

Kingbright®

13mm (0.52INCH) SINGLE DIGIT NUMERIC DISPLAYS

SA52-11

SC52-11

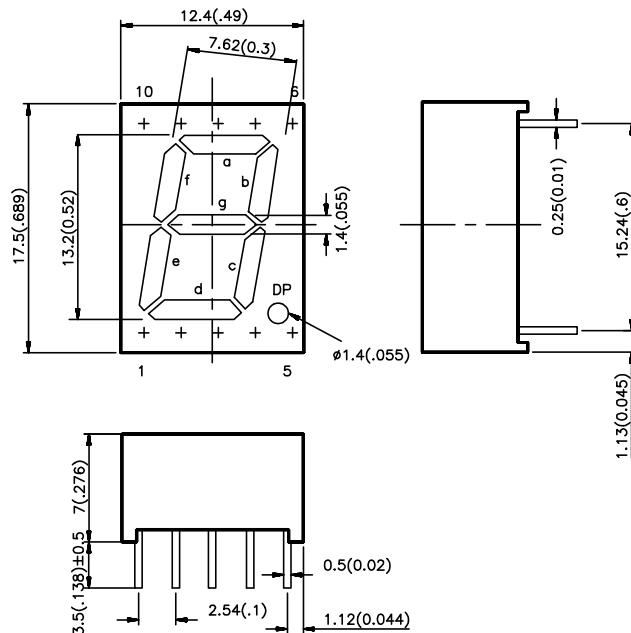
Features

- 0.52 INCH DIGIT HEIGHT.
- LOW CURRENT OPERATION.
- EXCELLENT CHARACTER APPEARANCE.
- EASY MOUNTING ON P.C. BOARDS OR SOCKETS.
- I.C. COMPATIBLE.
- CATEGORIZED FOR LUMINOUS INTENSITY, YELLOW AND GREEN CATEGORIZED FOR COLOR.
- MECHANICALLY RUGGED.
- STANDARD : GRAY FACE, WHITE SEGMENT.

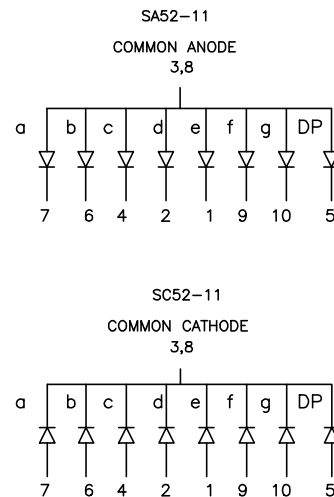
Description

The Red source color device are made with Gallium Arsenide Phosphide Red Light Emitting Diode.
 The Bright Red source color devices are made with Gallium Phosphide Red Light Emitting Diode.
 The Green source color devices are made with Gallium Phosphide Green Light Emitting Diode.
 The High Efficiency Red source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode.
 The Yellow source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Yellow Light Emitting Diode.
 The Super Bright Red source color devices are made with Gallium Aluminum Arsenide Red Light Emitting Diode.

Package Dimensions



Internal Circuit Diagram



Notes:

1. All dimensions are in millimeters (inches), Tolerance is $\pm 0.25(0.01)$ unless otherwise noted.
2. Specifications are subjected to change without notice.

Selection Guide

| Part No. | Dice | Iv (ucd) @ 10 mA | | Description |
|-------------|---------------------------------|---------------------|-------|----------------------------------|
| | | Min. | Max. | |
| SA52-11RWA | RED (GaAsP) | 240 | 560 | Common Anode, Rt Hand Decimal |
| SC52-11RWA | | | | Common Cathode, Rt. Hand Decimal |
| SA52-11HWA | BRIGHT RED (GaP) | 900 | 2200 | Common Anode, Rt Hand Decimal |
| SC52-11HWA | | | | Common Cathode, Rt. Hand Decimal |
| SA52-11EWA | HIGH EFFICIENCY RED (GaAsP/GaP) | 2200 | 17000 | Common Anode, Rt Hand Decimal |
| SC52-11EWA | | | | Common Cathode, Rt. Hand Decimal |
| SA52-11GWA | GREEN (GaP) | 5600 | 5600 | Common Anode, Rt Hand Decimal |
| SC52-11GWA | | | | Common Cathode, Rt. Hand Decimal |
| SA52-11YWA | YELLOW (GaAsP/GaP) | 2200 | 5600 | Common Anode, Rt Hand Decimal |
| SC52-11YWA | | | | Common Cathode, Rt. Hand Decimal |
| SA52-11SRWA | SUPER BRIGHT RED (GaAlAs) | 5600 | 21000 | Common Anode, Rt Hand Decimal |
| SC52-11SRWA | | | | Common Cathode, Rt. Hand Decimal |

Electrical / Optical Characteristics at T_A=25°C

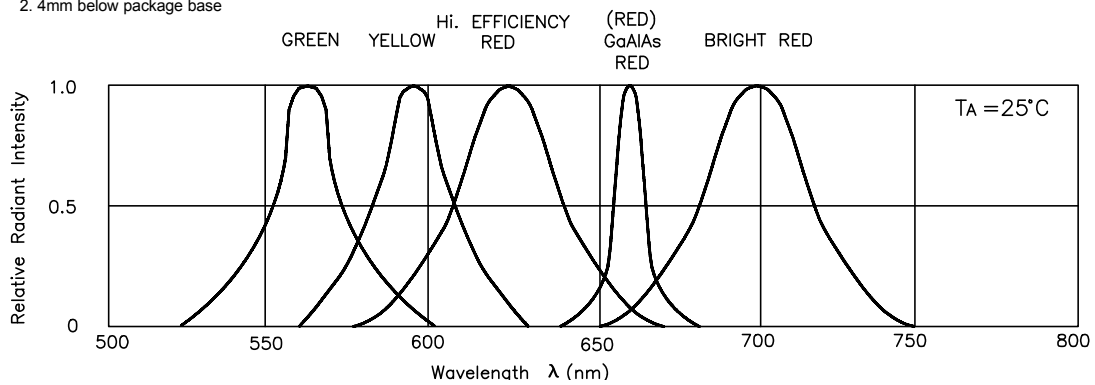
| Symbol | Parameter | Device | Typ. | Max. | Units | Test Conditions |
|-----------------------|-------------------------|---|---|--|-------|-----------------|
| λ_{peak} | Peak Wavelength | Red Bright Red High Efficiency Red Green Yellow Super Bright Red | 660 700 625 565 590 660 | | nm | IF=20mA |
| $\Delta\lambda_{1/2}$ | Spectral Line Halfwidth | Red Bright Red High Efficiency Red Green Yellow Super Bright Red | 20 45 45 30 35 20 | | nm | IF=20mA |
| C | Capacitance | Red Bright Red High Efficiency Red Green Yellow Super Bright Red | 40 40 12 45 10 95 | | pF | VF=0V;f=1MHz |
| V _F | Forward Voltage | Red Bright Red High Efficiency Red Green Yellow Super Bright Red | 1.7 2.0 2.0 2.2 2.1 1.85 | 2.1 2.5 2.5 2.5 2.5 2.5 | V | IF=20mA |
| I _R | Reverse Current | All | 10 | | uA | VR = 5V |

Absolute Maximum Ratings at $T_A=25^\circ\text{C}$

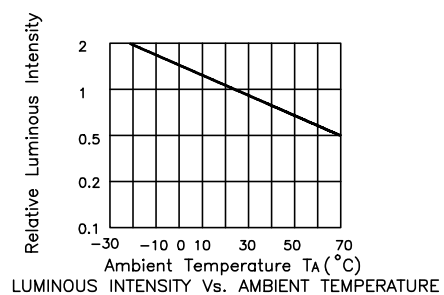
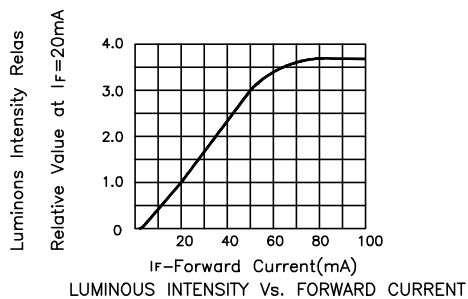
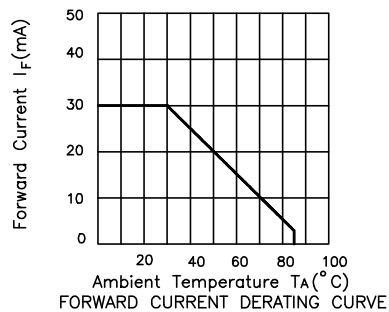
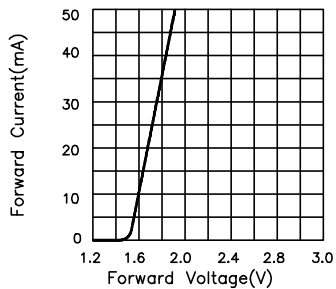
| Parameter | Red | Bright Red | High Efficiency Red | Green | Yellow | Super Bright Red | Units |
|--------------------------------|----------------------|------------|---------------------|-------|--------|------------------|-------|
| Power dissipation | 120 | 120 | 105 | 105 | 105 | 100 | mW |
| DC Forward Current | 30 | 25 | 30 | 25 | 30 | 30 | mA |
| Peak Forward Current [1] | 150 | 150 | 150 | 150 | 150 | 150 | mA |
| Reverse Voltage | 5 | 5 | 5 | 5 | 5 | 5 | V |
| Operating/Storage Temperature | -40 °C To +85 °C | | | | | | |
| Lead Soldering Temperature [2] | 260 °C For 5 Seconds | | | | | | |

Notes:

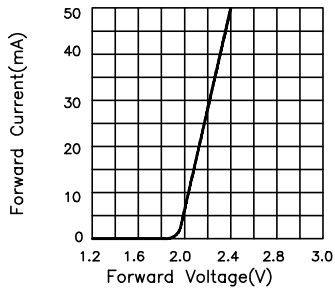
- 1/10 Duty Cycle, 0.1ms Pulse Width.
2. 4mm below package base



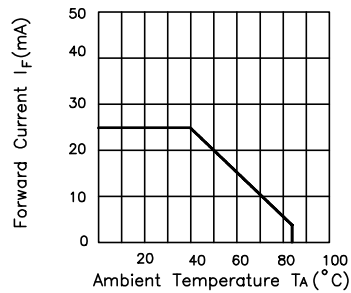
Red



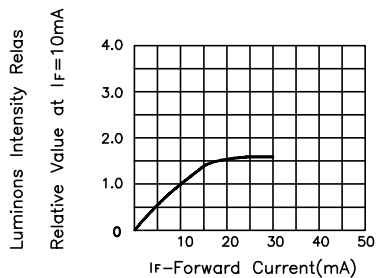
Bright Red



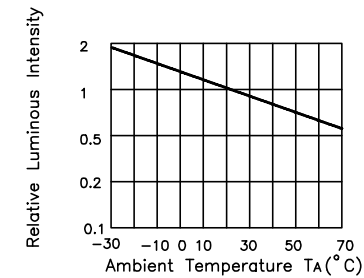
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

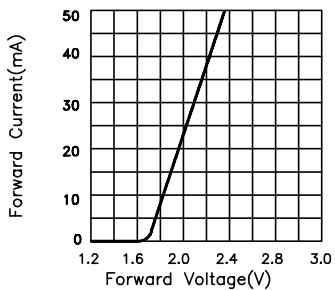


LUMINOUS INTENSITY Vs. FORWARD CURRENT

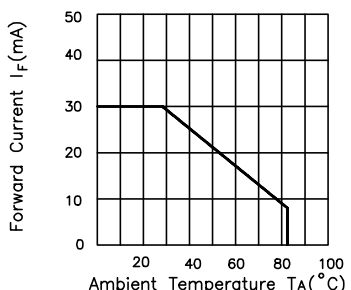


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

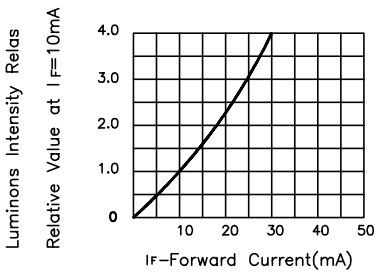
High Efficiency Red



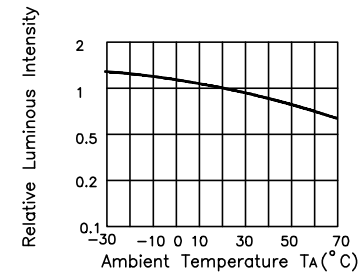
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

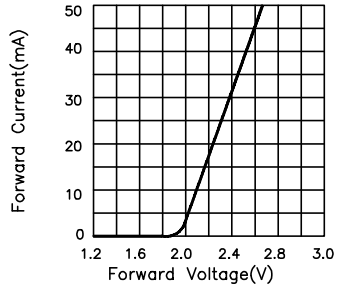


LUMINOUS INTENSITY Vs. FORWARD CURRENT

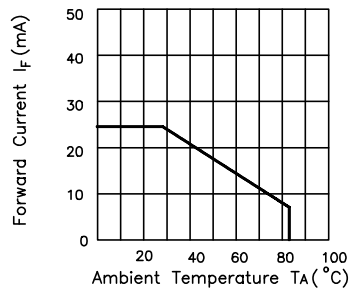


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

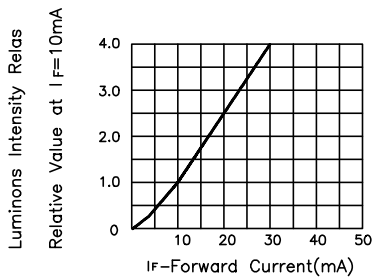
Green



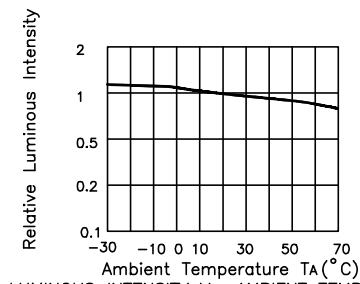
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

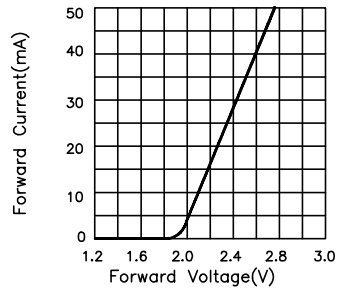


LUMINOUS INTENSITY Vs. FORWARD CURRENT

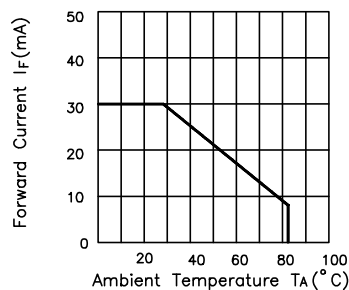


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

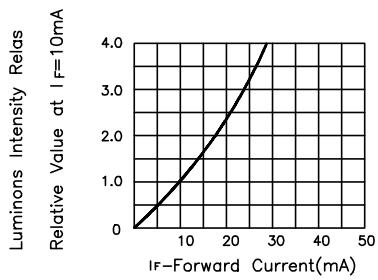
Yellow



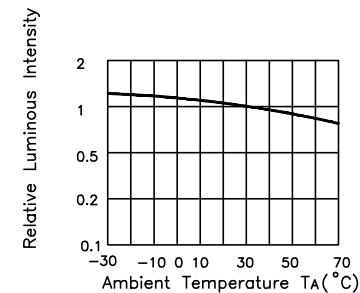
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

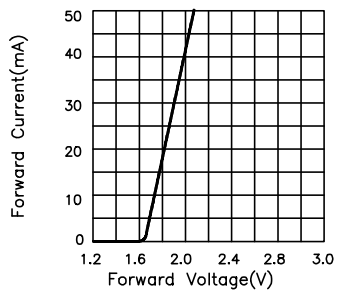


LUMINOUS INTENSITY Vs. FORWARD CURRENT

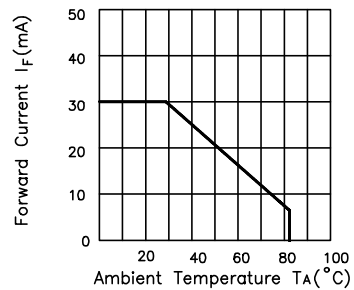


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

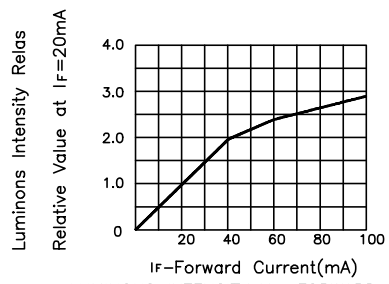
Super Bright Red



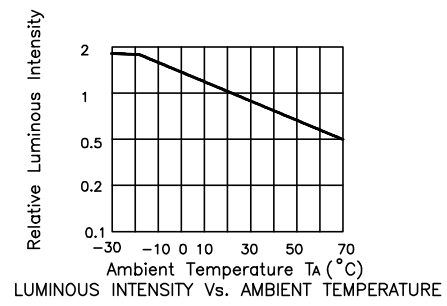
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE



LUMINOUS INTENSITY Vs. FORWARD CURRENT



LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE