Kingbright

T-1 (3mm) SOLID STATE LAMP

PRELIMINARY SPEC

Part Number: WP7104RWC/Z WHITE

ATTENTION
OBSERVE PRECAUTIONS
FOR HANDLING
ELECTROSTATIC
DISCHARGE
SENSITIVE
DEVICES

Features

- LOW POWER CONSUMPTION.
- POPULAR T-1 DIAMETER PACKAGE.
- GENERAL PURPOSE LEADS.
- RELIABLE AND RUGGED.
- LONG LIFE - SOLID STATE RELIABILITY.
- AVAILABLE ON TAPE AND REEL.
- MOISTURE SENSITIVITY LEVEL : LEVEL 1.
- ELECTROSTATIC DISCHARGE THRESHOLD (HBM):1000V.
- TYP. COLOR TEMPERATURE:6500K.
- COLOR COORDINATES:X=0.33,Y=0.34 ACC. TO CIE1931(WHITE).
- OPTICAL EFFICIENCY: 46.9 lm/W(TYP.)
- COLOR REPRODUCTION INDEX:80.
- RoHS COMPLIANT.

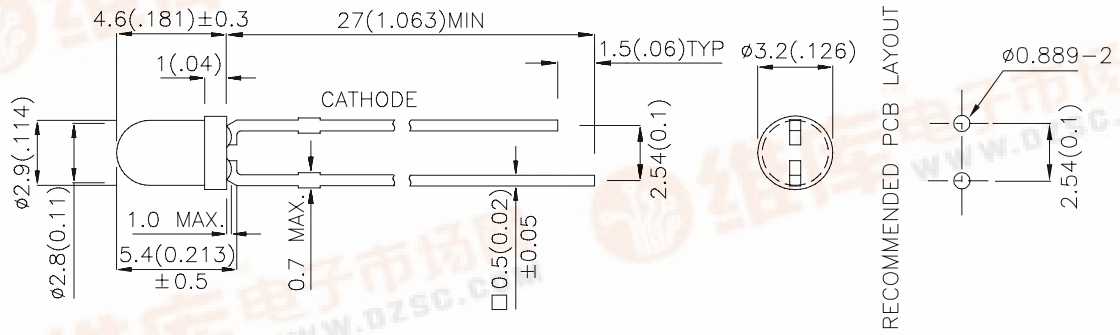
Description

The source color devices are made with InGaN Light Emitting Diode.
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

- Furniture lighting
- Outdoor displays
- Optical indicators
- Signal and symbol luminaire
- Marker lights (e.g. steps, exit ways, etc.)
- Lighting for special effects (e.g. starry sky)
- Substitute for miniature flashlight

Package Dimensions



Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25(0.01") unless otherwise noted.
3. Lead spacing is measured where the leads emerge from the package.
4. Specifications are subject to change without notice.

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Selection Guide

Part No.	Dice	Lens Type	luminous Intensity Note2 Iv(mcd) @ 20mA		Φv (mlm) Note3 @ 20mA	Viewing Angle Note1
			Min.	Typ.	Typ.	2θ1/2
WP7104RWC/Z	WHITE (InGaN)	WATER CLEAR	2800	5500	3000	34°

Absolute Maximum Ratings at T_A=25°C

Parameter	Symbol	Value	Unit
Power dissipation	P_t	111	mW
Reverse Voltage	V_R	5	V
Junction temperature	T_J	110	°C
Operating Temperature	Top	-40 To +85	°C
Storage Temperature	Tstg	-40 To +100	°C
DC Forward Current	I_F	30	mA
Peak Forward Current Note4	I_{FM}	100	mA
Thermal resistance Junction/ambient Note5 Junction/solder point	 $R_{th\ JA}$ $R_{th\ JS}$	 350 120	 °C/W °C/W

Notes:
1.θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 the optical centerline value.
2.Luminous intensity is measured by a current pulse of 10ms at a tolerance of ±15%.
3.The typical data of Luminous Flux can only reflect statistical figures, actual parameters of individual product could differ from the typical data. For the purpose of product enhancement, the typical data is subject to change without prior notice.
4.1/10 Duty Cycle, 0.1ms Pulse Width.
5.Rth(J-A) Results from mounting on PC board FR4 (pad size ≥16 mm^2 per pad),

Electrical / Optical Characteristics at T_A=25°C

Parameter	Symbol	Value	Unit
Chromaticity coordinate x acc.to CIE1931 I_F=20mA [Typ.]	X Note1	0.33	-
Chromaticity coordinate y acc.to CIE1931 I_F=20mA [Typ.]	Y Note1	0.34	-
Forward Voltage I_F=20mA [Min.]	V_F Note2	2.7	V
Forward Voltage I_F=20mA [Typ.]		3.2	
Forward Voltage I_F=20mA [Max.]		3.7	
Reverse Current (V_R=5V) [Typ.]	I_R	0.01	μA
Reverse Current (V_R=5V) [Max.]		10	
Temperature coefficient of x I_F=20mA, -10°C≤ T≤100°C [Typ.]	TC x	-0.1	10^{-3}/°C
Temperature coefficient of y I_F=20mA, -10°C≤ T≤100°C [Typ.]	TCy	-0.2	10^{-3}/°C
Temperature coefficient of V_F I_F=20mA, -10°C≤ T≤100°C [Typ.]	TC_V	-2.5	mV/°C

Notes:
1.Chromaticity coordinates are measured by a current pulse of 20ms with a tolerance of ±0.01 in X and Y color coordinates.
2.Forward voltage is measured with a current pulse of 10ms at a tolerance of ± 0.1V.

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Brightness codes

luminous Intensity Note1 Iv(mcd) @ 20mA			Φv (mlm) Note2 @ 20mA
Code.	**Min.**	**Max.**	**Typ.**
ZA	2800	3800	1900
ZB	3300	4500	2200
ZC	3800	5500	2700
ZD	4700	6500	3200
ZE	5700	7500	3800
ZF	6700	8500	4400
ZG	7500	10000	5000
ZH	9000	11000	5800

Notes:
1.Luminous intensity is measured by a current pulse of 10ms at a tolerance of ±15%.
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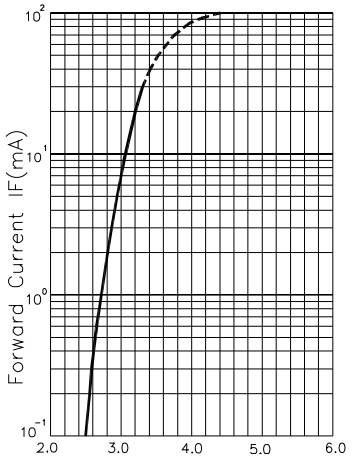
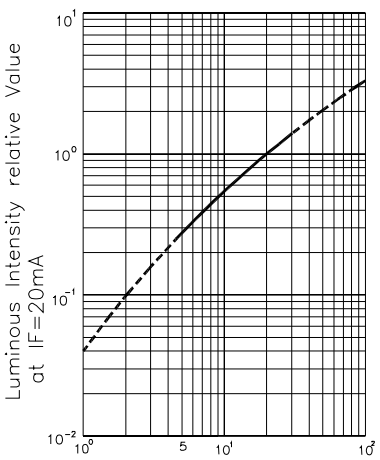
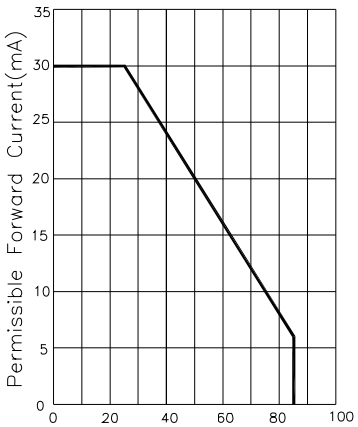
White **WP7104RWC/Z**



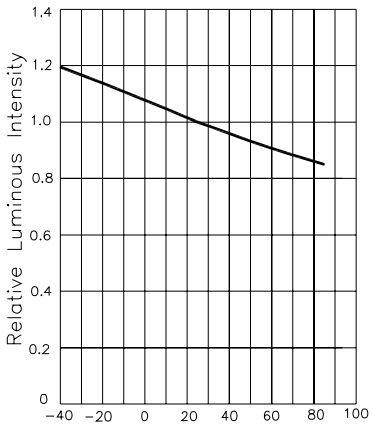
FORWARD CURRENT Vs.
FORWARD VOLTAGE



LUMINOUS INTENSITY Vs.
FORWARD CURRENT

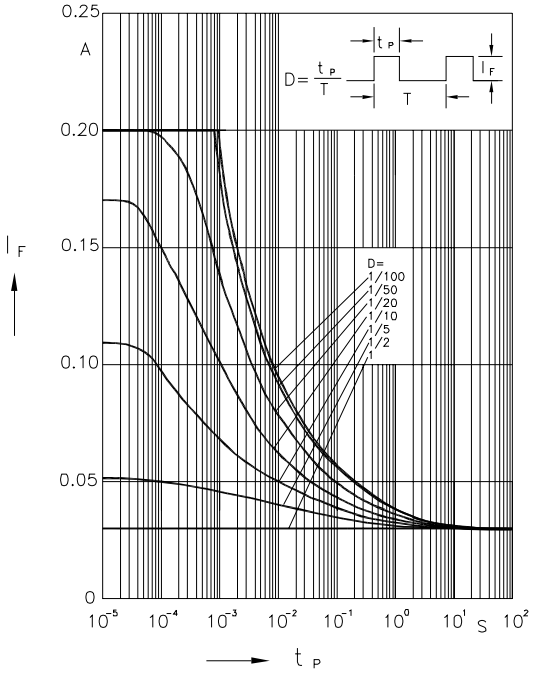


FORWARD CURRENT
DERATING CURVE

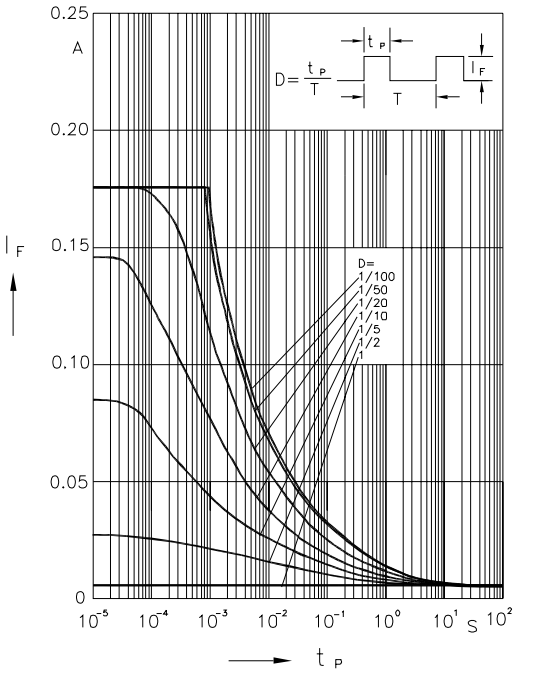


LUMINOUS INTENSITY VS.
AMBIENT TEMPERATURE

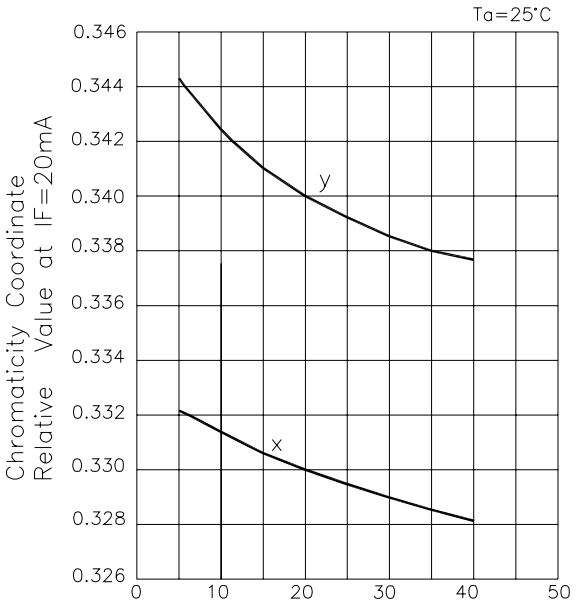
White **WP7104RWC/Z**



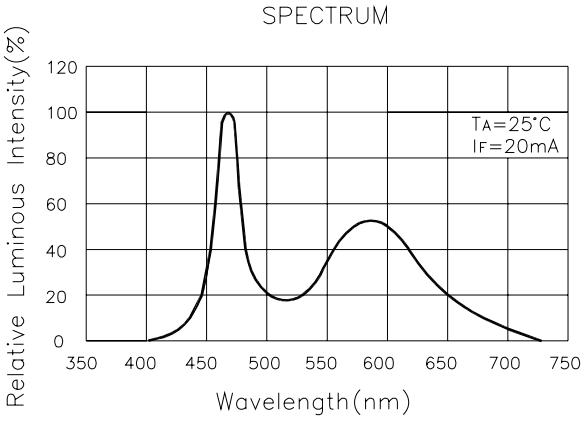
Permissible Pulse Handling Capability
Duty cycle D=parameter,TA=25°C

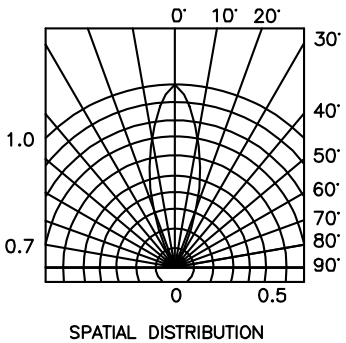


Permissible Pulse Handling Capability
Duty cycle D=parameter,TA=85°C



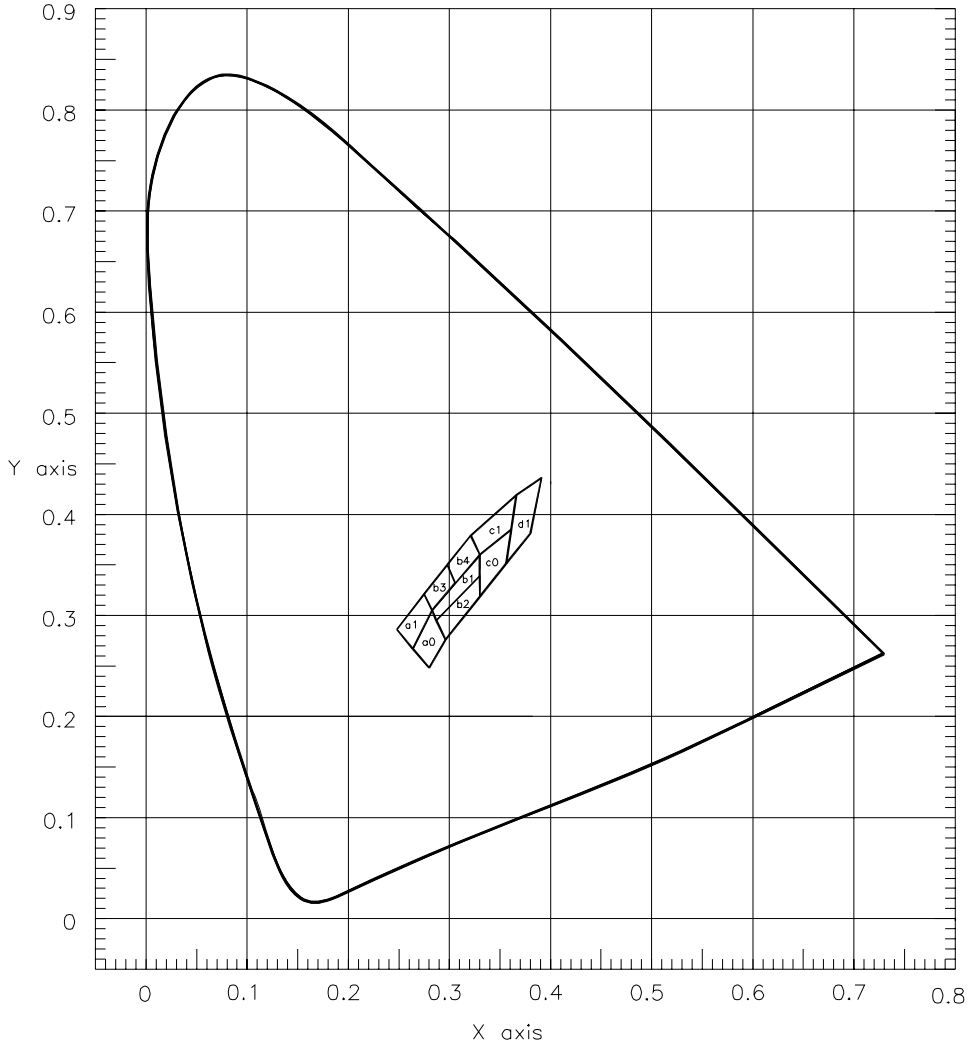
Chromaticity Coordinate Shift Vs.
Forward Current





SPATIAL DISTRIBUTION

Color Codes **WP7104RWC/Z**



a1				
X	0.248	0.275	0.283	0.264
Y	0.286	0.321	0.305	0.267

a0				
X	0.264	0.283	0.296	0.280
Y	0.267	0.305	0.276	0.248

b3				
X	0.275	0.298	0.306	0.283
Y	0.321	0.350	0.332	0.305

b1				
X	0.283	0.330	0.330	0.287
Y	0.305	0.360	0.339	0.295

b2				
X	0.287	0.330	0.330	0.296
Y	0.295	0.339	0.318	0.276

b4				
X	0.298	0.321	0.330	0.306
Y	0.350	0.379	0.360	0.332

c1				
X	0.321	0.366	0.361	0.330
Y	0.379	0.419	0.385	0.360

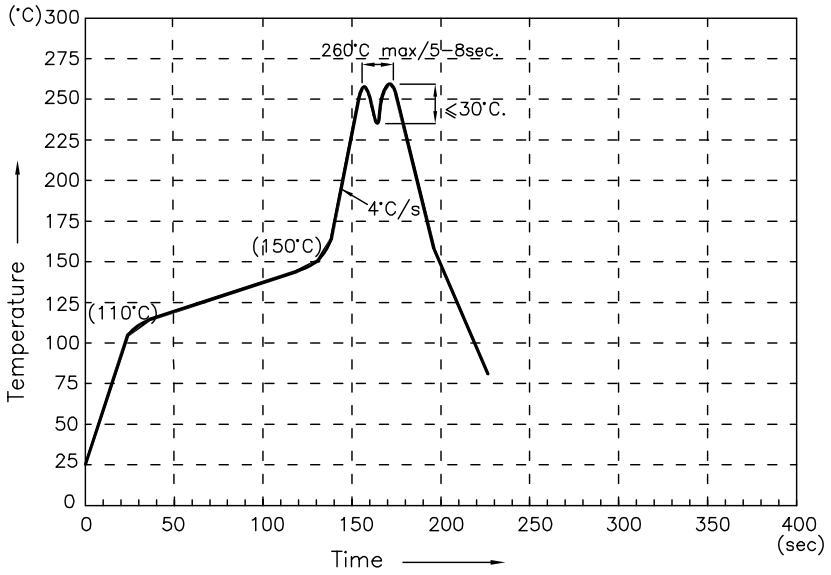
c0				
X	0.330	0.361	0.356	0.330
Y	0.360	0.385	0.351	0.318

d1				
X	0.366	0.391	0.380	0.356
Y	0.419	0.436	0.381	0.351

Ta=25°, IF=20mA Measurement Uncertainty of the Color Coordinates:+/−0.01

WP7104RWC/Z

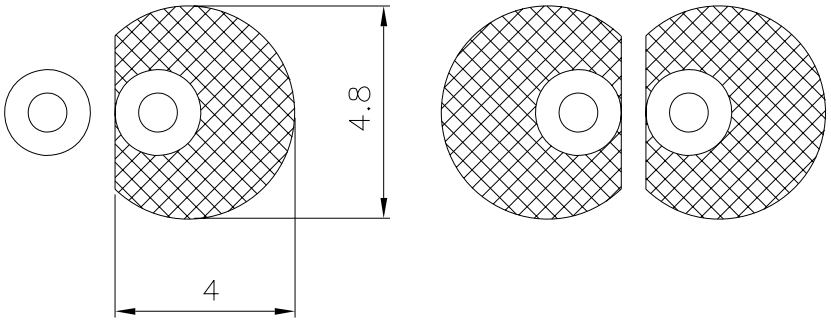
Wave Soldering Profile For Lead-free Through-hole LED.



NOTES:

1.Recommend the wave temperature 245°C~260°C.The maximum soldering temperature should be less than 260°C.
2.Do not apply stress on epoxy resins when temperature is over 85 degree°C.
3.The soldering profile apply to the lead free soldering (Sn/Cu/Ag alloy).
4.No more than once.

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



PACKING & LABEL SPECIFICATIONS **WP7104RWC/Z**