

## Power DomiLED

With its significant power in terms brightness, viewing angle and variety of application possibilities, Power DomiLED truly is a standout performer! Ideal for automotive interior lighting as well as home, office and industrial applications, it is also a proven performer in electronic signs and signals.



## Features:

- > High brightness surface mount LED using thin film technology.
- > 120° viewing angle.
- > Small package outline (LxWxH) of 3.2 x 2.8 x 1.8mm.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > Compliance to automotive standard; AEC-Q102.



## Applications:

> Automotive:

Interior applications, eg: switches, telematics, climate control system, dashboard, etc.

Exterior applications, eg: signal lighting, Center High Mounted Stop Light (CHMSL)

> Signage: full colour display video notice board, signage, special effect lighting.

> Industrial: white goods (eg: Oven, microwave, etc.), light bar, illuminated advertising.

> Lighting: architecture lighting, general lighting, garden light, channel light.



**Optical Characteristics at Tj=25°C**

Part Ordering Number	Color	Viewing Angle°	Luminous Flux <i>Appx. 1.2</i> @ IF = 50mA IV (lm)			Luminous Intensity <i>Appx. 1.1</i> @ IF = 50mA IV (mcd)
			Min.	Typ.	Max.	Typ.
DWS-HJS-F3H2-3	Super Red, 635nm	120	3.22	4.20	5.50	1400.00
DWS-HJS-GH3-2	Super Red, 630nm	120	3.68	4.90	6.30	1700.00
DWA-HJS-JK3-4	Amber, 624nm	120	6.30	8.20	10.70	2750.00
DWA-HJS-J3L2-2	Amber, 615nm	120	7.15	9.35	12.20	3150.00
DWY-HJS-J3L2-1	Yellow, 589nm	120	7.15	9.35	12.20	3150.00

**Electrical Characteristics at Tj=25°C**

Part Number	Vf @ If = 50mA <i>Appx. 3.1</i>			Vr @ Ir = 10uA <i>Appx. 6.1</i>
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
DWx-HJS	2.05	2.30	2.65	12

**Absolute Maximum Ratings**

	Maximum Value	Unit
DC forward current	70	mA
Peak pulse current; (Ts = 55°C, tp ≤ 100µs, Duty cycle = 0.03)	100	mA
Reverse voltage <i>Appx. 6.1</i>	12	V
ESD threshold (HBM)	2	KV
LED junction temperature	125	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +100	°C
Power dissipation (at room temperature)	200	mW
Thermal resistance (Rated current = 50mA, Ts = 25 °C)		
- Real Thermal Resistance		
Junction / ambient, R <sub>th JA real</sub>	300	K/W
Junction / solder point, R <sub>th JS real</sub>	90	K/W
- Electrical Thermal Resistance		
Junction / ambient, R <sub>th JA el</sub>	240	K/W
Junction / solder point, R <sub>th JS el</sub>	65	K/W
(Mounting on FR4 PCB, pad size ≥ 16 mm <sup>2</sup> per pad)		

**Wavelength Grouping at Tj= 25°C**

<b>Color</b>	<b>Group</b>	<b>Wavelength distribution (nm) <i>Appx. 2.2</i></b>
DWS; Super Red	Full	627 - 637
	W	627 - 630
	X	630 - 634
	Y	634 - 637
DWA; Amber	Full	612 - 627
	W	612 - 616
	X	616 - 620
	Y	620 - 624
	Z	624 - 627
DWY; Yellow	Full	586 - 595
	X	586 - 589
	Y	589 - 592
	Z	592 - 595

**Luminous Flux Group at Tj=25°C**

Brightness Group	Luminous Flux (lm) <i>Appx. 1.2</i>
F3	3.22 ... 3.68
G2	3.68 ... 4.20
G3	4.20 ... 4.90
H2	4.90 ... 5.50
H3	5.50 ... 6.30
J2	6.30 ... 7.15
J3	7.15 ... 8.20
K2	8.20 ... 9.35
K3	9.35 ... 10.70
L2	10.70 ... 12.20

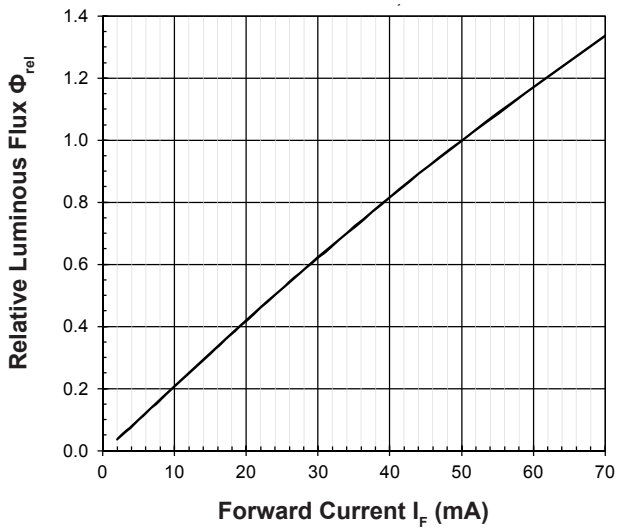
**Vf Bining (Optional) at Tj= 25°C**

Vf @ If = 50mA	Forward Voltage (V) <i>Appx. 3.1</i>
V44	2.05 ... 2.20
V45	2.20 ... 2.35
V46	2.35 ... 2.50
V47	2.50 ... 2.65

Please consult sales and marketing for special part number to incorporate Vf binning.

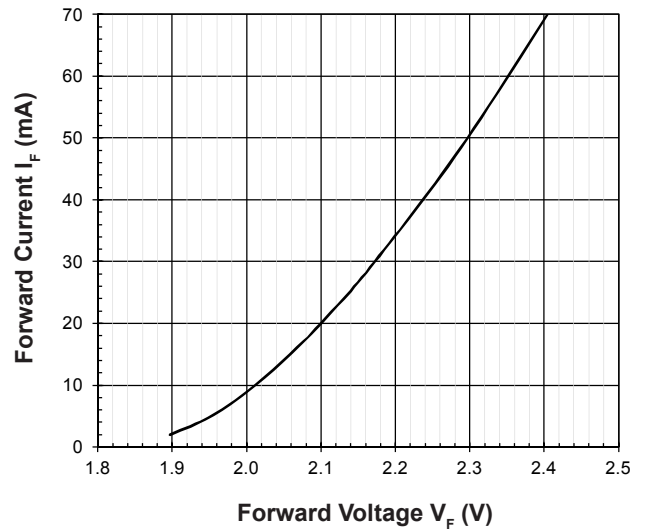
**Relative Luminous Flux Vs Forward Current**

$\Phi_V/\Phi_V(50\text{mA}) = f(I_F); T_j = 25^\circ\text{C}$



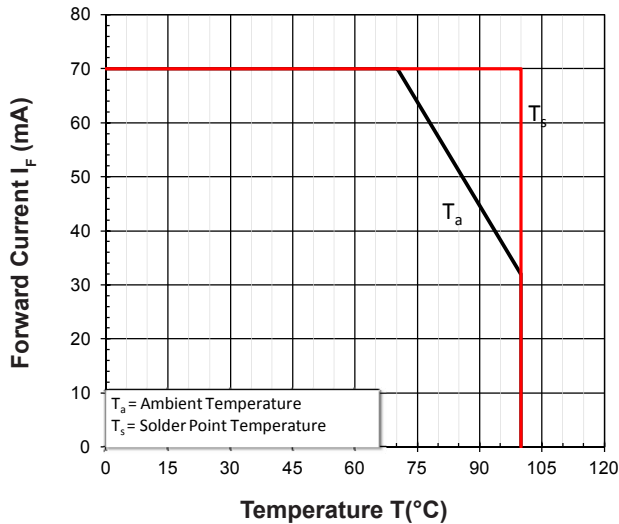
**Forward Current Vs Forward Voltage**

$I_F = f(V_F); T_j = 25^\circ\text{C}$



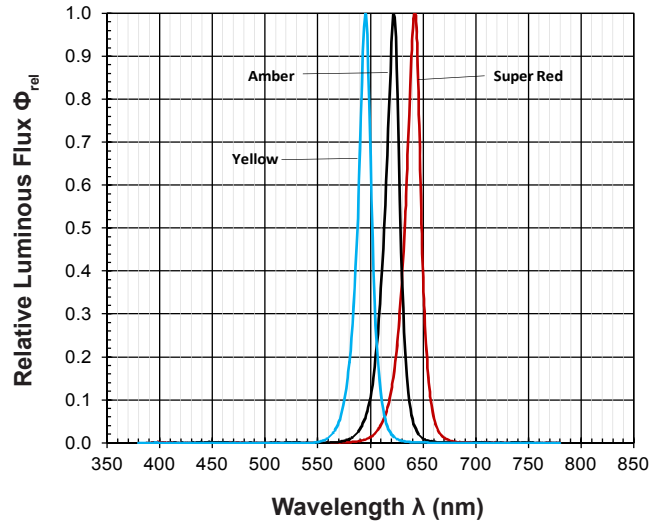
**Maximum Current Vs Temperature**

$I_F = f(T)$



**Relative Spectral Emission**

$\Phi_{rel} = f(\lambda); T_j = 25^\circ\text{C}; I_F = 50\text{mA}$

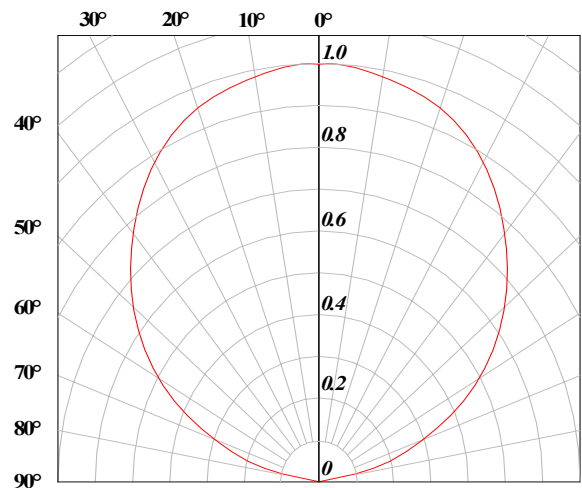


**Allowable Forward Current Vs Duty Ratio**

$(T_s = 55^\circ\text{C}; t_p \leq 100\mu\text{s})$

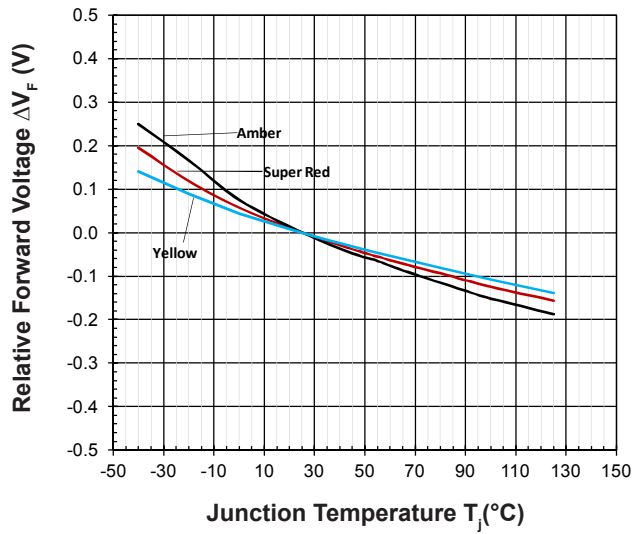


**Radiation Pattern**



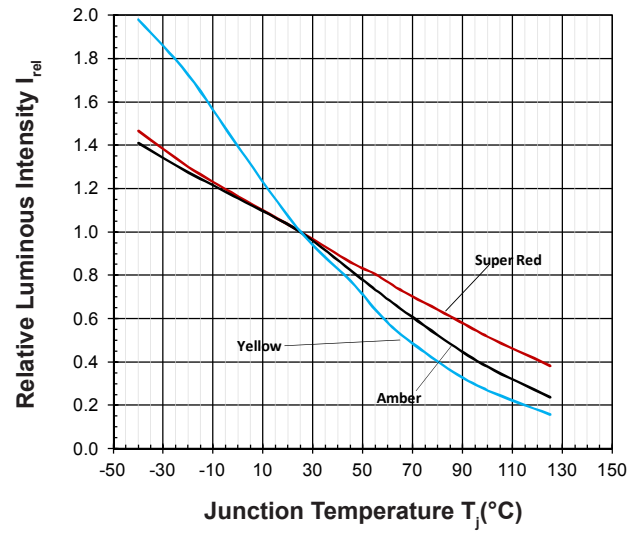
**Relative Forward Voltage Vs Junction Temperature**

$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j); I_F = 50\text{mA}$$



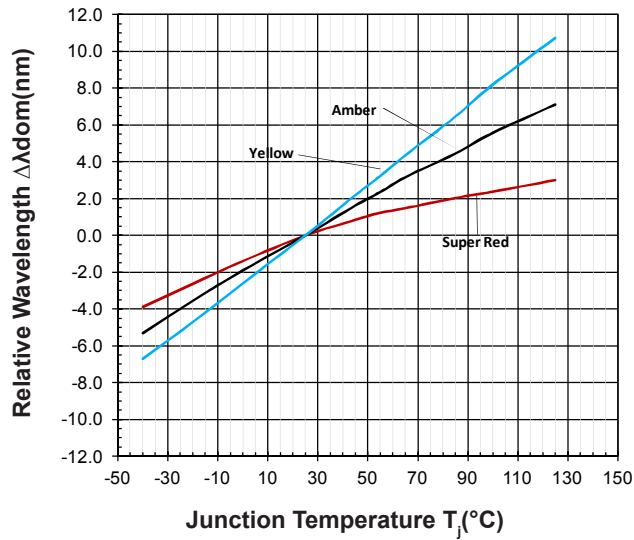
**Relative Luminous Intensity Vs Junction Temperature**

$$I_V/I_V(25^\circ\text{C}) = f(T_j); I_F = 50\text{mA}$$

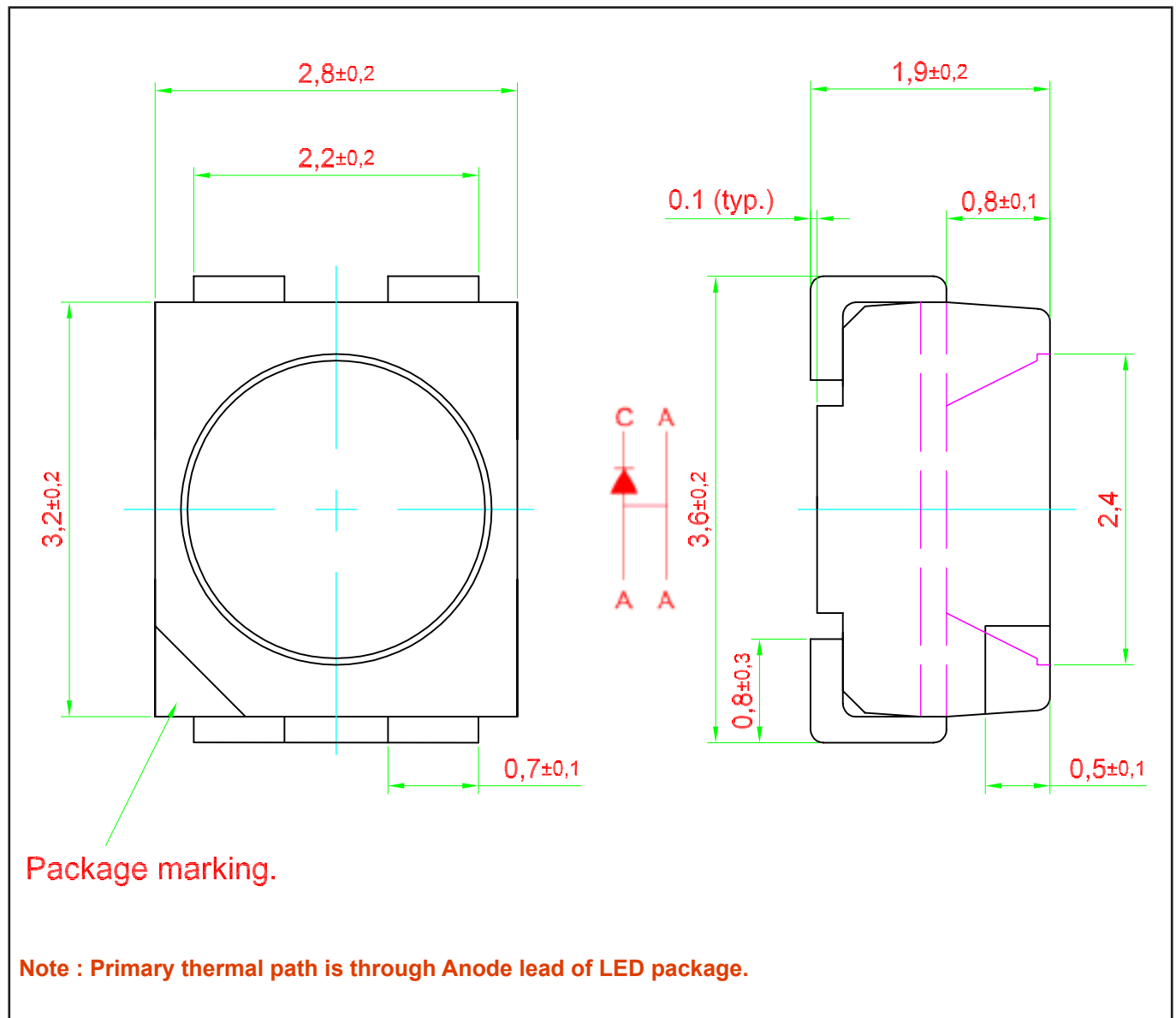


**Relative Wavelength Vs Junction Temperature**

$$\Delta \lambda_{dom} = \lambda_{dom} - \lambda_{dom}(25^\circ\text{C}) = f(T_j); I_F = 50\text{mA}$$



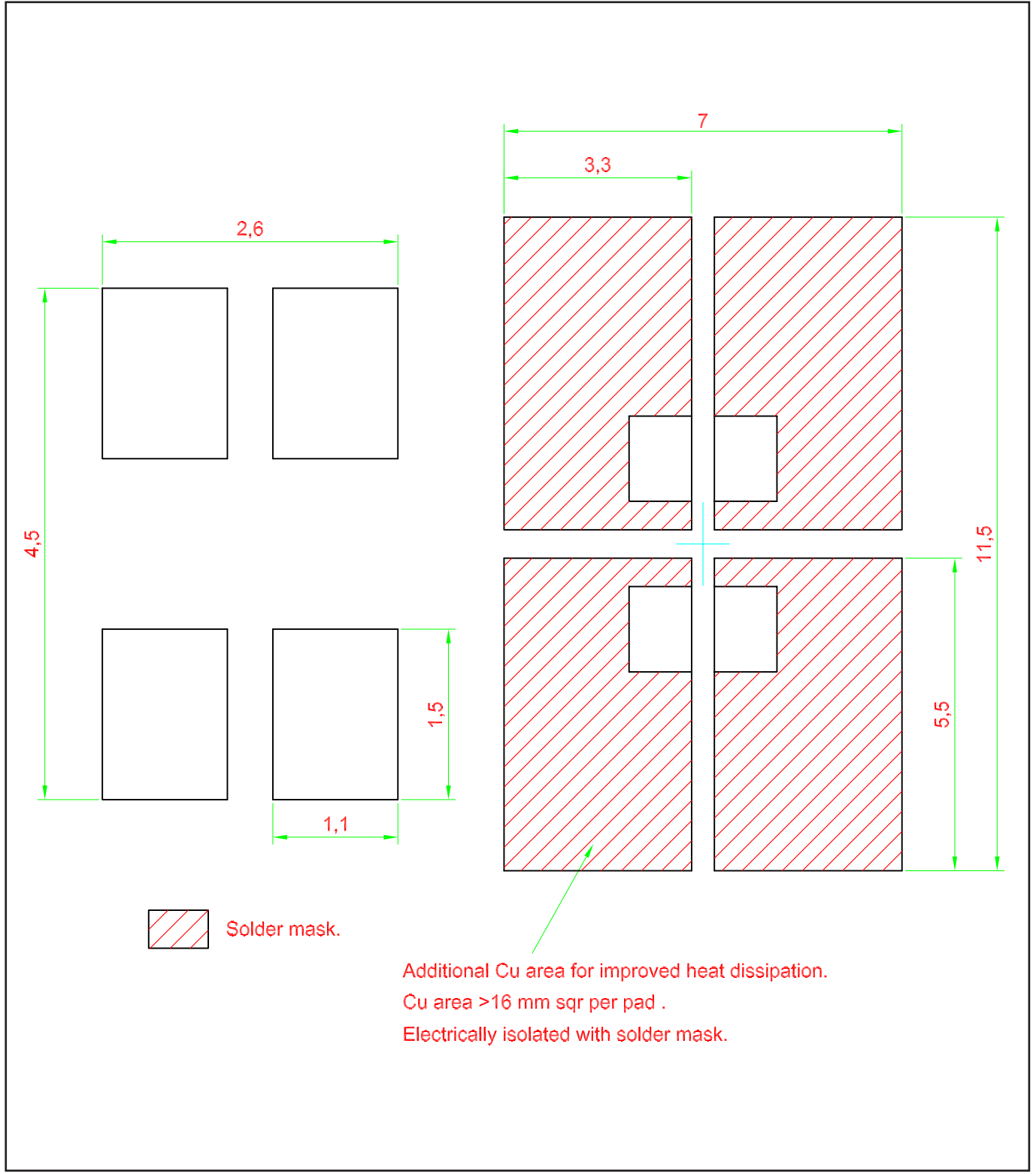
**Power DomiLED • AllnGaP : DWx-HJS Package Outlines**



**Material**

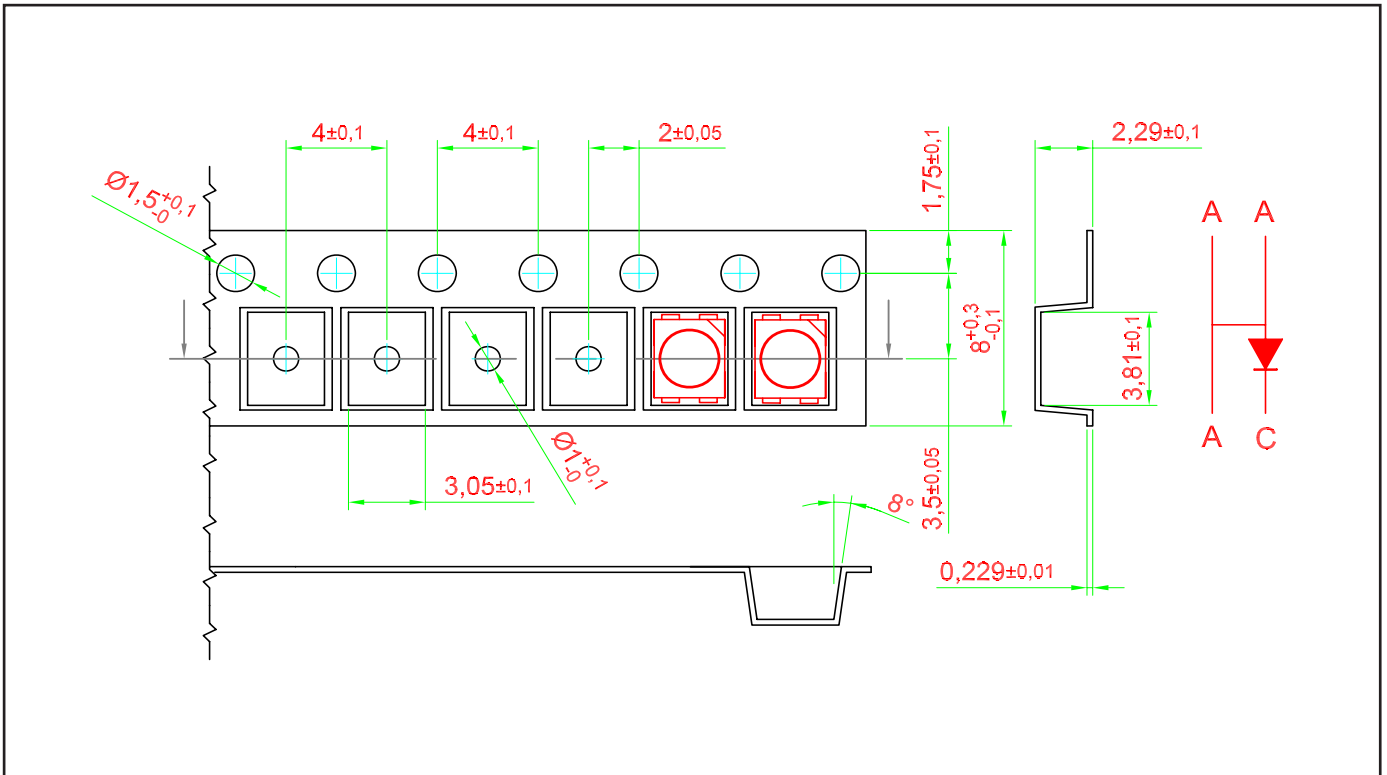
Material	
Lead-frame	Cu Alloy With Ag Plating
Package	High Temperature Resistant Plastic, PPA
Encapsulant	Epoxy
Soldering Leads	Sn-Sn Plating

**Recommended Solder Pad**



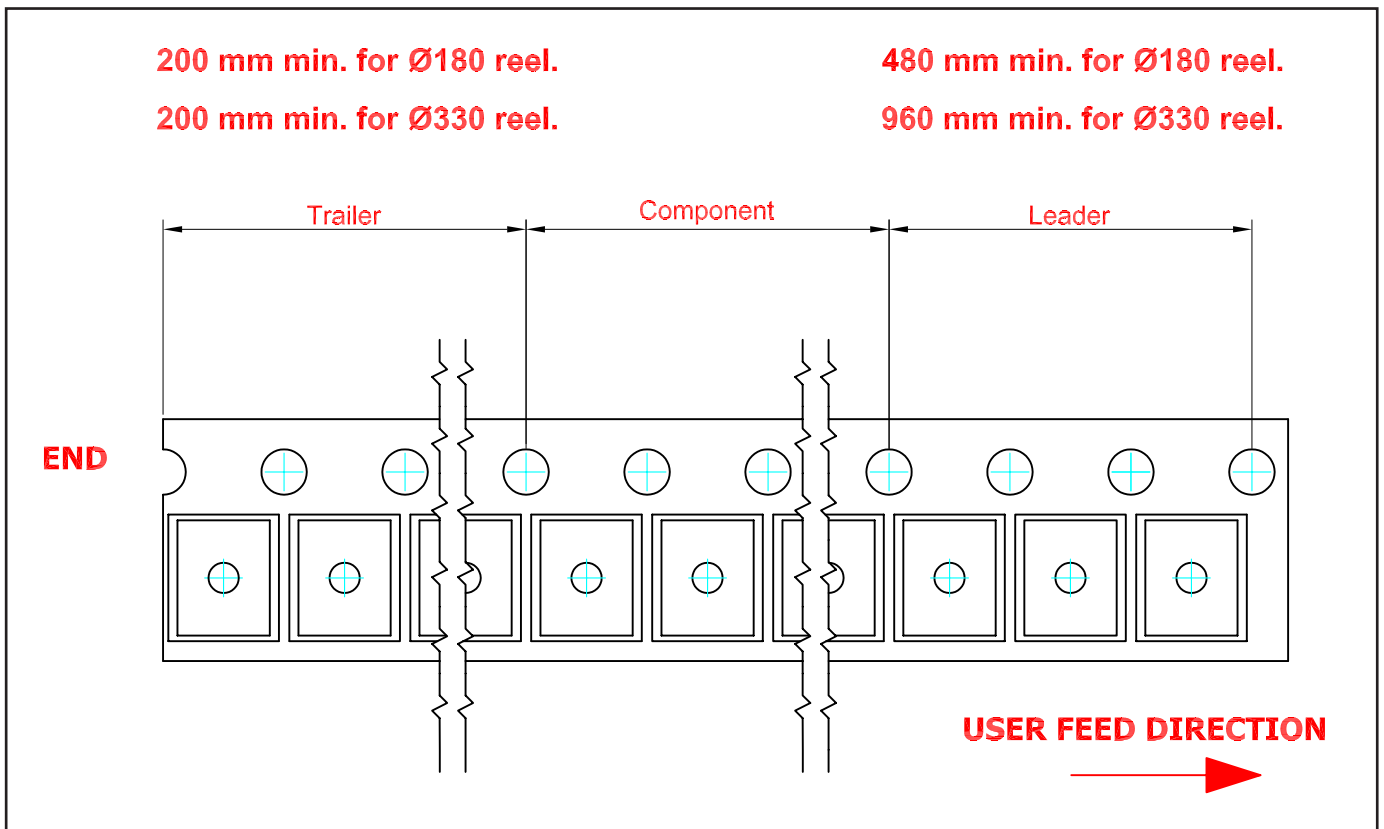
### Taping and orientation

- Reels come in quantity of 2000 units.
- Reel diameter is 180 mm.

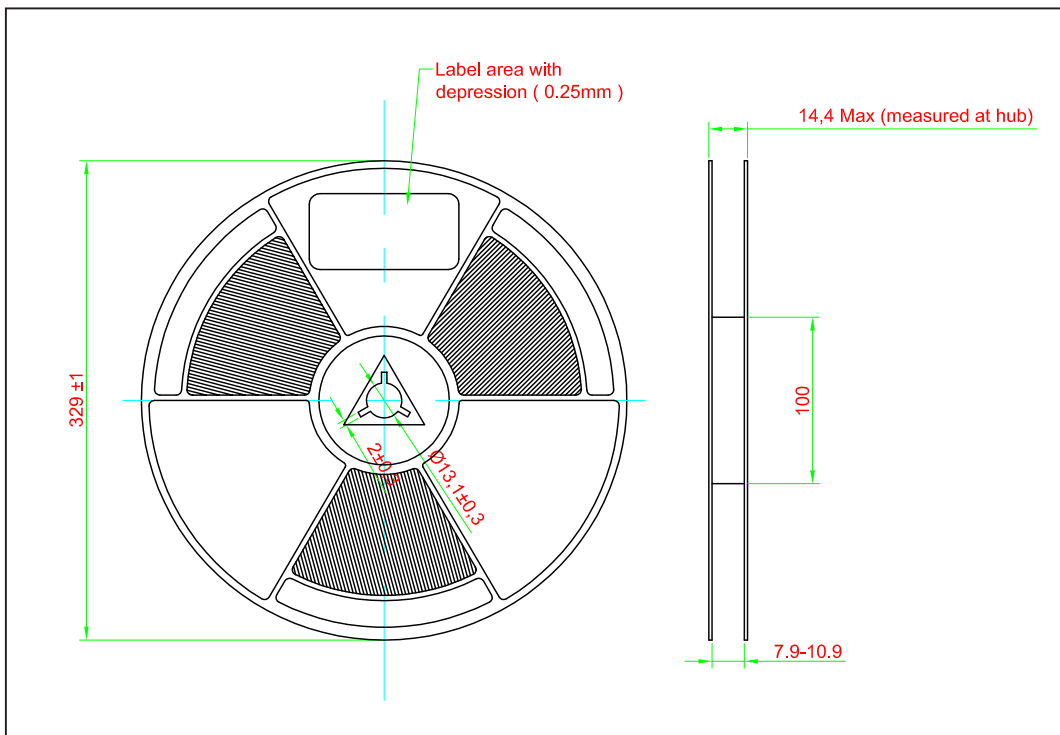
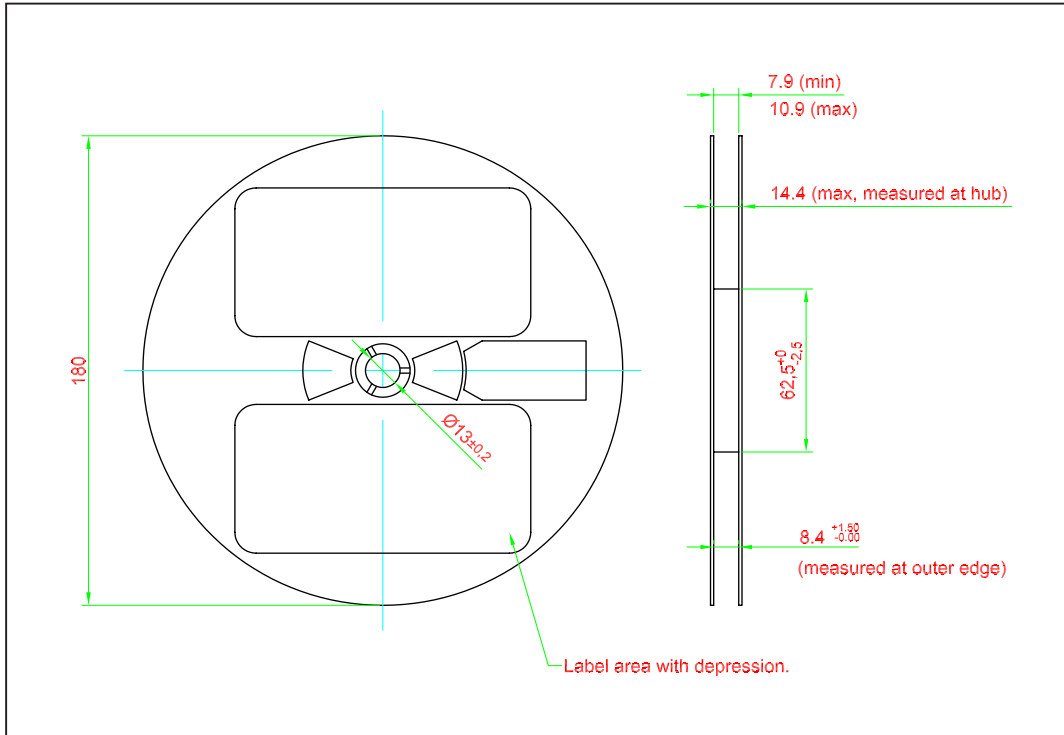


200 mm min. for  $\varnothing 180$  reel.  
 200 mm min. for  $\varnothing 330$  reel.

480 mm min. for  $\varnothing 180$  reel.  
 960 mm min. for  $\varnothing 330$  reel.

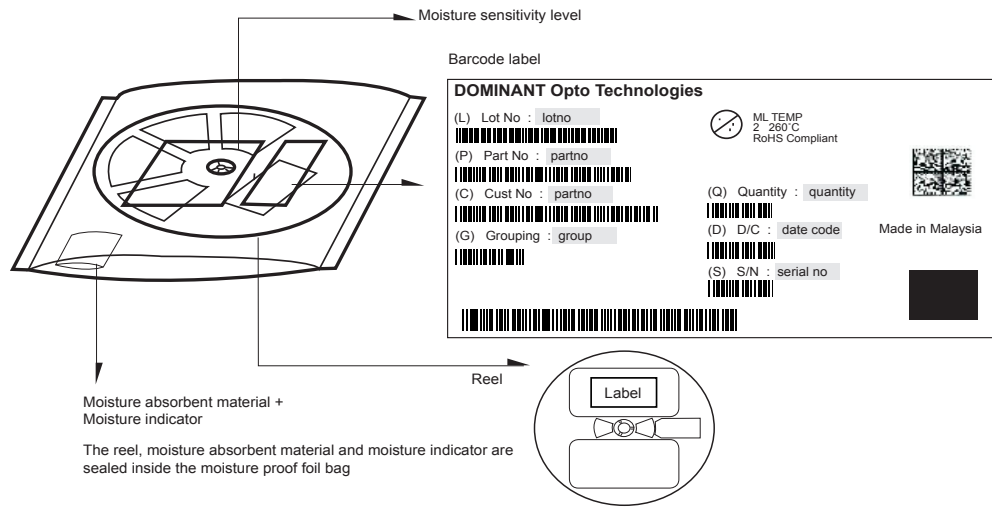


**Packaging Specification**

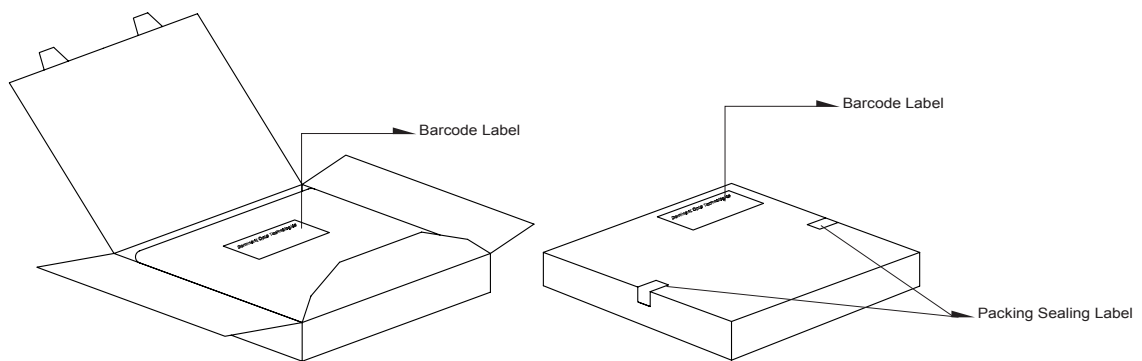


	Reel Diameter (mm)	Quantity (pcs)	Partno
Standard Packing	180	2000	DWx-HJS-xxx-x
Optional Packing	329	8000	DWx-HJS--xxx-x-8

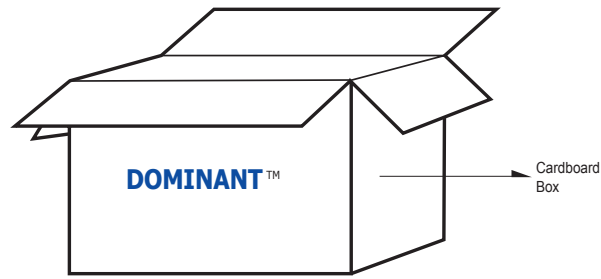
**Packaging Specification**



Quantity per bag (pcs)	Average 1pc Power Domiled (gram)	1 completed bag (gram)
2000	0.034	240 ± 10
8000	0.034	750 ± 10

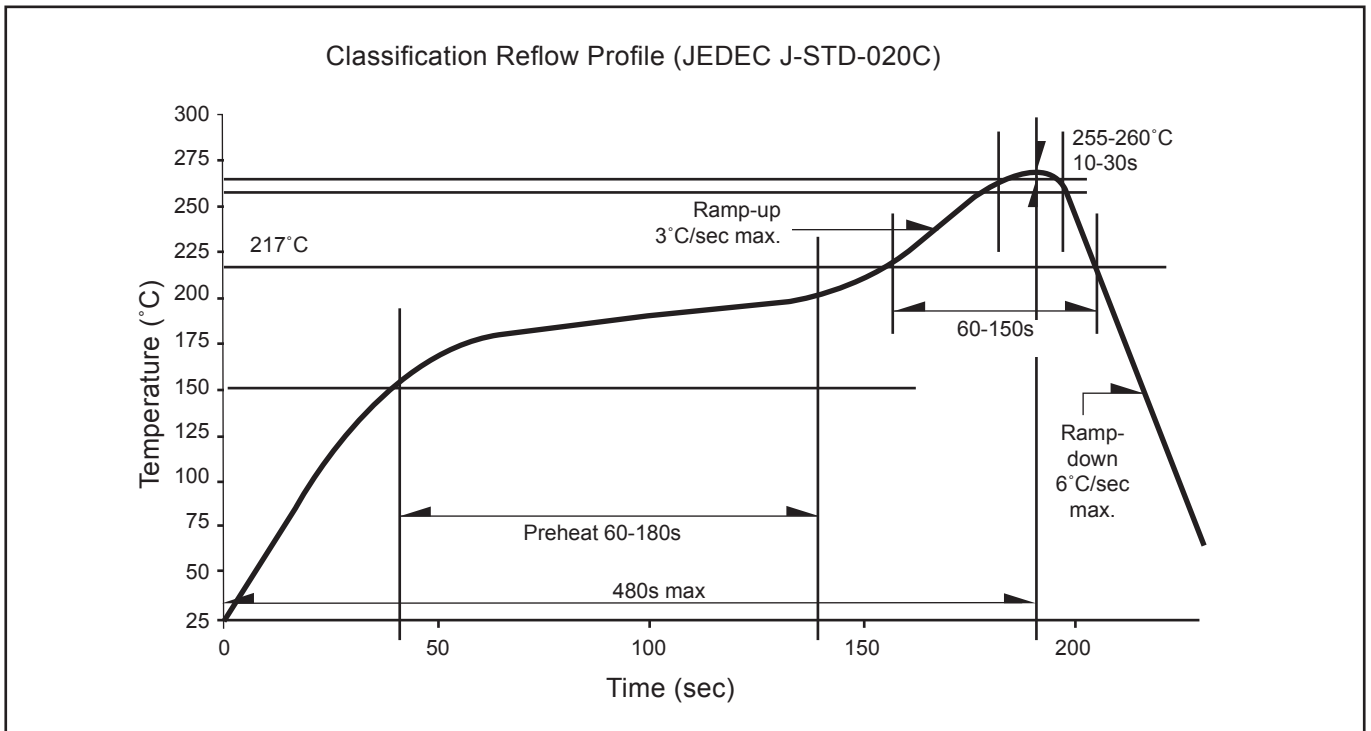


Reel Diameter (mm)	Packing Box Dimensions (mm)
180	210 x 210 x 16
329	345 x 345 x 16



Reel Diameter (mm)	Cardboard Box Size	Dimensions (mm)	Empty Box Weight (kg)	Reel / Box
180	Super Small	325 x 225 x 190	0.38	9 reels MAX
180	Small	325 x 225 x 280	0.54	15 reels MAX
180	Medium	570 x 440 x 230	1.46	60 reels MAX
180	Large	570 x 440 x 460	1.92	120 reels MAX
329	Medium	373 x 373 x 285	1.02	13 reels MAX
329	Large	580 x 373 x 405	1.50	30 reels MAX

**Recommended Pb-free Soldering Profile**



## Appendix

### 1) **Brightness:**

- 1.1 Luminous intensity is measured at current pulse 25 ms(typ) with an internal reproducibility of  $\pm 8\%$  and an expanded uncertainty of  $\pm 11\%$  (according to GUM with a coverage factor of  $k=3$ ).
- 1.2 Luminous flux is measured at current pulse 25 ms(typ) with an internal reproducibility of  $\pm 8\%$  and an expanded uncertainty of  $\pm 11\%$  (according to GUM with a coverage factor of  $k=3$ ).
- 1.3 Radiant intensity is measured at current pulse 25 ms(typ) with an internal reproducibility of  $\pm 8\%$  and an expanded uncertainty of  $\pm 11\%$  (according to GUM with a coverage factor of  $k=3$ ).
- 1.4 Radiant flux is measured at current pulse 25 ms(typ) with an internal reproducibility of  $\pm 8\%$  and an expanded uncertainty of  $\pm 11\%$  (according to GUM with a coverage factor of  $k=3$ ).

### 2) **Color:**

- 2.1 Chromaticity coordinate groups are measured at current pulse 25 ms(typ) with an internal reproducibility of  $\pm 0.005$  and an expanded uncertainty of  $\pm 0.01$  (accordingly to GUM with a coverage factor of  $k=3$ ).
- 2.2 Dominant wavelength is measured at current pulse 25 ms(typ) with an internal reproducibility of  $\pm 0.5\text{nm}$  and an expanded uncertainty of  $\pm 1\text{nm}$  (accordingly to GUM with a coverage factor of  $k=3$ ).

### 3) **Voltage:**

- 3.1 Forward Voltage,  $V_f$  is measured when a current pulse of 8 ms(typ) with an internal reproducibility of  $\pm 0.05\text{V}$  and an expanded uncertainty of  $\pm 0.1\text{V}$  (accordingly to GUM with a coverage factor of  $k=3$ ).

### 4) **Typical Values:**

- 4.1 At special conditions of LED manufacturing processes, typical data or calculated correlations of technical parameters only reflect the statistical figures. But not necessarily correspond to the actual parameters of each single product, which could differ from the typical data or calculated correlations or the typical characteristic line. These typical data may change whenever technical improvements happen.

### 5) **Tolerance of Measure**

- 5.1 Unless otherwise noted in drawing, tolerances are specified with  $\pm 0.1$  and dimension are specific in mm.

### 6) **Reverse Voltage:**

- 6.1 Not designed for reverse operation. Continuous reverse voltage can cause migration and LED damage.



## About Us

DOMINANT Opto Technologies is a dynamic company that is amongst the world's leading automotive LED manufacturers. With an extensive industry experience and relentless pursuit of innovation, DOMINANT's state-of-art manufacturing and development capabilities have become a trusted and reliable brand across the globe. More information about DOMINANT Opto Technologies, an IATF 16949 and ISO 14001 certified company, can be found under <http://www.dominant-semi.com>.

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