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SINGLE DIGIT LED DISPLAY (0.32 Inch)



Lead-Free Parts

## LSD335/64S-XX/RP4-PF

# DATA SHEET

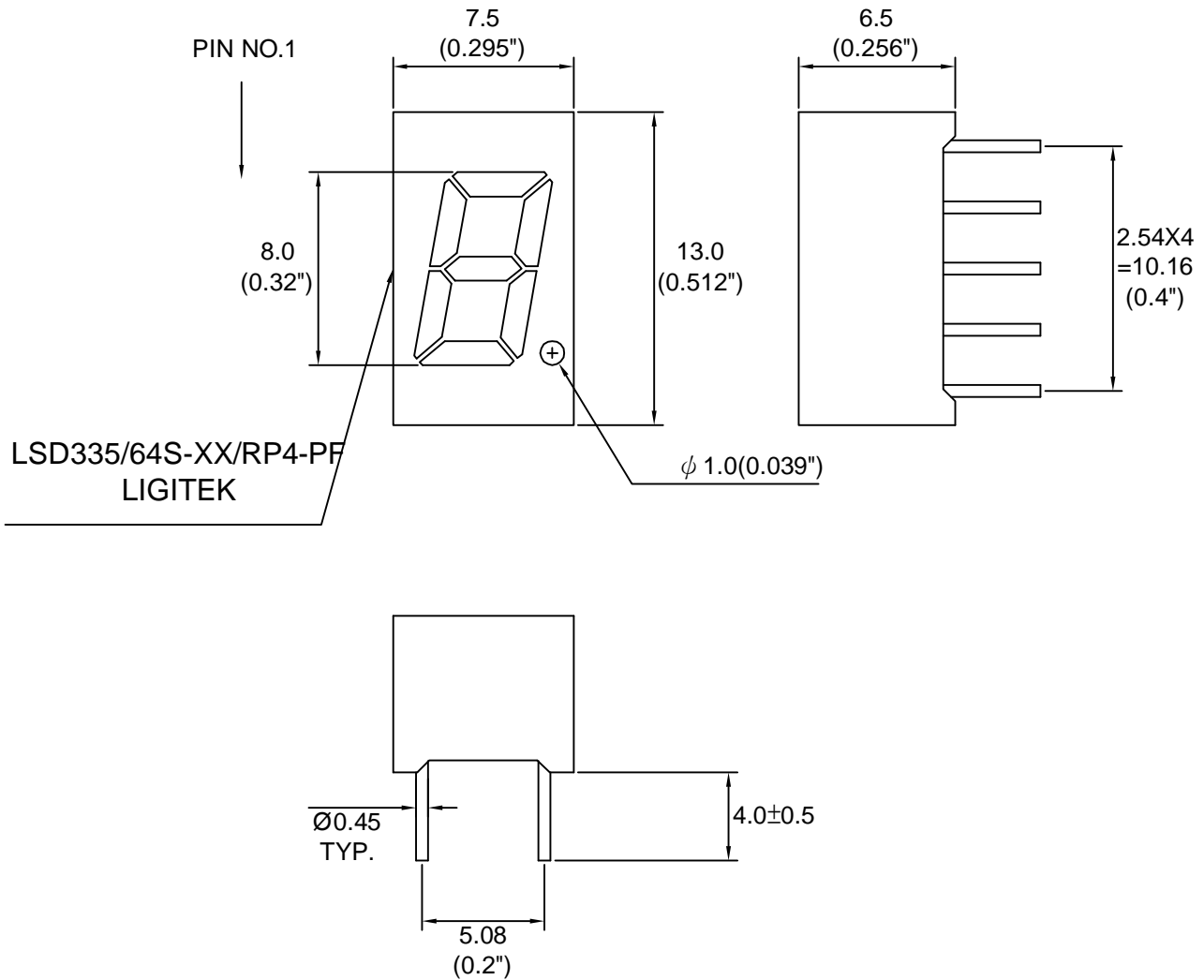
DOC. NO : QW0905- LSD335/64S-XX/RP4-PF

REV. : A

DATE : 20 - Mar. - 2007



### Package Dimensions



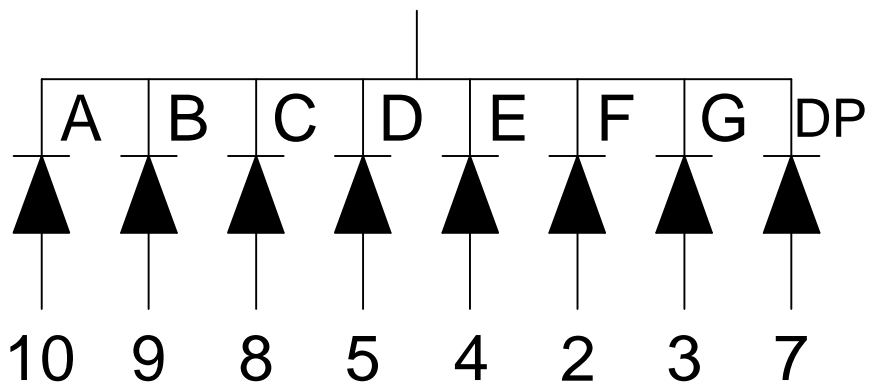
Note : 1.All dimension are in millimeters and (Inch) tolerance is  $\pm 0.25$ (0.01") unless otherwise noted.  
2.Specifications are subject to change without notice.



Internal Circuit Diagram

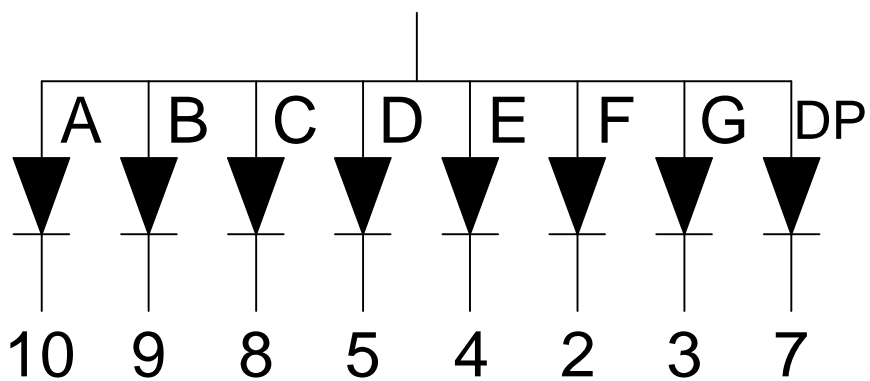
LSD3354S-XX/RP4-PF

1,6



LSD3364S-XX/RP4-PF

1,6





### Electrical Connection

| PIN NO. | LSD3354S-XX/RP4-PF | PIN NO. | LSD3364S-XX/RP4-PF |
|---------|--------------------|---------|--------------------|
| 1       | Common Cathode     | 1       | Common Anode       |
| 2       | Anode F            | 2       | Cathode F          |
| 3       | Anode G            | 3       | Cathode G          |
| 4       | Anode E            | 4       | Cathode E          |
| 5       | Anode D            | 5       | Cathode D          |
| 6       | Common Cathode     | 6       | Common Anode       |
| 7       | Anode DP           | 7       | Cathode DP         |
| 8       | Anode C            | 8       | Cathode C          |
| 9       | Anode B            | 9       | Cathode B          |
| 10      | Anode A            | 10      | Cathode A          |



Absolute Maximum Ratings at Ta=25 °C

| Parameter  | Symbol | Ratings   | UNIT |
|--|--------|-----------|------|
|  |        | SE        |      |
| Forward Current Per Chip   | IF     | 20        | mA   |
| Peak Forward Current Per Chip (Duty 1/10,0.1ms Pulse Width)              | IFP    | 80        | mA   |
| Power Dissipation Per Chip   | PD     | 80        | mW   |
| Reverse Current Per Any Chip   | Ir     | 10        | μA   |
| Operating Temperature  | Topr   | -25 ~ +85 | °C   |
| Storage Temperature  | Tstg   | -25 ~ +85 | °C   |
| Solder Temperature 1/16 Inch Below Seating Plane For 3 Seconds At 260 °C |        |           |      |

Part Selection And Application Information(Ratings at 25°C)

| PART NO            | CHIP      |         | common cathode or anode | λ P (nm) | Δ λ (nm) | Electrical |      |      |         |      | IV-M |
|--------------------|-----------|---------|-------------------------|----------|----------|------------|------|------|---------|------|------|
|                    | Material  | Emitted |                         |          |          | Vf(v)      |      |      | Iv(mcd) |      |      |
|                    |           |         |                         |          |          | Min.       | Typ. | Max. | Min.    | Typ. |      |
| LSD3354S-XX/RP4-PF | GaAsP/GaP | Orange  | Common Cathode          | 610      | 45       | 1.7        | 2.1  | 2.6  | 0.8     | 1.35 | 2:1  |
| LSD3364S-XX/RP4-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                   | $\lambda P$      | nm      | If=20mA        |
| Spectral Line Half-Width          | $\Delta \lambda$ | nm      | If=20mA        |
| Reverse Current Any Chip          | Ir               | $\mu A$ | Vr=5V          |
| Luminous Intensity Matching Ratio | IV-M             |         |                |



### Typical Electro-Optical Characteristics Curve

#### SE CHIP

Fig.1 Forward current vs. Forward Voltage

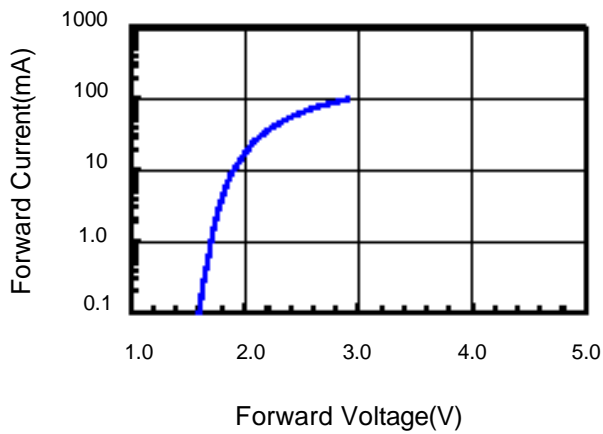


Fig.2 Relative Intensity vs. Forward Current

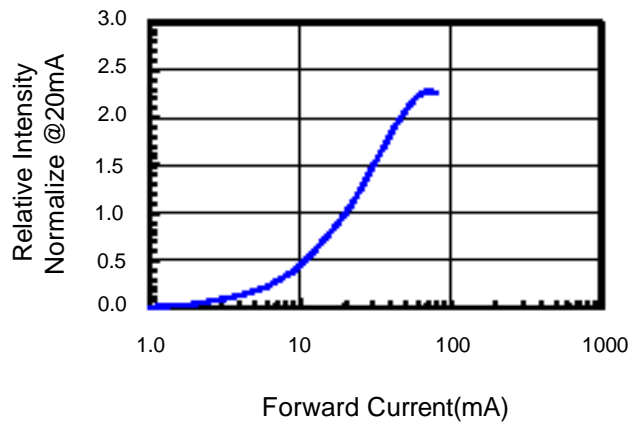


Fig.3 Forward Voltage vs. Temperature

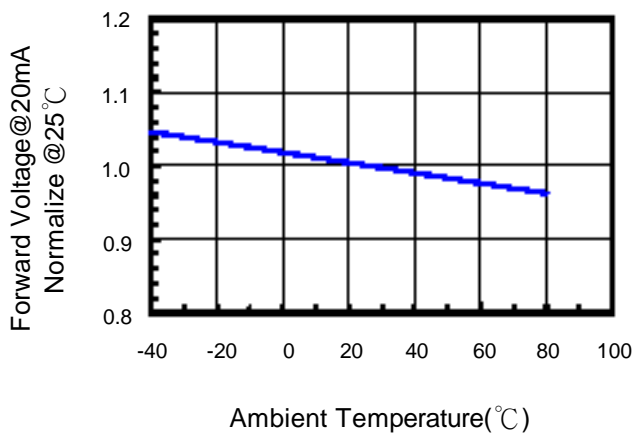


Fig.4 Relative Intensity vs. Temperature

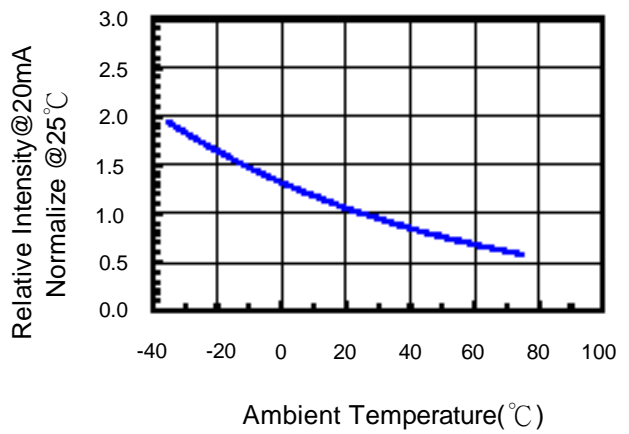
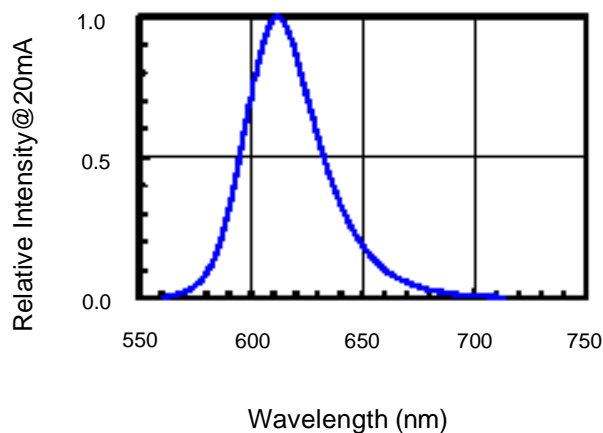


Fig.5 Relative Intensity vs. Wavelength





### 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

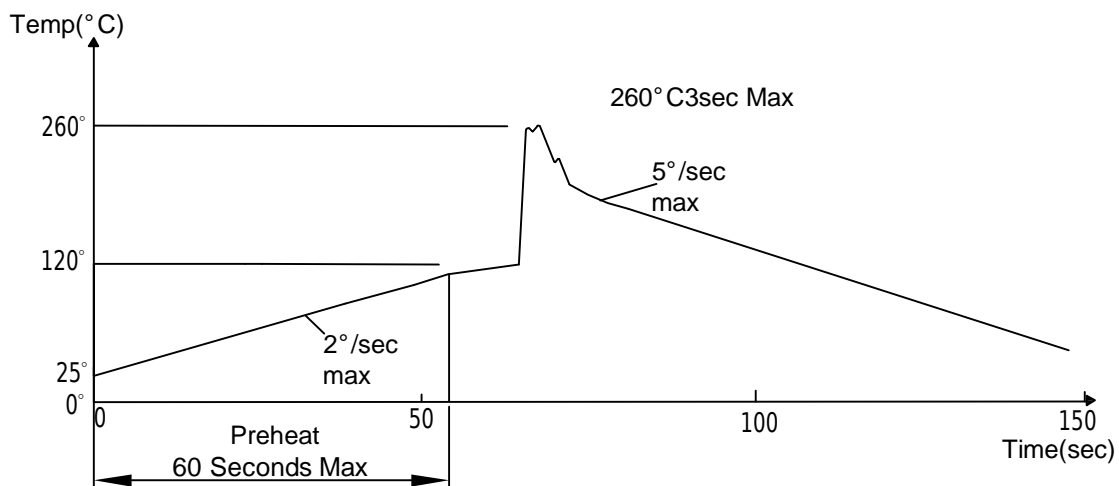
2° C/sec(max)

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<br>2.If=10mA<br>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<br>MIL-STD-883: 1005<br>JIS C 7021: B-1                      |
| High Temperature Storage Test       | 1.Ta=105°C±5°C<br>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<br>JIS C 7021: B-10   |
| Low Temperature Storage Test        | 1.Ta=-40°C±5°C<br>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<br>2.RH=90%~95%<br>3.t=240hrs±2hrs                       | The purpose of this test is the resistance of the device under tropical for hours.  | MIL-STD-202:103B<br>JIS C 7021: B-11   |
| Thermal Shock Test                  | 1.Ta=105°C±5°C & -40°C±5°C (10min) (10min)<br>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<br>MIL-STD-750: 1051<br>MIL-STD-883: 1011                    |
| Solder Resistance Test              | 1.T.Sol=260°C±5°C<br>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<br>MIL-STD-750: 2031<br>JIS C 7021: A-1                      |
| Solderability Test                  | 1.T.Sol=230°C±5°C<br>2.Dwell time=5±1sec                               | This test intended to see soldering well performed or not.  | MIL-STD-202: 208D<br>MIL-STD-750: 2026<br>MIL-STD-883: 2003<br>JIS C 7021: A-2 |