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FOUR DIGIT LED DISPLAY (0.39 Inch)

Lead-Free Parts

LFD3F5/62-XX-PF

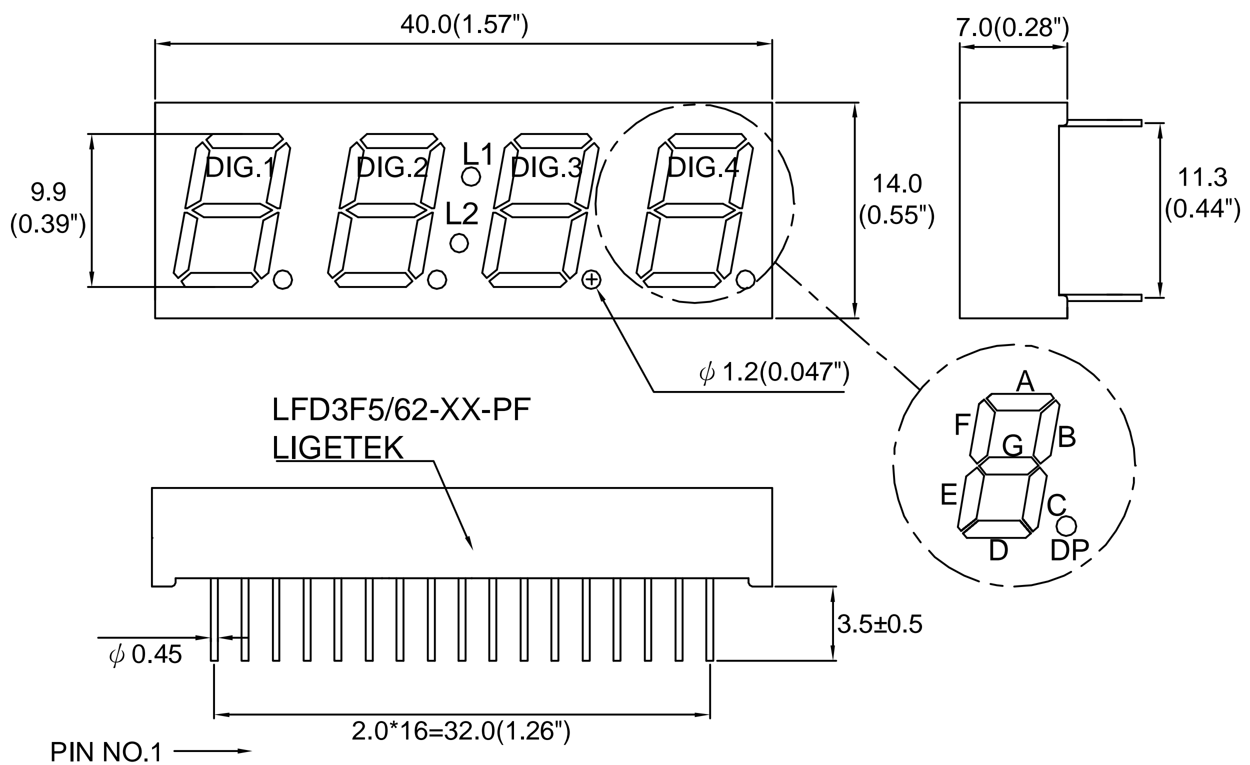
DATA SHEET

DOC. NO : QW0905-LFD3F5/62-XX-PF

REV. : A

DATE : 11 - Apr. - 2006

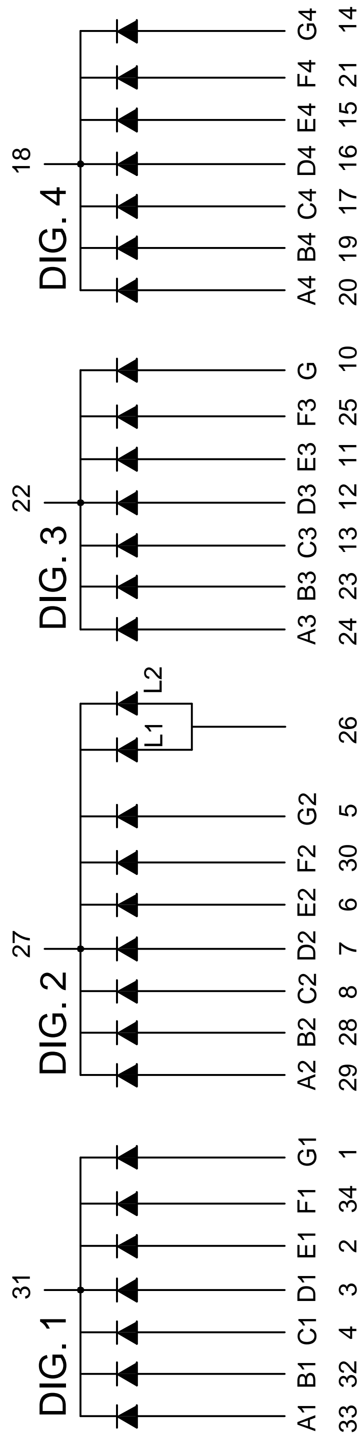
Package Dimensions



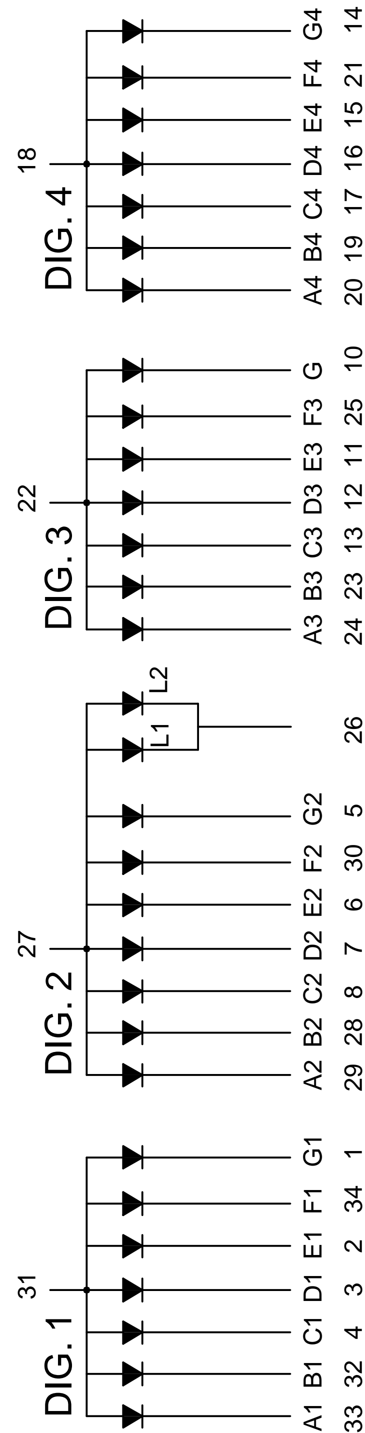
Note : 1.All dimension are in millimeters and (Inch) tolerance is ±0.25mm unless otherwise noted.
2.Specifications are subject to change without notice.

Internal Circuit Diagram

LFD3F52-XX-PF



LFD3F62-XX-PF



PIN 9:NO PIN

Electrical Connection

PIN NO.	LFD3F52-XX-PF	PIN NO.	LFD3F52-XX-PF
1.	Anode G1	18.	Common Cathode Dig.4
2.	Anode E1	19.	Anode B4
3.	Anode D1	20.	Anode A4
4.	Anode C1	21.	Anode F4
5.	Anode G2	22.	Common Cathode Dig.3
6.	Anode E2	23.	Anode B3
7.	Anode D2	24.	Anode A3
8.	Anode C2	25.	Anode F3
9.	NO PIN	26.	Anode L1,L2
10.	Anode G3	27.	Common Cathode Dig.2,L1,L2
11.	Anode E3	28.	Anode B2
12.	Anode D3	29.	Anode A2
13.	Anode C3	30.	Anode F2
14.	Anode G4	31.	Common Cathode Dig.1
15.	Anode E4	32.	Anode B1
16.	Anode D4	33.	Anode A1
17.	Anode C4	34.	Anode F1

Electrical Connection

PIN NO.	LFD3F62-XX-PF	PIN NO.	LFD3F62-XX-PF
1.	Cathode G1	18.	Common Anode Dig.4
2.	Cathode E1	19.	Cathode B4
3.	Cathode D1	20.	Cathode A4
4.	Cathode C1	21.	Cathode F4
5.	Cathode G2	22.	Common Anode Dig.3
6.	Cathode E2	23.	Cathode B3
7.	Cathode D2	24.	Cathode A3
8.	Cathode C2	25.	Cathode F3
9.	NO PIN	26.	Cathode L1,L2
10.	Cathode G3	27.	Common Anode Dig.2,L1,L2
11.	Cathode E3	28.	Cathode B2
12.	Cathode D3	29.	Cathode A2
13.	Cathode C3	30.	Cathode F2
14.	Cathode G4	31.	Common Anode Dig.1
15.	Cathode E4	32.	Cathode B1
16.	Cathode D4	33.	Cathode A1
17.	Cathode C4	34.	Cathode F1

Absolute Maximum Ratings at Ta=25 ℃

Parameter	Symbol	Ratings	UNIT
		G	
Forward Current Per Chip	I_F	30	mA
Peak Forward Current Per Chip (Duty 1/10,0.1ms Pulse Width)	I_{FP}	120	mA
Power Dissipation Per Chip	PD	100	mW
Reverse Current Per Any Chip	Ir	10	μA
Operating Temperature	T_{opr}	-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	λP (nm)	△λ (nm)	Electrical				IV-M
						Vf(v)		Iv(mcd)		
	Material	Emitted				Min.	Max.	Min.	Typ.	
LFD3F52-XX-PF	GaP	Green	Common Cathode	565	30	1.7	2.6	1.35	2.35	2:1
LFD3F62-XX-PF	GaP	Green	Common Anode	565	30	1.7	2.6	1.35	2.35	2:1

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	λP	nm	If=20mA
Spectral Line Half-Width	△λ	nm	If=20mA
Reverse Current Any Chip	Ir	μA	Vr=5V
Luminous Intensity Matching Ratio	IV-M		

Typical Electro-Optical Characteristics Curve

G CHIP

Fig.1 Forward current vs. Forward Voltage

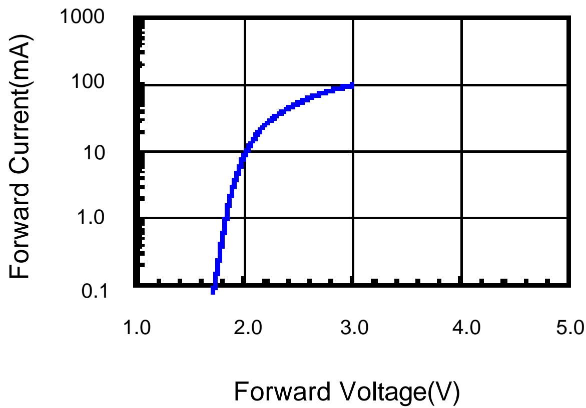


Fig.2 Relative Intensity vs. Forward Current

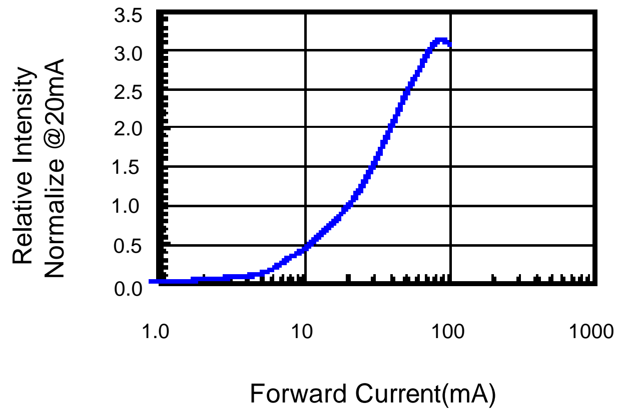


Fig.3 Forward Voltage vs. Temperature

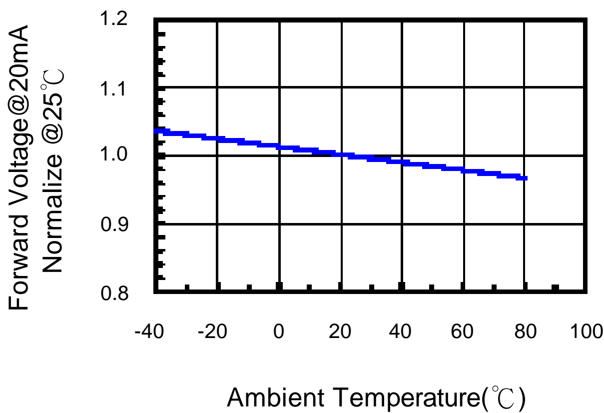


Fig.4 Relative Intensity vs. Temperature

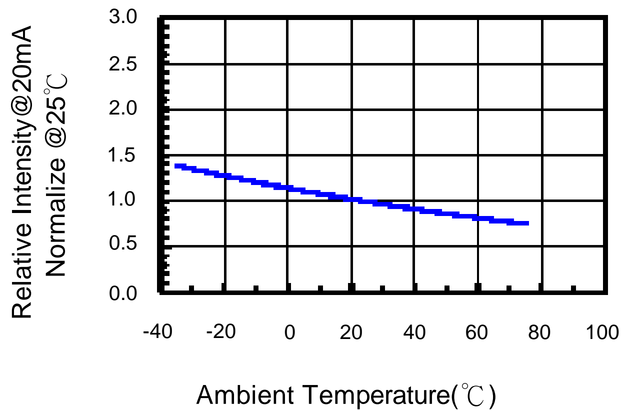


Fig.5 Relative Intensity vs. Wavelength

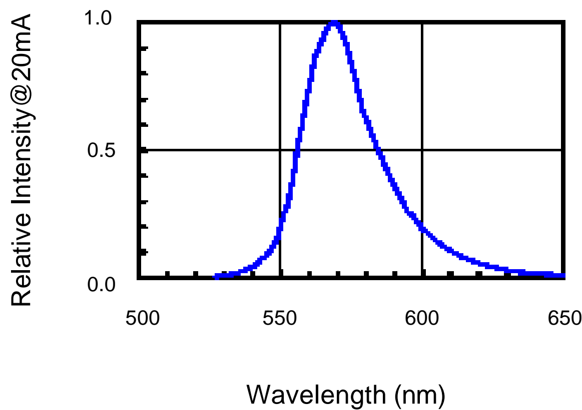


Fig.6 Directive Radiation

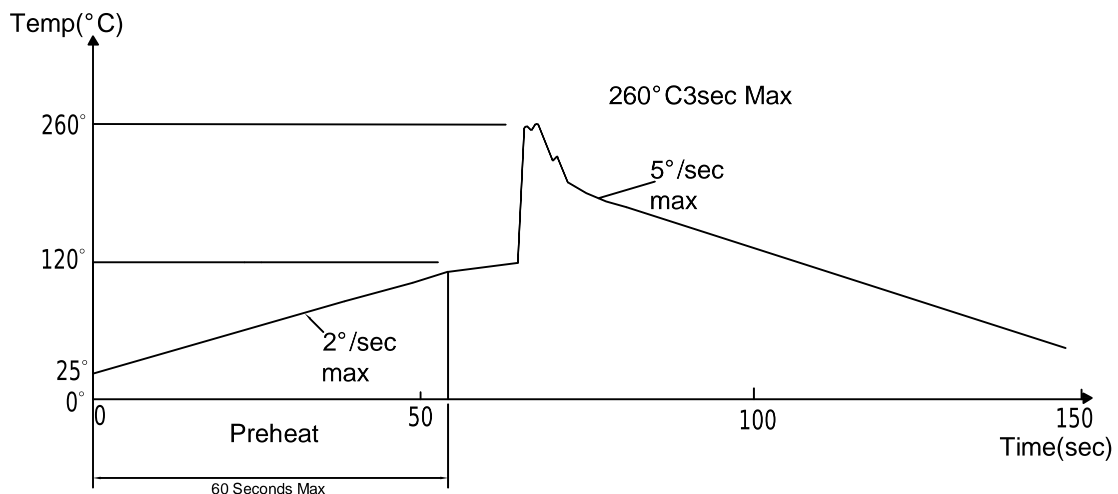
Soldering Condition(Pb-Free)

1.Iron:

Soldering Iron:30W Max
Temperature 350°C Max
Soldering Time:3 Seconds Max(One Time)
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



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 resistance 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℃±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