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DOT MATRIX DIGIT LED DISPLAY (0.787Inch)



Lead-Free Parts

LMD8801/2BG-XX/RP33-PF

DATA SHEET

DOC. NO : QW0905-LMD8801/2BG-XX/RP33-PF

REV. : B

DATE : 21 - Apr. - 2009





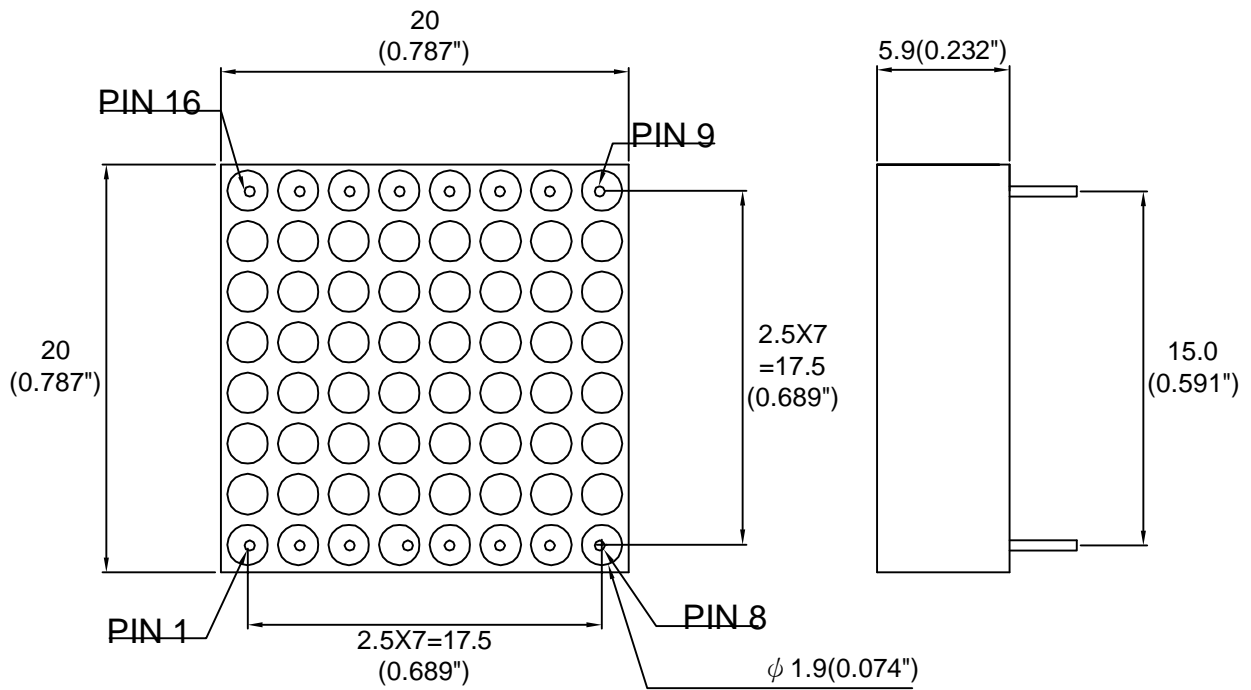
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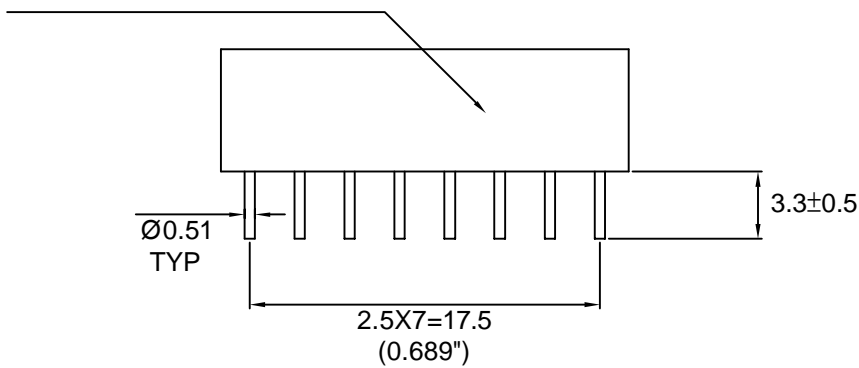
PART NO. LMD8801/2BG-XX/RP33-PF

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Package Dimensions



LMD8801/2BG-XX/RP33-PF
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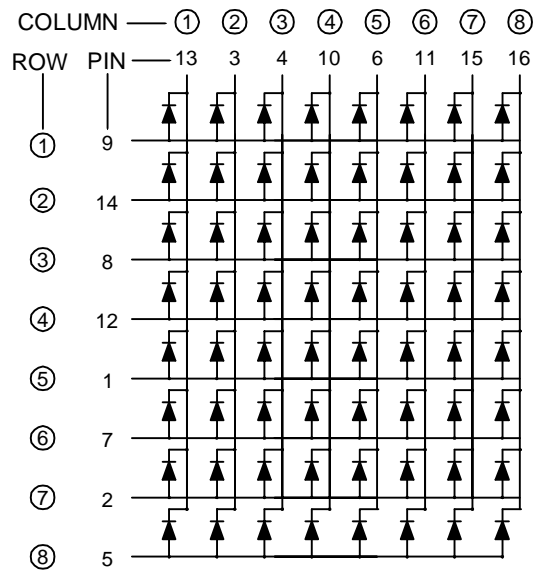
PIN NO.1 →

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.

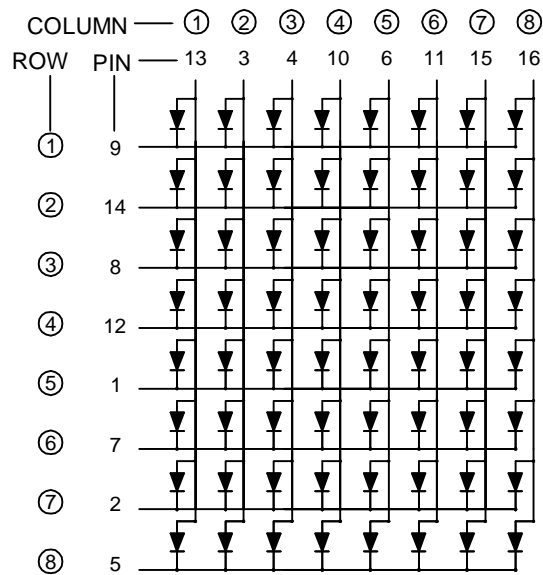


Internal Circuit Diagram

LMD8801BG-XX/RP33-PF



LMD8802BG-XX/RP33-PF



**Electrical Connection**

PIN NO.	LMD8801BG-XX/RP33-PF	PIN NO.	LMD8802BG-XX/RP33-PF
1	Anode Row 5	1	Cathode Row 5
2	Anode Row 7	2	Cathode Row 7
3	Cathode Column 2	3	Anode Column 2
4	Cathode Column 3	4	Anode Column 3
5	Anode Row 8	5	Cathode Row 8
6	Cathode Column 5	6	Anode Column 5
7	Anode Row 6	7	Cathode Row 6
8	Anode Row 3	8	Cathode Row 3
9	Anode Row 1	9	Cathode Row 1
10	Cathode Column 4	10	Anode Column 4
11	Cathode Column 6	11	Anode Column 6
12	Anode Row 4	12	Cathode Row 4
13	Cathode Column 1	13	Anode Column 1
14	Anode Row 2	14	Cathode Row 2
15	Cathode Column 7	15	Anode Column 7
16	Cathode Column 8	16	Anode Column 8



Absolute Maximum Ratings at Ta=25 °C

Parameter	Symbol	Ratings	UNIT
		G	
Forward Current Per Chip	IF	30	mA
Peak Forward Current Per Chip (Duty 1/10,0.1ms Pulse Width)	IFP	120	mA
Power Dissipation Per Chip	PD	100	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	λ P (nm)	Δ λ (nm)	Electrical					IV-M
	Material	Emitted				Vf(v)			Iv(mcd)		
						Min.	Typ.	Max.	Min.	Typ.	
LMD8801BG-XX/RP33-PF	GaP	Green	Common Cathode	565	30	1.7	2.1	2.6	1.75	3.05	2:1
LMD8802BG-XX/RP33-PF			Common Anode								

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 _f	volt	I _f =20mA
Luminous Intensity Per Chip	I _v	mcd	I _f =10mA
Peak Wavelength	λP	nm	I _f =20mA
Spectral Line Half-Width	$\Delta \lambda$	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

G CHIP

Fig.1 Forward current vs. Forward Voltage

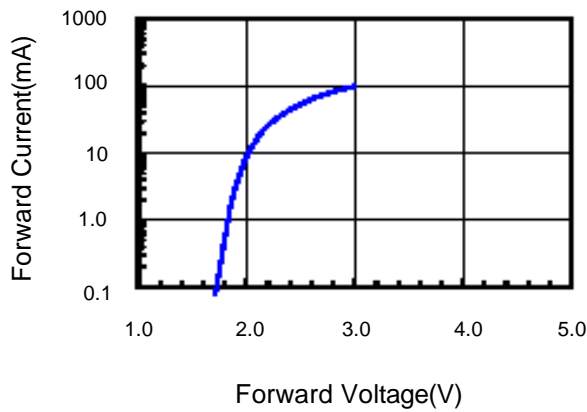


Fig.2 Relative Intensity vs. Forward Current

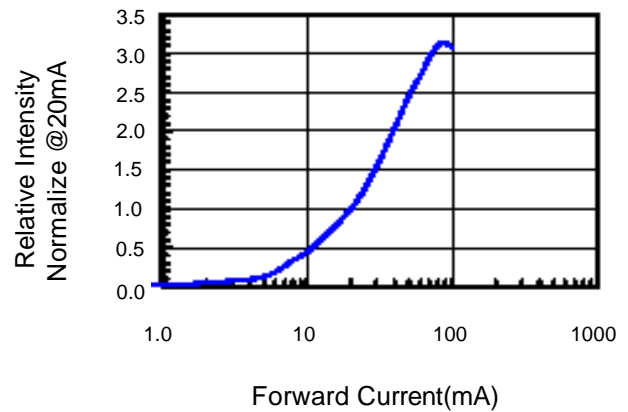


Fig.3 Forward Voltage vs. Temperature

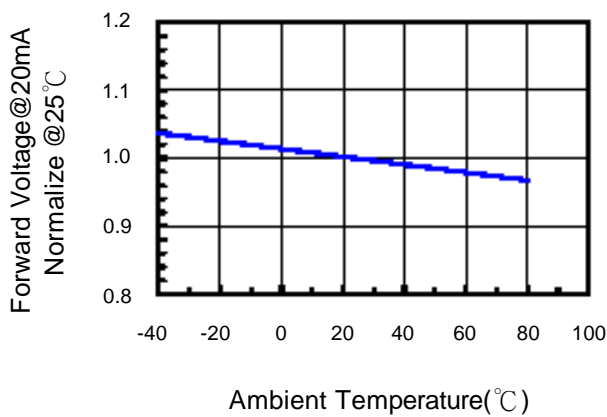


Fig.4 Relative Intensity vs. Temperature

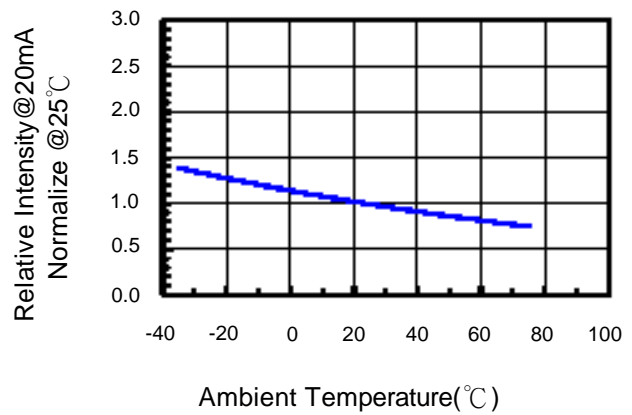
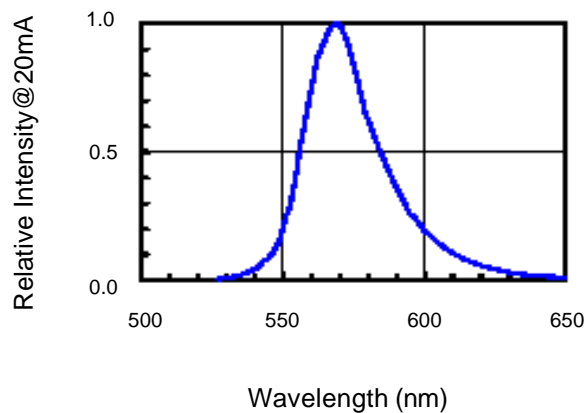


Fig.5 Relative Intensity vs. Wavelength





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

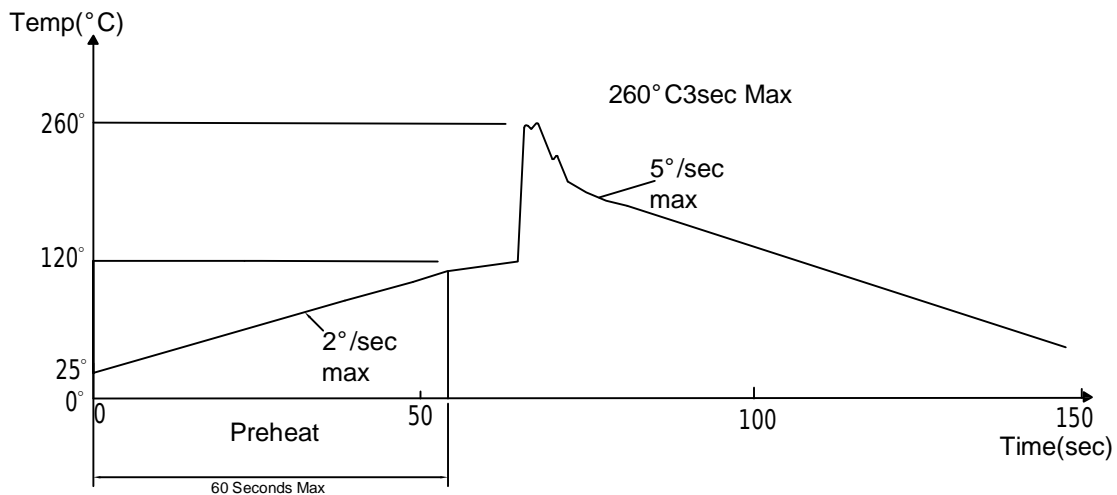
2° C/sec(max)

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