

## KPT-1608QR4F-D-C1 1.6 x 0.8 mm SMD Chip LED Lamp

### DESCRIPTIONS

- The source color devices are made with InGaN Light Emitting Diode
- Electrostatic discharge and power surge could damage the LEDs
- It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs
- All devices, equipments and machineries must be electrically grounded

### FEATURES

- 1.6 mm x 0.8 mm SMD LED, 0.75 mm thickness
- Low power consumption
- Wide viewing angle
- Ideal for backlight and indicator
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- RoHS compliant

### APPLICATIONS

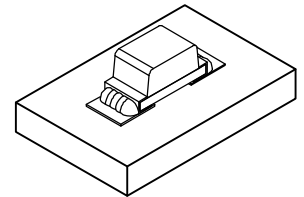
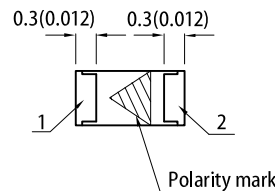
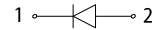
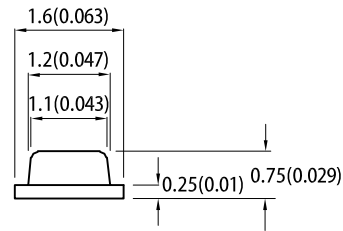
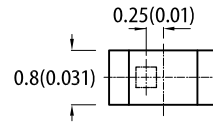
- Backlight
- Status indicator
- Home and smart appliances
- Wearable and portable devices
- Healthcare applications

### ATTENTION

Observe precautions for handling electrostatic discharge sensitive devices



### PACKAGE DIMENSIONS



### RECOMMENDED SOLDERING PATTERN

(units : mm; tolerance : ± 0.1)



#### Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.1(0.004") unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
4. The device has a single mounting surface. The device must be mounted according to the specifications.

### SELECTION GUIDE

Part Number	Emitting Color (Material)	CCT Range (K)			Lens Type	Iv (mcd) @ 20mA <sup>[2]</sup>		Viewing Angle <sup>[1]</sup>
		Min.	Typ.	Max.		Min.	Typ.	2θ1/2
KPT-1608QR4F-D-C1	Cool White (InGaN)	5310	6000	7040	Yellow Fluorescent	120	250	160°

Notes:  
 1. θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.  
 2. Luminous intensity / luminous flux: +/-15%.  
 3. Luminous intensity value is traceable to CIE127-2007 standards.

**ELECTRICAL / OPTICAL CHARACTERISTICS at T<sub>A</sub>=25°C**

Parameter	Symbol	Emitting Color	Value		Unit
			Typ.	Max.	
Capacitance	C	Cool White	100	-	pF
Forward Voltage I <sub>F</sub> = 20mA	V <sub>F</sub> <sup>[1]</sup>	Cool White	3.3	4.0	V
Reverse Current (V <sub>R</sub> = 5V)	I <sub>R</sub>	Cool White	-	50	μA

## Notes:

1. Forward voltage: ±0.1V.

2. Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

**ABSOLUTE MAXIMUM RATINGS at T<sub>A</sub>=25°C**

Parameter	Symbol	Value	Unit
Power Dissipation	P <sub>D</sub>	120	mW
Reverse Voltage	V <sub>R</sub>	5	V
Junction Temperature	T <sub>j</sub>	115	°C
Operating Temperature	T <sub>op</sub>	-40 to +85	°C
Storage Temperature	T <sub>stg</sub>	-40 to +85	°C
DC Forward Current	I <sub>F</sub>	30	mA
Peak Forward Current	I <sub>FM</sub> <sup>[1]</sup>	150	mA
Electrostatic Discharge Threshold (HBM)	-	250	V

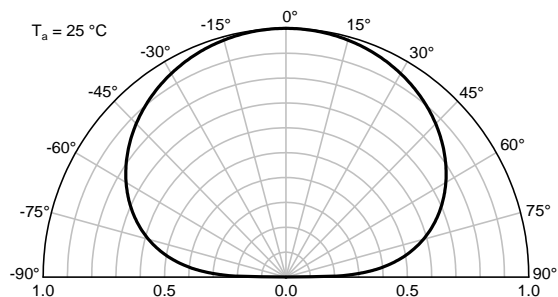
## Notes:

1. 1/10 Duty Cycle, 0.1ms Pulse Width.

2. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

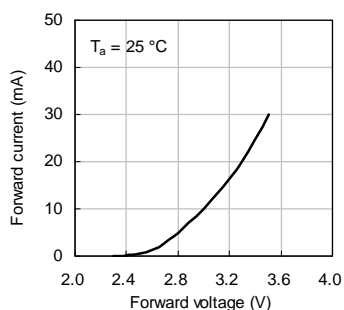
### TECHNICAL DATA

#### SPATIAL DISTRIBUTION

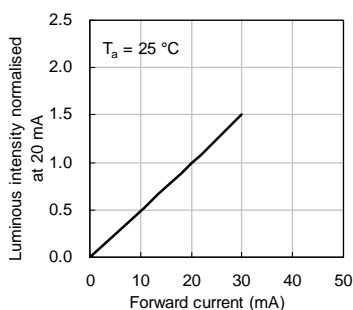


### COOL WHITE

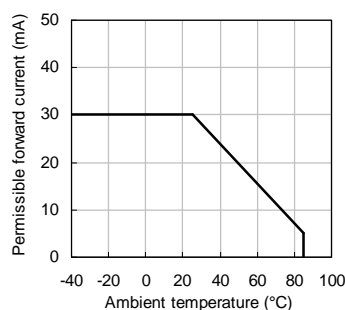
**Forward Current vs. Forward Voltage**



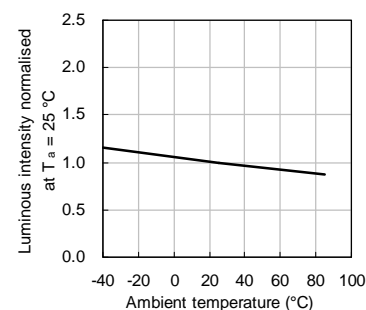
**Luminous Intensity vs. Forward Current**



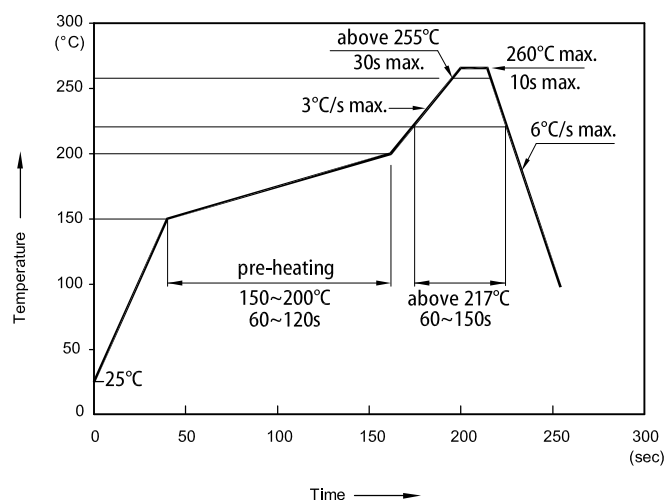
**Forward Current Derating Curve**



**Luminous Intensity vs. Ambient Temperature**

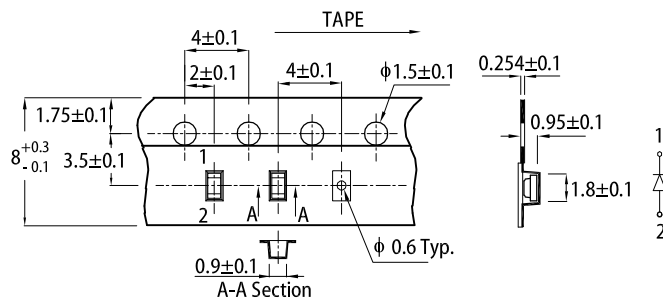


#### REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS

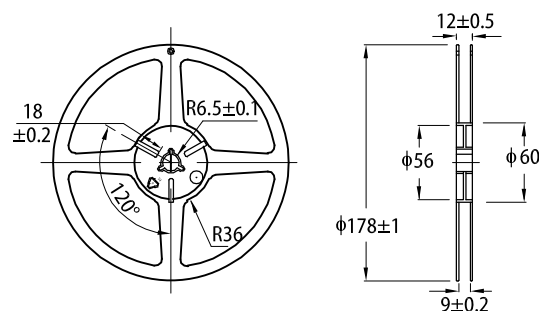


- Notes:
1. Don't cause stress to the LEDs while it is exposed to high temperature.
  2. The maximum number of reflow soldering passes is 2 times.
  3. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product.

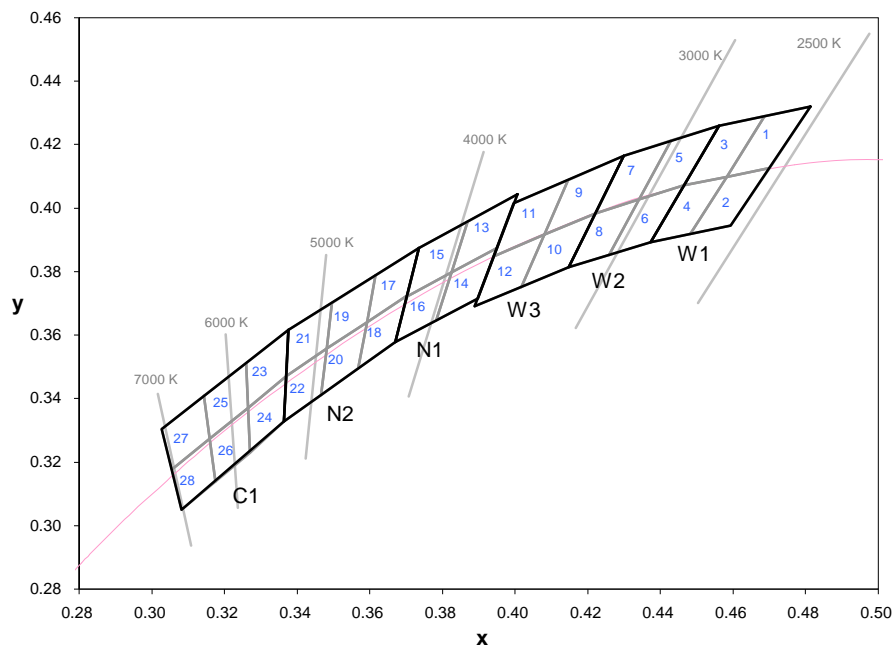
#### TAPE SPECIFICATIONS (units : mm)



#### REEL DIMENSION (units : mm)



### CIE CHROMATICITY DIAGRAM



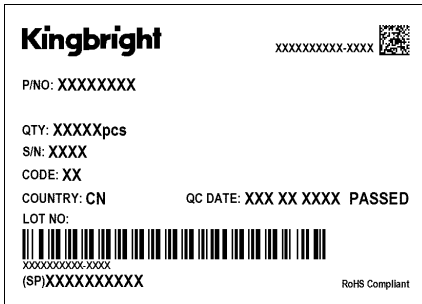
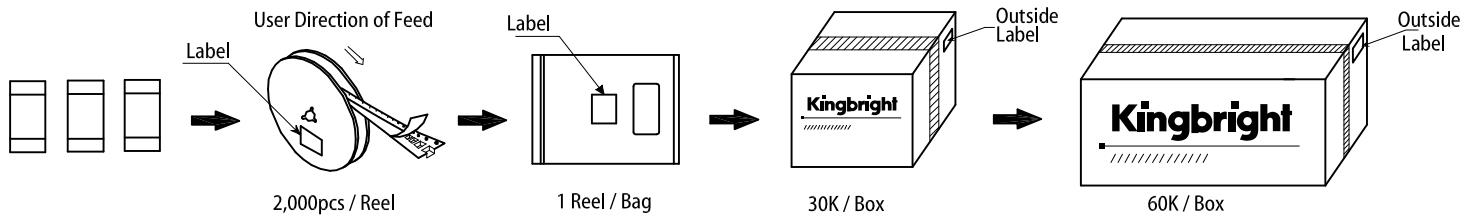
Group	Chromaticity Regions	CCT (K)		
		Min.	Typ.	Max.
W1	1, 2, 3, 4	2580	2700	2870
W2	5, 6, 7, 8	2870	3000	3220
W3	9, 10, 11, 12	3220	3500	3710

Group	Chromaticity Regions	CCT (K)		
		Min.	Typ.	Max.
N1	13, 14, 15, 16	3710	4000	4260
N2	17, 18, 19, 20, 21, 22	4260	4700	5310
C1	23, 24, 25, 26, 27, 28	5310	6000	7040

Notes:  
 Shipment may contain more than one chromaticity regions.  
 Orders for single chromaticity region are generally not accepted.  
 Measurement tolerance of the chromaticity coordinates is  $\pm 0.01$ .

	x	y		x	y		x	y		x	y
1	0.4582	0.4099	8	0.4147	0.3814	15	0.3702	0.3722	22	0.3481	0.3557
	0.4687	0.4289		0.4221	0.3984		0.3736	0.3874		0.3370	0.3472
	0.4813	0.4319		0.4342	0.4028		0.3869	0.3958		0.3364	0.3328
	0.4700	0.4126		0.4259	0.3853		0.3825	0.3798		0.3466	0.3411
2	0.4483	0.3919	9	0.4080	0.3916	16	0.3670	0.3578	23	0.3376	0.3616
	0.4582	0.4099		0.4146	0.4089		0.3702	0.3722		0.3260	0.3512
	0.4700	0.4126		0.4299	0.4165		0.3825	0.3798		0.3265	0.3371
	0.4593	0.3944		0.4221	0.3984		0.3783	0.3646		0.3370	0.3472
3	0.4465	0.4071	10	0.4017	0.3751	17	0.3736	0.3874	24	0.3370	0.3472
	0.4562	0.4260		0.4080	0.3916		0.3616	0.3788		0.3265	0.3371
	0.4687	0.4289		0.4221	0.3984		0.3592	0.3641		0.3270	0.3230
	0.4582	0.4099		0.4147	0.3814		0.3703	0.3726		0.3364	0.3328
4	0.4373	0.3893	11	0.3941	0.3848	18	0.3703	0.3726	25	0.3260	0.3512
	0.4465	0.4071		0.3996	0.4015		0.3592	0.3641		0.3144	0.3408
	0.4582	0.4099		0.4146	0.4089		0.3568	0.3495		0.3160	0.3274
	0.4483	0.3919		0.4080	0.3916		0.3670	0.3578		0.3265	0.3371
5	0.4342	0.4028	12	0.3889	0.3690	19	0.3616	0.3788	26	0.3265	0.3371
	0.4430	0.4212		0.3941	0.3848		0.3496	0.3702		0.3160	0.3274
	0.4562	0.4260		0.4080	0.3916		0.3481	0.3557		0.3175	0.3139
	0.4465	0.4071		0.4017	0.3751		0.3592	0.3641		0.3270	0.3230
6	0.4259	0.3853	13	0.3825	0.3798	20	0.3592	0.3641	27	0.3144	0.3408
	0.4342	0.4028		0.3869	0.3958		0.3481	0.3557		0.3028	0.3304
	0.4465	0.4071		0.4006	0.4044		0.3466	0.3411		0.3055	0.3177
	0.4373	0.3893		0.3950	0.3875		0.3568	0.3495		0.3160	0.3274
7	0.4221	0.3984	14	0.3783	0.3646	21	0.3496	0.3702	28	0.3160	0.3274
	0.4299	0.4165		0.3825	0.3798		0.3376	0.3616		0.3055	0.3177
	0.4430	0.4212		0.3950	0.3875		0.3370	0.3472		0.3081	0.3049
	0.4342	0.4028		0.3898	0.3716		0.3481	0.3557		0.3175	0.3139

## PACKING & LABEL SPECIFICATIONS



### PRECAUTIONARY NOTES

1. The information included in this document reflects representative usage scenarios and is intended for technical reference only.
2. The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.
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