

# Kingbright®

## 13mm (0.52INCH) SINGLE DIGIT NUMERIC DISPLAYS

SA52-11

SC52-11

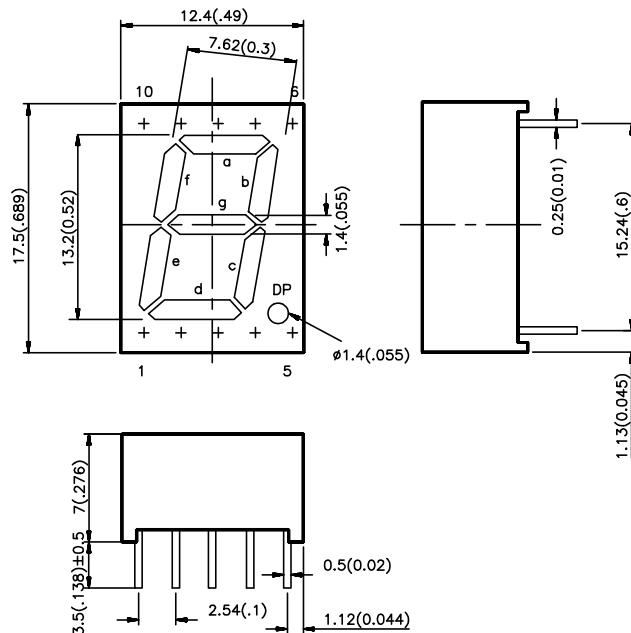
### Features

- 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.

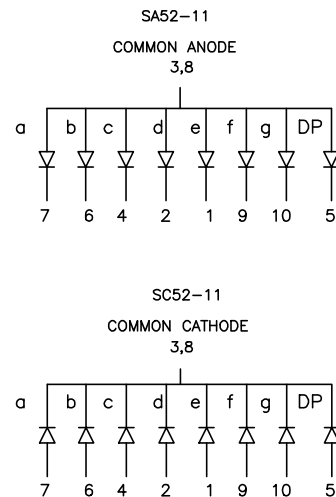
### Description

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<sub>A</sub>=25°C

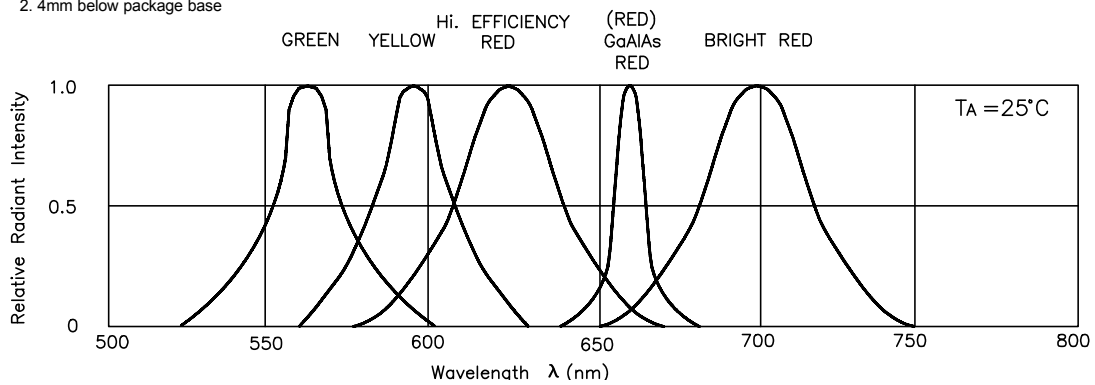
Symbol	Parameter	Device	Typ.	Max.	Units	Test Conditions
$\lambda_{peak}$	Peak Wavelength	Red Bright Red High Efficiency Red Green Yellow Super Bright Red	660 700 625 565 590 660		nm	IF=20mA
$\Delta\lambda_{1/2}$	Spectral Line Halfwidth	Red Bright Red High Efficiency Red Green Yellow Super Bright Red	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 <sub>F</sub>	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 <sub>R</sub>	Reverse Current	All	10		uA	VR = 5V

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

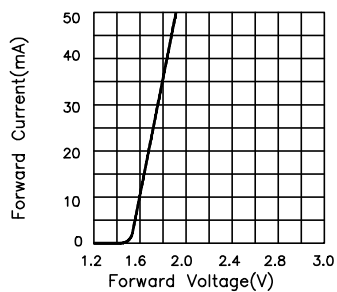
Parameter	Red	Bright Red	High Efficiency Red	Green	Yellow	Super Bright Red	Units
Power dissipation	120	120	105	105	105	100	mW
DC Forward Current	30	25	30	25	30	30	mA
Peak Forward Current [1]	150	150	150	150	150	150	mA
Reverse Voltage	5	5	5	5	5	5	V
Operating/Storage Temperature	-40 °C To +85 °C						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

**Notes:**

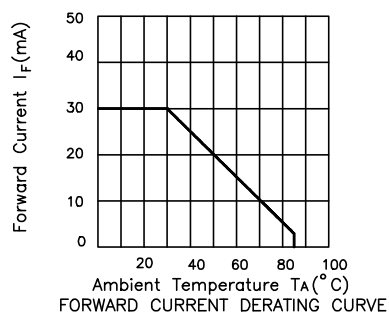
- 1/10 Duty Cycle, 0.1ms Pulse Width.
2. 4mm below package base



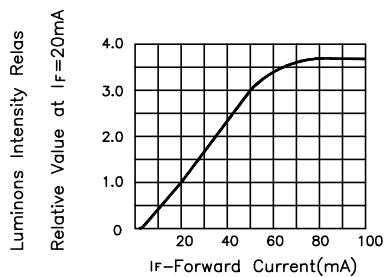
### Red



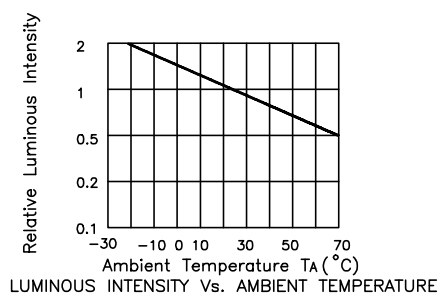
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

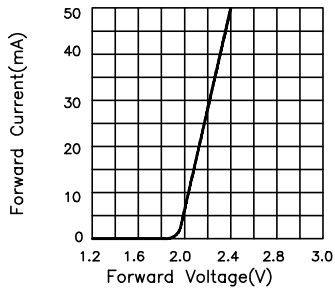


LUMINOUS INTENSITY Vs. FORWARD CURRENT

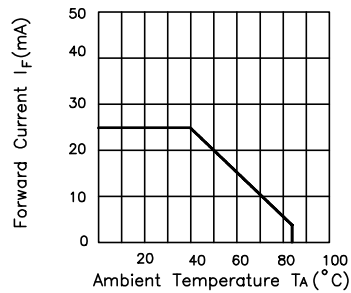


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

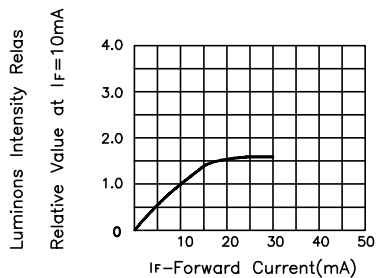
## Bright Red



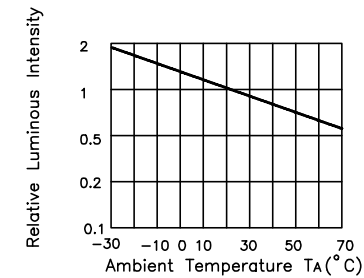
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

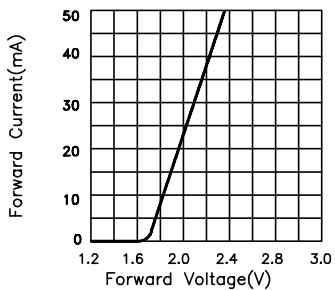


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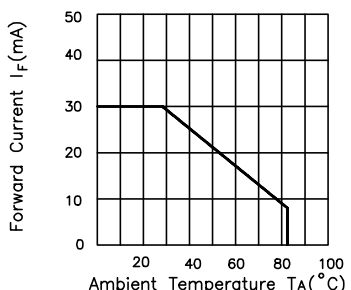


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

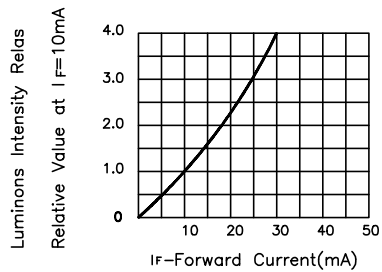
## High Efficiency Red



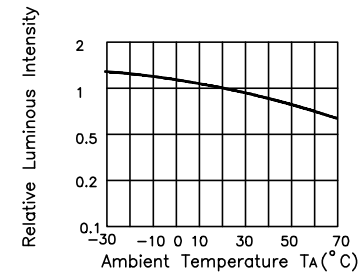
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

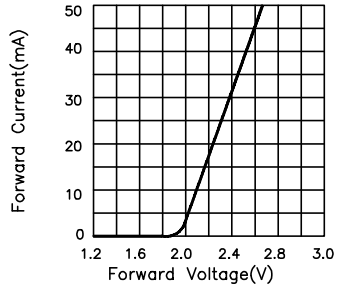


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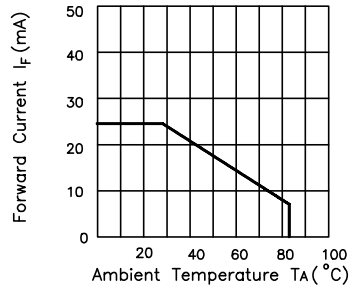


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

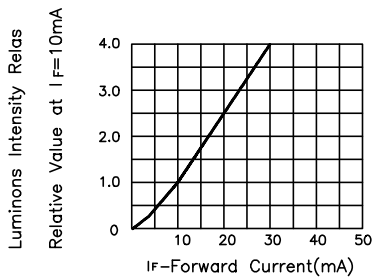
## Green



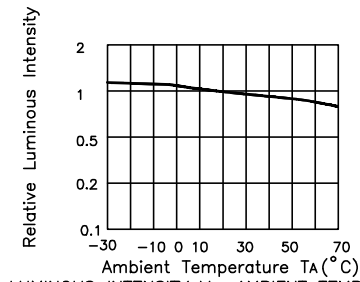
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

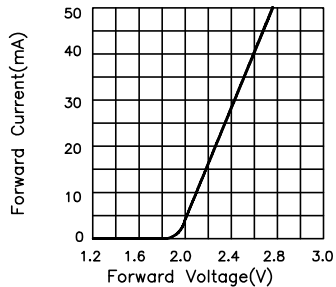


LUMINOUS INTENSITY Vs. FORWARD CURRENT

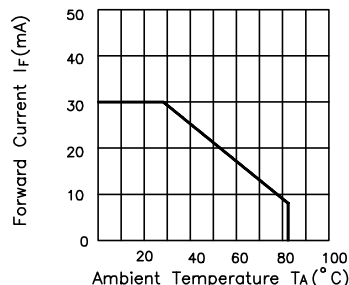


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

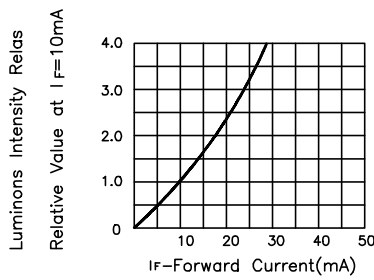
## Yellow



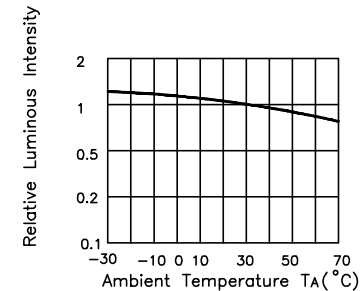
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

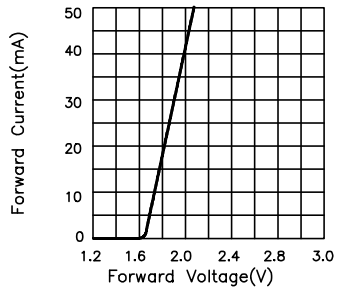


LUMINOUS INTENSITY Vs. FORWARD CURRENT

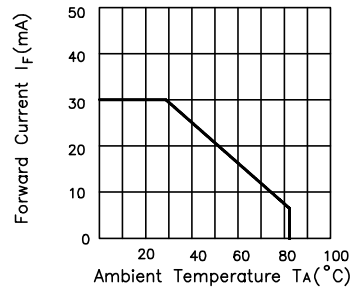


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

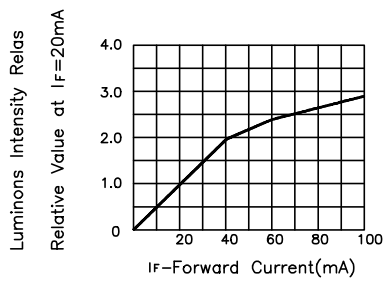
## Super Bright Red



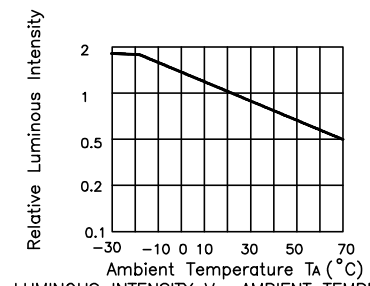
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE



LUMINOUS INTENSITY Vs. FORWARD CURRENT



LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE