**18mm (0.7 INCH) SINGLE COLOR DOT MATRIX DISPLAY**

**Part Number:** TC07-11EWA  
**High Efficiency Red**

### Features
- 0.7 inch matrix height.
- Dot size 2mm.
- Low current operation.
- Stackable vertically and horizontally.
- Easy mounting on P.C. boards or sockets.
- Mechanically rugged.
- Standard: gray face, white dot.
- RoHS compliant.

### Description
The High Efficiency Red source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode.

### Package Dimensions & Internal Circuit Diagram

#### Notes:
1. All dimensions are in millimeters (inches), Tolerance is ±0.25(0.01")unless otherwise noted.
2. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
Selection Guide

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Dice</th>
<th>Lens Type</th>
<th>Iv (ucd) [1] @ 10mA</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TC07-11EWA</td>
<td>High Efficiency Red (GaAsP/GaP)</td>
<td>White Diffused</td>
<td>3600</td>
<td>Column Cathode</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*1400</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>*2500</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. 2mm below package base.

Electrical / Optical Characteristics at TA=25°C

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Parameter</th>
<th>Device</th>
<th>Typ.</th>
<th>Max.</th>
<th>Units</th>
<th>Test Conditions</th>
</tr>
</thead>
<tbody>
<tr>
<td>λpeak</td>
<td>Peak Wavelength</td>
<td>High Efficiency Red</td>
<td>627</td>
<td>*627</td>
<td>nm</td>
<td>Io=20mA</td>
</tr>
<tr>
<td>ΔD [1]</td>
<td>Dominant Wavelength</td>
<td>High Efficiency Red</td>
<td>625</td>
<td>*617</td>
<td>nm</td>
<td>Io=20mA</td>
</tr>
<tr>
<td>ΔΔ1/2</td>
<td>Spectral Line Half-width</td>
<td>High Efficiency Red</td>
<td>45</td>
<td></td>
<td>nm</td>
<td>Io=20mA</td>
</tr>
<tr>
<td>C</td>
<td>Capacitance</td>
<td>High Efficiency Red</td>
<td>15</td>
<td></td>
<td>pF</td>
<td>Vf=0V;f=1MHz</td>
</tr>
<tr>
<td>Vf [2]</td>
<td>Forward Voltage</td>
<td>High Efficiency Red</td>
<td>2.0</td>
<td>2.5</td>
<td>V</td>
<td>Io=20mA</td>
</tr>
<tr>
<td>Irs</td>
<td>Reverse Current</td>
<td>High Efficiency Red</td>
<td>10</td>
<td></td>
<td>uA</td>
<td>Vr=5V</td>
</tr>
</tbody>
</table>

Notes:
1. Wavelength: +/-1nm.
2. Forward Voltage: +/-0.1V.
* Wavelength value is traceable to the CIE127-2007 compliant national standards.

Absolute Maximum Ratings at TA=25°C

<table>
<thead>
<tr>
<th>Parameter</th>
<th>High Efficiency Red</th>
<th>Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power dissipation</td>
<td>75</td>
<td>mW</td>
</tr>
<tr>
<td>DC Forward Current</td>
<td>30</td>
<td>mA</td>
</tr>
<tr>
<td>Peak Forward Current [1]</td>
<td>160</td>
<td>mA</td>
</tr>
<tr>
<td>Reverse Voltage</td>
<td>5</td>
<td>V</td>
</tr>
<tr>
<td>Operating / Storage Temperature</td>
<td>-40°C To +85°C</td>
<td></td>
</tr>
<tr>
<td>Lead Solder Temperature[2]</td>
<td>260°C For 3-5 Seconds</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. 2mm below package base.
High Efficiency Red TC07-11EWA

- Relative Radiant Intensity vs. Wavelength
- Forward Voltage (V) vs. Forward Current (mA)
- Luminous Intensity at IF=10mA vs. Forward Current
- Relative Luminous Intensity vs. Forward Current
- Ambient Temperature vs. Derating Curve
- Luminous Intensity vs. Ambient Temperature
PACKING & LABEL SPECIFICATIONS

TC07-11EWA

INSIDE LABEL

28PCS/TUBE

OUTSIDE LABEL

5040PCS/BOX

180TUBE/BOX

Inside Label On IC-TUBE

LOT NO.

RoHS Compliant

Number OF FQC

Date

Type: TC07-11xxx

QTY: 28 PCS

CODE: xx

XXXXXXX-XXX

Outside Label On Box

Bin Code

XXXX

Tx07-11xxx

5040 PCS

XX

QAxx

XX XX XX

PASSED

RoHS Compliant

Number OF QA

Date
THROUGH HOLE DISPLAY MOUNTING METHOD

Lead Forming
Do not bend the component leads by hand without proper tools. The leads should be bent by clinching the upper part of the lead firmly such that the bending force is not exerted on the plastic body.

Installation
1. The installation process should not apply stress to the lead terminals.
2. When inserting for assembly, ensure the terminal pitch matches the substrate board’s hole pitch to prevent spreading or pinching the lead terminals.
3. The component shall be placed at least 5mm from edge of PCB to avoid damage caused excessive heat during wave soldering.
DISPLAY SOLDERING CONDITIONS

Wave Soldering Profile For Lead-free Through-hole LED.

NOTES:
1. Recommend the wave temperature 245°C~260°C. The maximum soldering temperature should be less than 260°C.
2. Do not apply stress on epoxy resins when temperature is over 85°C.
3. The soldering profile apply to the lead free soldering (Sn/Cu/Ag alloy).
4. During wave soldering, the PCB top-surface temperature should be kept below 105°C.
5. No more than once.

Soldering General Notes:
1. Through-hole displays are incompatible with reflow soldering.
2. If components will undergo multiple soldering processes, or other processes where the components may be subjected to intense heat, please check with Kingbright for compatibility.

CLEANING
1. Mild "no-clean" fluxes are recommended for use in soldering.
2. If cleaning is required, Kingbright recommends to wash components with water only. Do not use harsh organic solvents for cleaning, because they may damage the plastic parts. And the devices should not be washed for more than one minute.

CIRCUIT DESIGN NOTES
1. Protective current-limiting resistors may be necessary to operate the Displays.
2. LEDs mounted in parallel should each be placed in series with its own current-limiting resistor.