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DUAL DIGIT LED DISPLAY (0.8 Inch)



Lead-Free Parts

## LDD845/6EGR-XX-PF

# DATA SHEET

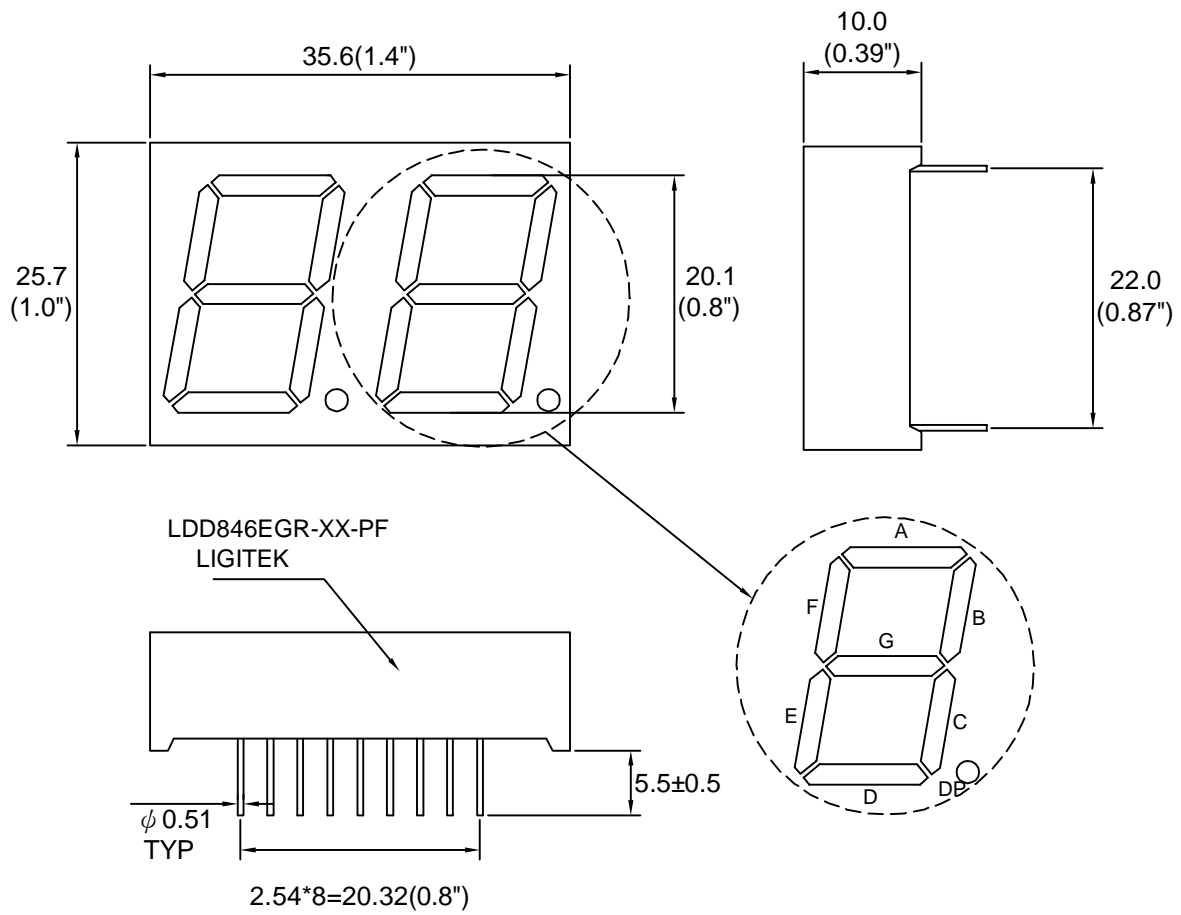
DOC. NO : QW0905-LDD845/6EGR-XX-PF

REV. : A

DATE : 30 - Oct. - 2006



### Package Dimensions

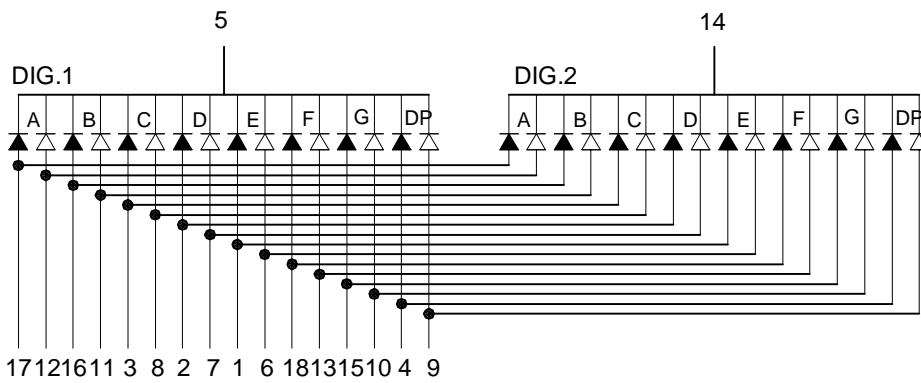


Note : 1.All dimension are in millimeters and (Inch) tolerance is  $\pm 0.25(0.01)$ " unless otherwise noted.  
2.Specifications are subject to change without notice.

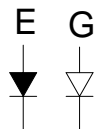
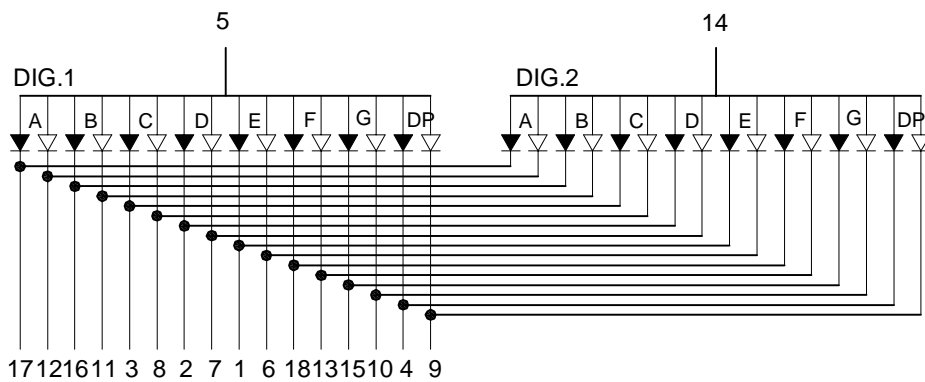


### Internal Circuit Diagram

#### LDD845EGR-XX-PF



#### LDD846EGR-XX-PF



**Electrical Connection**

PIN NO.	LDD845EGR-XX-PF	PIN NO.	LDD846EGR-XX-PF
1	Anode E (R)	1	Cathode E (R)
2	Anode D (R)	2	Cathode D (R)
3	Anode C (R)	3	Cathode C (R)
4	Anode DP (R)	4	Cathode DP (R)
5	Common Cathode Dig.1	5	Common Anode Dig.1
6	Anode E (G)	6	Cathode E (G)
7	Anode D (G)	7	Cathode D (G)
8	Anode C (G)	8	Cathode C (G)
9	Anode DP (G)	9	Cathode DP (G)
10	Anode G (G)	10	Cathode G (G)
11	Anode B (G)	11	Cathode B (G)
12	Anode A (G)	12	Cathode A (G)
13	Anode F (G)	13	Cathode F (G)
14	Common Cathode Dig.2	14	Common Anode Dig.2
15	Anode G (R)	15	Cathode G (R)
16	Anode B (R)	16	Cathode B (R)
17	Anode A (R)	17	Cathode A (R)
18	Anode F (R)	18	Cathode F (R)



## Absolute Maximum Ratings at Ta=25 °C

Parameter	Symbol	Ratings		UNIT
		E	G	
Forward Current Per Chip	IF	30	30	mA
Peak Forward Current Per Chip (Duty 1/10,0.1ms Pulse Width)	IFP	120	120	mA
Power Dissipation Per Chip	PD	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.	
LDD845EGR-XX-PF	GaAsP/GaP	Orange	Common Cathode	640	45	1.7	2.1	2.6	1.0	1.75	2:1
	GaP	Green		565	30	1.7	2.1	2.6	1.75	3.05	
LDD846EGR-XX-PF	GaAsP/GaP	Orange	Common Anode	640	45	1.7	2.1	2.6	1.0	1.75	
	GaP	Green		565	30	1.7	2.1	2.6	1.75	3.05	

- 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	$\lambda p$	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

E CHIP

Fig.1 Forward current vs. Forward Voltage

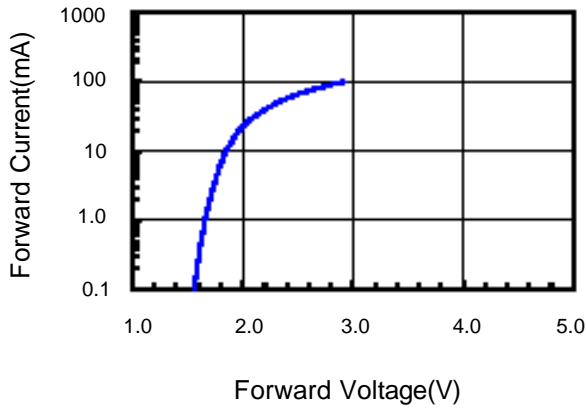


Fig.2 Relative Intensity vs. Forward Current

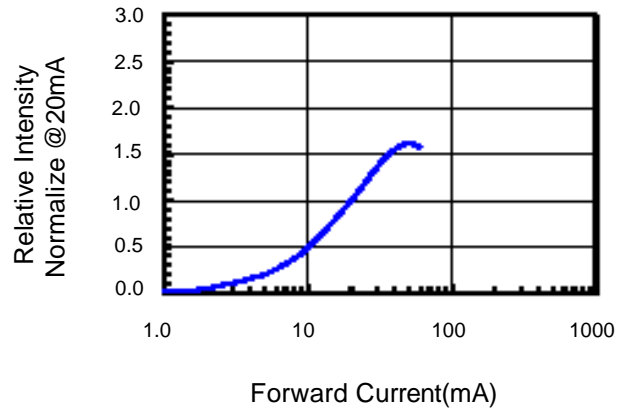


Fig.3 Forward Voltage vs. Temperature

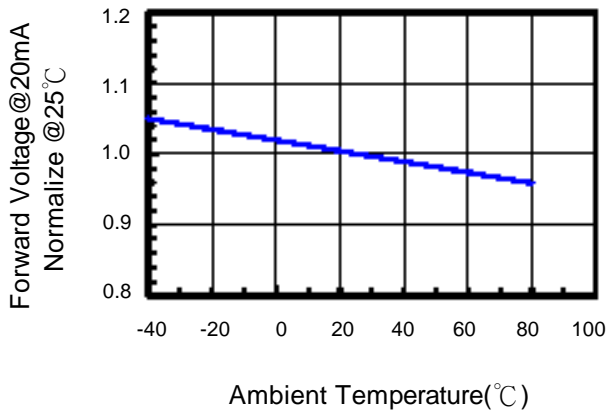


Fig.4 Relative Intensity vs. Temperature

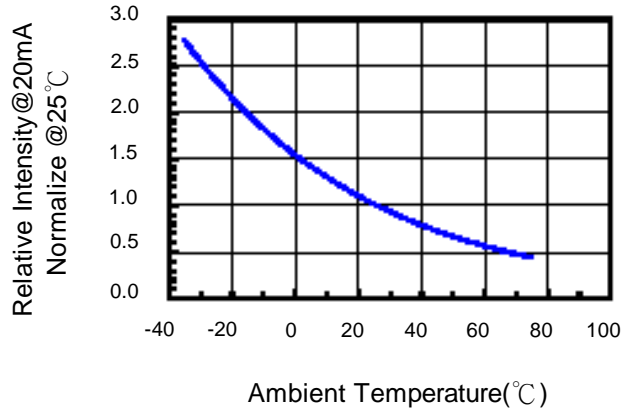
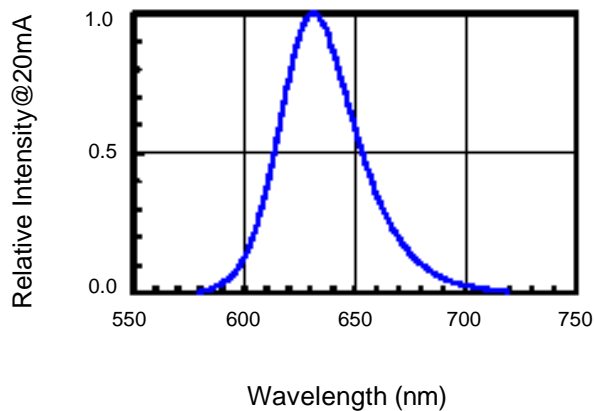


Fig.5 Relative Intensity vs. Wavelength





### Typical Electro-Optical Characteristics Curve

G CHIP

Fig.1 Forward current vs. Forward Voltage

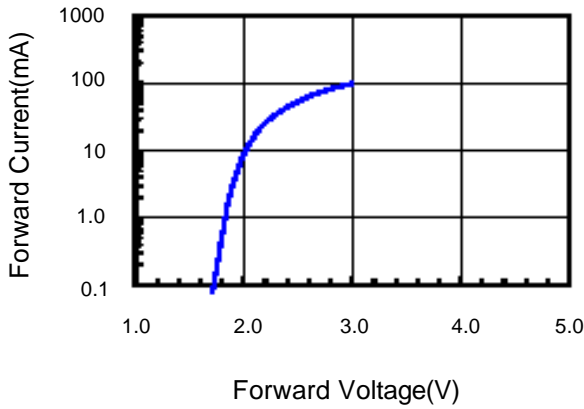


Fig.2 Relative Intensity vs. Forward Current

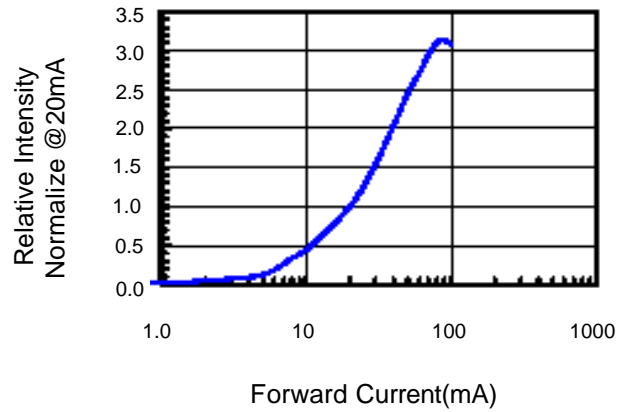


Fig.3 Forward Voltage vs. Temperature

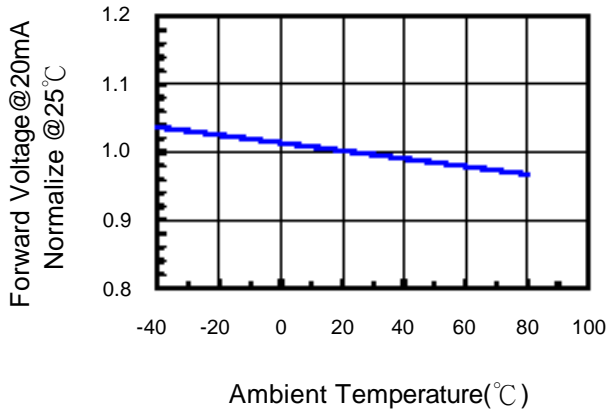


Fig.4 Relative Intensity vs. Temperature

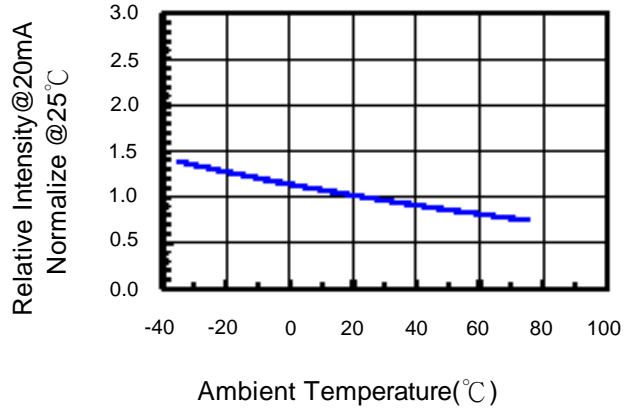
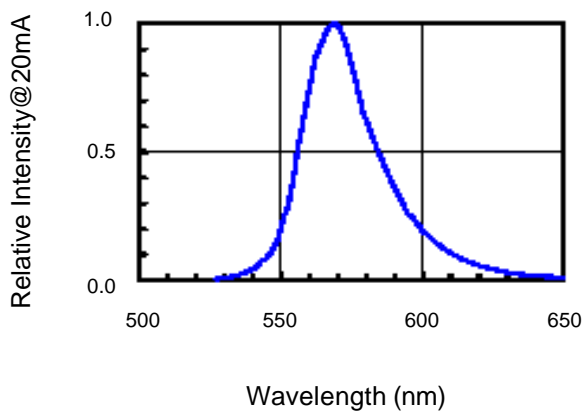


Fig.5 Relative Intensity vs. Wavelength







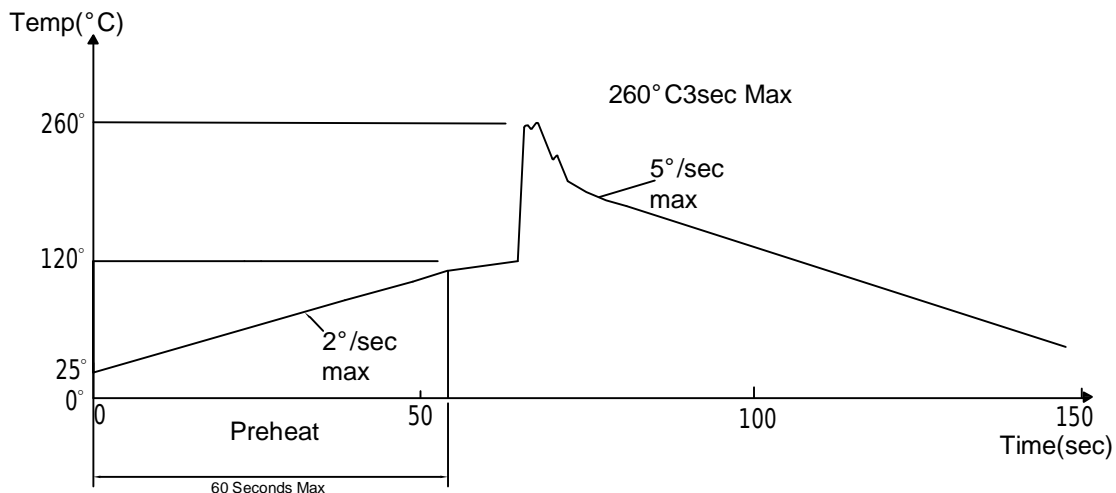
### Soldering Condition(Pb-Free)

#### 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