SPECIFICATIONS
Dot matrix Display 点阵产品规格书

MODEL: TOP-CC-1088AS-N4

<table>
<thead>
<tr>
<th>客户承认</th>
<th>APPROVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>承认日期</td>
<td>APPROVED DATE</td>
</tr>
</tbody>
</table>

上海鼎晖科技股份有限公司
SHANGHAI TOPLITE TECHNOLOGY CO.,LTD.

www.ledtoplight.com.cn
www.ledtoplite.com

APPROVED 批准：_________  CHECKED 审核：__Liuqiang__  PREPARED 制作：__Liucuiping__
1. PRODUCT INTRODUCTION

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

2. FEATURES

※ The TOP-CC-1088AS-N4 is a 1.1 inch (28mm) matrix height 8×8 dot matrix display.
※ This device is made with white dots and gray surface.

3. APPLICATION

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

<table>
<thead>
<tr>
<th>PART NO.</th>
<th>SIZE</th>
<th>CHIP EMITTED COLOR</th>
<th>FACE COLOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOP-CC-1088AS-N4</td>
<td>Ф3MM/8*8 DOT MATRIX DIGIT</td>
<td>Super Red</td>
<td>Gray</td>
</tr>
</tbody>
</table>
4. PACKAGE DIMENSIONS & CIRCUIT DIAGRAM

Note:

All dimension tolerance is ±0.25mm unless otherwise noted
5. ELECTRICAL/OPTICAL CHARACTERISTIC

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

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>VALUE</th>
<th>UNIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reverse Voltage</td>
<td>$V_R$</td>
<td>5 V</td>
<td>dot*</td>
</tr>
<tr>
<td>Forward Current</td>
<td>$I_F$</td>
<td>20 mA</td>
<td>dot*</td>
</tr>
<tr>
<td>Peak Forward Current (1/10 Duty Cycle)</td>
<td>$I_{PEAK}$</td>
<td>120 mA</td>
<td>dot*</td>
</tr>
<tr>
<td>Power Dissipation</td>
<td>$P_D$</td>
<td>80 mW</td>
<td>dot*</td>
</tr>
<tr>
<td>Operating Temperature Range</td>
<td>$T_A$</td>
<td>-25~+85℃</td>
<td></td>
</tr>
<tr>
<td>Storage Temperature Range</td>
<td>$T_{STG}$</td>
<td>-30~+85℃</td>
<td></td>
</tr>
<tr>
<td>Solder Temperature</td>
<td>$T_{SOL}$</td>
<td>260/3℃</td>
<td>℃/s</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>SYMBOL</th>
<th>MIN.</th>
<th>TYP.</th>
<th>MAX.</th>
<th>UNIT</th>
<th>TEST CONDITIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Luminous Intensity</td>
<td>$I_V$</td>
<td>R</td>
<td>13500</td>
<td>15525</td>
<td>17549</td>
<td>ucd, $I_F=10mA$</td>
</tr>
<tr>
<td></td>
<td></td>
<td>S</td>
<td>17550</td>
<td>21938</td>
<td>26325</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>T</td>
<td>26326</td>
<td>32908</td>
<td>39489</td>
<td></td>
</tr>
<tr>
<td>Forward Voltage</td>
<td>$V_F$</td>
<td>1.80</td>
<td>2.10</td>
<td>2.40</td>
<td>v/dot*</td>
<td>$I_F=20mA$</td>
</tr>
<tr>
<td>Dominant wavelength</td>
<td>$\lambda_d$</td>
<td>630</td>
<td>-</td>
<td>640</td>
<td>nm</td>
<td>$I_F=20mA$</td>
</tr>
<tr>
<td>Spectral Line Half-Width</td>
<td>$\Delta \lambda$</td>
<td>-</td>
<td>20</td>
<td>-</td>
<td>nm</td>
<td>$I_F=20mA$</td>
</tr>
<tr>
<td>Reverse Current</td>
<td>$I_R$</td>
<td>-</td>
<td>-</td>
<td>20</td>
<td>uA</td>
<td>$V_R=5v$</td>
</tr>
</tbody>
</table>

*The dot represents a chip. Each segment according to the principle diagram calculation of voltage and current.
5-3. OPTICAL CHARACTERISTIC CURVES

- Relative Luminous Intensity vs Wavelength
- Forward Current vs Forward Voltage
- Relative Intensity vs Forward Current
- Forward Current vs Derating Curve
- Luminous Intensity vs Ambient Temperature
## 6. QUALITY CONTROL AND ASSURANCE

<table>
<thead>
<tr>
<th>CLASSIFICATION</th>
<th>TEST ITEM</th>
<th>TEST CONDITION</th>
</tr>
</thead>
</table>
| ENDTURTANCE TEST | OPERATION LIFE | Ta= Natural temperature  
Ip=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℃±5℃  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℃±5℃  RH=90-95%  VR=5V  
Test time=500hrs(-24HRS+48HRS) |
| HIGH TEMPERATURE STORAGE | Evaluate reliability test of the device under high temperature  
Ta=85℃±5℃  Test time=1000HRS(-24HRS+72HRS) |
| LOW TEMPERATURE STORAGE | Evaluate reliability test of the device under low temperature  
Ta=−35℃±5℃  Test time=1000HRS(-24HRS+72HRS) |
| ENVIRONMENTAL TEST | TEMPERATURE CYCLING | Evaluate thermal expansion and cold contraction of the device under harsh temperature  
Ta=85℃~25℃~−35℃~25℃  time=30min 5min 30min 5min Cycle test:10cycles |
| | THERMAL SHOCK | Evaluate structural and mechanical of the device under sudden thermal shock  
Ta=85℃±5℃~−35℃±5℃  time=10min 10min  Cycle test:10cycles |
| | SOLOER RESISTANCE | Evaluate performance of the device withstand thermal shock during soldering  
T.sol=260℃±5℃  time=10±1sec |
| | SOLOER ABILITY | Evaluate solderability of the device  
T.sol=230℃±5℃  time=5±1sec |
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:
   a. 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.
   b. 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.
   c. After soldering, least three minutes for the component to cool to room temperature before further operations.
   d. If components will undergo multiple soldering processes, or other processes where the components may be subjected to intense heat, please check with toplight for compatibility.
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. protective film
- [ ] add protective film
- [ ] do not add protective film
- [ ] protective 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. ______________________________________