



**LIGITEK**

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FOUR DIGIT LED DISPLAY (0.39 Inch)

## **LFD435/69-XX**

# DATA SHEET

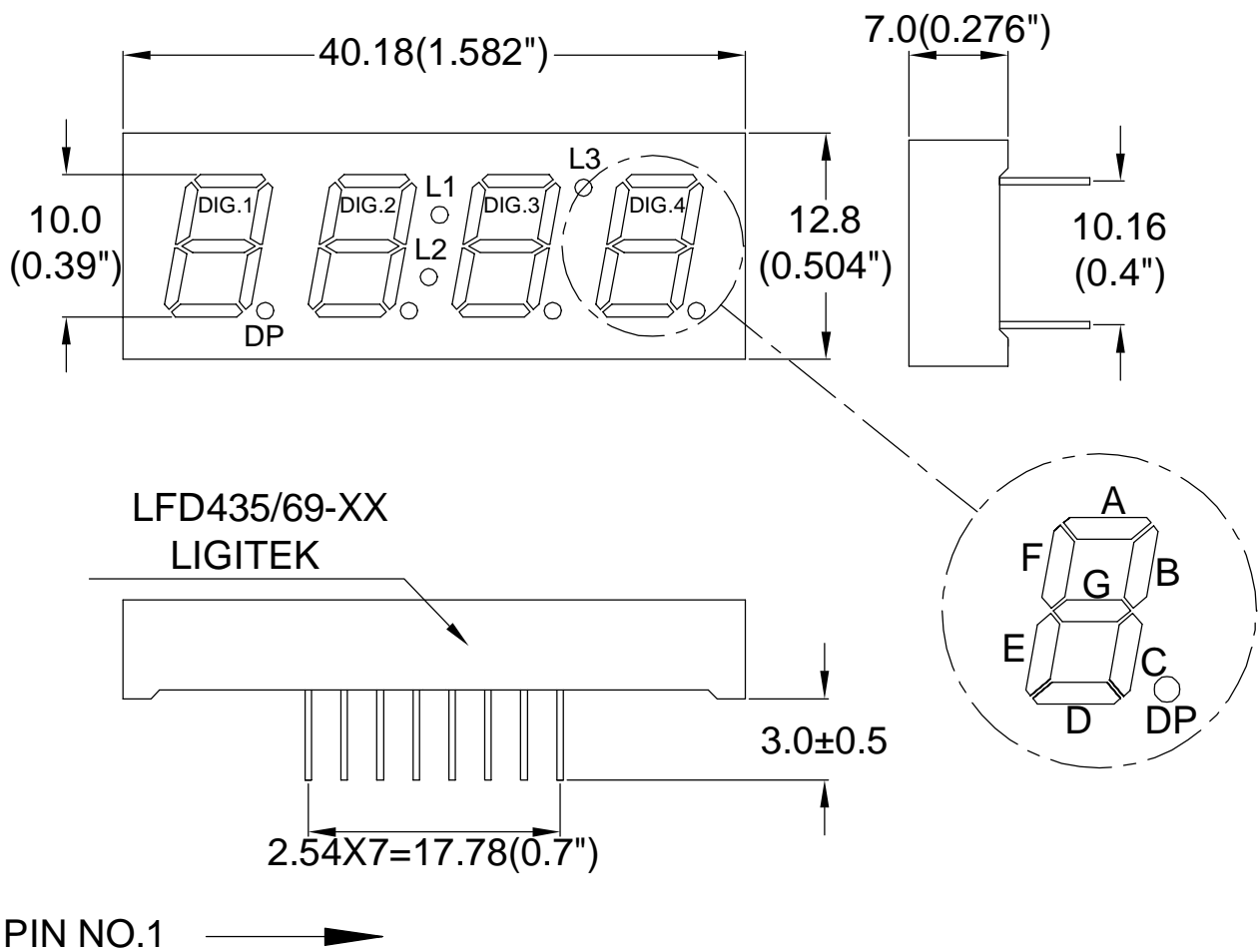
DOC. NO : QW0905-LFD435/69-XX

REV. : A

DATE : 14 - Oct - 2004



### Package Dimensions



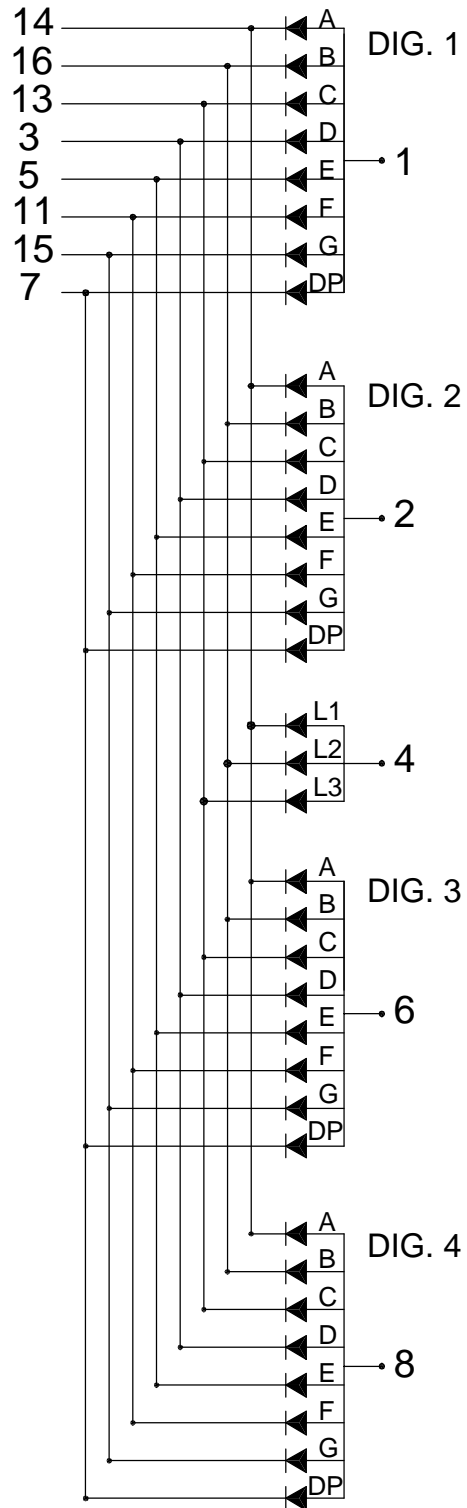
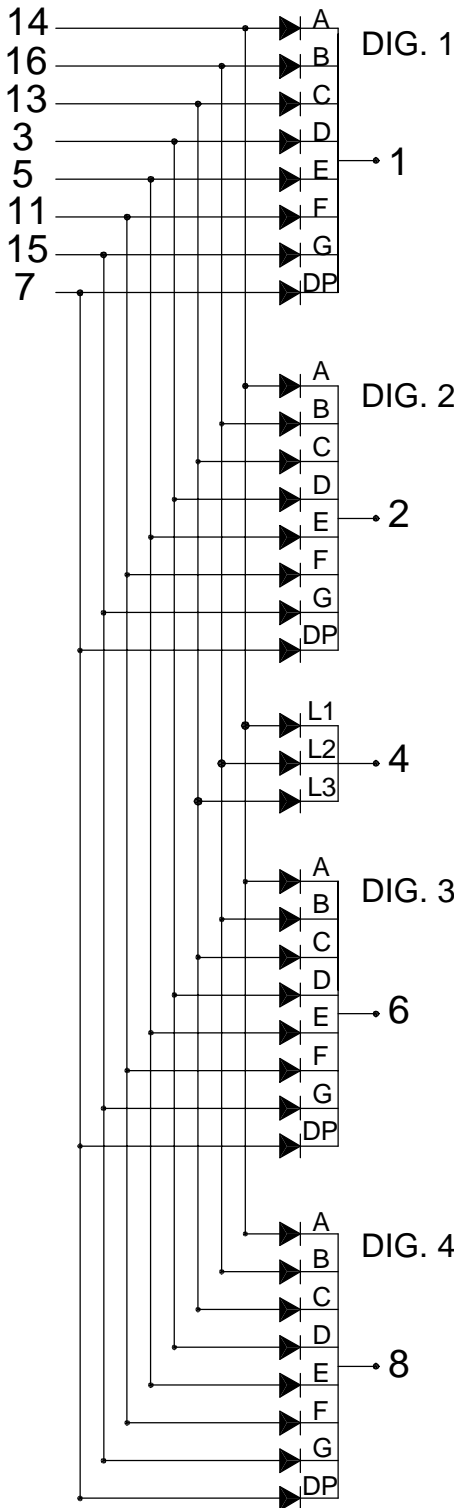
Note : 1.All dimension are in millimeters and (Inch) tolerance is ±0.25mm unless otherwise noted.  
2.Specifications are subject to change without notice.



### Internal Circuit Diagram

LFD4359-XX

LFD4369-XX



**Electrical Connection**

PIN NO.1	LFD4359-XX	PIN NO.1	LFD4369-XX
1	Common Cathode Dig.1	1	Common Anode Dig.1
2	Common Cathode Dig.2	2	Common Anode Dig.2
3	Anode D	3	Cahtode D
4	Common Cathode L1,L2,L3	4	Common Anode L1,L2,L3
5	Anode E	5	Cathode E
6	Common Cathode Dig.3	6	Common Anode Dig.3
7	Anode DP	7	Cathode DP
8	Common Cathode Dig.4	8	Common Anode Dig.4
9	NC	9	NC
10	NO PIN	10	NO PIN
11	Anode F	11	Cahtode F
12	NO PIN	12	NO PIN
13	Anode C,L3	13	Cathode C,L3
14	Anode A,L1	14	Cathode A,L1
15	Anode G	15	Cathode G
16	Anode B,L2	16	Cathode B,L2



### Absolute Maximum Ratings at Ta=25

Parameter	Symbol	Ratings	UNIT
		9SEF	
Forward Current Per Chip	IF	30	mA
Peak Forward Current Per Chip (Duty 1/10,0.1ms Pulse Width)	IFP	60	mA
Power Dissipation Per Chip	PD	75	mW
Reverse Current Per Any Chip	Ir	10	μ A
Electrostatic Discharge	ESD	2000	μ A
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	D (nm)	(nm)	Electrical					IV-M
	Material	Emitted				Vf(v)			Iv(mcd)		
						Min.	Typ.	Max.	Min.	Typ.	
LFD4359-XX	AlGaInP	Orange	Common Anode	605	17	1.7	2.1	2.6	37	50	2:1
LFD4369-XX			Common Cathode								

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
Dominant Wavelength	D	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

#### 9SEF CHIP

Fig.1 Forward current vs. Forward Voltage

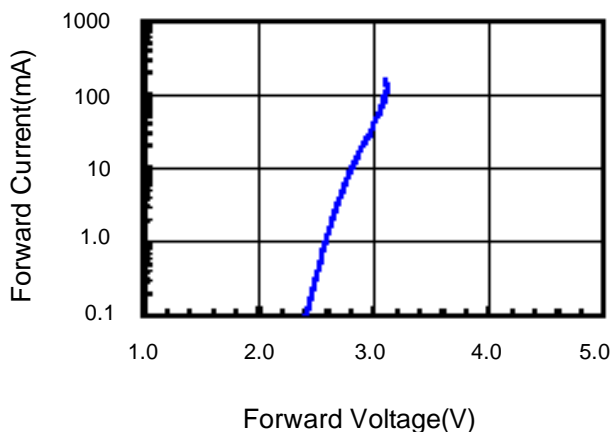


Fig.2 Relative Intensity vs. Forward Current

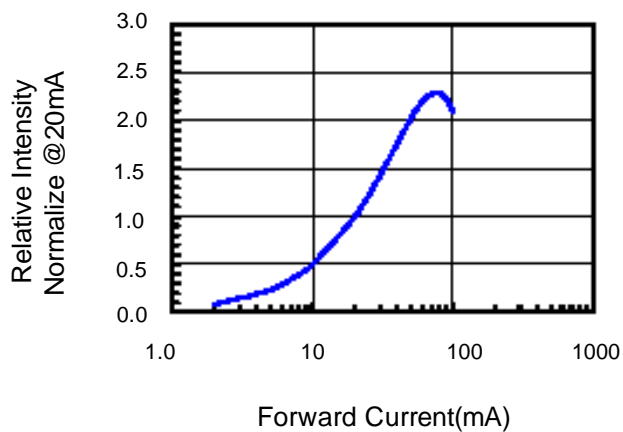


Fig.3 Forward Voltage vs. Temperature

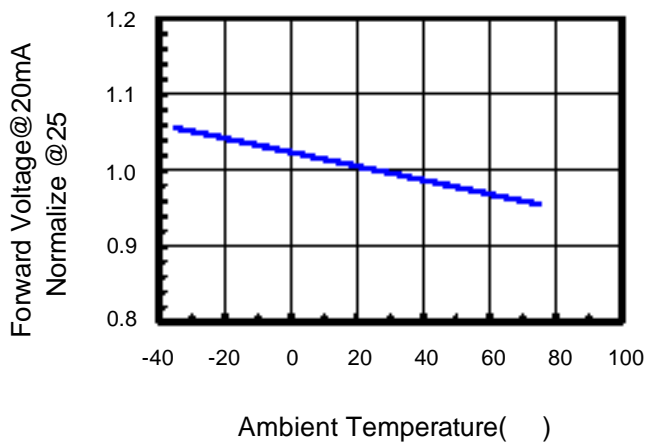


Fig.4 Relative Intensity vs. Temperature

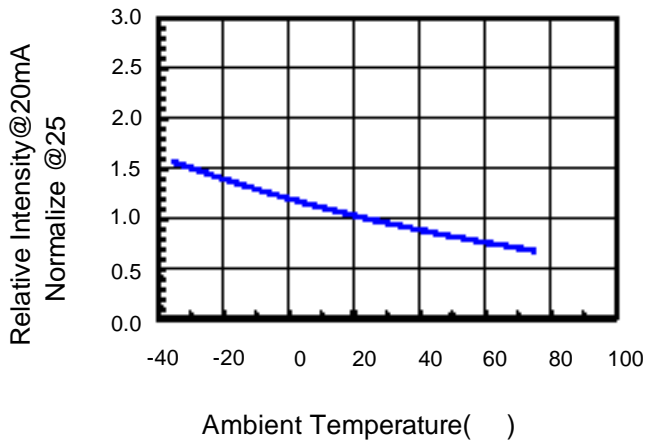
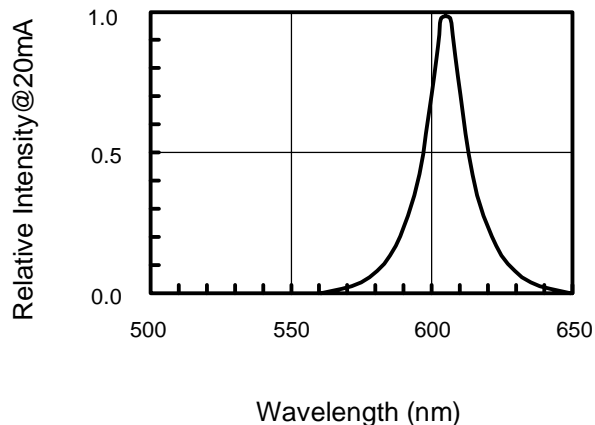


Fig.5 Relative Intensity vs. Wavelength





## 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