage

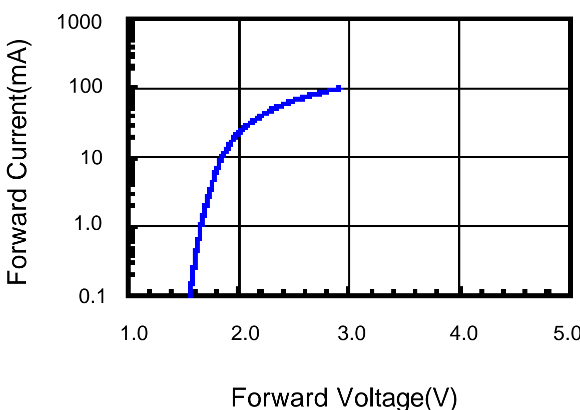


Fig.2 Relative Intensity vs. Forward Current

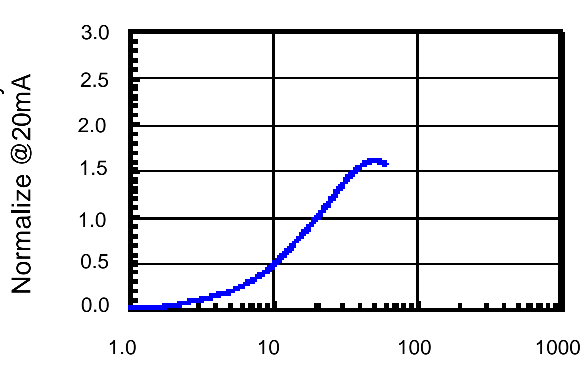
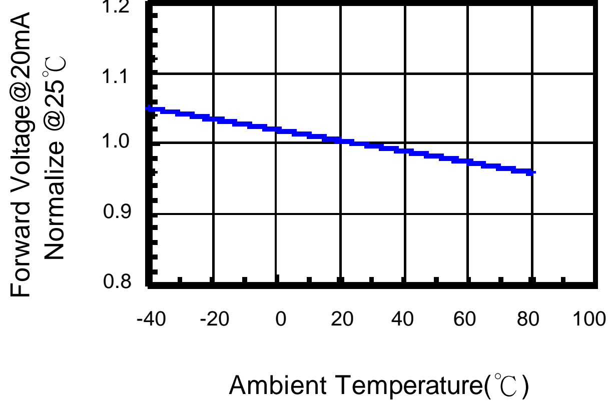


Fig.3 Forward Voltage vs. Temperature

Fig.4 Relative Intensity vs. Temperature



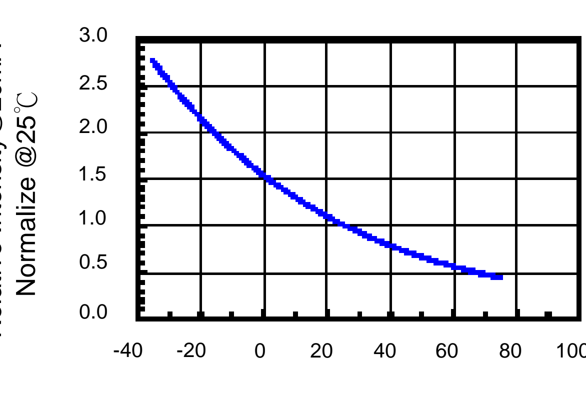
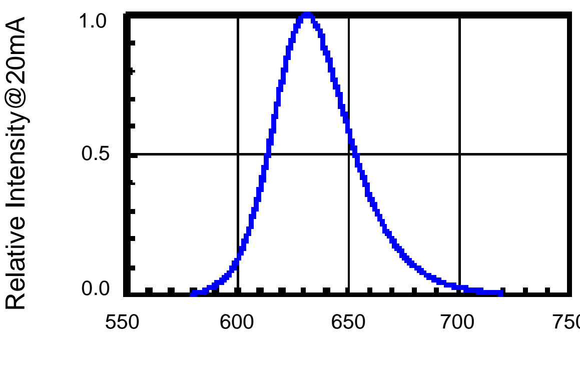


Fig.5 Relative Intensity vs. Wavelength



Typical Electro-Optical Characteristics Curve

G CHIP

Fig.1 Forward current vs. Forward Voltage

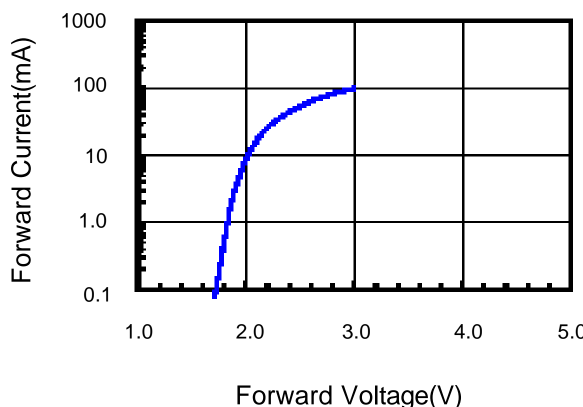


Fig.2 Relative Intensity vs. Forward Current

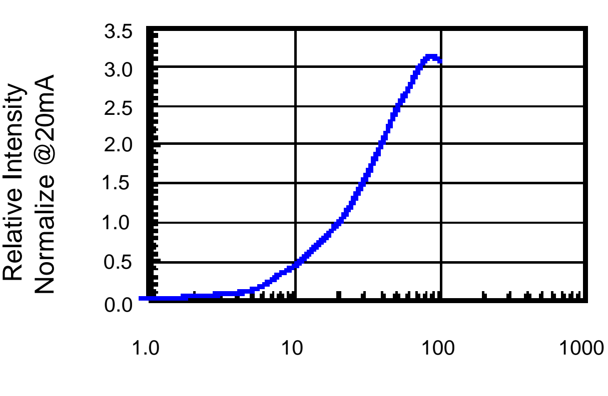


Fig.3 Forward Voltage vs. Temperature

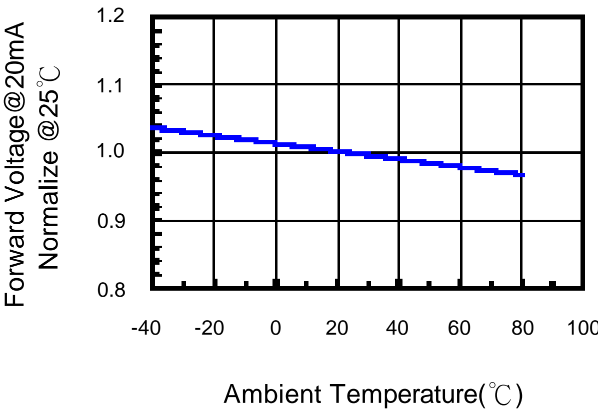


Fig.4 Relative Intensity vs. Temperature

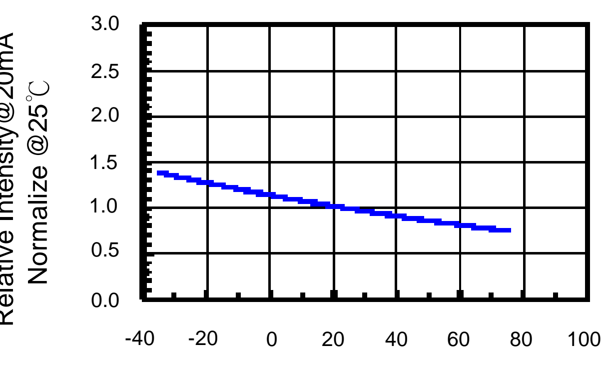
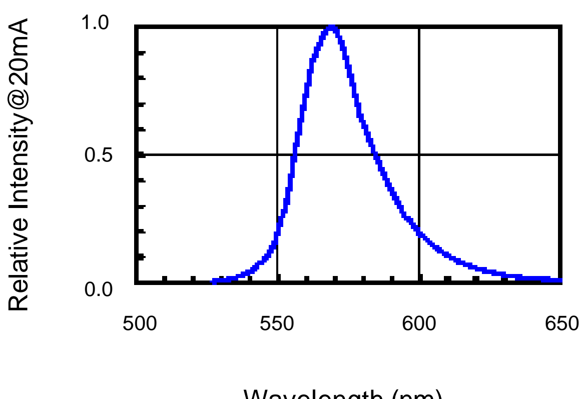
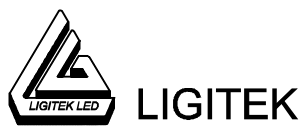


Fig.5 Relative Intensity vs. Wavelength





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 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℃±5℃ 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℃±5℃ 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℃±5℃ 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℃±5℃&-40℃±5℃ (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℃±5℃ 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℃±5℃ 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