

<b>Order code</b>	<b>Manufacturer code</b>	<b>Description</b>
56-0164	KAD1-9090QR411ZC/3-STAR	KAD1-9090QR411ZC/3-STAR PWR LED W/WHT RC

	Page 1 of 6
The enclosed information is believed to be correct, Information may change without notice due to product improvement. Users should ensure that the product is suitable for their use. E. & O. E.	Revision A 20/02/2007

### PRELIMINARY SPEC



**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
DISCHARGE  
SENSITIVE  
DEVICES

### Features

- SUPER HIGH FLUX OUTPUT AND HIGH LUMINANCE.
- DESIGNED FOR HIGH CURRENT OPERATION.
- LOW THERMAL RESISTANCE.
- LOW VOLTAGE DC OPERATED.
- SUPERIOR ESD PROTECTION.
- NOT REFLOW COMPATIBLE.
- THE COMPONENT IS INTERNALLY PROTECTED WITH SILICONE GEL.
- 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.

Part Number: KAD1-9090QR411ZC/3-STAR

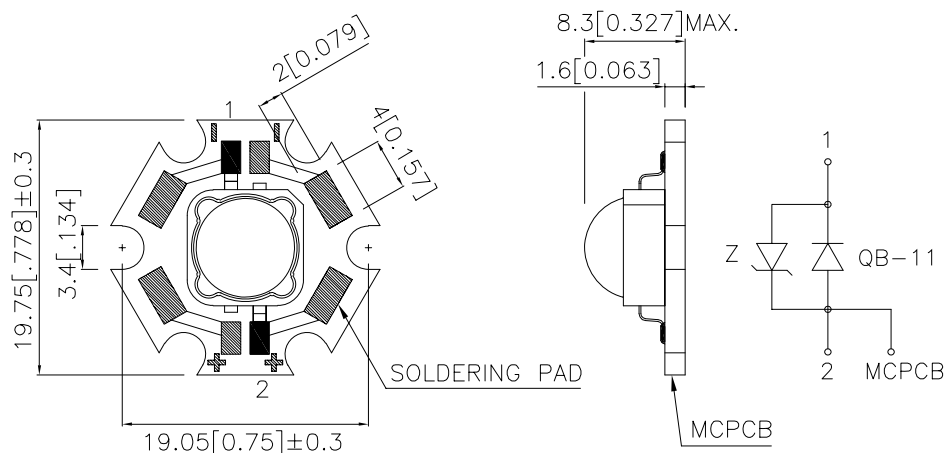
Warm White



### 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.



## Selection Guide

Part No.	Dice	Lens Type	luminous Intensity [2] Iv (cd)@ 700mA		Φv (lm) [2] @ 700mA		Viewing Angle [1]
			Min.	Typ.	Min.	Typ.	θ1/2
KAD1-9090QR411ZC/3-STAR	WARM WHITE (InGaAlN)	WATER CLEAR	22	30	80	95	100°

Notes:

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

## Absolute Maximum Ratings at TA=25°C

Parameter	Symbol	Value	Unit
Power dissipation	P <sub>t</sub>	3	W
Junction temperature	T <sub>J</sub>	110	°C
Operating Temperature	T <sub>op</sub>	-40 To +100	°C
Storage Temperature	T <sub>stg</sub>	-40 To +100	°C
DC Forward Current [1]	I <sub>F</sub>	700	mA
Peak Forward Current [2]	I <sub>FM</sub>	1000	mA
Thermal resistance [1]	R <sub>th j-slug</sub>	11	°C/W
Electrostatic Discharge Threshold (HBM)		8000	V

Notes:

- Metal Core PCB is mounted on the heat Fins.
- 1/10 Duty Cycle, 0.1ms Pulse Width.

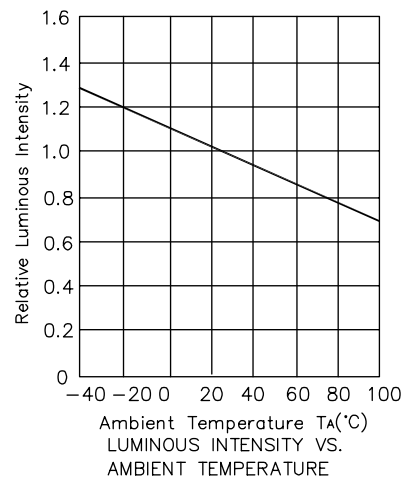
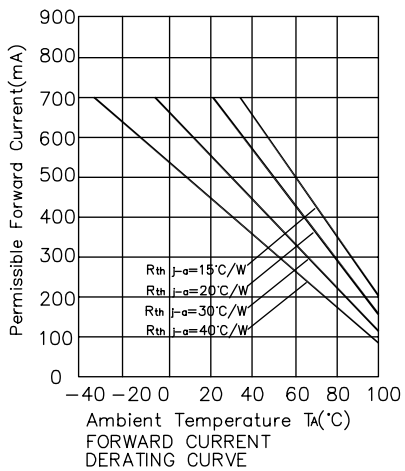
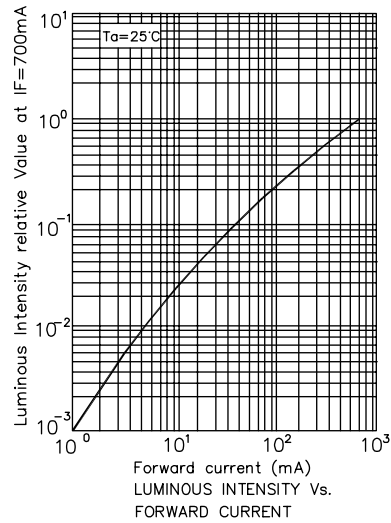
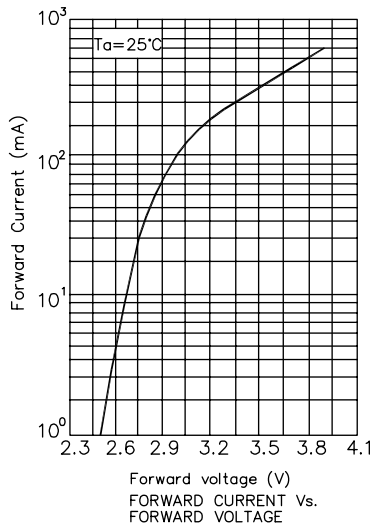
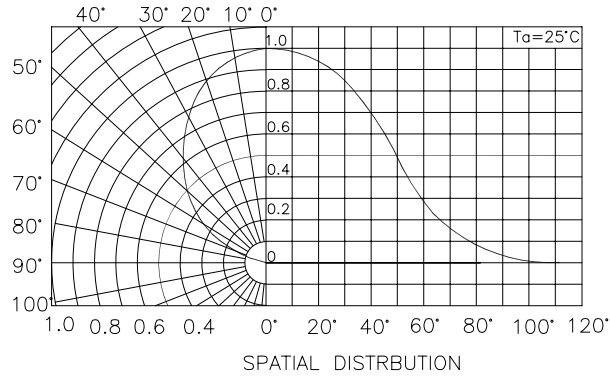
## Electrical / Optical Characteristics at TA=25°C

Parameter	Symbol	Value	Unit
Chromaticity coordinate x acc.to CIE1931 I <sub>F</sub> =700mA [Typ.]	X	0.41	-
Chromaticity coordinate y acc.to CIE1931 I <sub>F</sub> =700mA [Typ.]	Y	0.39	-
Forward Voltage I <sub>F</sub> =700mA [Min.]	V <sub>F</sub> [1]	3.5	V
Forward Voltage I <sub>F</sub> =700mA [Typ.]		3.9	
Forward Voltage I <sub>F</sub> =700mA [Max.]		4.3	
Temperature coefficient of x I <sub>F</sub> =700mA, -10°C ≤ T ≤ 100°C [Typ.]	TC <sub>x</sub>	-0.2	10 <sup>-3</sup> /°C
Temperature coefficient of y I <sub>F</sub> =700mA, -10°C ≤ T ≤ 100°C [Typ.]	TC <sub>y</sub>	-0.1	10 <sup>-3</sup> /°C
Temperature coefficient of V <sub>F</sub> I <sub>F</sub> =700mA, -10°C ≤ T ≤ 100°C [Typ.]	TC <sub>v</sub>	-4.3	mV/°C

Note:

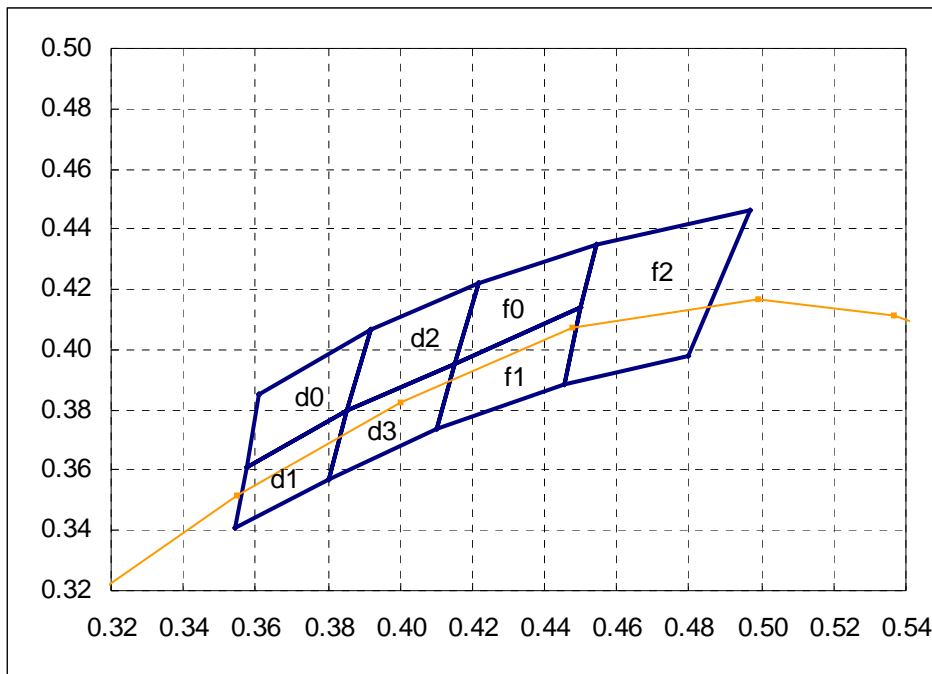
- Forward Voltage: +/-0.1V.

## KAD1-9090QR411ZC/3-STAR



KAD1-9090QR411ZC/3-STAR

## Warm White CIE



d0					
x	0.3610	0.3575	0.3870	0.3942	
y	0.3850	0.3612	0.3820	0.4068	
Reference CCT : 4700~3900K					
d2					
x	0.3870	0.4254	0.4350	0.3942	
y	0.3820	0.4044	0.4260	0.4068	
Reference CCT : 3900~3200K					
f0					
x	0.4350	0.4732	0.4600	0.4254	
y	0.4260	0.4398	0.4152	0.4044	
Reference CCT : 3200~2700K					
f2					
x	0.4732	0.4600	0.4440	0.4800	0.5165
y	0.4398	0.4152	0.3847	0.3960	0.4510
Reference CCT : 2700~2300K					

d1				
x	0.3575	0.3545	0.3800	0.3870
y	0.3612	0.3408	0.3580	0.3820
Reference CCT : 4700~3900K				
d3				
x	0.4254	0.3870	0.3800	0.4119
y	0.4044	0.3820	0.3580	0.3730
Reference CCT : 3900~3200K				
f1				
x	0.4600	0.4254	0.4119	0.4440
y	0.4152	0.4044	0.3730	0.3847
Reference CCT : 3200~2700K				

## KAD1-9090QR411ZC/3-STAR

