

1 W High Power LED

Features

- Small package with high efficiency
- Typical view angle: 120°
- ESD protection up to 8000V
- Soldering methods: SMT
- Moisture sensitivity level: 1
- Binning parameters: Brightness, forward voltage, wavelength and chromaticity
- RoHS Compliance



M4530

Applications

- General lighting
- Decorative and entertainment lighting
- Signal and symbol luminaries for orientation marker lights (e.g. steps, exit ways, etc.)
- Exterior and interior automotive illumination

Materials

Part No.	Chip	
	Material	Emitted Color
TPCB-WR4530-A11Z	InGaN	Cool White

Absolute Maximum Ratings ($T_a=25^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
DC Forward Current	I_F	400	mA
DC Pulse Current (Note 1)	I_{PF}	1000	mA
Power Dissipation	P_d	1	W
ESD Sensitivity	ESD	8000	V
Junction Temperature	T_j	150	$^{\circ}\text{C}$
Operating Temperature	T_{opr}	-40 ~ +85	$^{\circ}\text{C}$
Storage Temperature	T_{stg}	-40 ~ +100	$^{\circ}\text{C}$
Soldering Temperature	T_{sol}	260 $\pm$ 5	$^{\circ}\text{C}$
Allowable Reflow Cycle	n/a	3	Cycles

Electro-Optical Characteristics ($T_a=25^{\circ}\text{C}$)

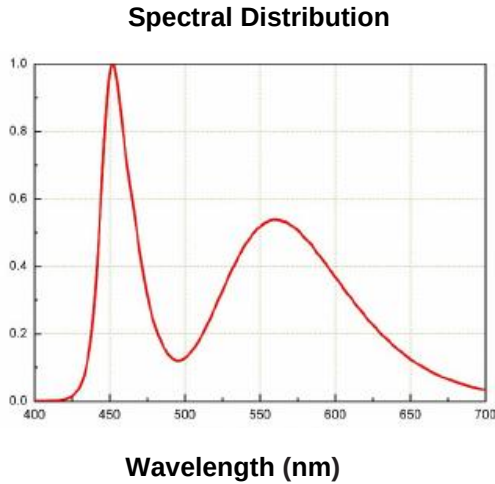
Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Brightness (Note 2)	Φ_v	80	90	-----	lm	I _F =350mA
Forward Voltage (Note 3)	V_F	2.95	-----	4.45	V	
Color Temperature	CCT	-----	5700	-----	K	

Notes:

1. This series LED is not designed for reverse bias used.
2. Luminous flux measurement tolerance: $\pm 10\%$.
3. Forward Voltage measurement tolerance: $\pm 0.1\text{V}$.

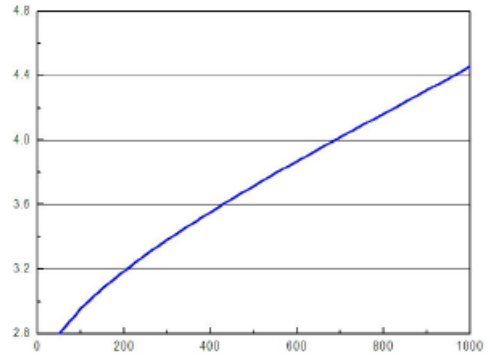
Typical Electro-Optical Characteristics Curves (Ta=25°C)

Relative Spectral Power Distribution



Forward Voltage (V)

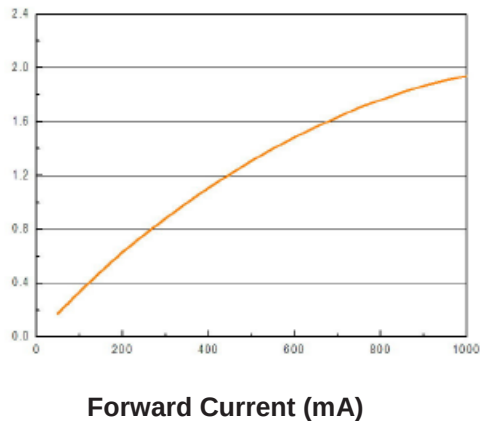
Forward Voltage vs. Forward Current



Forward Current (mA)

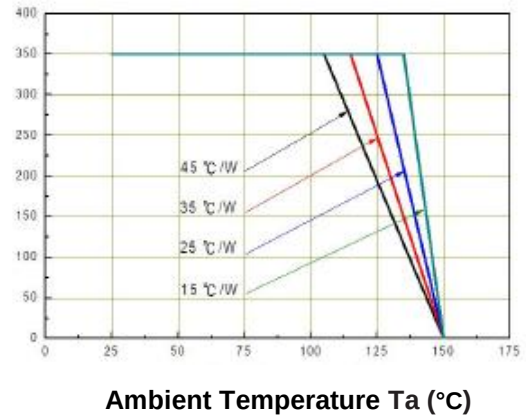
Luminous Flux vs. Forward Current

Normalized Luminous Flux (%)



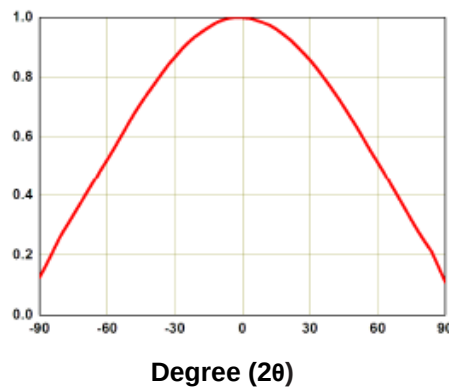
Current Derating Curve for 350 mA

Forward Current (mA)



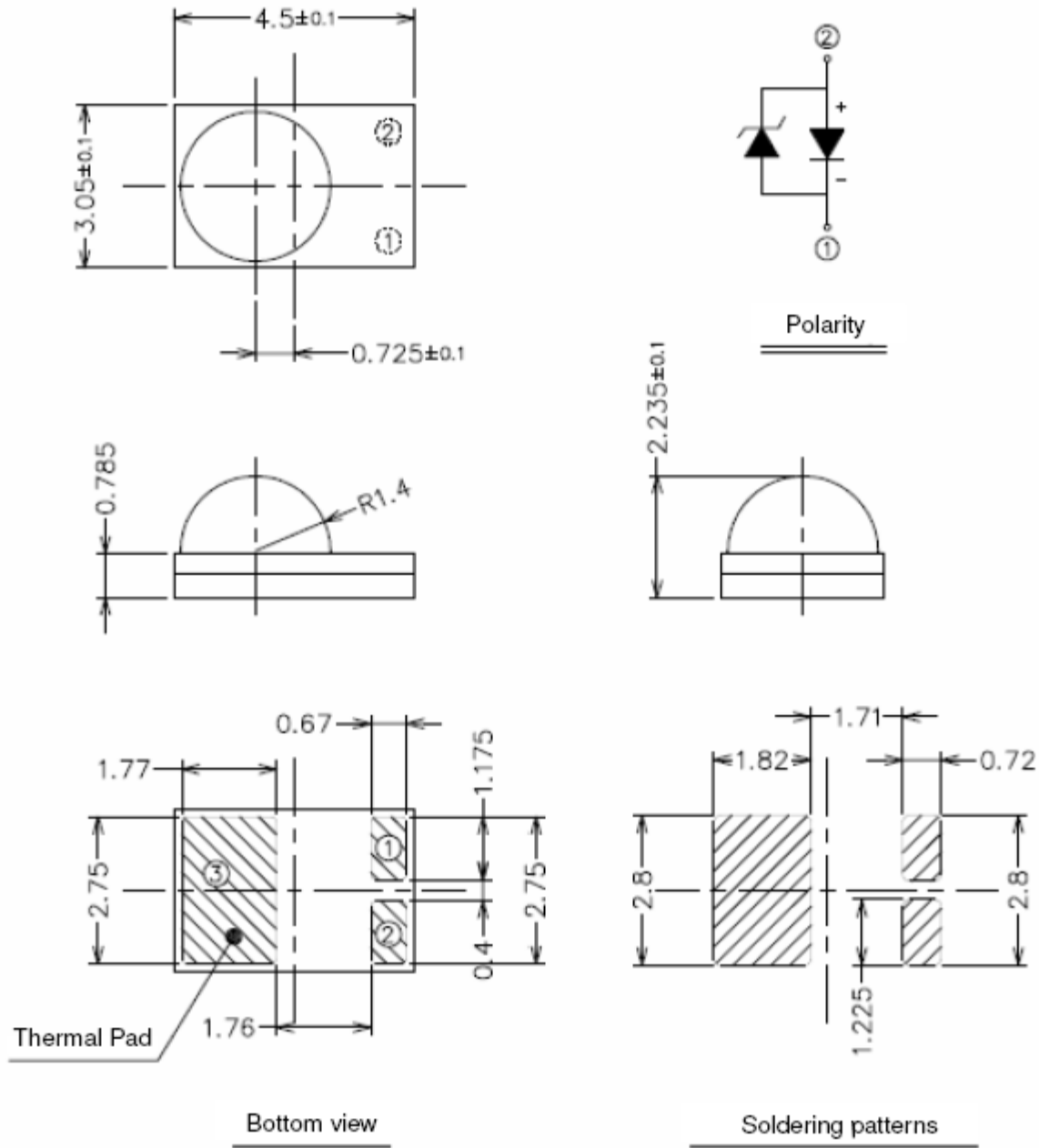
Typical Representative Spatial Radiation Pattern

Relative Intensity



Note: 2θ1/2 is the off axis angle from lamp centerline where the luminous intensity is 1/2 of the peak value, the tolerance is ±5°

Package Outline Dimensions (Unit=mm)

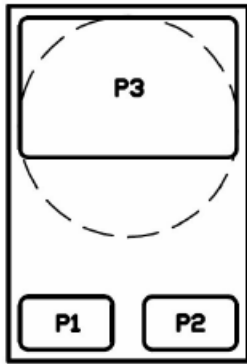


Note: 1. The tolerances unless mentioned is ± 0.1 mm, Unit = mm.

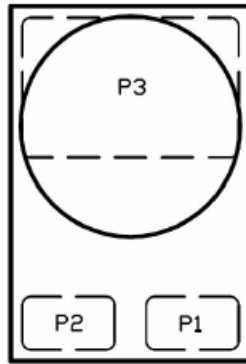
2. Do not handle the device by the lens. Incorrect force applied to the lens may lead to failure of devices.

3. The thermal pad is electrically isolated from the anode and cathode contact pads.

Pad Configuration



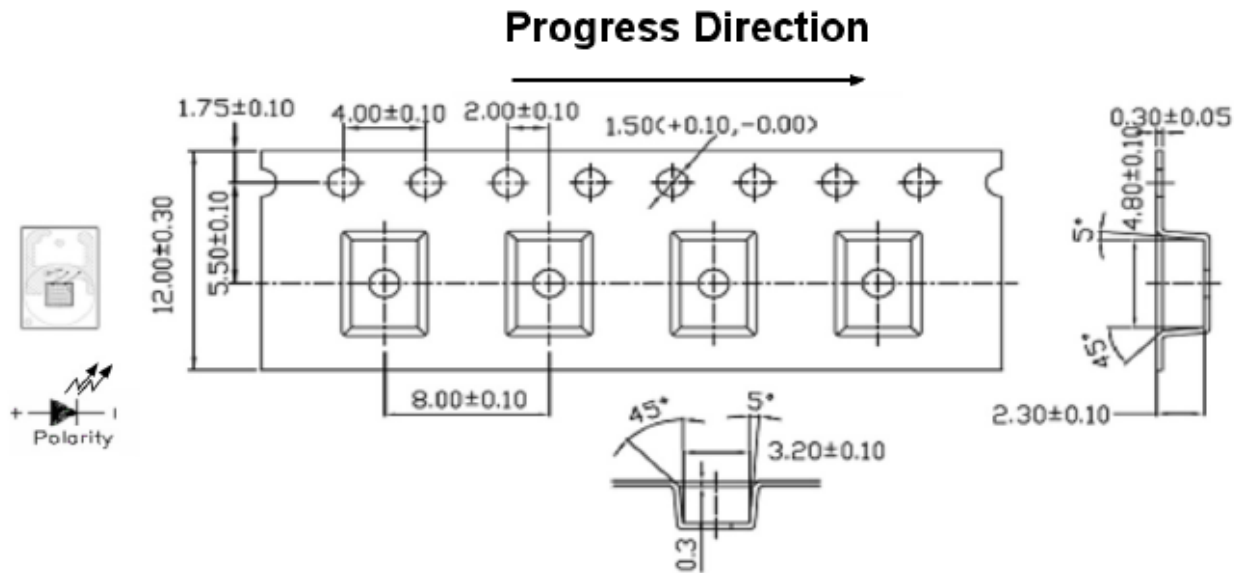
BOTTOM VIEW



TOP VIEW

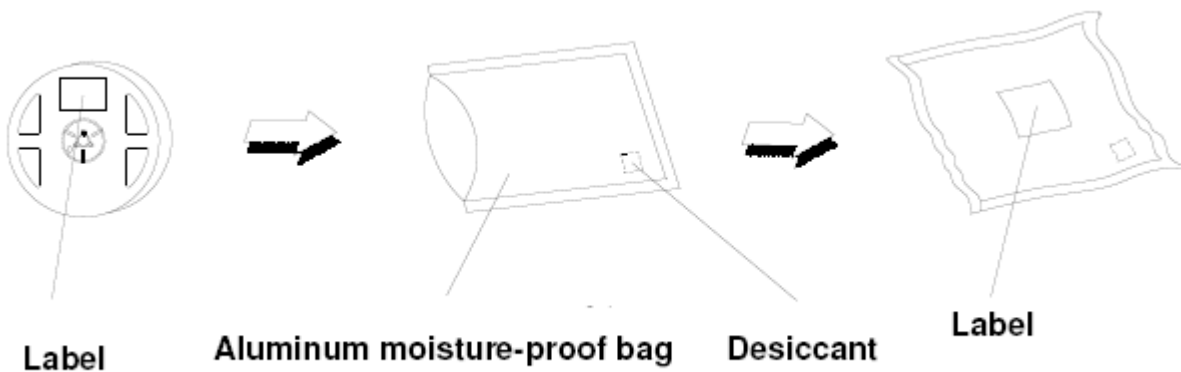
PAD	FUNCTION
P1	ANODE
P2	CATHODE
P3	THERMAL PAD

Carrier Tape Dimensions (Unit=mm): Loaded quantity 400pcs per reel

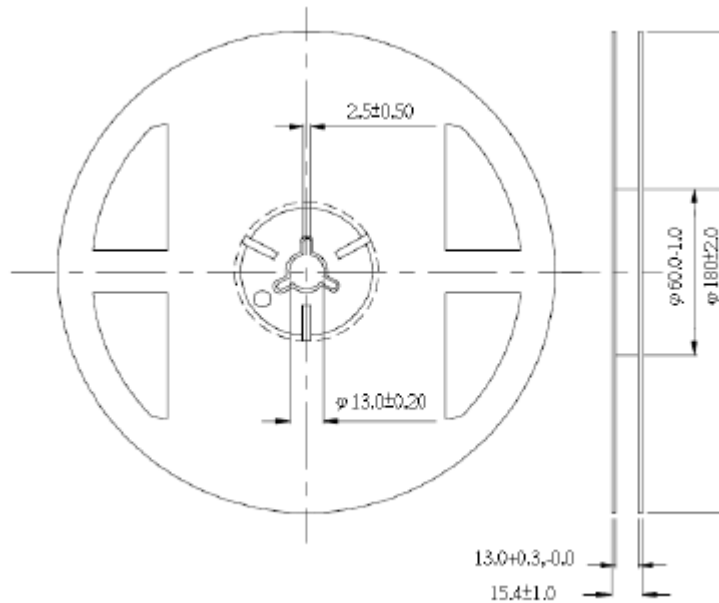


Note: The tolerances unless mentioned is $\pm 0.1\text{mm}$.

Moisture Resistant Packaging



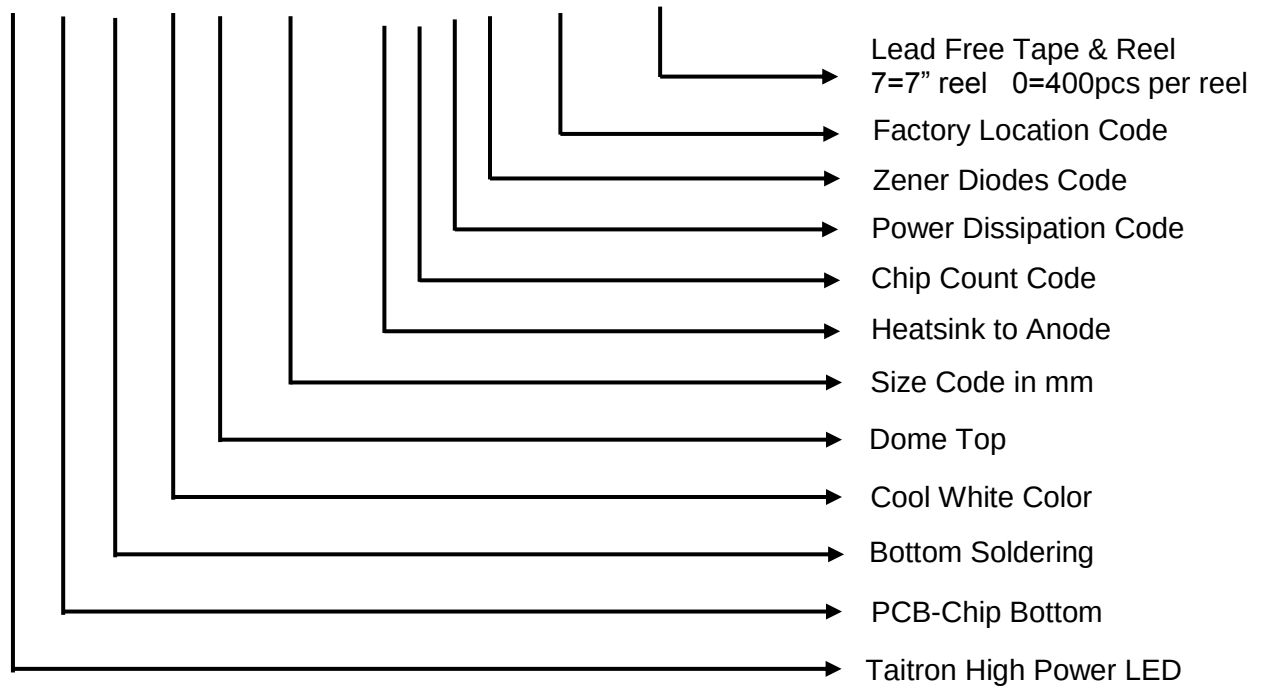
Reel Dimensions (Unit=mm):



Note: 1. The tolerances unless mentioned is $\pm 0.1\text{mm}$, Unit = mm.

Ordering Information

TP C B - W R 4530 - A 1 1 Z - 92 -TR70

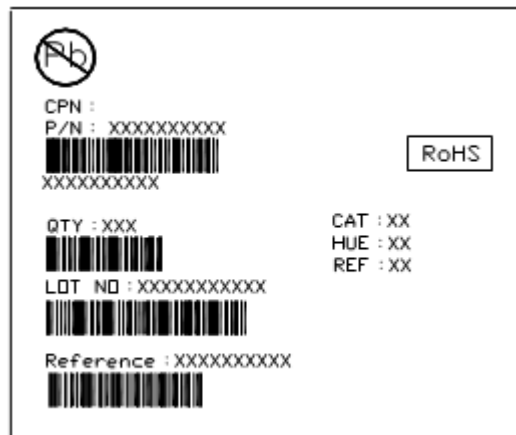


Label Explanation

CAT: Luminous Flux Rank

HUE: Color Bin Rank

REF: Forward Voltage Rank



Rank Combinations

Cool White Bin Coordinates

5700K

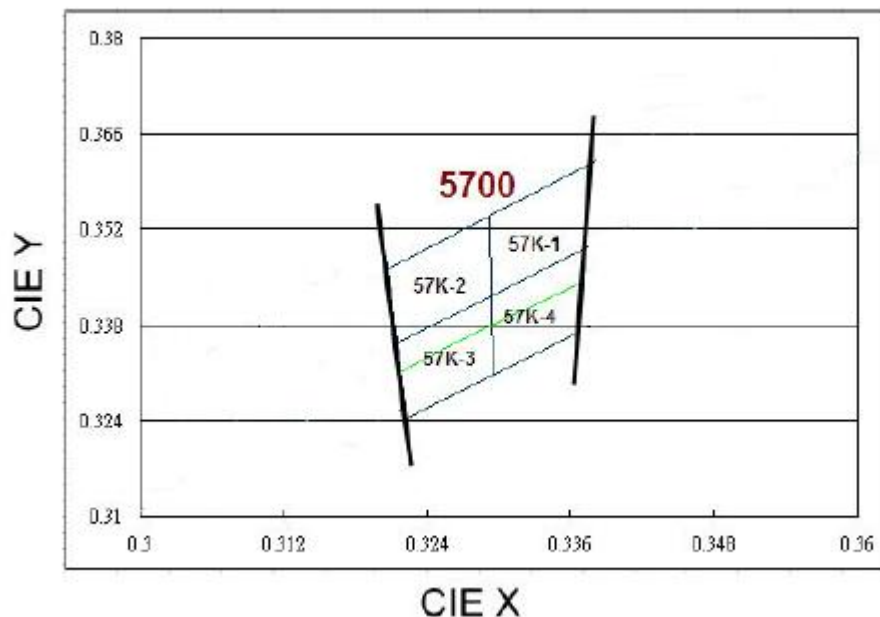
Bin	CIE X	CIE Y
57K-1	0.329	0.354
	0.329	0.342
	0.337	0.349
	0.338	0.362
Reference Range: 5310~5700K		

Bin	CIE X	CIE Y
57K-2	0.321	0.346
	0.321	0.335
	0.329	0.342
	0.329	0.354
Reference Range: 5700~6020K		

Bin	CIE X	CIE Y
57K-4	0.329	0.342
	0.329	0.331
	0.337	0.337
	0.337	0.349
Reference Range: 5310~5700K		

Bin	CIE X	CIE Y
57K-3	0.321	0.335
	0.322	0.324
	0.329	0.331
	0.329	0.342
Reference Range: 5700~6020K		

Cool White Bin Structure



Note: 1. Color coordinates measurement allowance: ± 0.01
 2. Color bins are defined at $I_F = 350\text{mA}$.

Forward Voltage Bins

Group	Bin Code	Min.	Max.	Unit	Condition
C	V1	2.95	3.25	V	IF=350mA
	V2	3.25	3.55		
	V3	3.55	3.85		
D	V2	3.25	3.55		
	V3	3.55	3.85		
	V4	3.85	4.15		
E	V3	3.55	3.85		
	V4	3.85	4.15		
	V5	4.15	4.45		
F	V1	2.95	3.25		
	V2	3.25	3.55		

Note: 1. Forward Voltage measurement tolerance: $\pm 0.1V$.
 2. Forward Voltage bins are defined at IF =350mA.

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