

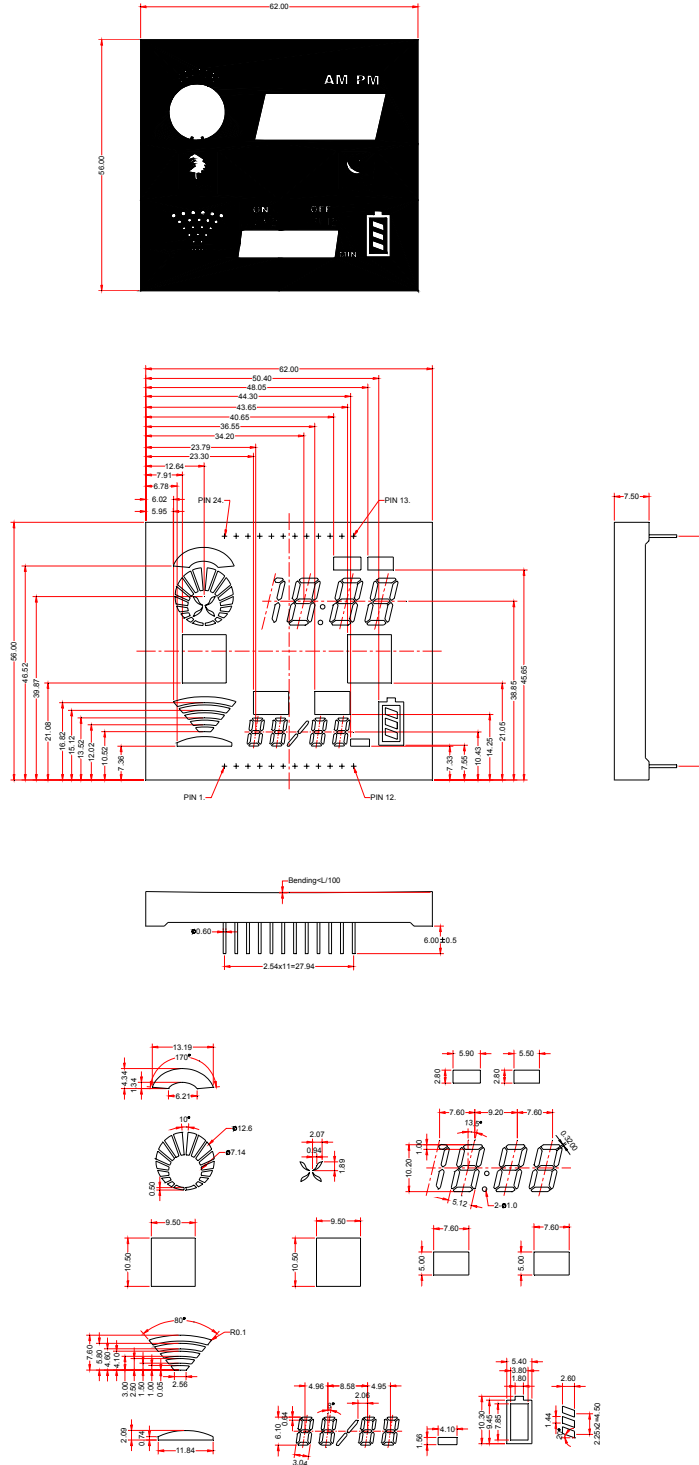
● **Features :**

1. 0.40 inch (10.20mm) digit height and 0.24 inch (6.10mm) digit height.
2. Continuous uniform segments.
3. Low power requirement.
4. Excellent characters appearance.
5. Solid state reliability.
6. Multiplex driver : column anode com, and row cathode com.
7. Multi color
8. Affix film on surface.

● **Description :**

1. The BCD-9221A is 10.20mm (0.40" ) height four digit and 6.1mm (0.24" ) height four digit seven-segment display, and different pattern appearance..
2. This product use yellow green chips and hi-eff red chips and amber chips and yellow chips and super green chips and super blue chips, the yellow green chips are made from GaP on GaP substrate, the hi-eff red chips are made from GaAsP on GaP substrate, the amber chips are made from GaAsP on GaP substrate, the yellow chips are made from GaAsP on GaP substrate, the super green chips are made from GaN on SiC substrate, the super blue chips are made from GaN on SiC substrate.
3. This product have a black face and white segments.
4. This product doesn't contain restriction substance, comply ROHS standard.

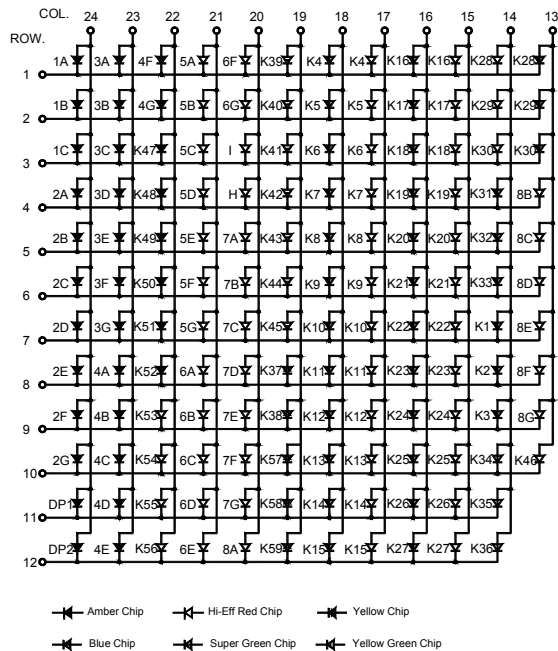
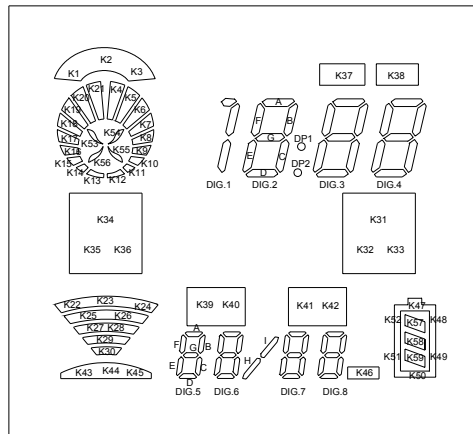
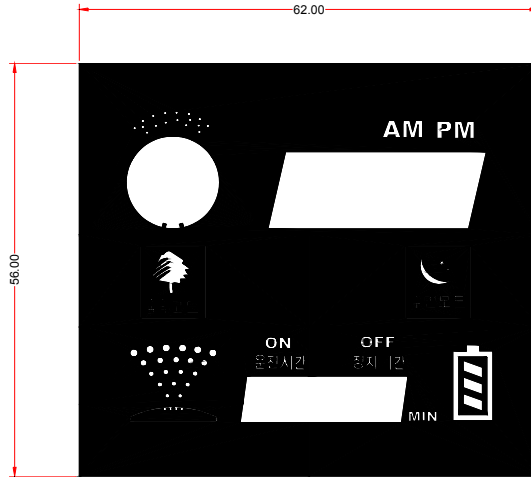
● Package Dimensions :



Notes:

1. All dimensions are in millimeters( inches).
2. Tolerance is  $\pm 0.25\text{mm} (.01\text{'})$  unless otherwise specified.
3. Specifications are subject to change without notice.

● Internal Circuit Diagram :



● **Absolute Maximum Ratings(Ta=25°C)**

Parameter	Symbol	Yellow Green	Hi-Eff Red	Amber	Yellow	Super Green	Super Blue	Unit
Power Dissipation Per Segment	Pd	80	80	80	80	120	120	mW
Forward Current Per Segment	I <sub>F</sub>	30	30	30	30	30	30	mA
Peak Forward Current Per Segment	I <sub>FP</sub> (Duty 1/10, 1KHZ)	150	150	150	150	150	150	mA
Reverse Voltage Per Segment	V <sub>R</sub>	5						V
Operating Temperature	Topr	-40°C~80°C						-
Storage Temperature	Tstg	-40°C~85°C						-
Soldering Temperature (1/16" From Body)	Tsol	260°C For 5 Seconds						-

● **Electrical And Optical Characteristics(Ta=25°C)**

Yellow Green

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage Per Segment	V <sub>f</sub>	I <sub>F</sub> =10mA	-	2.1	2.5	V
Luminous Intensity Per Segment	I <sub>v</sub>	I <sub>F</sub> =10mA	-	2.5	-	mcd
Reverse Current Per Segment	I <sub>R</sub>	V <sub>R</sub> =5V	-	-	100	μA
Peak Wave Length	λ <sub>p</sub>	I <sub>F</sub> =10mA	-	568	-	nm
Dominant Wave Length	λ <sub>d</sub>	I <sub>F</sub> =10mA	569	-	574	nm
Spectral Line Half-width	Δλ	I <sub>F</sub> =10mA	-	30	-	nm

Hi-Eff red

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage Per Segment	V <sub>f</sub>	I <sub>F</sub> =10mA	-	1.9	2.5	V
Luminous Intensity Per Segment	I <sub>v</sub>	I <sub>F</sub> =10mA	-	2.5	-	mcd
Reverse Current Per Segment	I <sub>R</sub>	V <sub>R</sub> =5V	-	-	100	μA
Peak Wave Length	λ <sub>p</sub>	I <sub>F</sub> =10mA	-	640	-	nm
Dominant Wave Length	λ <sub>d</sub>	I <sub>F</sub> =10mA	626	-	636	nm
Spectral Line Half-width	Δλ	I <sub>F</sub> =10mA	-	40	-	nm

Amber

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage Per Segment	V <sub>f</sub>	I <sub>F</sub> =10mA	-	1.9	2.5	V
Luminous Intensity Per Segment	I <sub>v</sub>	I <sub>F</sub> =10mA	-	2.5	-	mcd
Reverse Current Per Segment	I <sub>R</sub>	V <sub>R</sub> =5V	-	-	100	μA
Peak Wave Length	λ <sub>p</sub>	I <sub>F</sub> =10mA	-	610	-	nm
Dominant Wave Length	λ <sub>d</sub>	I <sub>F</sub> =10mA	601	-	611	nm
Spectral Line Half-width	Δλ	I <sub>F</sub> =10mA	-	35	-	nm

Yellow

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage Per Segment	V <sub>f</sub>	I <sub>F</sub> =10mA	-	2.0	2.5	V
Luminous Intensity Per Segment	I <sub>v</sub>	I <sub>F</sub> =10mA	-	2.0	-	mcd
Reverse Current Per Segment	I <sub>R</sub>	V <sub>R</sub> =5V	-	-	100	μA
Peak Wave Length	λ <sub>p</sub>	I <sub>F</sub> =10mA	-	589	-	nm
Dominant Wave Length	λ <sub>d</sub>	I <sub>F</sub> =10mA	586	-	594	nm
Spectral Line Half-width	Δλ	I <sub>F</sub> =10mA	-	35	-	nm

## Super Green

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage Per Segment	V <sub>f</sub>	I <sub>F</sub> =10mA	-	3.5	4.0	V
Luminous Intensity Per Segment	I <sub>v</sub>	I <sub>F</sub> =10mA	-	3.0	-	mcd
Reverse Current Per Segment	I <sub>R</sub>	V <sub>R</sub> =5V	-	-	100	μA
Peak Wave Length	λ <sub>p</sub>	I <sub>F</sub> =10mA	-	523	-	nm
Dominant Wave Length	λ <sub>d</sub>	I <sub>F</sub> =10mA	520	-	535	nm
Spectral Line Half-width	Δλ	I <sub>F</sub> =10mA	-	36	-	nm

## Super Blue

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Forward Voltage Per Segment	V <sub>f</sub>	I <sub>F</sub> =10mA	-	3.5	4.0	V
Luminous Intensity Per Segment	I <sub>v</sub>	I <sub>F</sub> =10mA	-	3.0	-	mcd
Reverse Current Per Segment	I <sub>R</sub>	V <sub>R</sub> =5V	-	-	100	μA
Peak Wave Length	λ <sub>p</sub>	I <sub>F</sub> =10mA	-	465	-	nm
Dominant Wave Length	λ <sub>d</sub>	I <sub>F</sub> =10mA	455	-	465	nm
Spectral Line Half-width	Δλ	I <sub>F</sub> =10mA	-	26	-	nm

## ● Typical Electro-Optical Characteristics Curves

(25°C Ambient Temperature Unless Otherwise Noted)

Fig.1 Relative Radiant Intensity VS. Wavelength

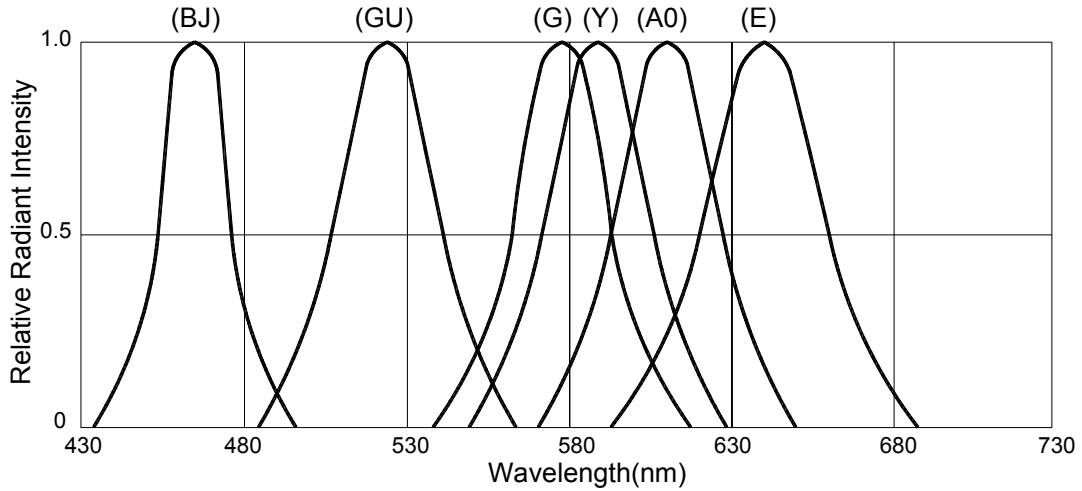


Fig.2 Forward Current VS. Forward Voltage

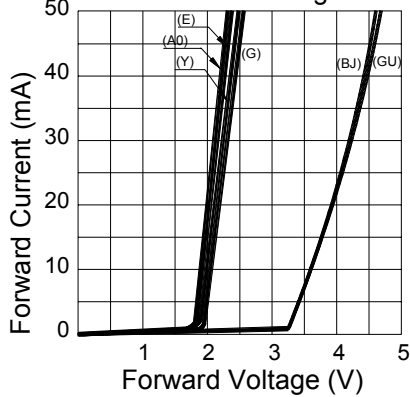


Fig.3 Relative Luminous Intensity VS. Ambient Temperature

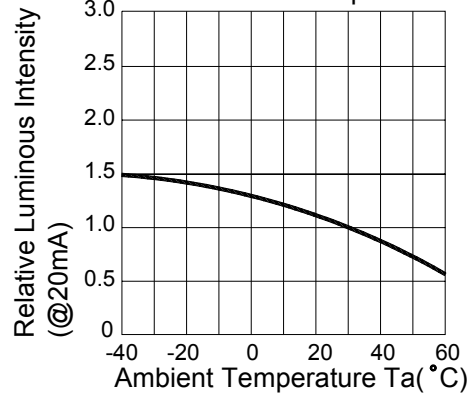


Fig.4 Relative Luminous Intensity VS. Forward Current

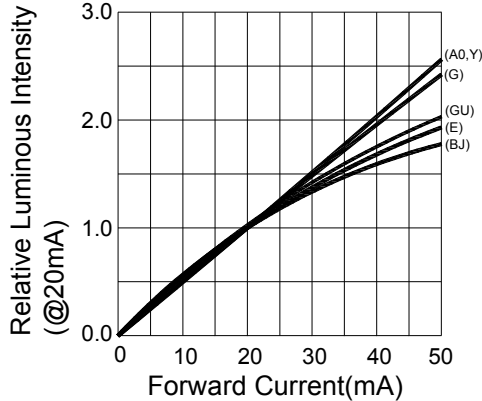


Fig.5 Forward Current Derating Curve VS. Ambient Temperature

