

PRELIMINARY SPEC

Part Number: KAD1-9090QR411ZC/3

Warm White



ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Features

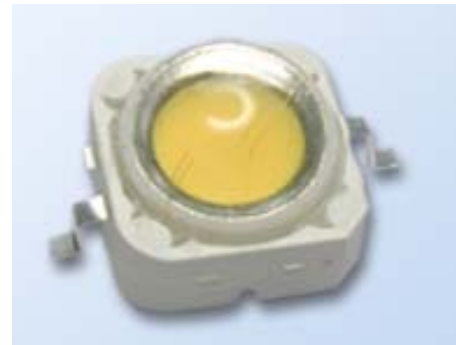
- SUPER HIGH FLUX OUTPUT AND HIGH LUMINANCE.
- DESIGNED FOR HIGH CURRENT OPERATION.
- LOW THERMAL RESISTANCE.
- LOW VOLTAGE DC OPERATED.
- SUPERIOR ESD PROTECTION.
- PACKAGE: 500PCS/REEL.
- MOISTURE SENSITIVITY LEVEL : LEVEL 2a.
- THE COMPONENT IS INTERNALLY PROTECTED WITH SILICONE GEL.
- NOT REFLOW COMPATIBLE.
- 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.

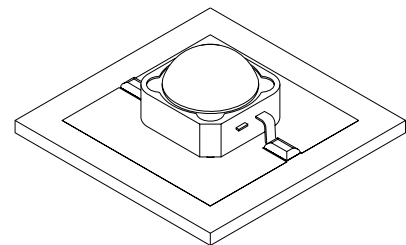
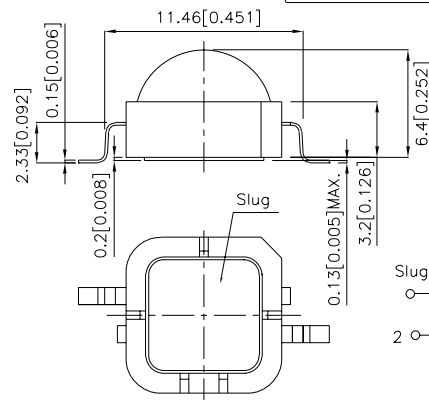
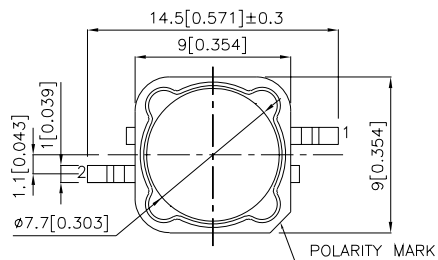
All devices, equipment and machinery must be electrically grounded.



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 $\pm 0.25(0.01)$ 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)@ 700mA | | Φv (lm) [2] @ 700mA | | Viewing Angle [1] |
|--------------------|-------------------------|-------------|--|------|------------------------|------|----------------------|
| | | | Min. | Typ. | Min. | Typ. | 2θ1/2 |
| KAD1-9090QR411ZC/3 | 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 | Pt | 3 | W |
| Junction temperature | TJ | 110 | °C |
| Operating Temperature | Top | -40 To +100 | °C |
| Storage Temperature | Tstg | -40 To +100 | °C |
| DC Forward Current [1] | IF | 700 | mA |
| Peak Forward Current [2] | IFM | 1000 | mA |
| Thermal resistance [1] | Rth j-slug | 11 | °C/W |
| Iron Soldering [3] | 350°C For 3 Seconds | | |
| Electrostatic Discharge Threshold (HBM) | | 8000 | V |

Notes:

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

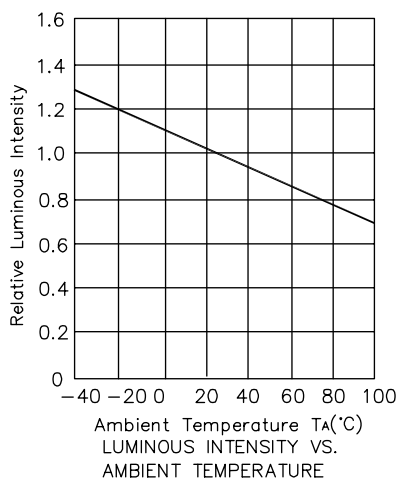
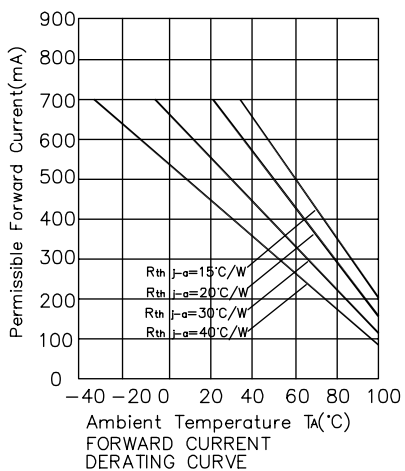
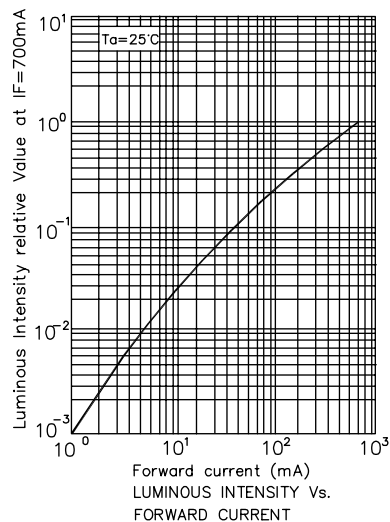
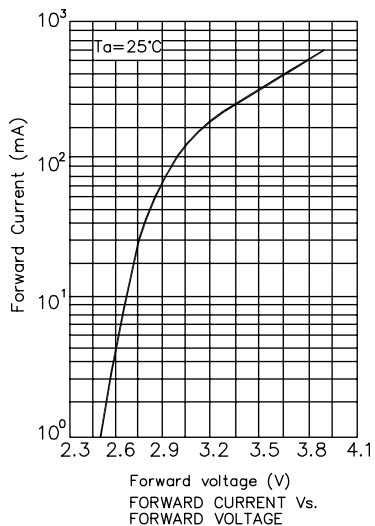
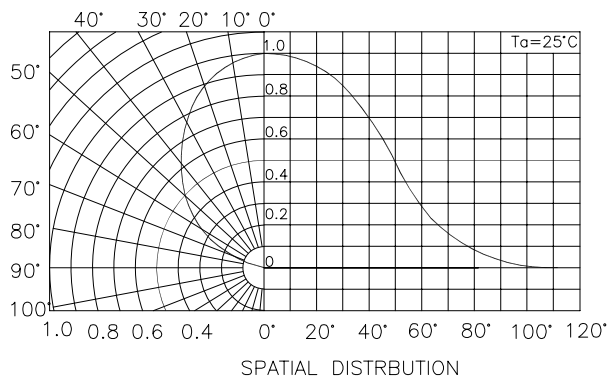
Electrical / Optical Characteristics at TA=25°C

| Parameter | Symbol | Value | Unit |
|---|--------|-------|----------------------|
| Chromaticity coordinate x acc.to CIE1931 IF=700mA [Typ.] | X | 0.41 | - |
| Chromaticity coordinate y acc.to CIE1931 IF=700mA [Typ.] | Y | 0.39 | - |
| Forward Voltage IF=700mA [Min.] | VF [1] | 3.5 | V |
| Forward Voltage IF=700mA [Typ.] | | 3.9 | |
| Forward Voltage IF=700mA [Max.] | | 4.3 | |
| Temperature coefficient of x IF=700mA, -10°C ≤ T ≤ 100°C [Typ.] | TCx | -0.2 | 10 ⁻³ /°C |
| Temperature coefficient of y IF=700mA, -10°C ≤ T ≤ 100°C [Typ.] | TCy | -0.1 | 10 ⁻³ /°C |
| Temperature coefficient of VF IF=700mA, -10°C ≤ T ≤ 100°C [Typ.] | TCv | -4.3 | mV/°C |

Note:

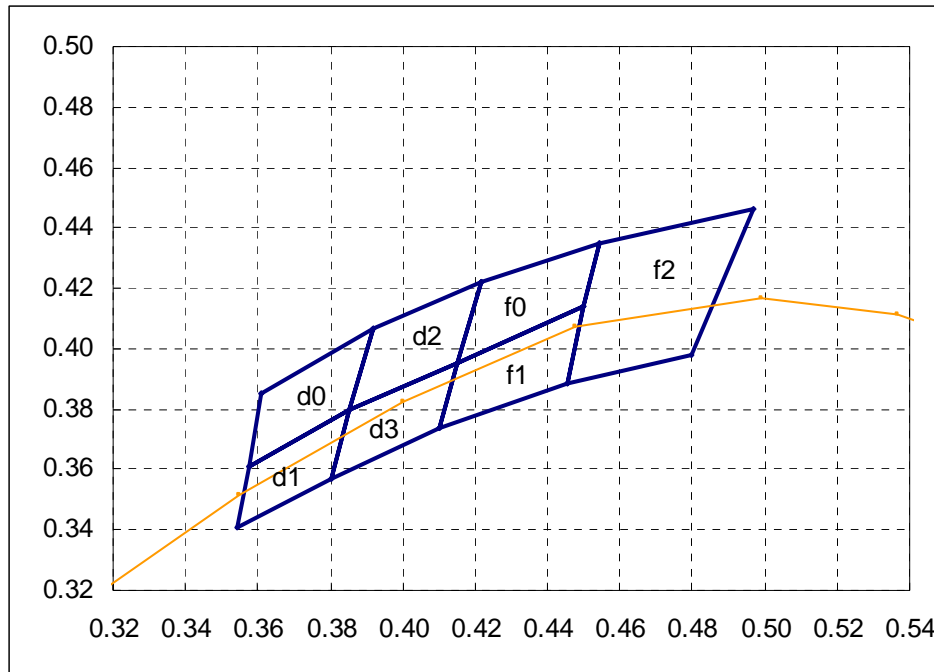
- Forward Voltage: +/-0.1V.

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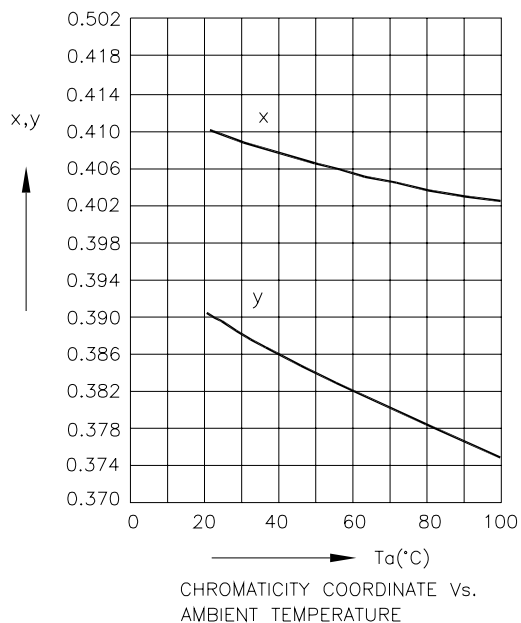
Warm White CIE



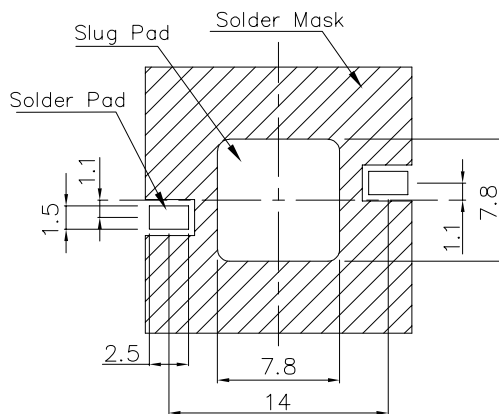
| d0 | | | | | |
|----------------------------|--------|--------|--------|--------|--------|
| x | 0.3610 | 0.3575 | 0.3870 | 0.3942 | |
| y | 0.3850 | 0.3612 | 0.3820 | 0.4068 | |
| Reference CCT : 4700~3900K | | | | | |
| d2 | | | | | |
| x | 0.3870 | 0.4254 | 0.4350 | 0.3942 | |
| y | 0.3820 | 0.4044 | 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 | | | | |

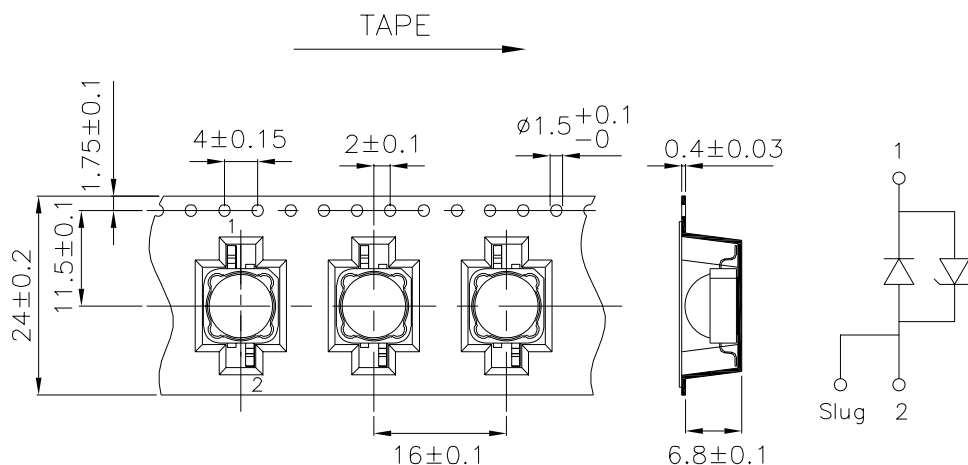
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Recommended Soldering Pattern (Units : mm; Tolerance: ±0.1)



Tape Specifications (Units : mm)



KAD1-9090QR411ZC/3 Recommended Solder Steps

