

# Kingbright®

## 13.2mm (0.52INCH) FOUR DIGIT NUMERIC DISPLAYS

CA52-11

CC52-11

### 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 Bright Red source color devices are made with Gallium Phosphide Red Light Emitting Diode.

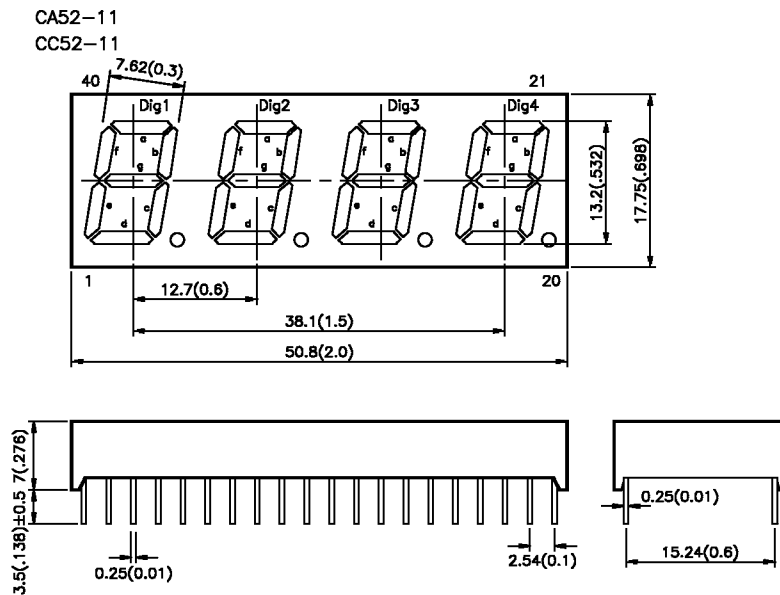
The Green source color devices are made with Gallium Phosphide Green Light Emitting Diode.

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

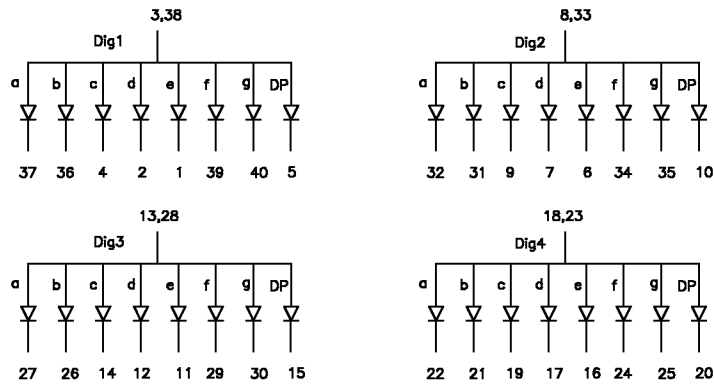


### Notes:

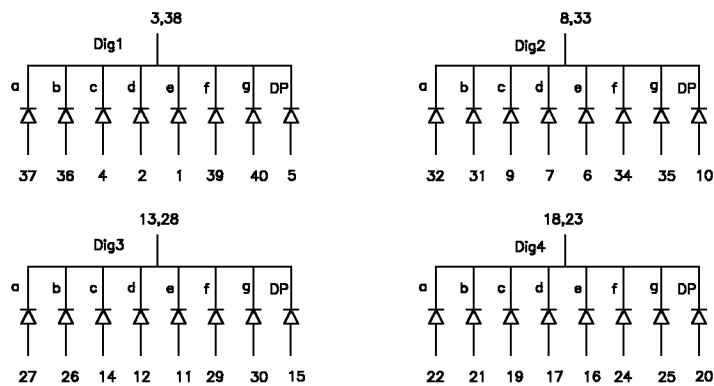
1. All dimensions are in millimeters (inches), Tolerance is  $\pm 0.25(0.01)$  unless otherwise noted.
2. Specifications are subjected to change without notice.

## Internal Circuit Diagram

CA52-11



CC52-11



## Selection Guide

Part No.	Dice	Iv (ucd) @ 10 mA		Description
		Min.	Max.	
CA52-11HWA	BRIGHT RED (GaP)	900	2200	Common Anode
CC52-11HWA				Common Cathode
CA52-11EWA	HIGH EFFICIENCY RED (GaAsP/GaP)	2200	5600	Common Anode
CC52-11EWA				Common Cathode
CA52-11GWA	GREEN (GaP)	2200	5600	Common Anode
CC52-11GWA				Common Cathode
CA52-11YWA	YELLOW (GaAsP/GaP)	2200	5600	Common Anode
CC52-11YWA				Common Cathode

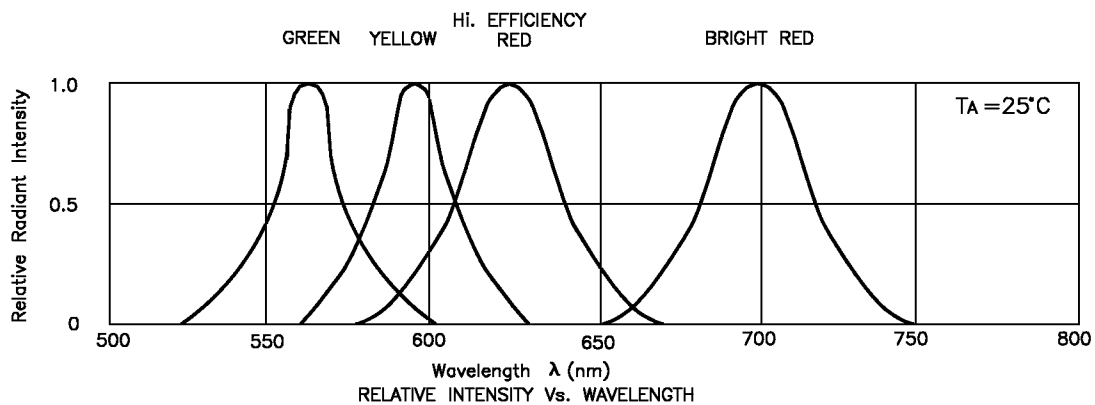
### Electrical / Optical Characteristics at T<sub>A</sub>=25°C

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

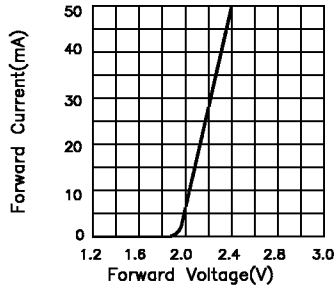
### Absolute Maximum Ratings at T<sub>A</sub>=25°C

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

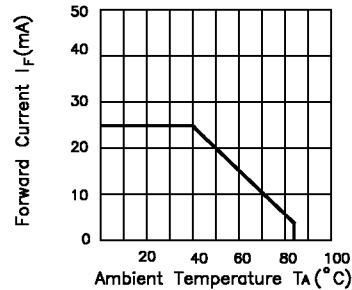
Notes:  
 1. 1/10 Duty Cycle, 0.1ms Pulse Width.  
 2. 4mm below package base.



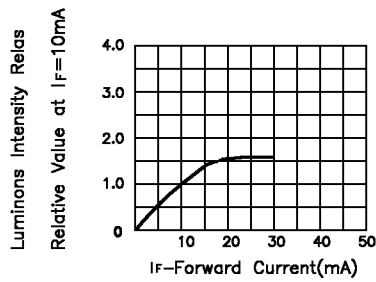
## Bright Red



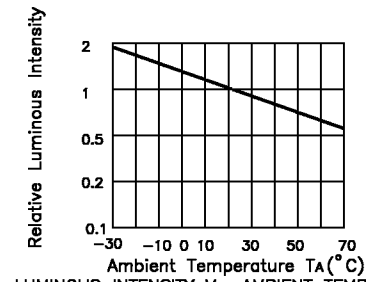
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

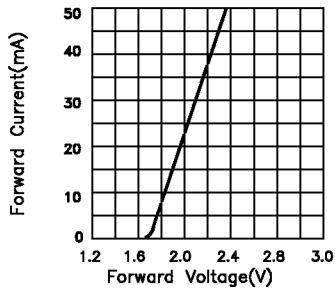


LUMINOUS INTENSITY Vs. FORWARD CURRENT

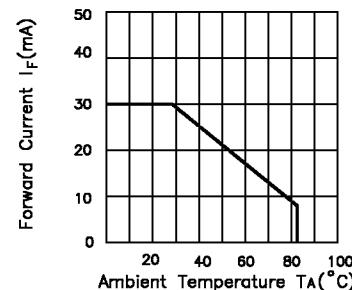


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

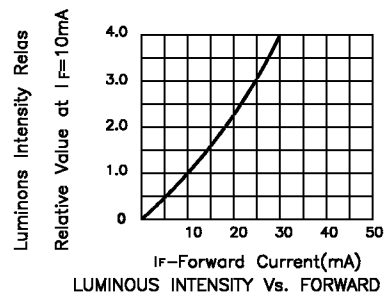
## High Efficiency Red



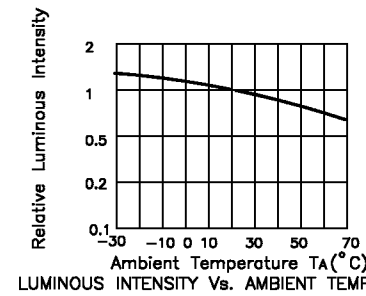
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

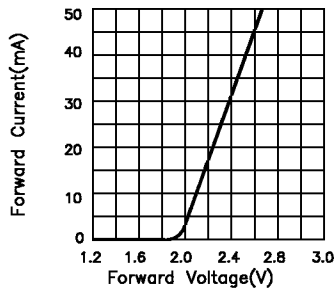


LUMINOUS INTENSITY Vs. FORWARD CURRENT

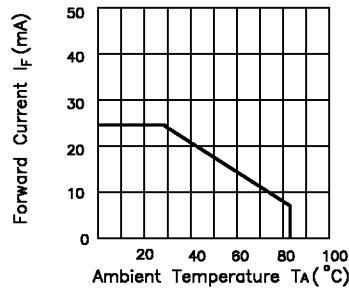


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

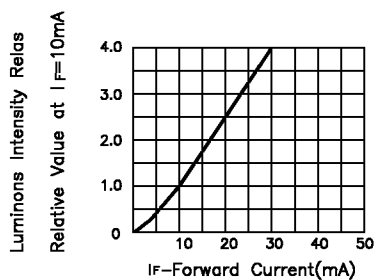
### Green



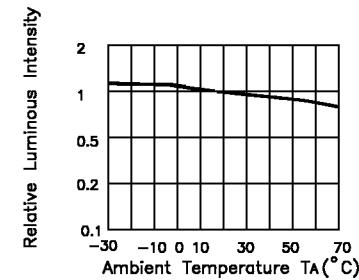
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE

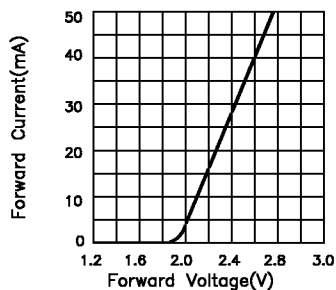


LUMINOUS INTENSITY Vs. FORWARD CURRENT

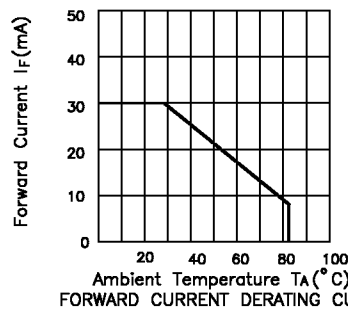


LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE

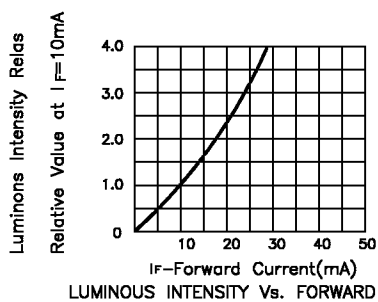
### Yellow



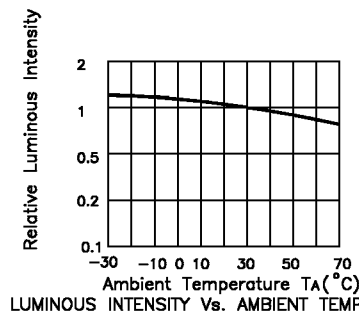
FORWARD CURRENT Vs. FORWARD VOLTAGE



FORWARD CURRENT DERATING CURVE



LUMINOUS INTENSITY Vs. FORWARD CURRENT



LUMINOUS INTENSITY Vs. AMBIENT TEMPERATURE