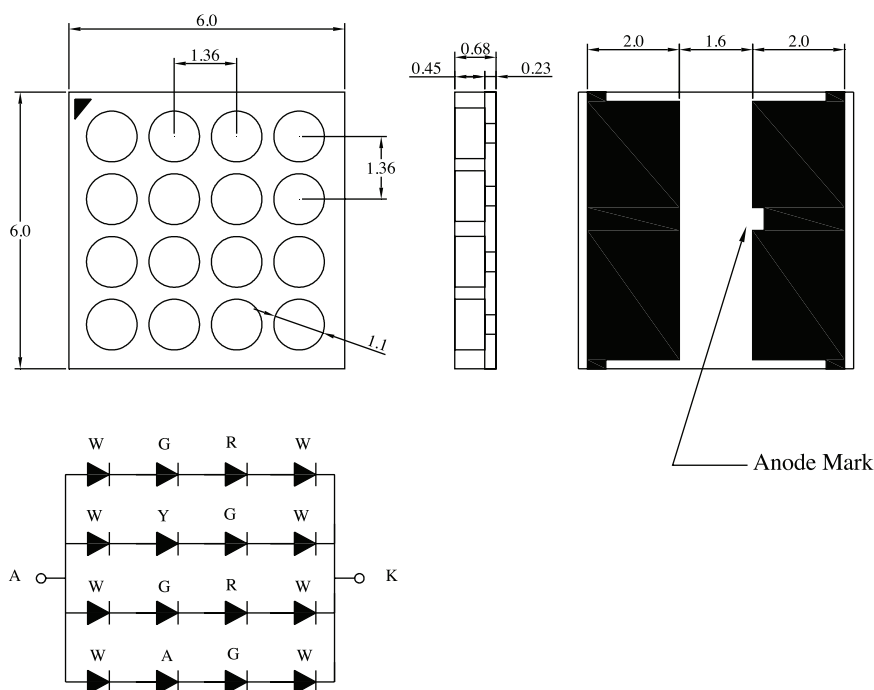


4 × 4 Ceramic SMD Type



Package Dimensions:



All dimensions are in mm
Tolerance: ± 0.25 mm

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

Parameter			Rating	Unit
Power Dissipation*	White & Green	P_D	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	17.3		lm
Forward Voltage	Vf	If=80mA		11.5	15	V
Correlated Colour Temperature	A	CCT	If=80mA	2,800	3,000	K
	B			3,000	32,000	
Colour rendering Index	CRI	If=80mA		94		Ra
Reverse Current*	Ir	Vr=5V			50	μ A
Viewing Angle	2 θ ½	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)

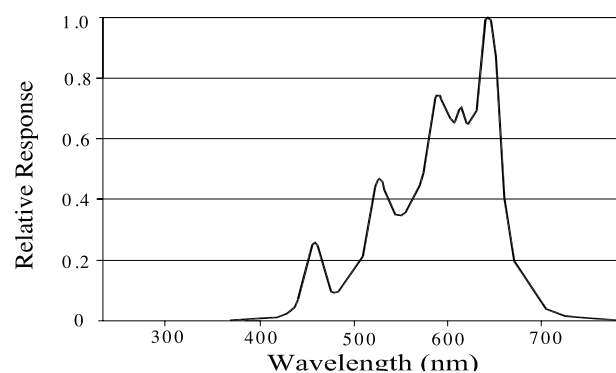
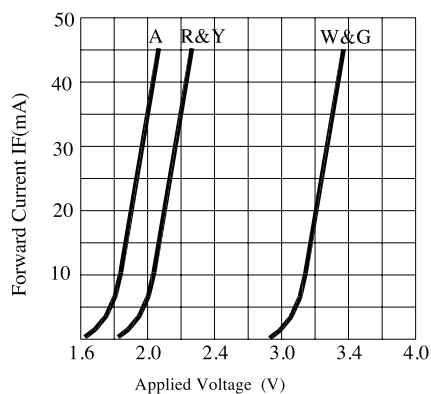
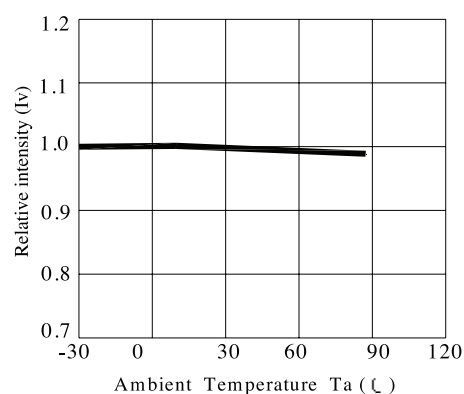


Fig.1 WHITE LED Spectrum VS. WAVELENGTH

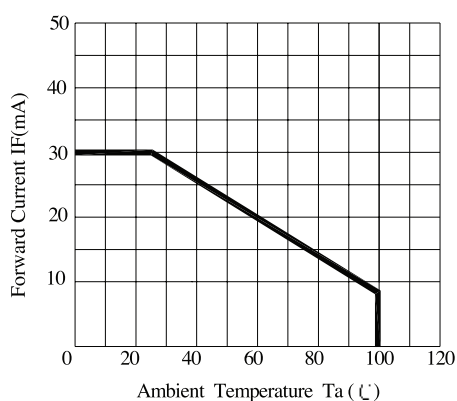
4 × 4 Ceramic SMD Type



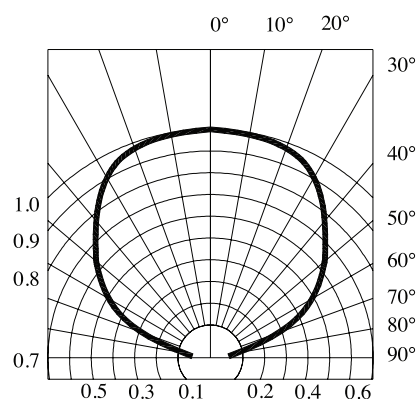
Forward Current VS. Applied Voltage



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

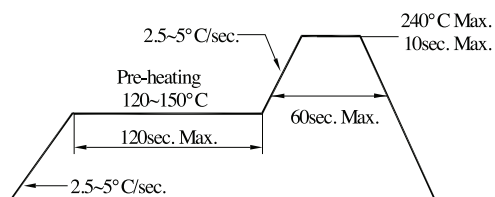
Reflow Soldering				
	Lead Solder	Lead-free Solder		
Pre-heat	120 ~ 150°C	180 ~ 200°C	Temperature	350°C max.
Pre-heat Time	120sec. max.	120sec. max.	Soldering time	3sec max. (one time only)
Peak Temperature	240°C max.	260°C max.		
Soldering Time	10sec. max.	10sec. max.		
Condition	Refer to temperature-profile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

*After reflow soldering rapid cooling should be avoided.

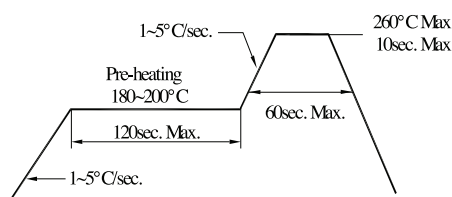
Temperature-profile (surface of circuit board):

Use the conditions shown under figure.

< 1 : Lead Solder >

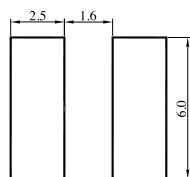


< 2 : Lead-free Solder >



Recommended Soldering Pad Design:

Use the following conditions shown in figure.



Part Number Table

LED Chip		Lens Colour	Part Number
Material	Emitting Colour		
InGaN/Metal Alloy	White	Water clear	703-0153

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