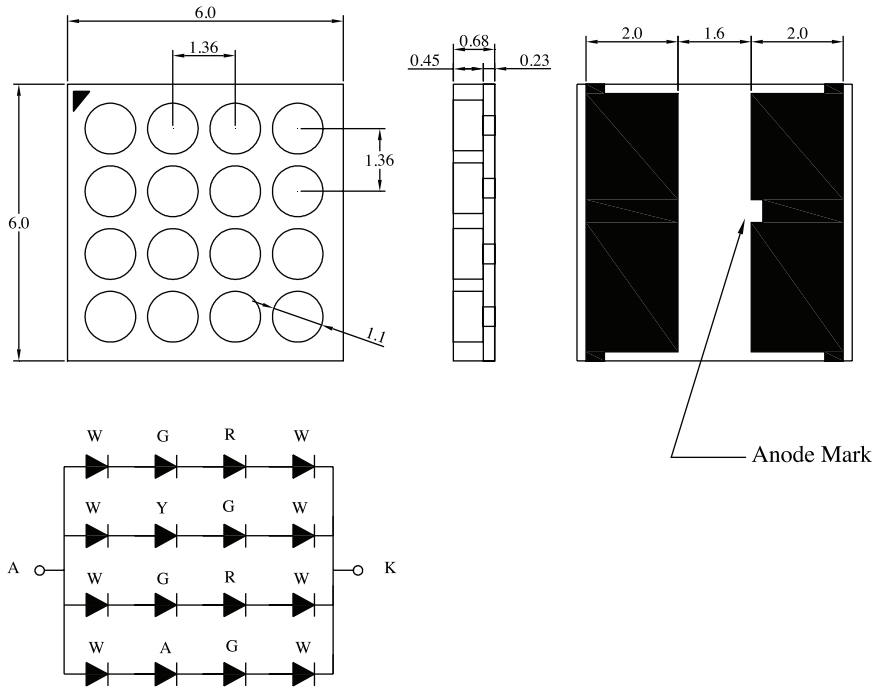


4 × 4 Ceramic SMD Type



Package Dimensions:



All dimensions are in mm
Tolerance: $\pm 0.25\text{mm}$

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

Parameter		Rating	Unit
Power Dissipation*	White & Green	120	mW
	Red & Yellow	78	
	Amber	72	
Reverse Voltage*	V_R	5	V
D.C. Forward Current*	I_f	350	mA
Pulsed Forward Current ($t_p \leq 100\mu\text{s}$, Duty Cycle = 0.005×1)*	I_f (Peak)	100	mA
Operating Temperature Range	$T_{opr.}$	-40 to +100	$^\circ\text{C}$
Storage Temperature Range	$T_{stg.}$	-40 to +100	$^\circ\text{C}$
Soldering Temperature	$T_{sld.}$	Reflow Soldering: 260°C for 10sec.	
Electric Static Discharge (HBM)	ESD	300	V



4 × 4 Ceramic SMD Type



Electrical & Optical Characteristics

Parameter	Symbol	Condition	Values			Unit	
			Min.	Typ.	Max.		
Luminous Flux	Φ_v	If=80mA	10.7	20		lm	
Forward Voltage	Vf	If=80mA		11.5	15	V	
Correlated Colour Temperature	Rank C9	CCT	If=80mA	5,500		6,000	K
	Rank C10			6,000		6,500	
	Rank C11			6,500		7,000	
Colour rendering Index	CRI	If=80mA		94		Ra	
Reverse Current*	Ir	Vr=5V			50	μ A	
Viewing Angle	$2\theta \frac{1}{2}$	If=80mA		120		deg	

- Notes : 1. The data is tested by an IS tester.
 2. Customer's special requirements are also welcome.
 3. * The values are based on 1 die performance.

Typical Electrical & Optical Characteristics Curves:

(25°C Ambient temperature unless otherwise noted)

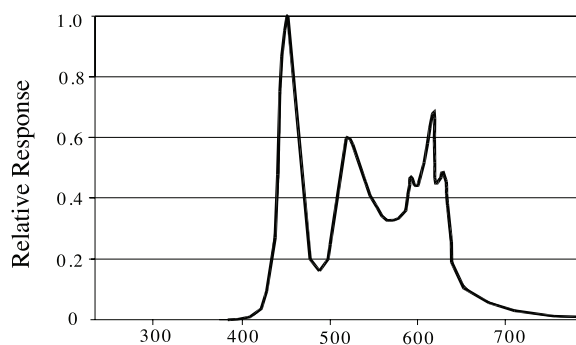
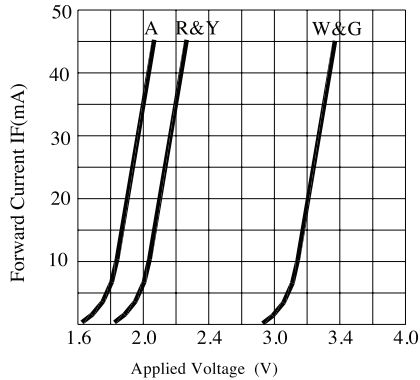
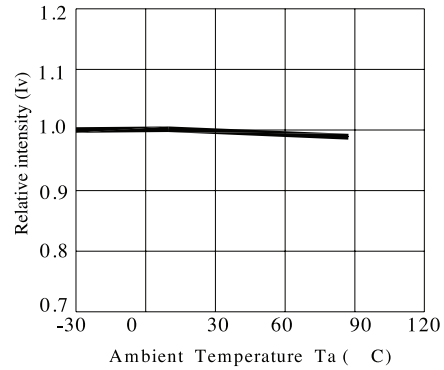


Fig.1 WHITE LED Spectrum VS. WAVELENGTH

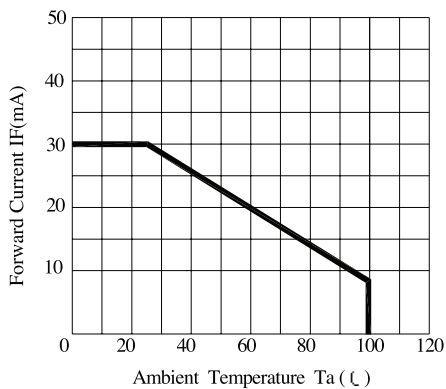
4 × 4 Ceramic SMD Type



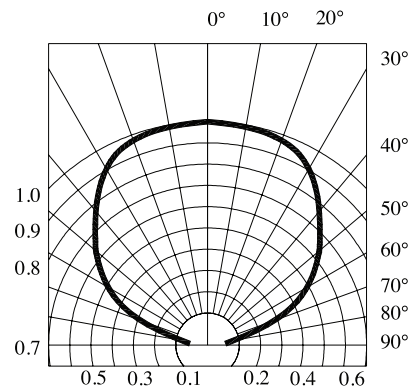
Forward Current VS. Applied Voltage



Forward Current VS. Luminous Intensity



Ambient Temperature VS. Forward Current



Radiation Diagram

Recommended Storage Environment:

- Temperature: 5°C ~ 30°C (41°F ~ 86°F)
- Humidity: 60% RH Max.
- Use within 7 days after opening of sealed vapour/ESD barrier bags.
- If moisture absorbent material (silica gel) has faded away or LEDs have exceeded the storage time, baking treatment should be performed using the following conditions:
- Baking Treatment: 60 ± 5°C for 24 hours
- Fold the opened bag firmly and keep in dry environment.

4 × 4 Ceramic SMD Type



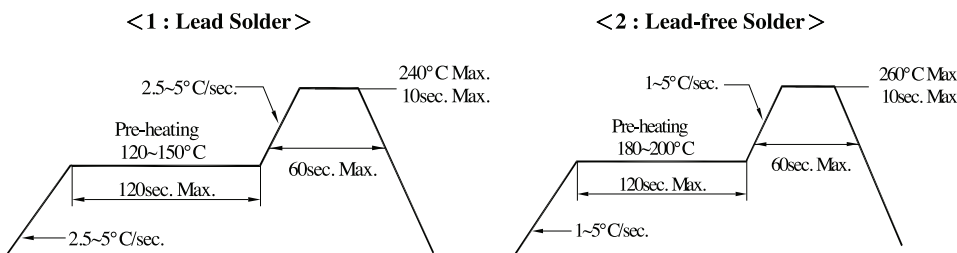
Soldering

Reflow Soldering			
	Lead Solder	Lead-free Solder	
Pre-heat	120 ~ 150°C	180 ~ 200°C	Temperature
Pre-heat Time	120sec. max.	120sec. max.	Soldering time
Peak Temperature	240°C max.	260°C max.	
Soldering Time	10sec. max.	10sec. max.	
Condition	Refer to temperature-profile 1	Refer to temperature-profile 2	
			350°C max.
			3sec max. (one time only)

*After reflow soldering rapid cooling should be avoided.

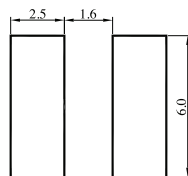
Temperature-profile (surface of circuit board):

Use the conditions shown under figure.



Recommended Soldering Pad Design:

Use the following conditions shown in figure.



Part Number Table

LED Chip		Lens Colour	Part Number
Material	Emitting Colour		
White & Green	InGaN / Sapphire	Water clear	703-0154
Red & Yellow	AlGaInP / Si		
Amber	AlGaUnP / GaAs		

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