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SINGLE DIGIT LED DISPLAY (1.0 Inch)

## LSD1015/65-XX

# DATA SHEET

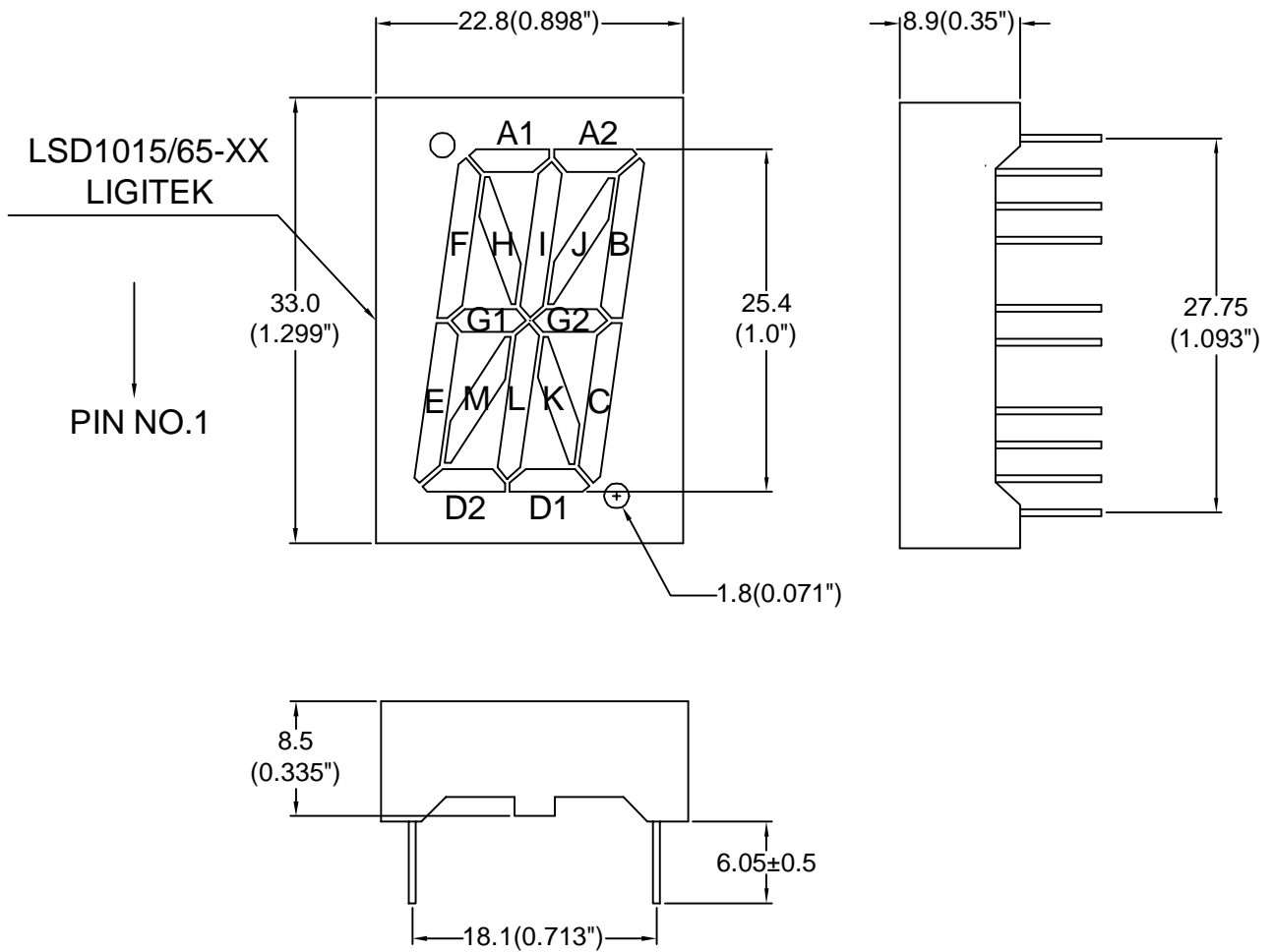
DOC. NO : QW0905-LSD1015/65-XX

REV. : A

DATE : 05 - Jul - 2005



### Package Dimensions

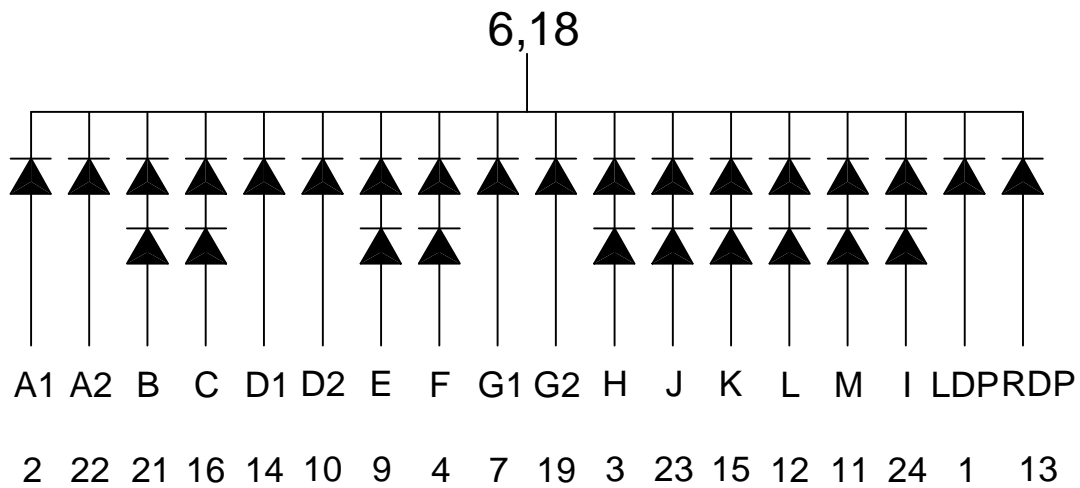


Note : 1.All dimension are in millimeters and (Inch) tolerance is  $\pm 0.25(0.01)$  unless otherwise noted.  
2.Specifications are subject to change without notice.

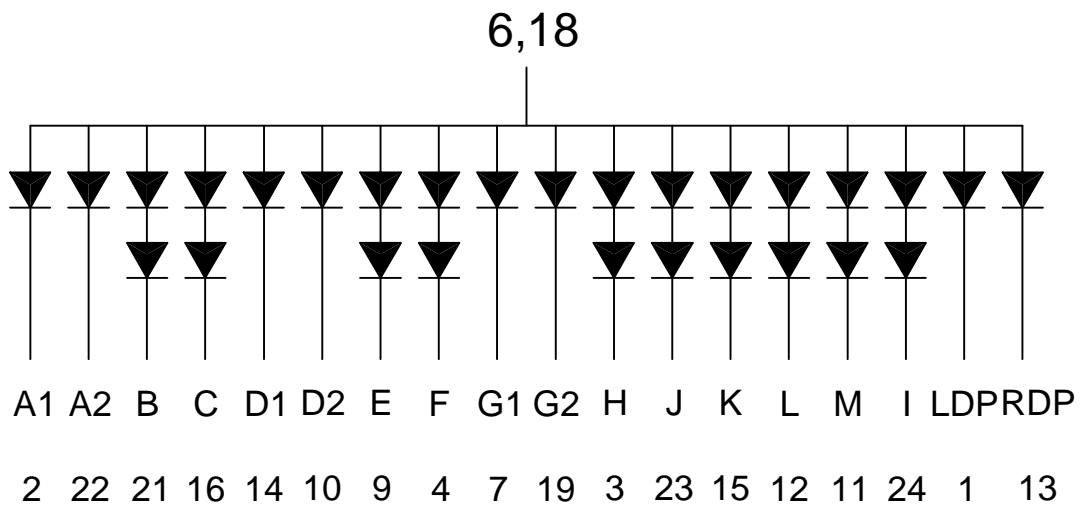


Internal Circuit Diagram

LSD10155-XX



LSD10165-XX





### Electrical Connection

Connection To Electrical Schematic			
Electrical connection			
PIN NO.	LSD10155-XX	PIN NO.	LSD10165-XX
1	Anode LDP	1	Cathode LDP
2	Anode A1	2	Cathode A1
3	Anode H	3	Cathode H
4	Anode F	4	Cathode F
5	No Pin	5	No Pin
6	Common Cathode	6	Commom Anode
7	Anode G1	7	Cathode G1
8	No Pin	8	No Pin
9	Anode E	9	Cathode E
10	Anode D2	10	Cathode D2
11	Anode M	11	Cathode M
12	Anode L	12	Cathode L
13	Anode RDP	13	Cathode RDP
14	Anode D1	14	Cathode D1
15	Anode K	15	Cathode K
16	Anode C	16	Cathode C
17	No Pin	17	No Pin
18	Common Cathode	18	Commom Anode
19	Anode G2	19	Cathode G2
20	No Pin	20	No Pin
21	Anode B	21	Cathode B
22	Anode A2	22	Cathode A2
23	Anode J	23	Cathode J
24	Anode I	24	Cathode I



Absolute Maximum Ratings at Ta=25

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	μA
Operating Temperature	Topr	-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	P (nm)	(nm)	Electrical					IV-M
	Material	Emitted				Vf(v)			Iv(mcd)		
						Min.	Typ.	Max.	Min.	Typ.	
LSD10155-XX	GaAlAs	Red	Common Cathode	660	20	1.5	1.7	2.4	2.35	4.0	2:1
LSD10165-XX			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	Vf	volt	If=20mA
Luminous Intensity Per Chip	Iv	mcd	If=10mA
Peak Wavelength	P	nm	If=20mA
Spectral Line Half-Width		nm	If=20mA
Reverse Current Any Chip	Ir	μ A	Vr=5V
Luminous Intensity Matching Ratio	IV-M		



### Typical Electro-Optical Characteristics Curve

#### SR CHIP

Fig.1 Forward current vs. Forward Voltage

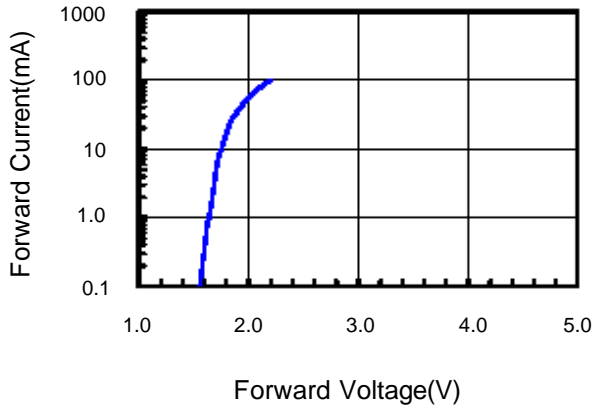


Fig.2 Relative Intensity vs. Forward Current

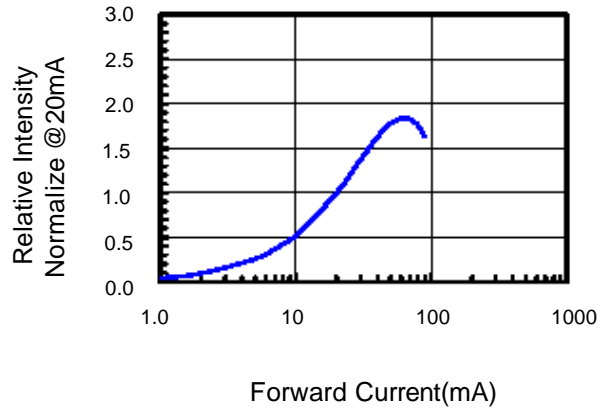


Fig.3 Forward Voltage vs. Temperature

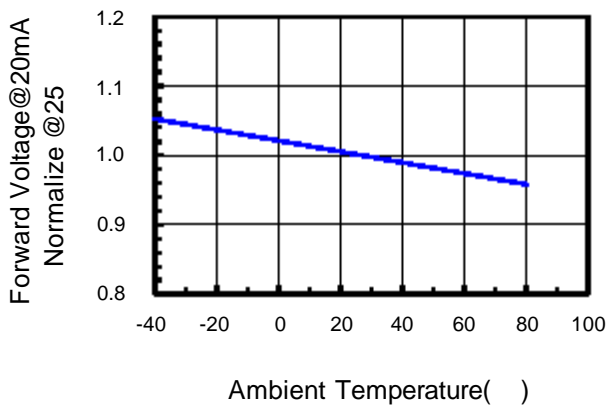


Fig.4 Relative Intensity vs. Temperature

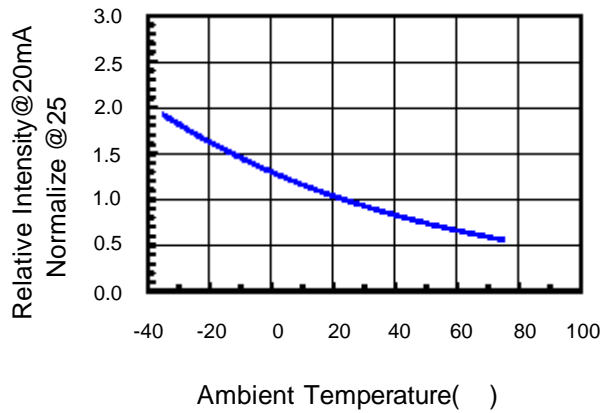
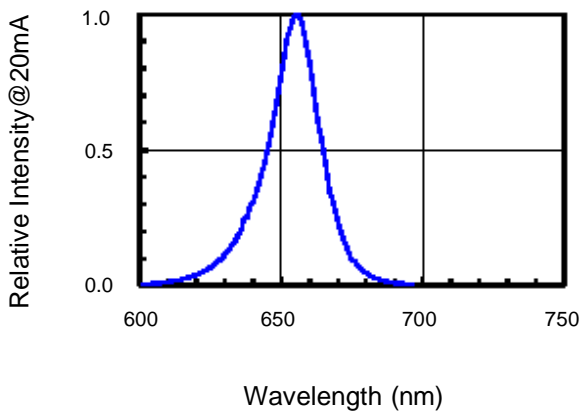


Fig.5 Relative Intensity vs. Wavelength





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 ±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