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DUAL DIGIT LED DISPLAY (0.30 Inch)



Lead-Free Parts

**LDD305/65-XX-PF**

**DATA SHEET**

DOC. NO : QW0905-LDD305/65-XX-PF

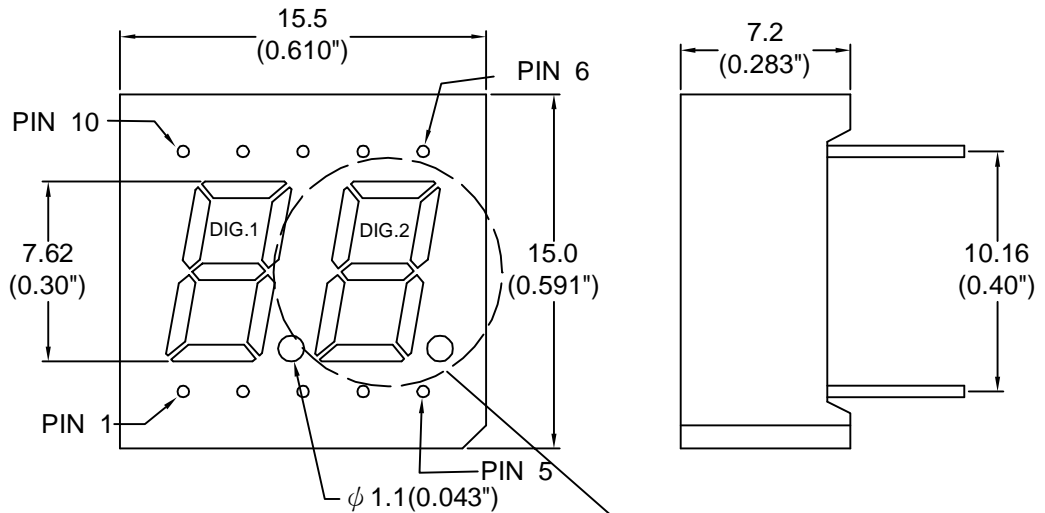
REV. : A

DATE : 25 - May. - 2009

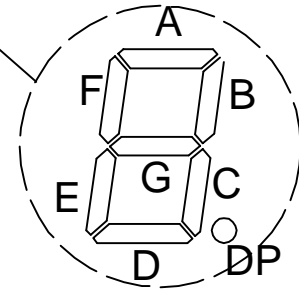
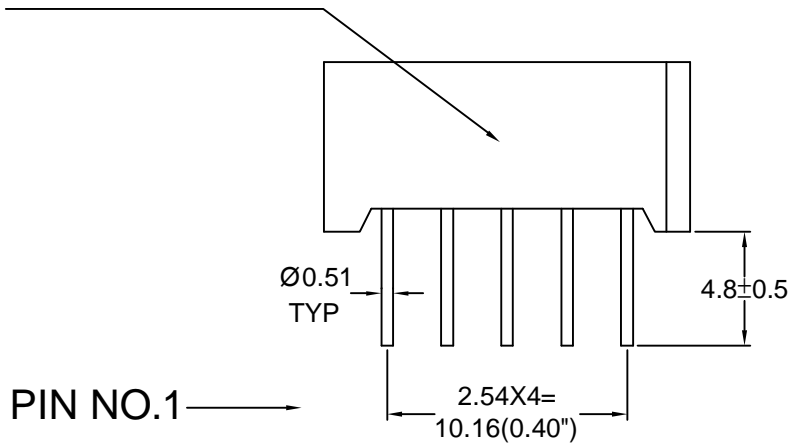




### Package Dimensions



LDD305/65-XX-PF  
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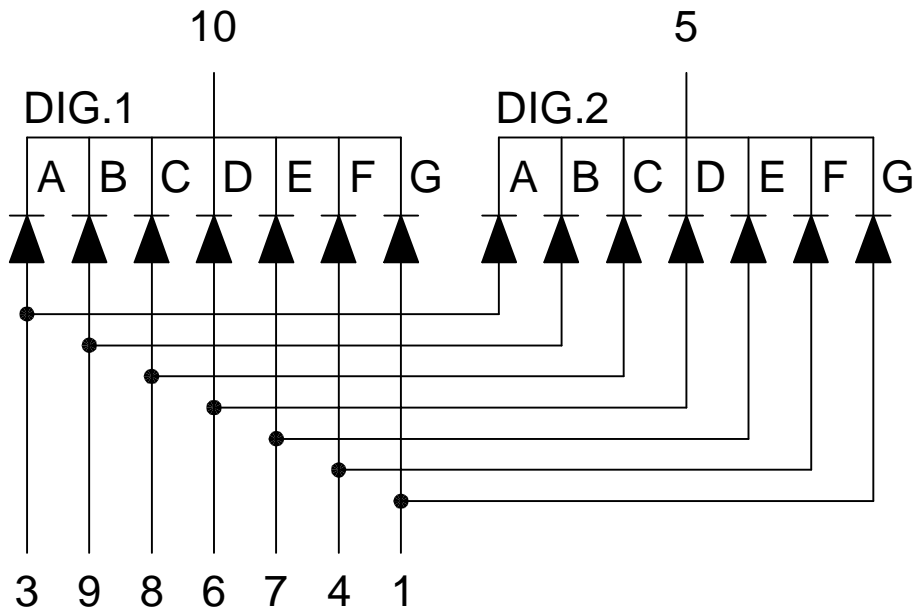


Note : 1.All dimension are in millimeters and (Inch) tolerance is  $\pm 0.25\text{mm}$  unless otherwise noted.  
 2.Specifications are subject to change without notice.

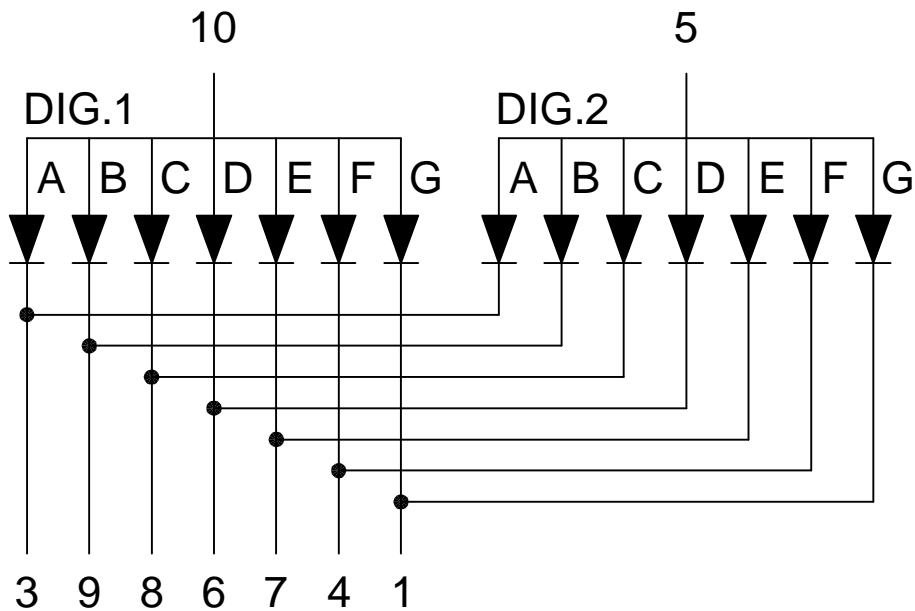


Internal Circuit Diagram

LDD3055-XX-PF



LDD3065-XX-PF





### Electrical Connection

PIN NO.	LDD3055-XX-PF	PIN NO.	LDD3065-XX-PF
1	Anode G	1	Cathode G
2	No Pin	2	No Pin
3	Anode A	3	Cathode A
4	Anode F	4	Cathode F
5	Common Cathode Dig.2	5	Common Anode Dig.2
6	Anode D	6	Cathode D
7	Anode E	7	Cathode E
8	Anode C	8	Cathode C
9	Anode B	9	Cathode B
10	Common Cathode Dig.1	10	Common Anode Dig.1



## Absolute Maximum Ratings at Ta=25 °C

Parameter	Symbol	Ratings	UNIT
		SR	
Forward Current Per Chip	IF	30	mA
Peak Forward Current Per Chip (Duty 1/10,0.1ms Pulse Width)	IFP	100	mA
Power Dissipation Per Chip	PD	100	mW
Reverse Current Per Any Chip	Ir	10	$\mu A$
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	$\lambda P$ (nm)	$\Delta \lambda$ (nm)	Electrical					IV-M
	Material	Emitted				Vf(v)			Iv(mcd)		
						Min.	Typ.	Max.	Min.	Typ.	
LDD3055-XX-PF	GaAlAs	Red	Common Cathode	660	20	1.5	1.7	2.4	1.35	2.35	2:1
LDD3065-XX-PF			Common Anode								

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

**Test Condition For Each Parameter**

Parameter	Symbol	Unit	Test Condition
Forward Voltage Per Chip	$V_f$	volt	$I_f=20\text{mA}$
Luminous Intensity Per Chip	$I_v$	mcd	$I_f=10\text{mA}$
Peak Wavelength	$\lambda P$	nm	$I_f=20\text{mA}$
Spectral Line Half-Width	$\Delta \lambda$	nm	$I_f=20\text{mA}$
Reverse Current Any Chip	$I_r$	$\mu A$	$V_r=5V$
Luminous Intensity Matching Ratio	IV-M		

## Typical Electro-Optical Characteristics Curve

### SR CHIP

Fig.1 Forward current vs. Forward Voltage

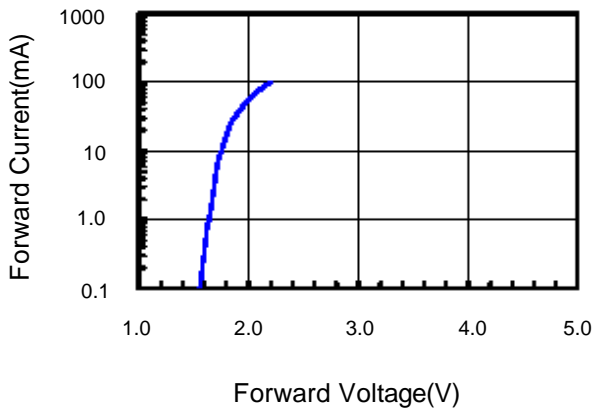


Fig.2 Relative Intensity vs. Forward Current

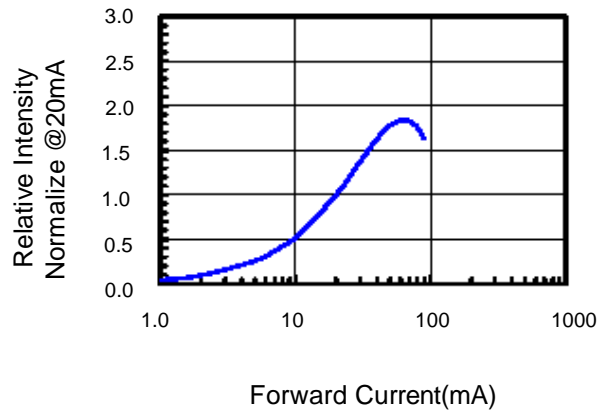


Fig.3 Forward Voltage vs. Temperature

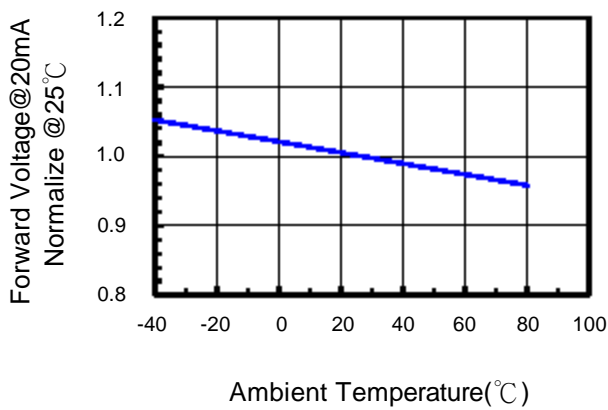


Fig.4 Relative Intensity vs. Temperature

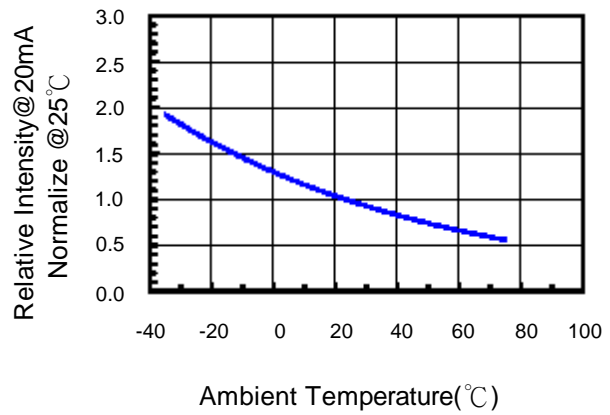
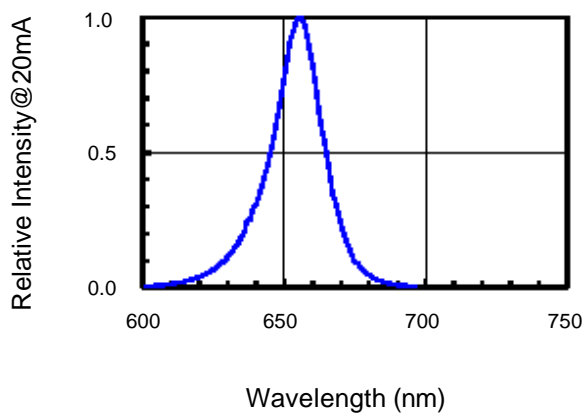


Fig.5 Relative Intensity vs. Wavelength





### 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

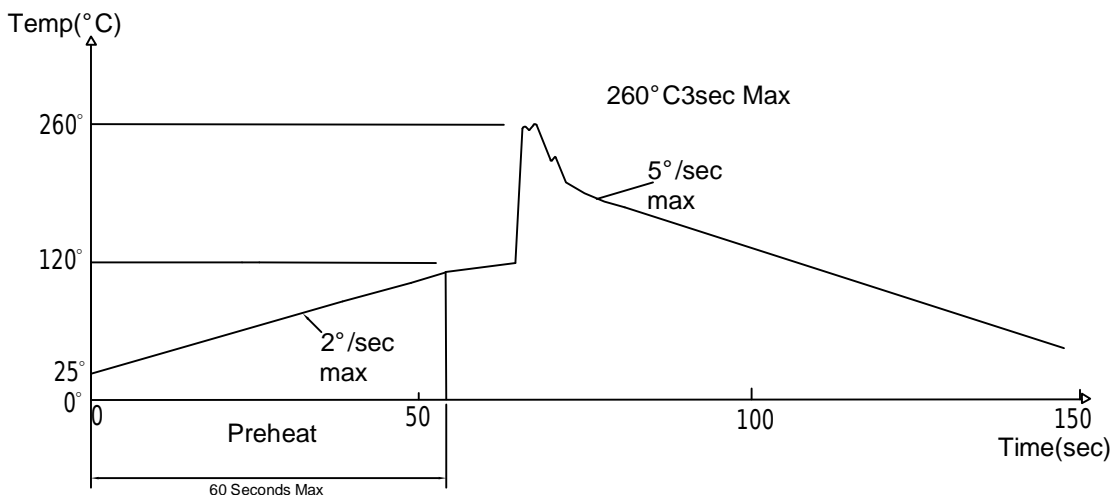
2° C/sec(max)

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 detemining the resisance 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 °C ±5°C 2.t=1000 hrs (-24hrs, +72hrs)	The purpose of this is the resistance of the device which is laid under ondition 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