Kingbright

XPower

PRELIMINARY SPEC

Part Number: KAD1-9090BRGC-01/3

Blue
Reddish-Orange
Green

ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE

Features

- SUPER HIGH FLUX OUTPUT AND HIGH LUMINANCE.
- DESIGNED FOR HIGH CURRENT OPERATION.
- LOW THERMAL RESISTANCE.
- LEAD FREE PRODUCT.
- LOW VOLTAGE DC OPERATED.
- SUPERIOR ESD PROTECTION.
- PACKAGE: 500PCS/REEL.
- MOISTURE SENSITIVITY LEVEL : LEVEL 2a.
- RoHS COMPLIANT.

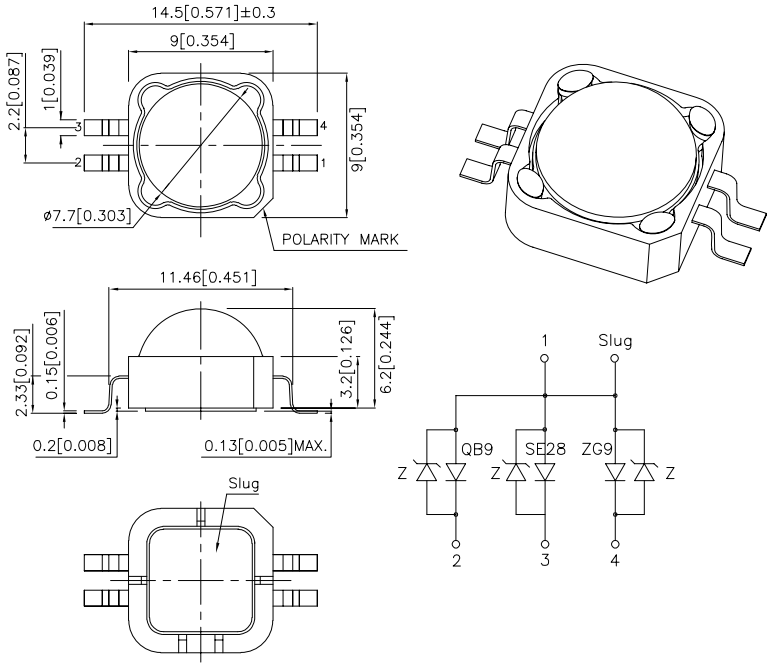
Application Note

Static electricity and surge damage the LEDS.
It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs.
All devices, equipment and machinery must be electrically grounded.

Applications

- traffic signaling.
- backlighting (illuminated advertising , general lighting).
- interior and exterior automotive lighting.
- substitution of micro incandescent lamps.
- portable light source (e.g. bicycle flashlight).
- signal and symbol luminaire for orientation.
- marker lights (e.g. steps, exit ways, etc).
- decorative and entertainment lighting.
- indoor and outdoor commercial and residential architectural lighting.

Package Dimensions



Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25(0.01") unless otherwise noted.
3. Specifications are subject to change without notice.
4. The device has a single mounting surface. The device must be mounted according to the specifications.

Selection Guide

Part No.	Dice	Lens Type	luminous Intensity [2] Iv(cd)@ 350mA		Φv (lm) [2] @ 350mA		Viewing Angle [1]
			Min.	Typ.	Min.	Typ.	2θ1/2
KAD1-9090BRGC-01/3	Blue (AlInGaN)	WATER CLEAR	1.5	2.8	7.5	12	135°
	Reddish-Orange (InGaAlP)		7	10	23	30	
	Green (AlInGaN)		9	11	35	45	

Notes:
1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
2. Luminous intensity / luminous Flux: +/-15%.

Absolute Maximum Ratings at T_A=25°C

Parameter	Symbol	Device	Value	Unit
Power dissipation	P_t	Blue	1.23	W
		Reddish-Orange	0.88	
		Green	1.2	
Reverse Voltage	V_R	Blue	not designed for reverse operation	V
		Reddish-Orange		
		Green		
Junction temperature	T_J	Blue	110	°C
		Reddish-Orange	110	
		Green	110	
Operating Temperature	Top	Blue	-40 To +100	°C
		Reddish-Orange		
		Green		
Storage Temperature	Tstg	Blue	-40 To +100	°C
		Reddish-Orange		
		Green		
DC Forward Current [1]	I_F	Blue	350	mA
		Reddish-Orange	350	
		Green	350	
Peak Forward Current [2]	I_{FM}	Blue	500	mA
		Reddish-Orange	500	
		Green	500	
Thermal resistance [1]	$R_{th\ j\text{-}c}$	Blue	9	°C/W
		Reddish-Orange	12	
		Green	9	
Electrostatic Discharge Threshold (HBM)		Blue	8000	V
		Reddish-Orange		
		Green		
Iron Soldering [3]		Blue	350°C For 3 Seconds	
		Reddish-Orange		
		Green		

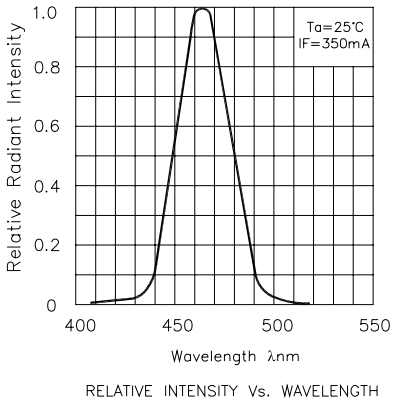
Notes:
1. Metal Core PCB is mounted on the heat Fins.
2. 1/10 Duty Cycle, 0.1ms Pulse Width.
3. 1.29mm below package base.

Electrical / Optical Characteristics at T_A=25°C

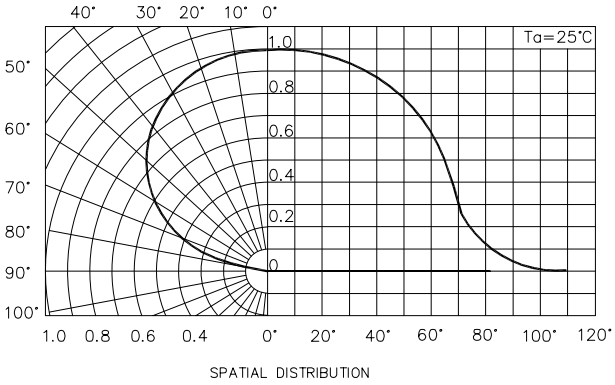
Parameter	Symbol	Device	Value			Unit
			Min.	Typ.	Max.	
Wavelength at peak emission I_F=350mA	λpeak	Blue		464		nm
		Reddish-Orange		640		
		Green		525		
Dominant Wavelength I_F=350mA	λdom [1]	Blue		466		nm
		Reddish-Orange		625		
		Green		530		
Spectral bandwidth at 50%$\Phi_{REL\ MAX}$ I_F=350mA	Δλ	Blue		30		nm
		Reddish-Orange		30		
		Green		45		
Viewing angle at 50%Φ_V	θ	Blue		135		°
		Reddish-Orange		135		
		Green		135		
Forward Voltage I_F=350mA	V_F [2]	Blue	2.7	3.5	3.8	V
		Reddish-Orange	2.0	2.5	3.0	
		Green	2.7	3.3	3.8	
Reverse Current (V_R=5V)	I_R	Blue	not designed for reverse operation			μA
		Reddish-Orange				
		Green				
Temperature coefficient of λpeak I_F=350mA, -10°C≤ T≤100°C	TCλpeak	Blue		0.15		nm/°C
		Reddish-Orange		0.12		
		Green		0.16		
Temperature coefficient of λdom I_F=350mA, -10°C≤ T≤100°C	TCλdom	Blue		0.13		nm/°C
		Reddish-Orange		0.05		
		Green		0.14		
Temperature coefficient of V_F I_F=350mA, -10°C≤ T≤100°C	TC_V	Blue		-3.2		mV/°C
		Reddish-Orange		-2.6		
		Green		-2.26		

Notes:
1.Wavelength: +/-1nm.
2. Forward Voltage: +/-0.1V.

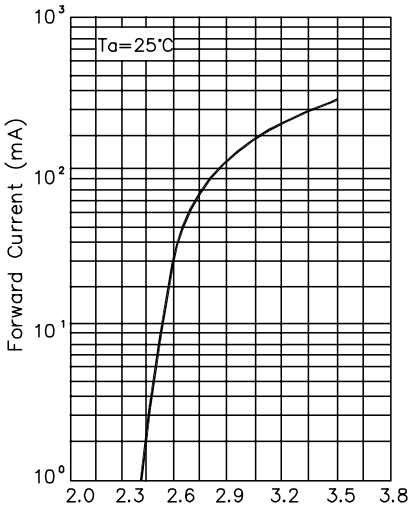
KAD1-9090BRGC-01/3
Blue



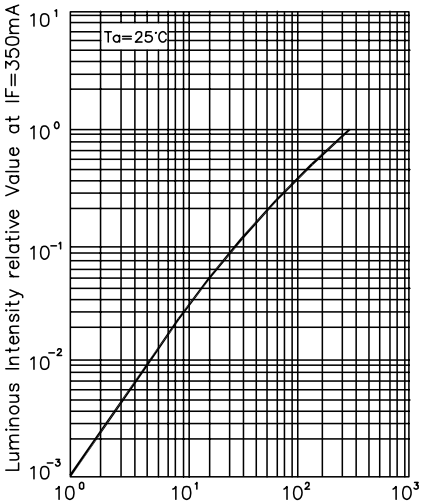
RELATIVE INTENSITY Vs. WAVELENGTH



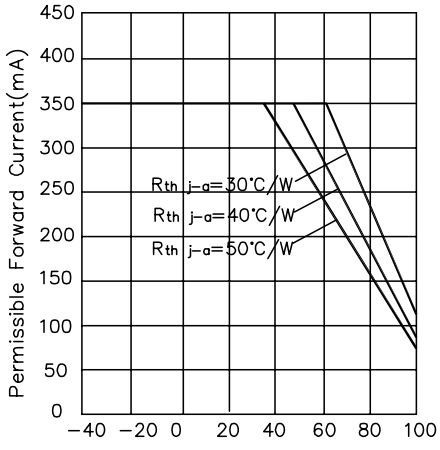
SPATIAL DISTRIBUTION



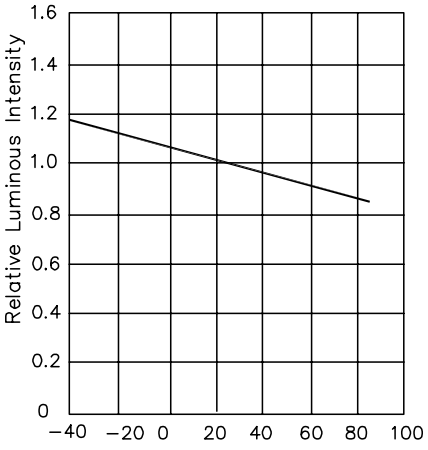
FORWARD CURRENT Vs.
FORWARD VOLTAGE



LUMINOUS INTENSITY Vs.
FORWARD CURRENT

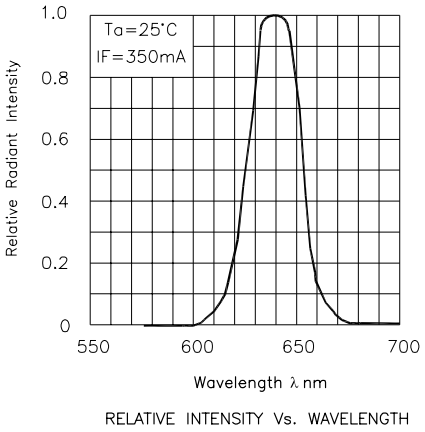


FORWARD CURRENT
DERATING CURVE

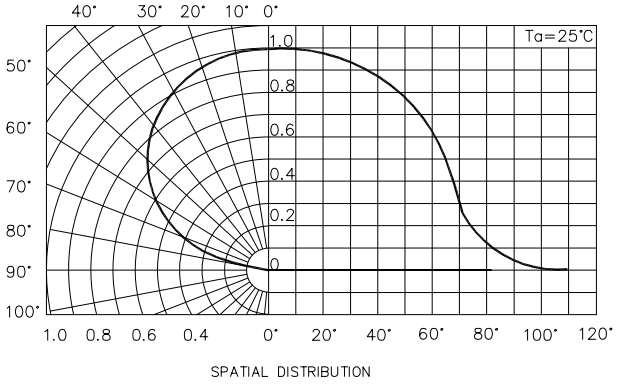


LUMINOUS INTENSITY VS.
AMBIENT TEMPERATURE

Reddish-Orange



RELATIVE INTENSITY Vs. WAVELENGTH



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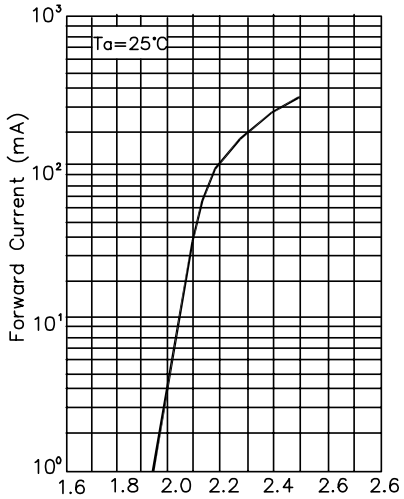
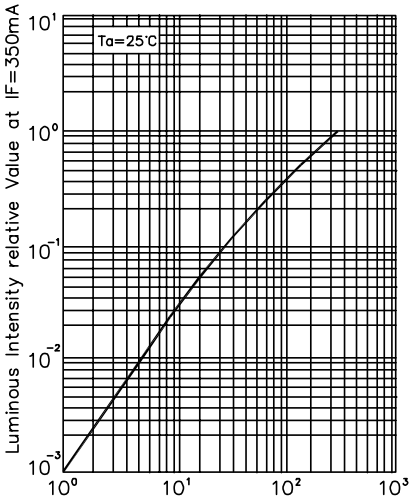
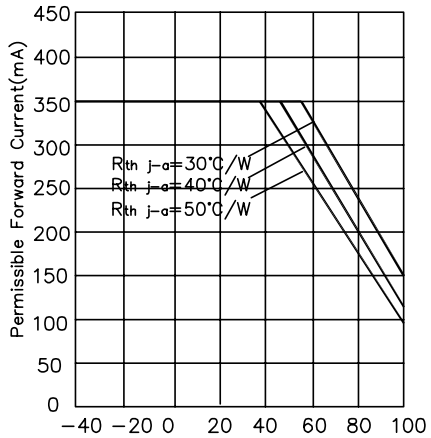


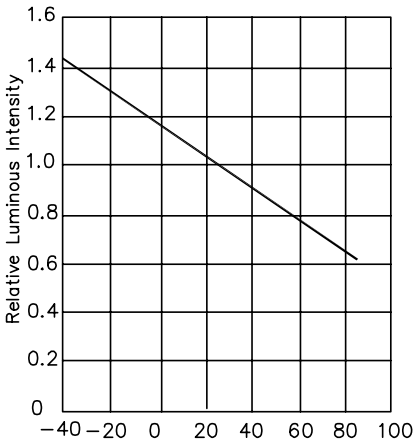
FORWARD CURRENT Vs.
FORWARD VOLTAGE



LUMINOUS INTENSITY Vs.
FORWARD CURRENT

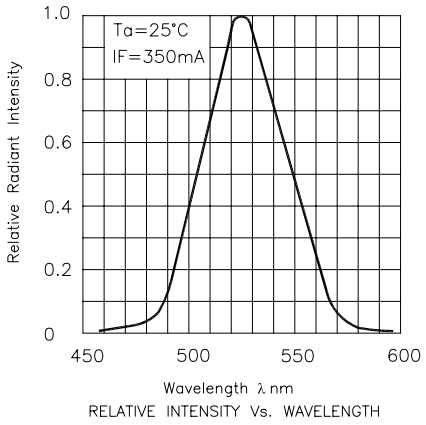


FORWARD CURRENT
DERATING CURVE

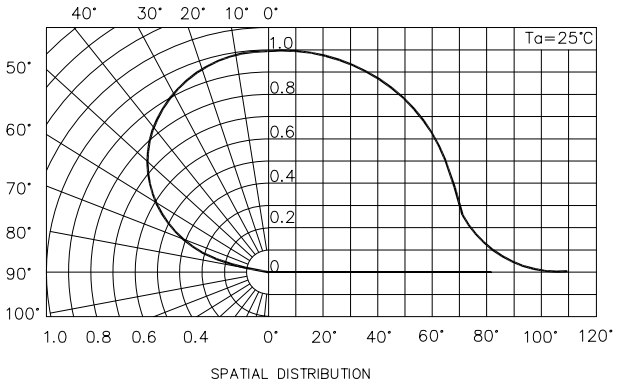


LUMINOUS INTENSITY VS.
AMBIENT TEMPERATURE

Green



RELATIVE INTENSITY Vs. WAVELENGTH



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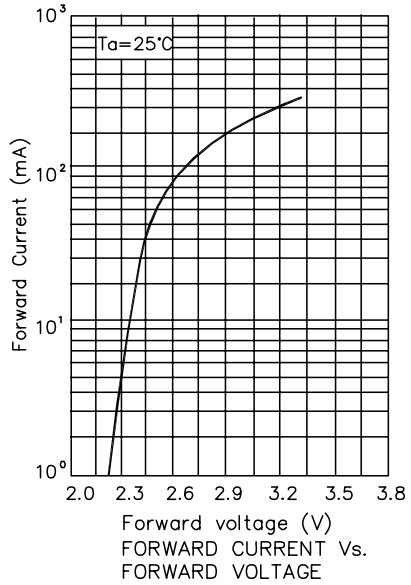
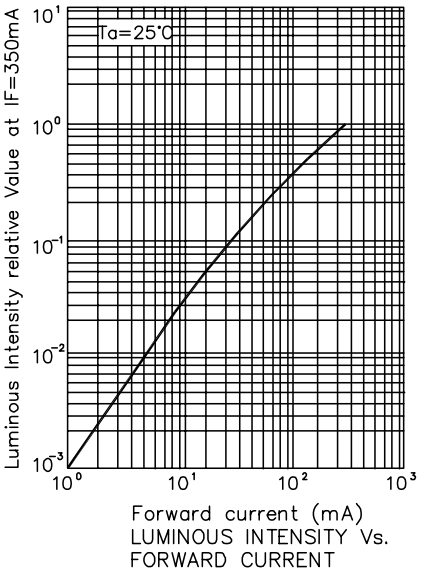
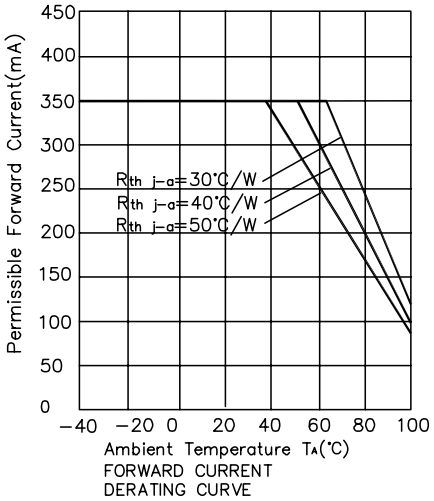


FORWARD CURRENT Vs.
FORWARD VOLTAGE



LUMINOUS INTENSITY Vs.
FORWARD CURRENT



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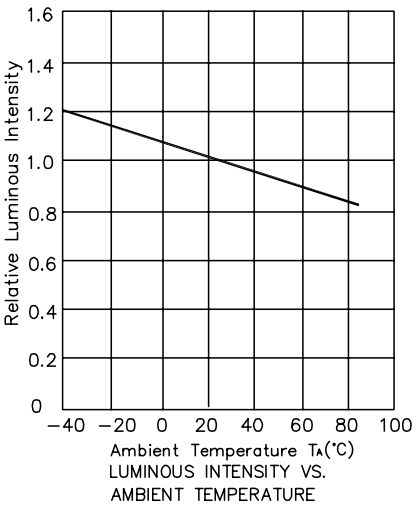
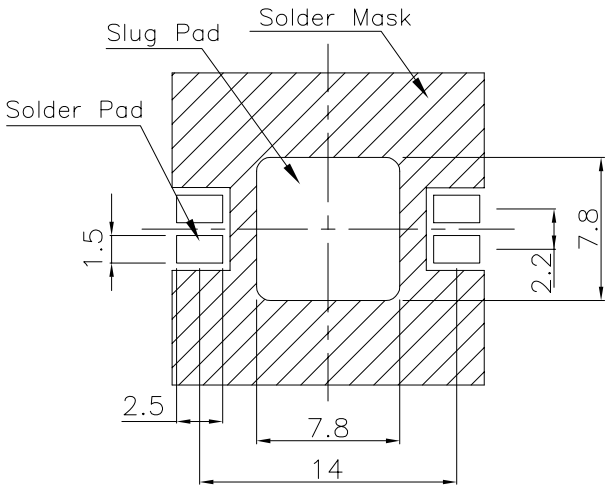
DERATING CURVE

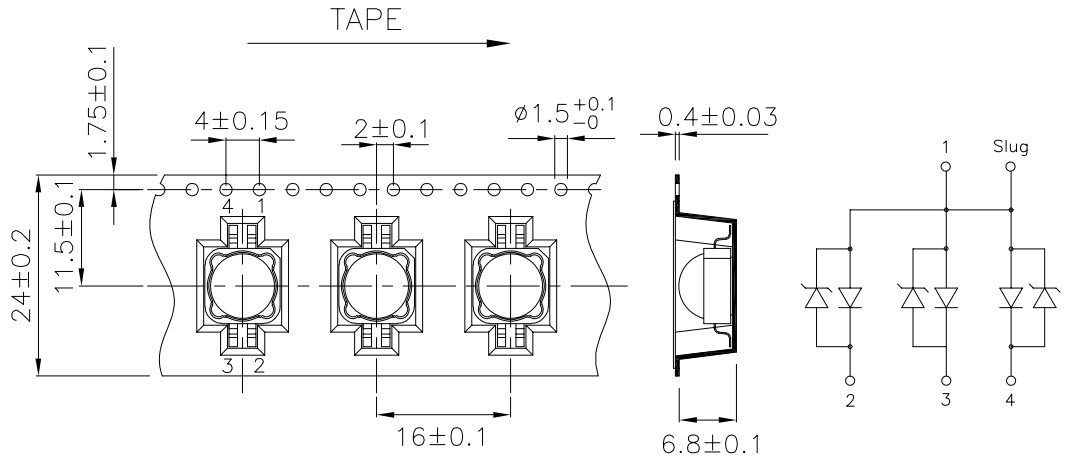


LUMINOUS INTENSITY VS.
AMBIENT TEMPERATURE

KAD1-9090BRGC-01/3
Recommended Soldering Pattern
(Units : mm; Tolerance: ±0.1)



Tape Specifications
(Units : mm)



KAD1-9090BRGC-01/3
Recommended Solder Steps