

SPECIFICATIONS

Dot matrix Display **点阵产品规格书**

TOPLITE



MODEL: TOP-CA-R1099ABS-B4

| | | |
|-----------------------|--|--|
| 客户承认 APPROVED | | |
| 承认日期 APPROVED DATE | | |

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APPROVED 批准: _____ CHECKED 审核: Liuqiang PREPARED 制作: Liucui ping



TECHNICAL DATA SHEET

TOP-CA-R1099ABS-B4 <FOR Φ 3.55MM/ 9*9 DOT MATRIX DIGIT.>

1 / 7

1. PRODUCT INTRODUCTION

- ※ Low power requirement,
- ※ Solid state reliability.
- ※ Wide viewing angle.
- ※ Easy mounting on P.C. boards.
- ※ RoHS compliant.

2. FEATURES

- ※ The TOP-CA-R1099ABS-B4 is a 1.4 inch (35.44mm)matrix height 9×9 dot matrix display..
- ※ This device is made with white dots and black surface.

3. APPLICATION

- ※ Digital readout display.
- ※ Instrument panels.
- ※ Elevator.

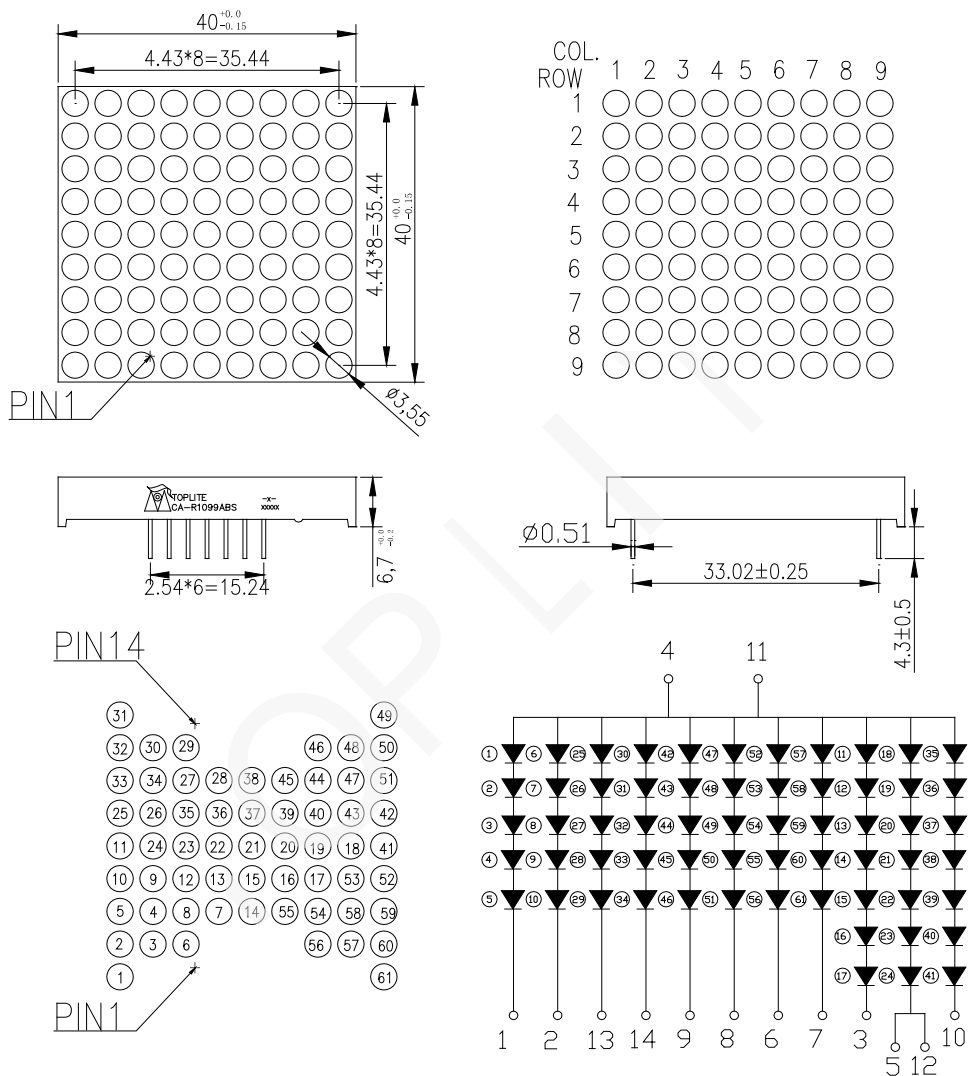
| PART NO. | SIZE | CHIP EMITTED COLOR | FACE COLOR |
|--------------------|--------------------------------------|--------------------|------------|
| TOP-CA-R1099ABS-B4 | Φ 3.55MM/ 9*9 DOT MATRIX DIGIT. | Super Red | Black |

TECHNICAL DATA SHEET

TOP-CA-R1099ABS-B4 <FOR Φ 3.55MM/ 9*9 DOT MATRIX DIGIT.>

2 / 7

4. PACKAGE DIMENSIONS & CIRCUIT DIAGRAM



Note:

All dimension tolerance is ± 0.25 mm unless otherwise noted.



TECHNICAL DATA SHEET

TOP-CA-R1099ABS-B4 <FOR Φ 3.55MM/ 9*9 DOT MATRIX DIGIT.>

3 / 7

5. ELECTRICAL/OPTICAL CHARACTERISTIC

5-1. ABSOLUTE MAXIMUM RATINGS (Ta=25°C)

| PARAMETER | SYMBOL | VALUE | UNIT |
|--|------------|-------------|-----------|
| Reverse Voltage | V_R | 5 | V/ dot * |
| Forward Current | I_F | 20 | mA/ dot * |
| Peak Forward Current (1/10 Duty Cycle) | I_{PEAK} | 120 | mA/ dot * |
| Power Dissipation | P_D | 80 | mW/ dot * |
| Operating Temperature Range | T_A | - 25 ~ + 85 | °C |
| Storage Temperature Range | T_{STG} | - 30 ~ + 85 | °C |
| Solder Temperature | T_{sol} | 260/3 | °C/s |

5-2. ELECTRICAL-OPTICAL CHARACTERISTICS (Ta=25°C)

| PARAMETER | SYMBOL | MIN. | TYP. | MAX. | UNIT | TEST CONDITIONS | |
|--------------------------|------------------|------|-------|-------|----------|-----------------|------------|
| Luminous Intensity | I_V | R | 13500 | 15524 | 17549 | ucd | $I_F=10mA$ |
| | | S | 17550 | 21937 | 26325 | | |
| | | T | 26326 | 32907 | 39489 | | |
| Forward Voltage | V_F | 1.8 | 2.1 | 2.4 | V/ dot * | $I_F=20mA$ | |
| Dominant wavelength | λ_d | 630 | - | 640 | nm | $I_F=20mA$ | |
| Spectral Line Half-Width | $\Delta \lambda$ | - | 20 | - | nm | $I_F=20mA$ | |
| Reverse Current | I_R | - | - | 20 | μA | $V_R=5V$ | |

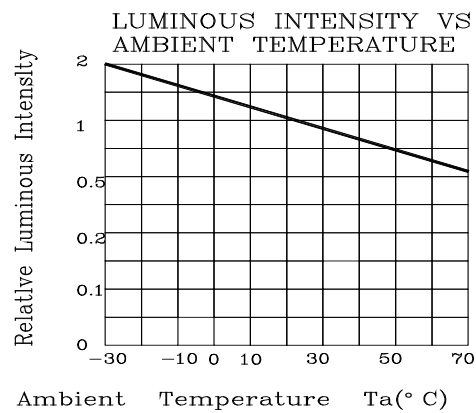
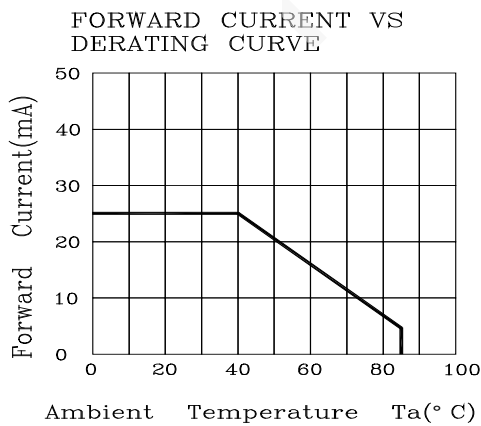
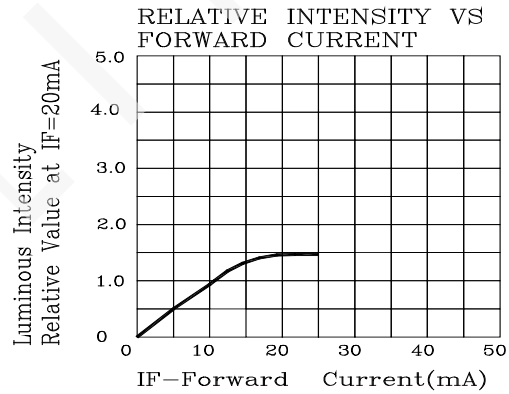
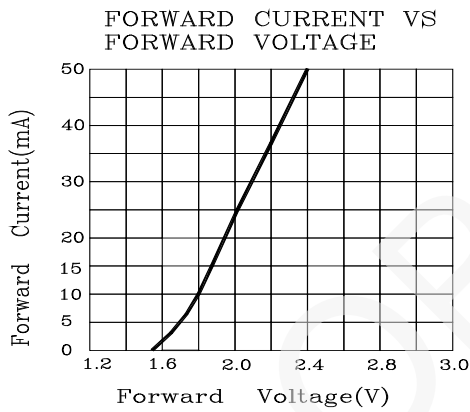
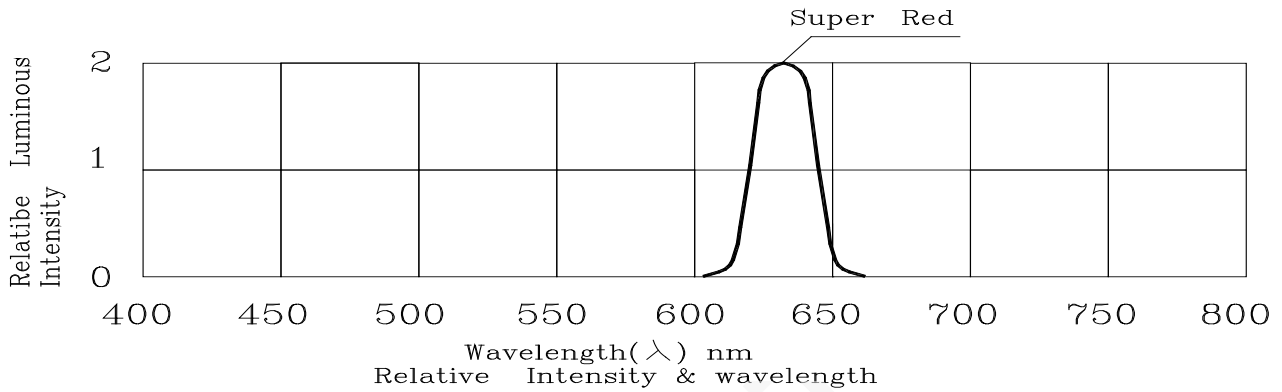
*The dot represents a chip.Each segment according to the principle diagram calculation of voltage and current.

TECHNICAL DATA SHEET

TOP-CA-R1099ABS-B4 <FOR Φ 3.55MM/ 9*9 DOT MATRIX DIGIT.>

4 / 7

5-3. OPTICAL CHARACTERISTIC CURVES





TECHNICAL DATA SHEET

TOP-CA-R1099ABS-B4 <FOR Φ 3.55MM/ 9*9 DOT MATRIX DIGIT.>

5 / 7

6. QUALITY CONTROL AND ASSURANCE

| CLASSIFICATION | TEST ITEM | TEST CONDITION |
|--------------------|---|---|
| ENDURANCE TEST | OPERATION LIFE | Ta= Natural temperature If=12mA-25mA per dot or Ip=80mA/duty=1/8,Pw=1.25mS Ip=160mA/duty=1/16,Pw=1.mS(DOT) Test time=1000HRS(-24HRS+72HRS) |
| | HIGH TEMPERATURE HIGH HUMIDITY STORAGE | Evaluate storage time of the device under high temperature and high humidity Ta=65°C±5°C RH=90-95% Test time=240HRS±2HRS |
| | HIGH TEMPERATURE HIGH HUMIDITY REVERSE BIAS | Evaluate leakage current of the device under high temperature and high humidity Ta=65°C±5°C RH=90-95% VR=5V Test time=500hrs(-24HRS+48HRS) |
| | HIGH TEMPERATURE STORAGE | Evaluate reliability test of the device under high temperature Ta=85°C±5°C Test time=1000HRS(-24HRS+72HRS) |
| | LOW TEMPERATURE STORAGE | Evaluate reliability test of the device under low temperature Ta=-35°C±5°C Test time=1000HRS(-24HRS+72HRS) |
| ENVIRONMENTAL TEST | TEMPERATURE CYCLING | Evaluate thermal expansion and cold contraction of the device under harsh temperature Ta=85°C~25°C~-35°C~25°C time=30min 5min 30min 5min Cycle test:10cycles |
| | THERMAL SHOCK | Evaluate structural and mechanical of the device under sudden thermal shock Ta=85°C±5°C~-35°C±5°C time=10min 10min Cycle test:10cycles |
| | SOLOER RESISTANCE | Evaluate performance of the device withstand thermal shock during soldering T.sol=260°C±5°C time=10±1sec |
| | SOLOER ABILITY | Evaluate solderability of the device T.sol=230°C±5°C time=5±1sec |

TECHNICAL DATA SHEET

TOP-CA-R1099ABS-B4 <FOR Φ 3.55MM/ 9*9 DOT MATRIX DIGIT.>

6 / 7

7. SOLDERING CONDITIONS

The recommended conditions for soldering are as follows.

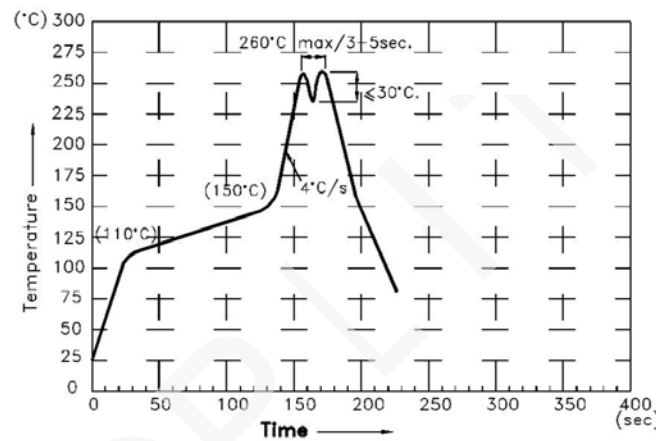
Because the component is made with epoxy resin, the units are susceptible to heat. Therefore, the preheating and soldering temperatures should be kept as low as possible to avoid damage.

7-1. Manual Soldering Conditions(with 1.5mm Iron tip).

Iron Tip Temperature: 350°C Max, Time: 3s Max.

Position: The iron should be situated at least 2mm away from the root of the leads.

7-2. Through the Wave Soldering Conditions Wave Soldering Profile For Lead-free Through-hole LED



7-3. Soldering General Notes:

- Recommend manual soldering to be used only for repair and rework purposes. The soldering iron should not exceed 30W in power. The tip of the soldering iron should not touch the reflector case to avoid heat-damage.
- Maintain the pre-heat and peak temperatures with dip units as low as possible and the times as short as is feasible, since the products are susceptible to heat during flow soldering.
- After soldering, least three minutes for the component to cool to room temperature before further operations.
- If components will undergo multiple soldering processes, or other processes where the components may be subjected to intense heat, please check with for compatibility.



TECHNICAL DATA SHEET

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7 / 7

8. Customer optional

※This is a TOPLITE standard specifications(no protective film, TOPLITE printing code).If you have special request, please make the following choices.

- 8-1. **protetive film** add protetive film do not add protetive film
- protetive film left side ____mm other

※protective film thickness standard is 0.1 mm.

- 8-2. **printing code** TOPLITE standard printing code
- Special printing code_____
- Other_____

8-3. Whether need products with group

- YES _____ NO _____ Other_____

8-4. Other requirements

- a. _____
- b. _____
- c. _____