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FOUR DIGIT LED DISPLAY(0.39Inch)

Pb
Lead-Free Parts

LFD4H5/64-XX/RP3-PF

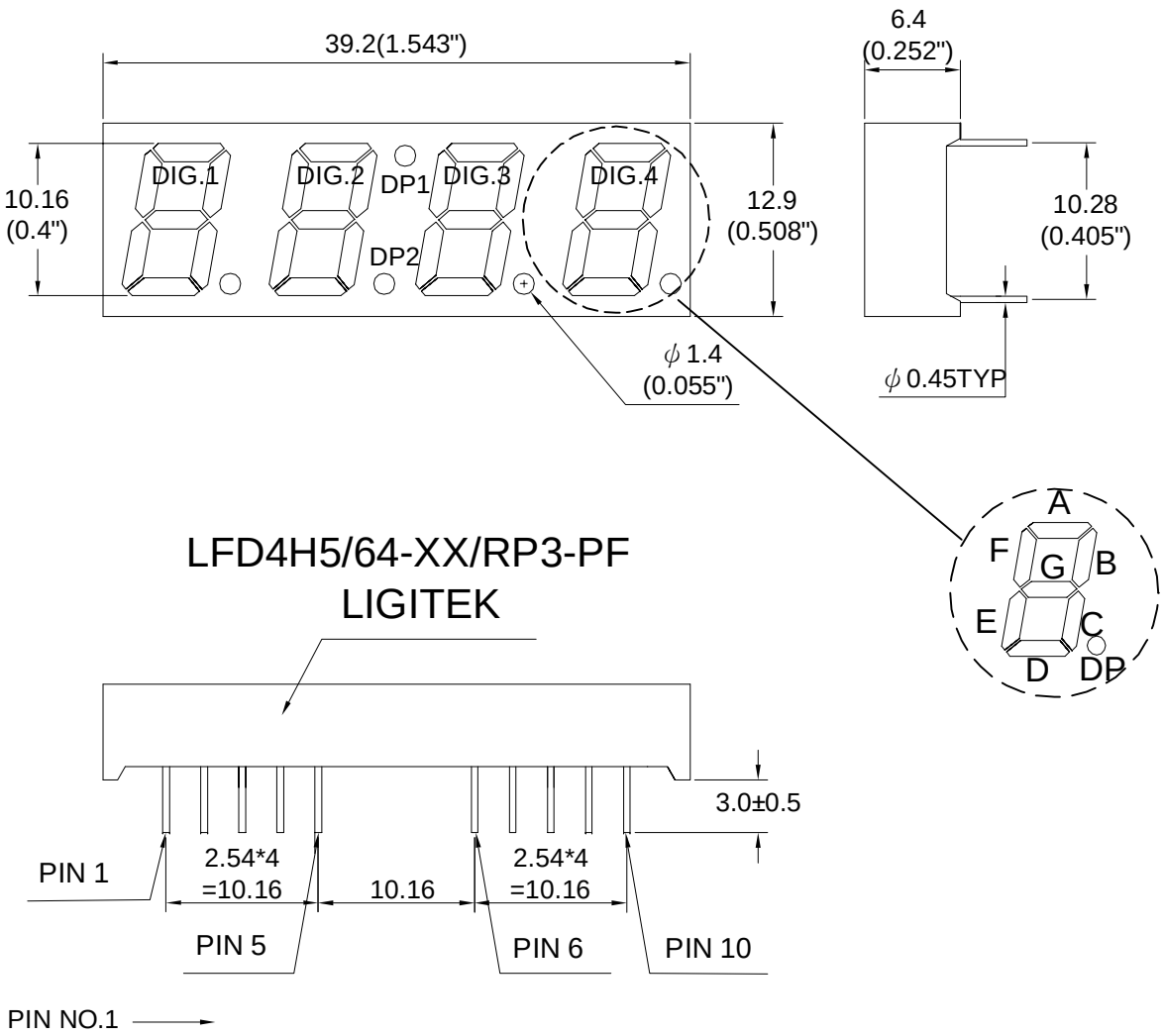
DATA SHEET

DOC. NO : QW0905-LFD4H5/64-XX/RP3-PF

REV. : A

DATE : 21 - May - 2007

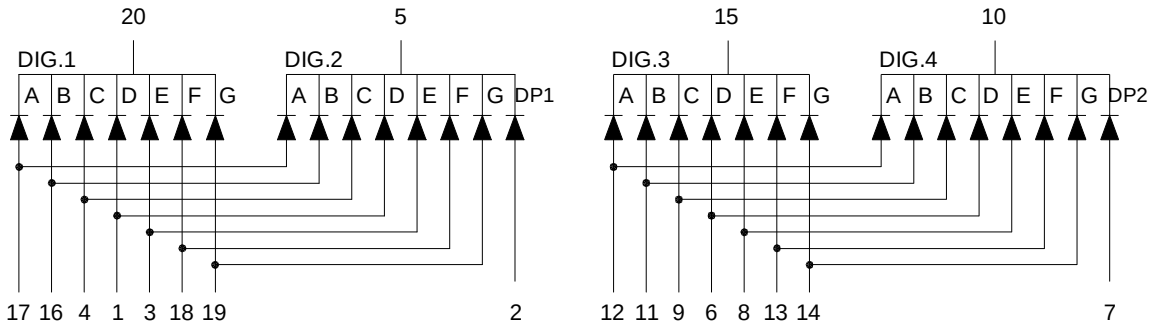
Package Dimensions



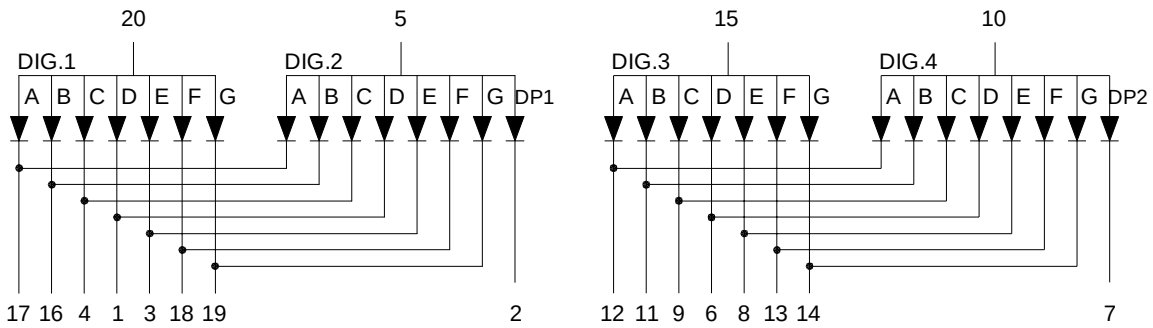
Note : 1.All dimension are in millimeters and (Inch) tolerance is ±0.25mm unless otherwise noted.
2.Specifications are subject to change without notice.

Internal Circuit Diagram

LFD4H54-XX/RP3-PF



LFD4H64-XX/RP3-PF



Electrical Connection

PIN NO.	LFD4H54-XX/RP3-PF	PIN NO.	LFD4H64-XX/RP3-PF
1	Anode D (Dig.1,Dig.2)	1	Cathode D (Dig.1,Dig.2)
2	Anode DP1	2	Cathode DP1
3	Anode E (Dig.1,Dig.2)	3	Cathode E (Dig.1,Dig.2)
4	Anode C (Dig.1,Dig.2)	4	Cathode C (Dig.1,Dig.2)
5	Common Cathode Dig.2	5	Common Anode Dig.2
6	Anode D (Dig.3,Dig.4)	6	Cathode D (Dig.3,Dig.4)
7	Anode DP2	7	Cathode DP2
8	Anode E (Dig.3,Dig.4)	8	Cathode E (Dig.3,Dig.4)
9	Anode C (Dig.3,Dig.4)	9	Cathode C (Dig.3,Dig.4)
10	Common Cathode Dig.4	10	Common Anode Dig.4
11	Anode B (Dig.3,Dig.4)	11	Cathode B (Dig.3,Dig.4)
12	Anode A (Dig.3,Dig.4)	12	Cathode A (Dig.3,Dig.4)
13	Anode F (Dig.3,Dig.4)	13	Cathode F (Dig.3,Dig.4)
14	Anode G (Dig.3,Dig.4)	14	Cathode G (Dig.3,Dig.4)
15	Common Cathode Dig.3	15	Common Anode Dig.3
16	Anode B (Dig.1,Dig.2)	16	Cathode B (Dig.1,Dig.2)
17	Anode A (Dig.1,Dig.2)	17	Cathode A (Dig.1,Dig.2)
18	Anode F (Dig.1,Dig.2)	18	Cathode F (Dig.1,Dig.2)
19	Anode G (Dig.1,Dig.2)	19	Cathode G (Dig.1,Dig.2)
20	Common Cathode Dig.1	20	Common Anode Dig.1

Absolute Maximum Ratings at Ta=25 ℃

Parameter	Symbol	Ratings	UNIT
		E	
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.	Typ.	Max.	Min.	Typ.	
LFD4H54-XX/RP3-PF	GaAsP/GaP	Orange	Common Cathode	635	45	1.7	2.1	2.6	1.0	1.75	2:1
LFD4H64-XX/RP3-PF			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	λ p	nm	If=20mA
Spectral Line Half-Width	$\triangle \lambda$	nm	If=20mA
Reverse Current Any Chip	Ir	μ A	Vr=5V
Luminous Intensity Matching Ratio	IV-M		

Typical Electro-Optical Characteristics Curve

E CHIP

Fig.1 Forward current vs. Forward Voltage

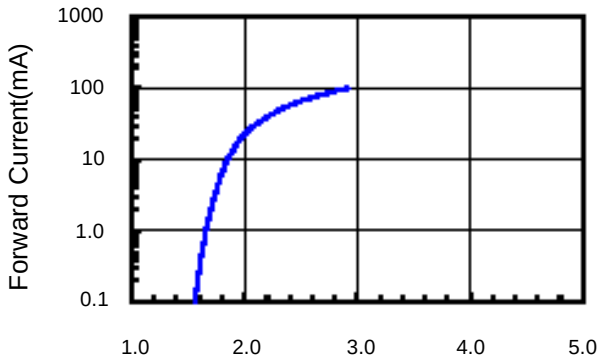


Fig.2 Relative Intensity vs. Forward Current

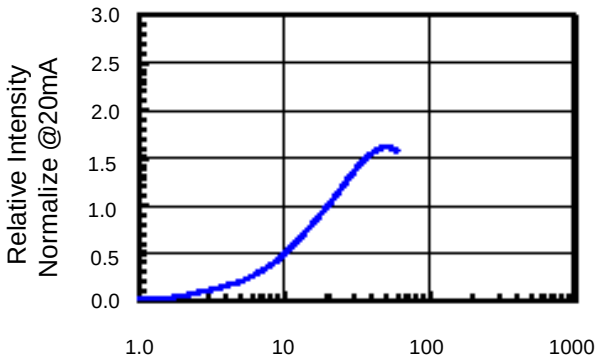


Fig.3 Forward Voltage vs. Temperature

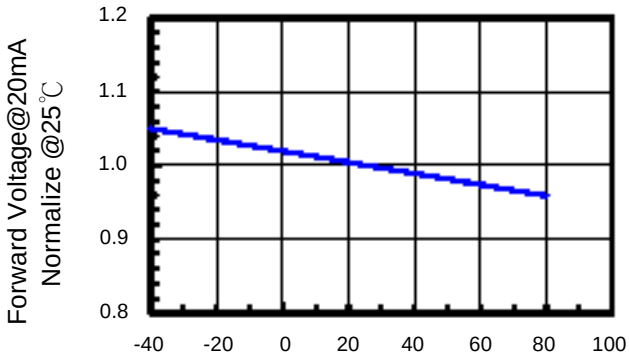


Fig.4 Relative Intensity vs. Temperature

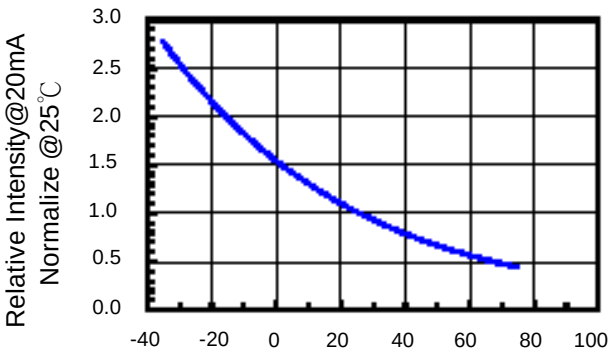
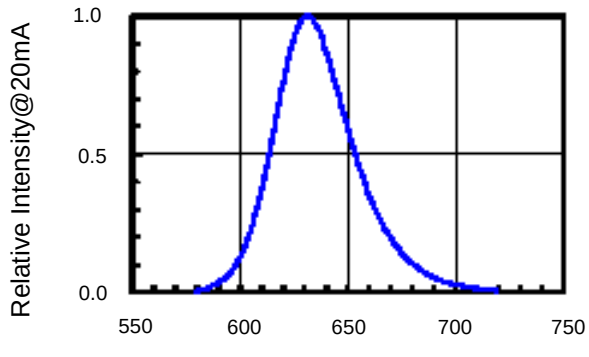


Fig.5 Relative Intensity vs. Wavelength



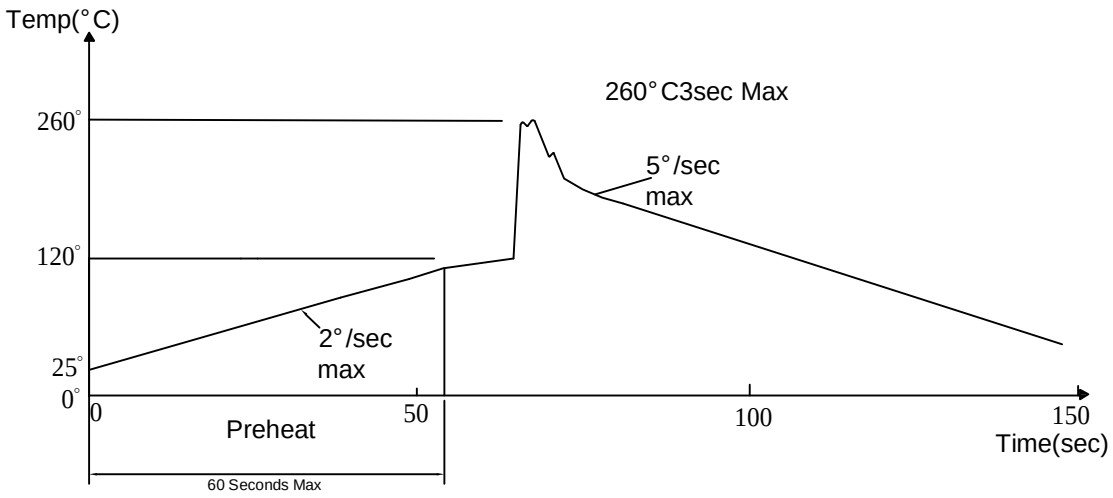
Soldering Condition(Pb-Free)

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 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