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DOT MATRIX DIGIT LED DISPLAY (2.0Inch)



Lead-Free Parts

LMD5721BE-20/RP32-PF

DATA SHEET

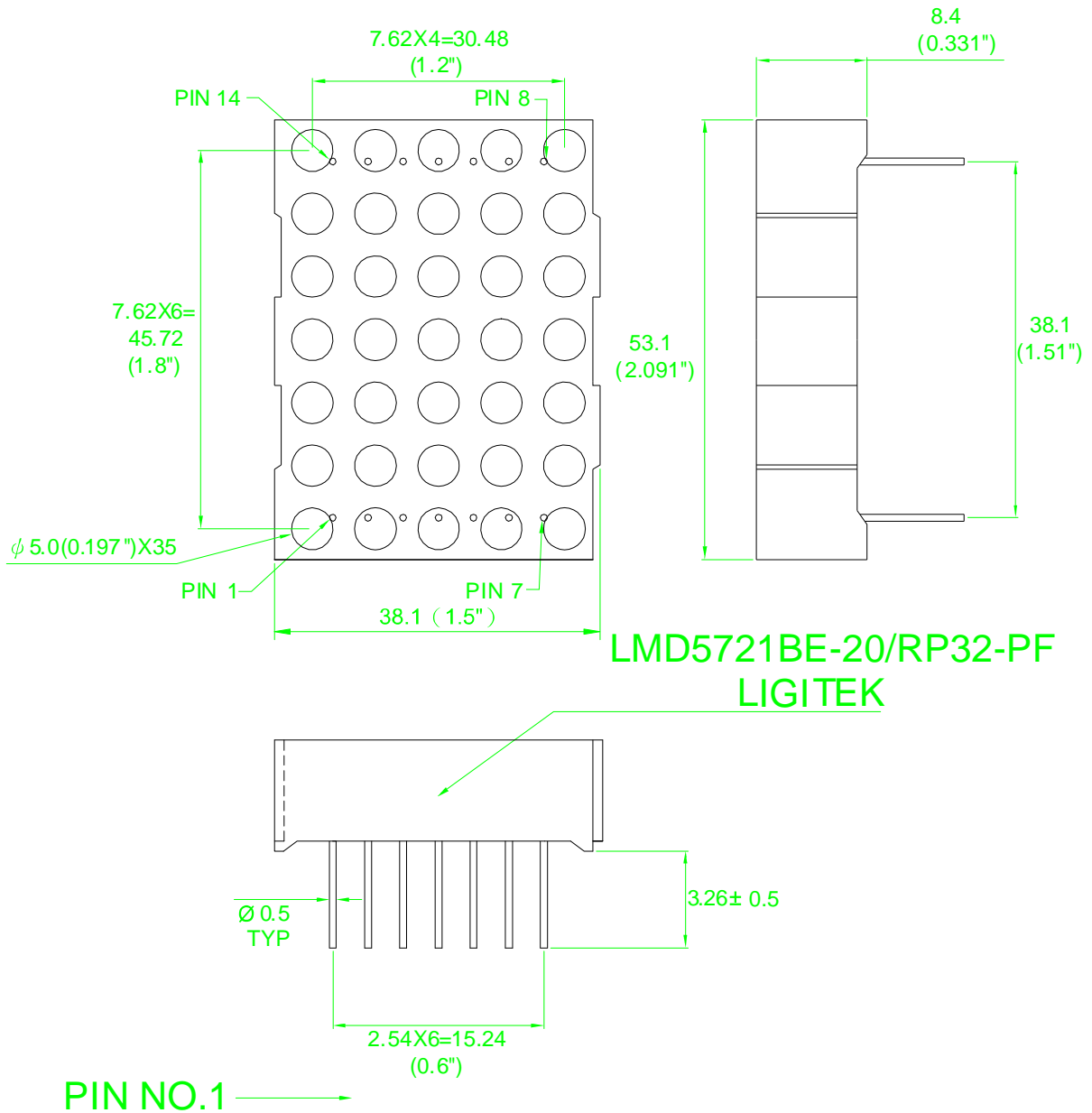
DOC. NO : QW0905-LMD5721BE-20/RP32-PF

REV. : A

DATE : 29 - Jun - 2020



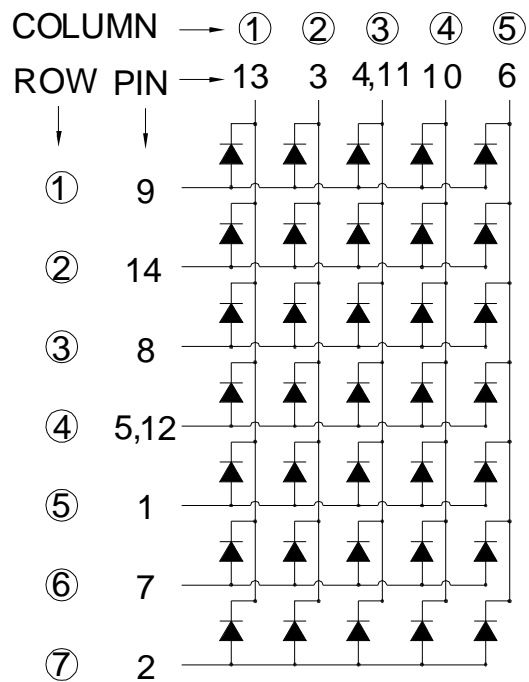
Package Dimensions



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

Internal Circuit Diagram

LMD5721BE-20/RP32-PF





Electrical Connection

PIN NO.	LMD5721BE-20/RP32-PF
1	Anode Row 5
2	Anode Row 7
3	Cathode Column 2
4	Cathode Column 3
5	Anode Row 4
6	Cathode Column 5
7	Anode Row 6
8	Anode Row 3
9	Anode Row 1
10	Cathode Column 4
11	Cathode Column 3
12	Anode Row 4
13	Cathode Column 1
14	Anode Row 2

Absolute Maximum Ratings at Ta=25 °C

Parameter	Symbol	Ratings	UNIT
		E	
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	100	μA
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	λ D (nm)	Δ λ (nm)	Electrical					IV-M
	Material	Emitted				Vf(v)			Iv(mcd)		
						Min.	Typ.	Max.	Min.	Typ.	
LMD5721BE-20/RP32-PF	AlGaInP	Red	Common Cathode	622	20	1.5	1.7	2.4	18	50	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	λD	nm	If=20mA
Spectral Line Half-Width	$\Delta \lambda$	nm	If=20mA
Reverse Current Any Chip	Ir	μA	Vr=5V
Luminous Intensity Matching Ratio	IV-M		

Bin Range of Luminous Intensity

If=10mA	Unit:Ucd	
Bin Code	Min	Max
U	18000	21500
V	21500	26000
W	26000	31000
X	31000	37000
Y	37000	43000
Z	43000	50000
Z1	50000	58000
Z2	58000	68000
Z3	68000	78500
Z4	78500	91000
Z5	91000	145000

Typical Electro-Optical Characteristics Curve

E CHIP

Fig.1-Relative Lum inous Intensity vs. Forward Current

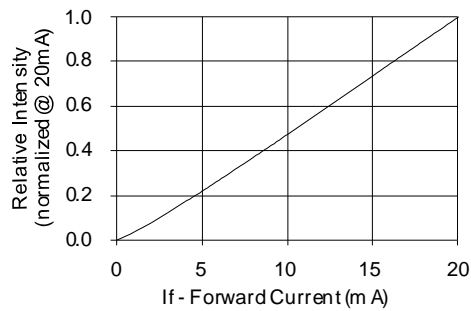


Fig.2-Forward Current vs. Forward Voltage

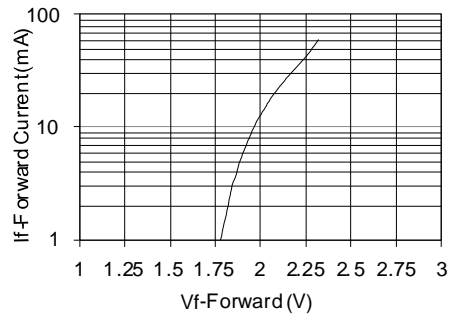


Fig.3-Relative Intensity (@20mA) vs. Ambient Temperature

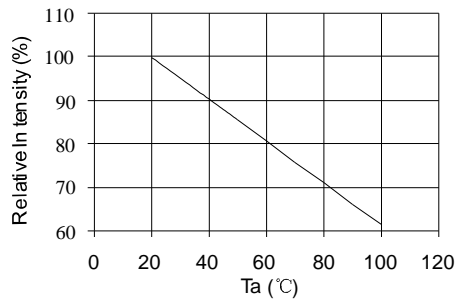


Fig.4-Forward Voltage (@ 20mA) vs. Ambient Temperature

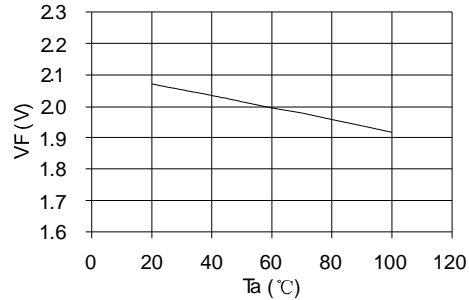
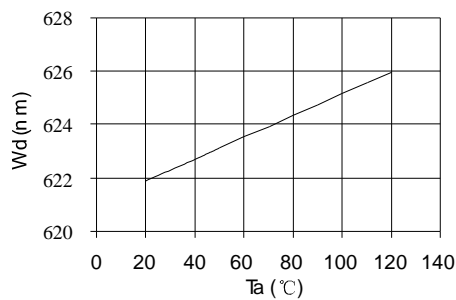


Fig.5-Dominant Wavelength (@20mA) vs. Ambient Temperature



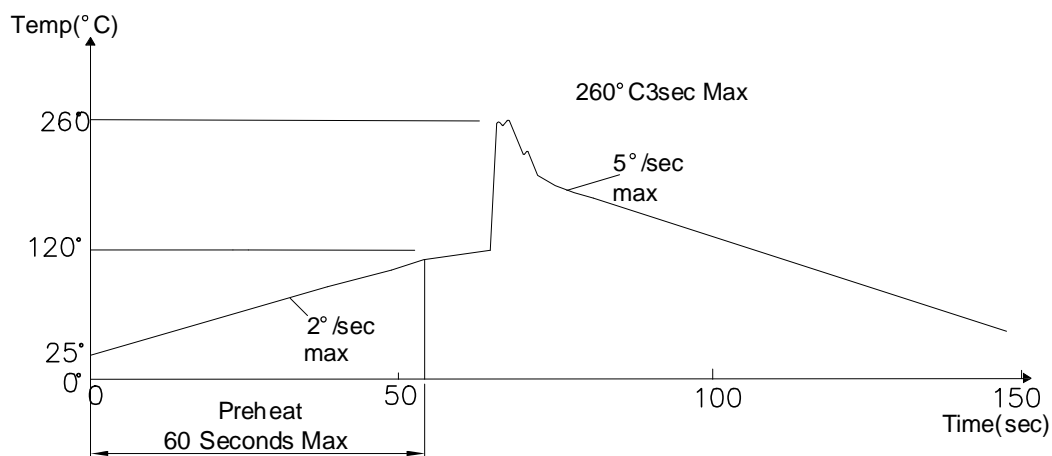
Soldering Condition(Pb-Free)

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 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 °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 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 ±1 sec.	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



Precautions For Use:

If the production date is more than 6 months (including 6 months),
the product will be dehumidified
dehumidification conditions:
LED Seven segment display without tape: $90^{\circ}\text{C}\pm 5^{\circ}\text{C}/4\text{H}$,
LED Seven segment display with tape: $80^{\circ}\text{C}\pm 5^{\circ}\text{C}/6\text{H}$
LED backlight: $60^{\circ}\text{C}\pm 5^{\circ}\text{C}/8\text{H}$.

ESD(Electrostatic Discharge):

Static Electricity or power surge will damage the LED. Use of a conductive wrist band or anti-electrosatic glove is recommended when handing these LED. All devices, equipment and machinery must be properly grounded.