

### Mini DomiLED

Synonymous with function and performance, the Mini DomiLED series is perfectly suited for a variety of cross-industrial applications due to its small package outline, durability and superior brightness.

### Features:

- > High brightness surface mount LED.
- > 120° viewing angle.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > Compliance to automotive standard; AEC-Q101.
- > Passed Corrosion Resistance Test. *Appx. 7.1*

### Applications:

- > Automotive: interior applications, eg: switches, telematics, climate control system, dashboard, etc.
- > Signage: full color display video notice board, signage, special effect lighting.
- > Lighting: channel light.



### Optical Characteristics at Tj=25°C

Part Ordering Number	Color	Viewing Angle°	Luminous Intensity @ IF = 20mA IV (mcd) <i>Appx. 1.1</i>		
			Min.	Typ.	Max.
● DLS-HRS-UV1-1	Super Red, 632nm	120	450.0	560.0	900.0
● DLR-HRS-U2V-1	Red, 620nm	120	560.0	715.0	1125.0
● DLA-HRS-VW1-1	Amber, 615nm	120	715.0	1125.0	1400.0
● DLO-HRS-VW1-1	Orange, 605nm	120	715.0	1125.0	1400.0
● DLY-HRS-VW1-1	Yellow, 590nm	120	715.0	1125.0	1400.0
● Not for new design.					

### Electrical Characteristics at Tj=25°C

Part Number	Vf @ If = 20mA <i>Appx 3.1</i>			Vr @ Ir = 10uA <i>Appx. 6.1</i>
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
DLx-HRS	1.8	2.1	2.4	12

### Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	50	mA
Peak pulse current; (tp ≤ 10µs, Duty cycle = 0.005)	100	mA
Reverse voltage <i>Appx. 6.1</i>	12	V
ESD threshold (HBM)	2000	V
LED junction temperature	125	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +100	°C
Power dissipation (at room temperature)	125	mW
Thermal resistance		
- Real Thermal Resistance		
Junction / ambient, R <sub>th JA real</sub>	440	K/W
Junction / solder point, R <sub>th JS real</sub>	200	K/W
- Electrical Thermal Resistance		
Junction / ambient, R <sub>th JA el</sub>	360	K/W
Junction / solder point, R <sub>th JS el</sub>	160	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) <small>Appx. 2.2</small></b>
DLS; Super Red	Full	625 - 640
DLR; Red	Full	620 - 630
DLA; Amber	Full	610 - 621
	W	610 - 615
	X	615 - 621
DLO; Orange	Full	600 - 612
	W	600 - 603
	X	603 - 606
	Y	606 - 609
	Z	609 - 612
DLY; Yellow	Full	585 - 594
	X	585 - 588
	Y	588 - 591
	Z	591 - 594

**Luminous Intensity Group at Tj=25° C**

Brightness Group	Luminous Intensity <i>Appx. 1.1</i> IV (mcd)
U1	450.0 ... 560.0
U2	560.0 ... 715.0
V1	715.0 ... 900.0
V2	900.0 ... 1125.0
W1	1125.0 ... 1400.0

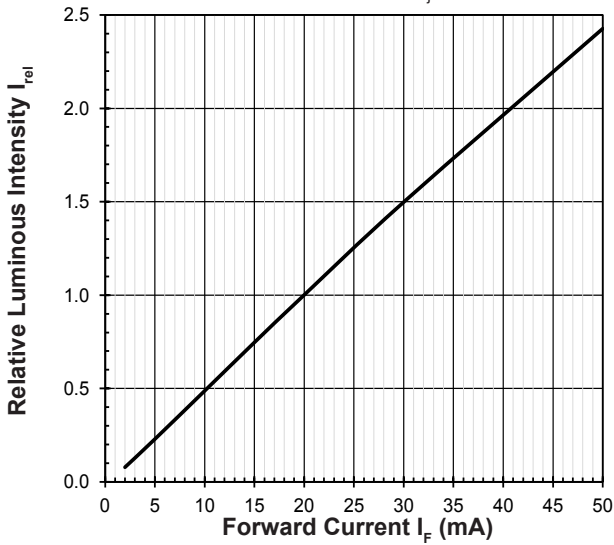
**Vf Binning (Optional)**

Vf Bin @ 20mA	Forward Voltage (V) <i>Appx. 3.1</i>
VA	1.80 ... 1.95
VB	1.95 ... 2.10
VC	2.10 ... 2.25
VD	2.25 ... 2.40

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

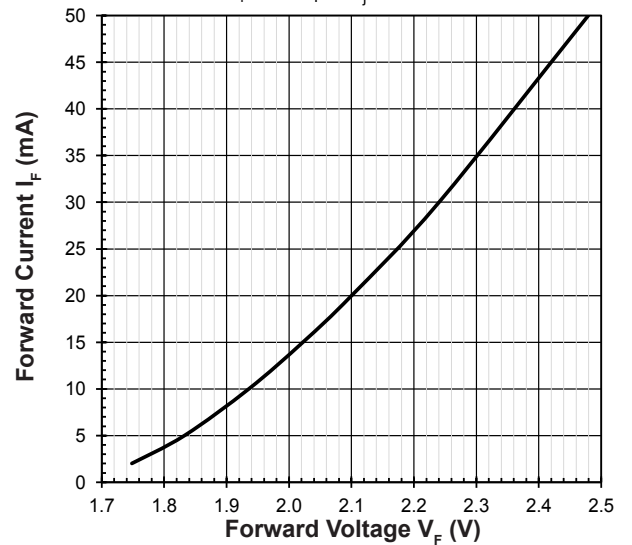
**Relative Luminous Intensity Vs Forward Current**

$I_v/I_v(20\text{mA}) = f(I_F); T_j = 25^\circ\text{C}$



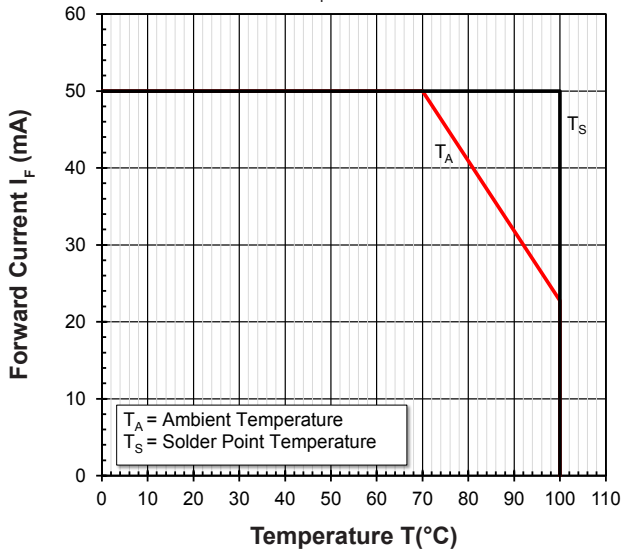
**Forward Current Vs Forward Voltage**

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



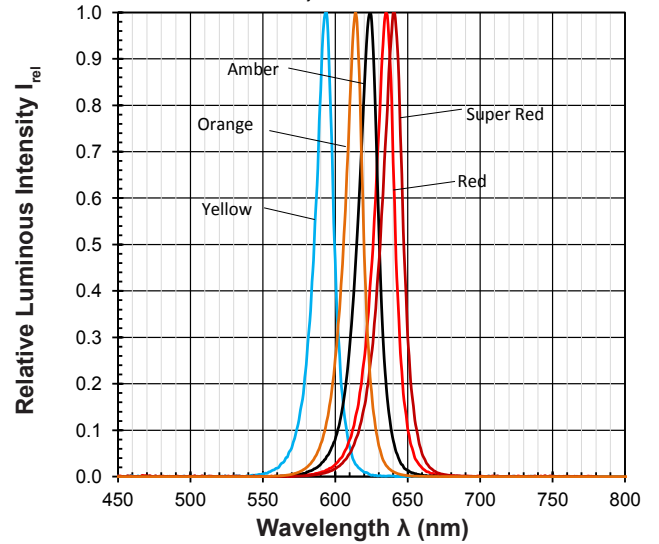
**Maximum Current Vs Temperature**

$I_F = f(T)$



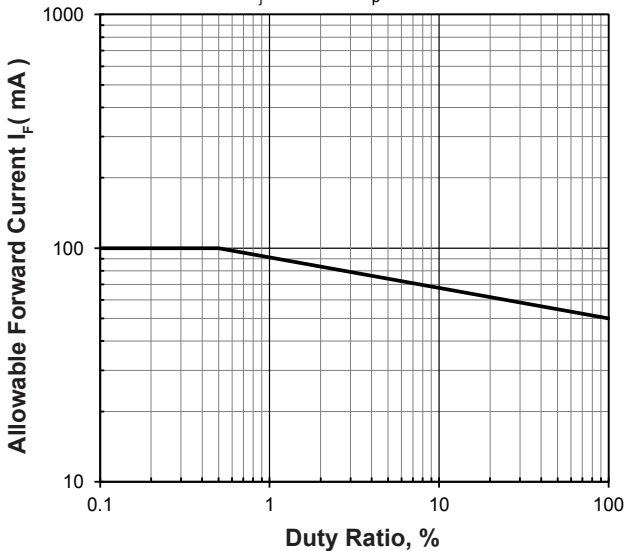
**Relative Spectral Emission**

$I_{rel} = f(\lambda); T_j = 25^\circ\text{C}; I_F = 20\text{mA}$

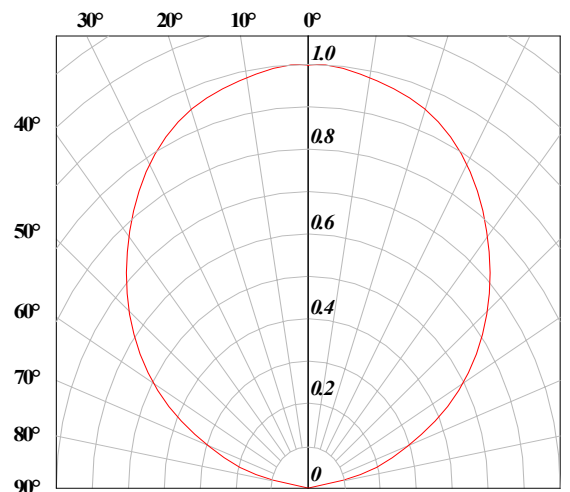


**Allowable Forward Current Vs Duty Ratio**

$(T_j = 25^\circ\text{C}; t_p \leq 10\mu\text{s})$

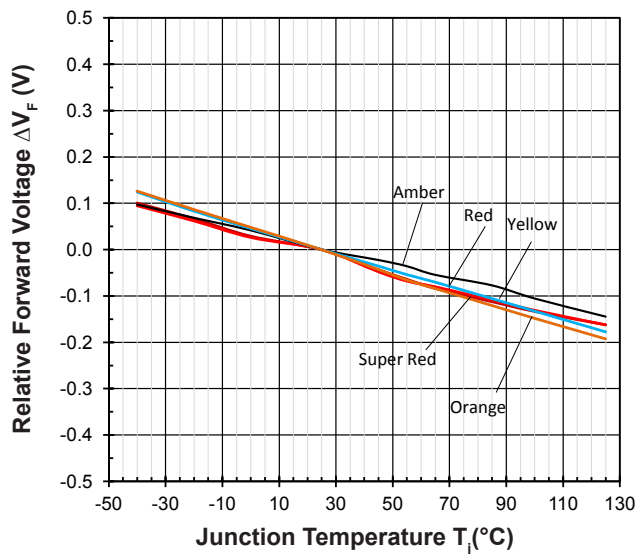


**Radiation Pattern**



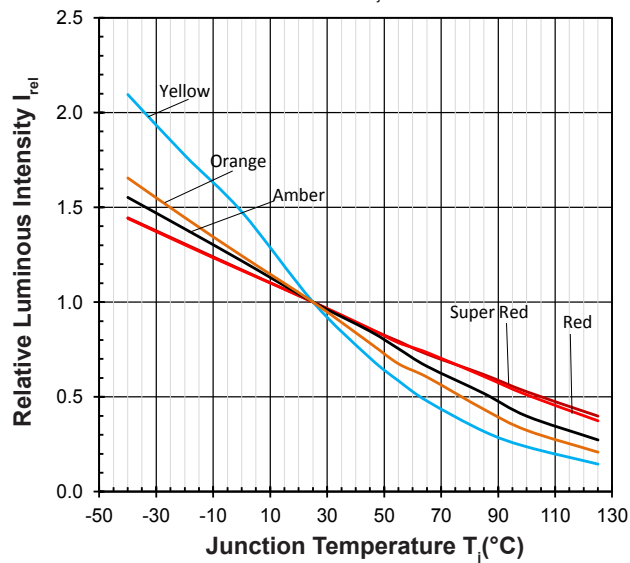
**Relative Forward Voltage Vs Junction Temperature**

$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j); I_F = 20\text{mA}$$



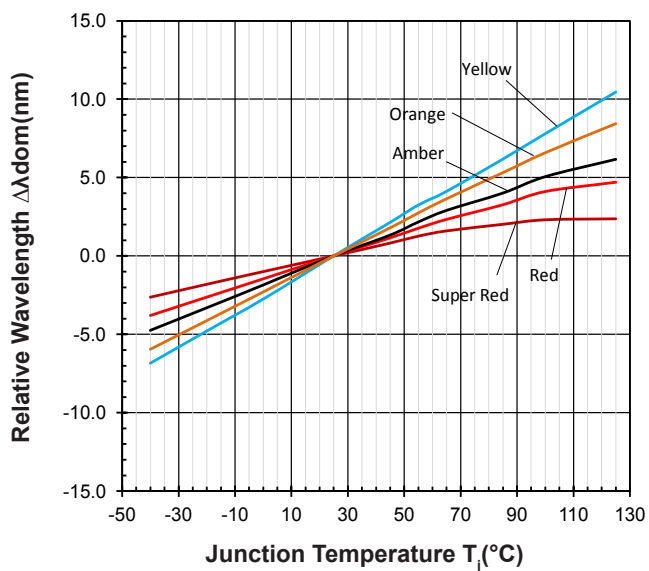
**Relative Luminous Intensity Vs Junction Temperature**

$$I_v/I_v(25^\circ\text{C}) = f(T_j); I_F = 20\text{mA}$$

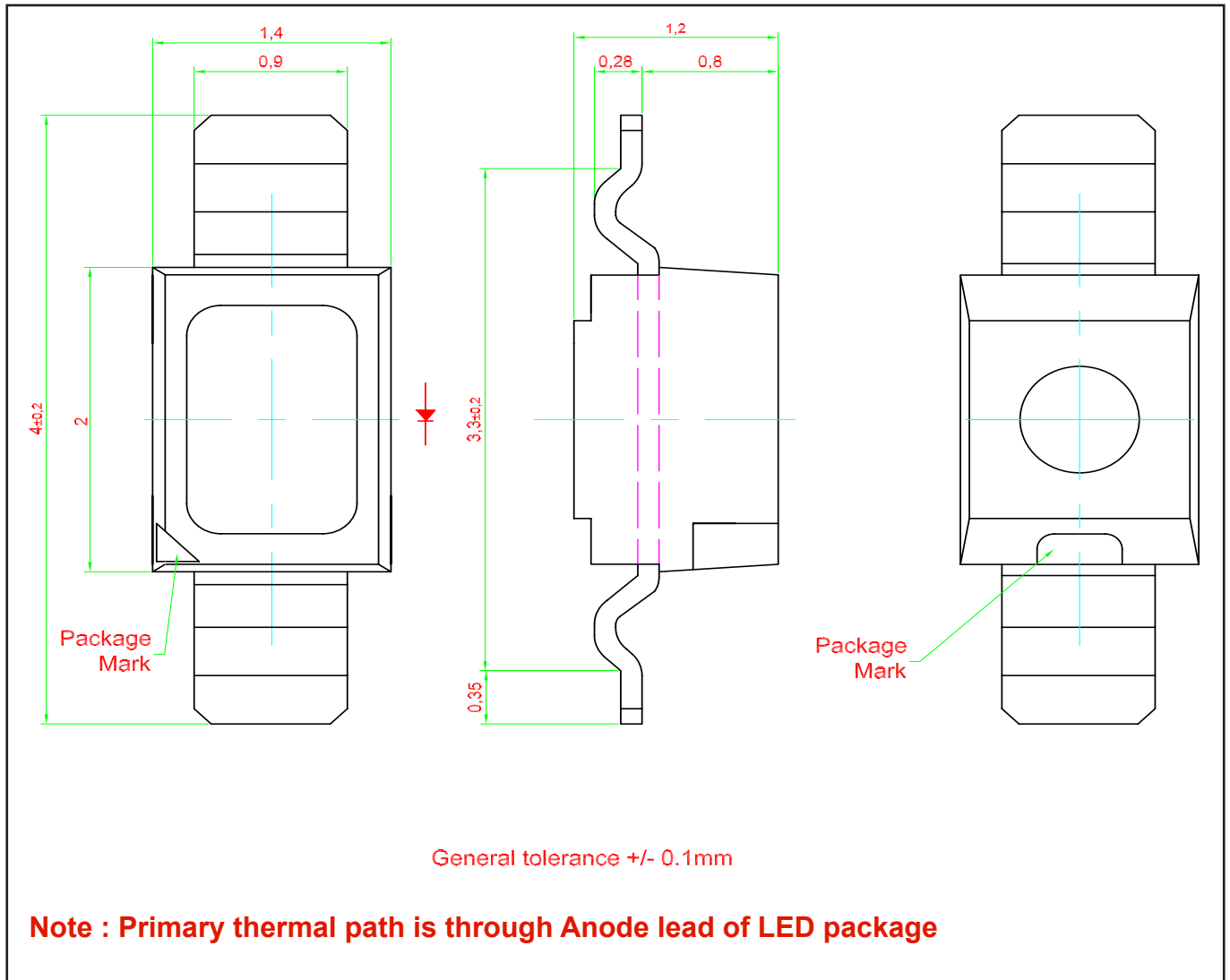


**Relative Wavelength Vs Junction Temperature**

$$\Delta \lambda_{dom} = \lambda_{dom} - \lambda_{dom}(25^\circ\text{C}) = f(T_j); I_F = 20\text{mA}$$



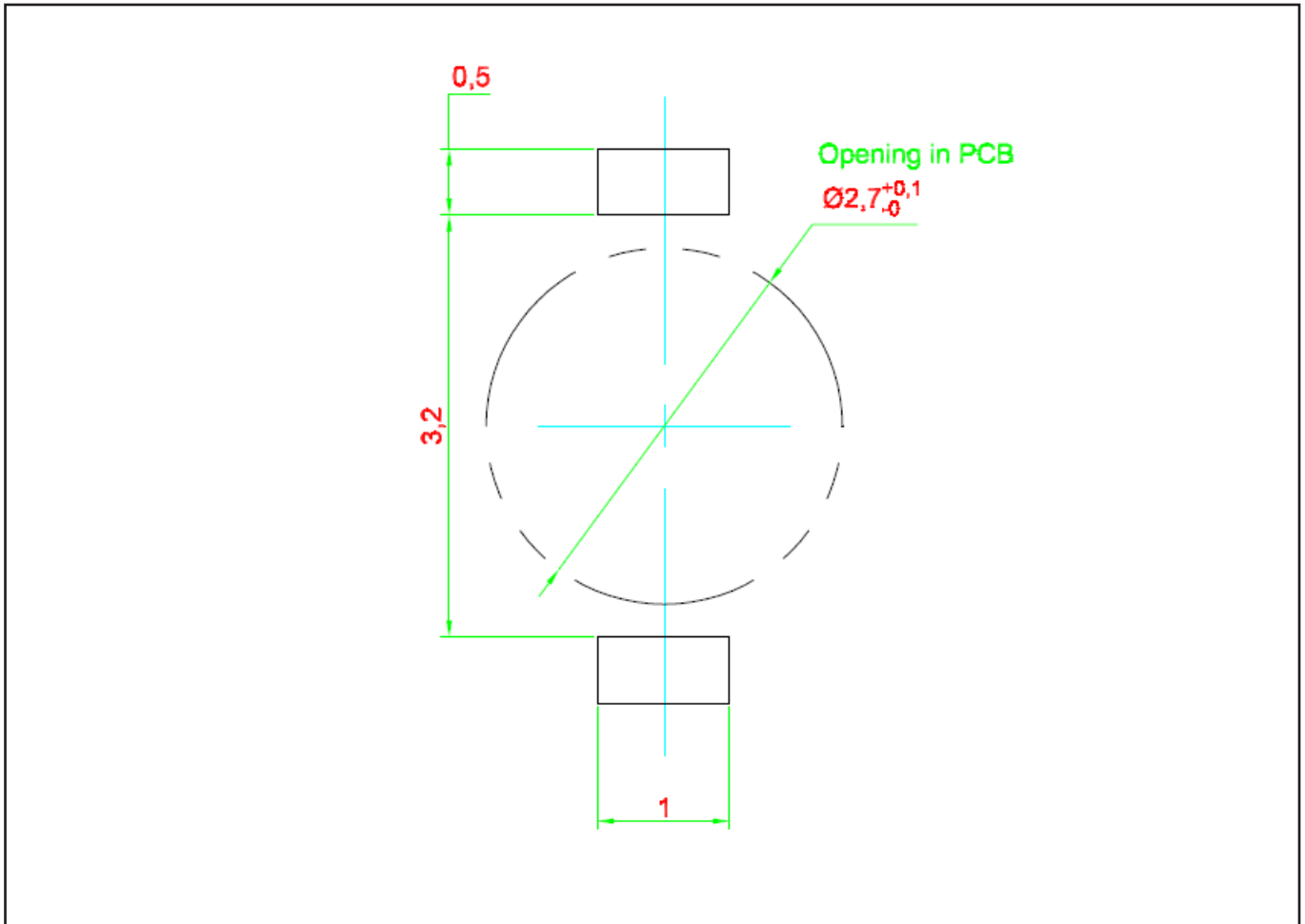
**Mini DomiLED • AllnGaP : DLx-HRS Package Outlines**



**Material**

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

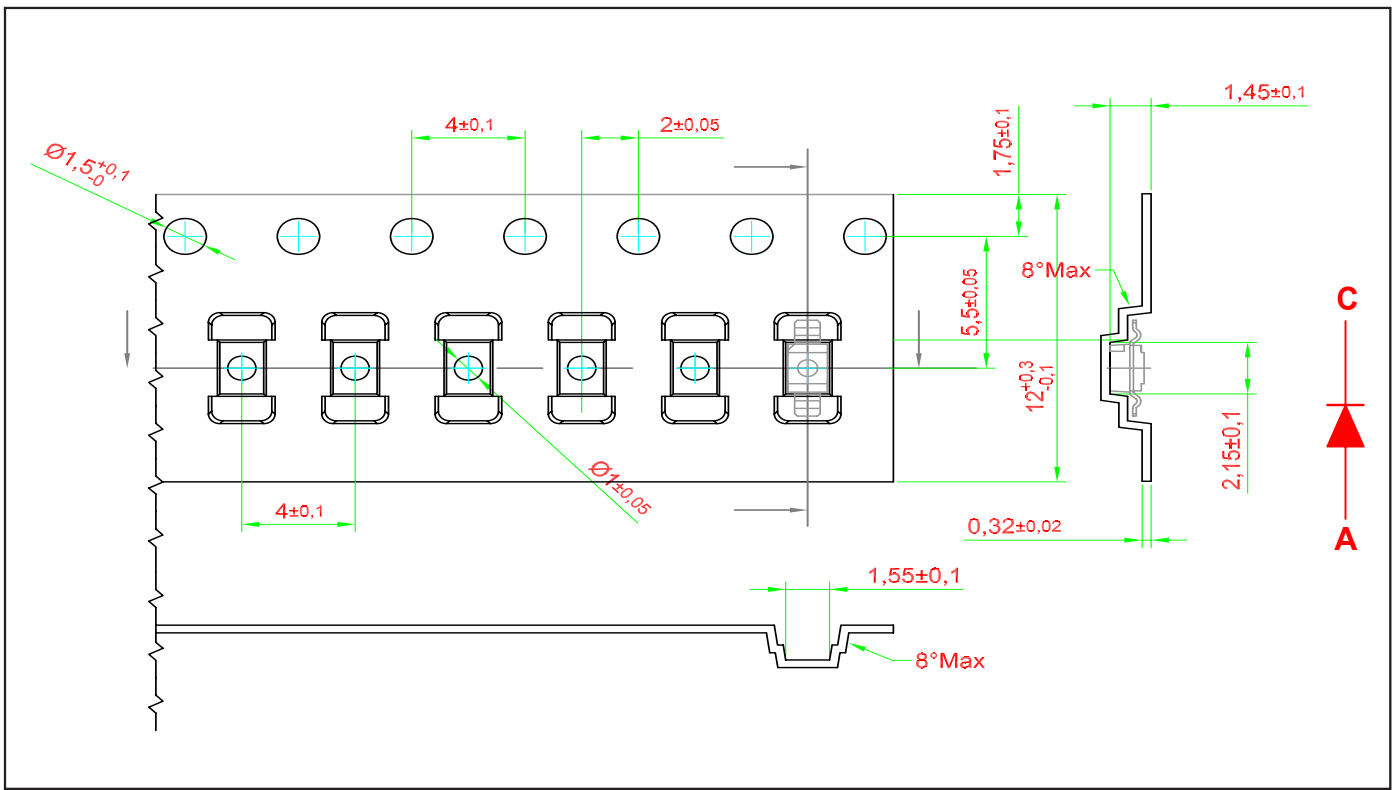
**Recommended Solder Pad**



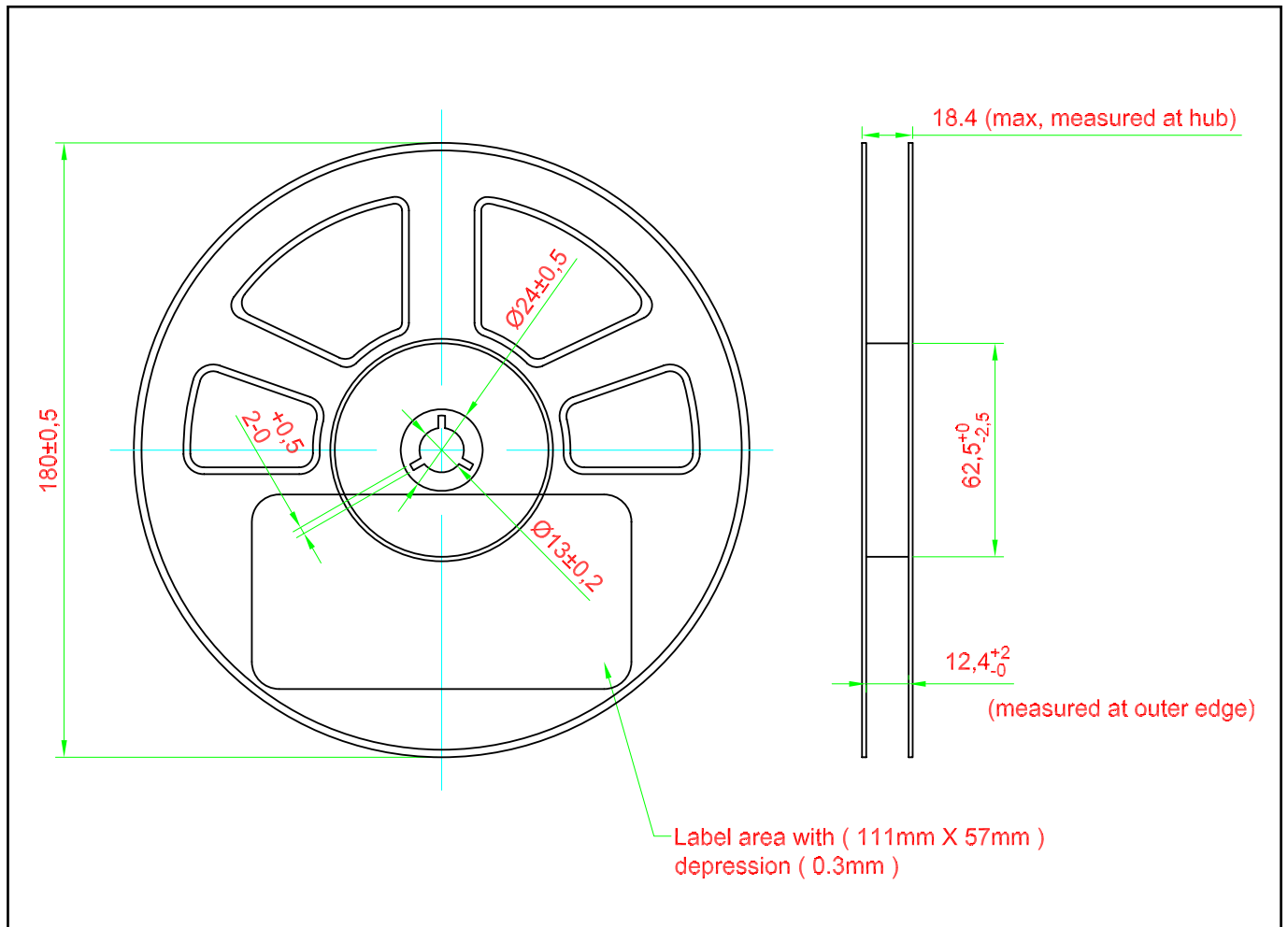


### Taping and orientation

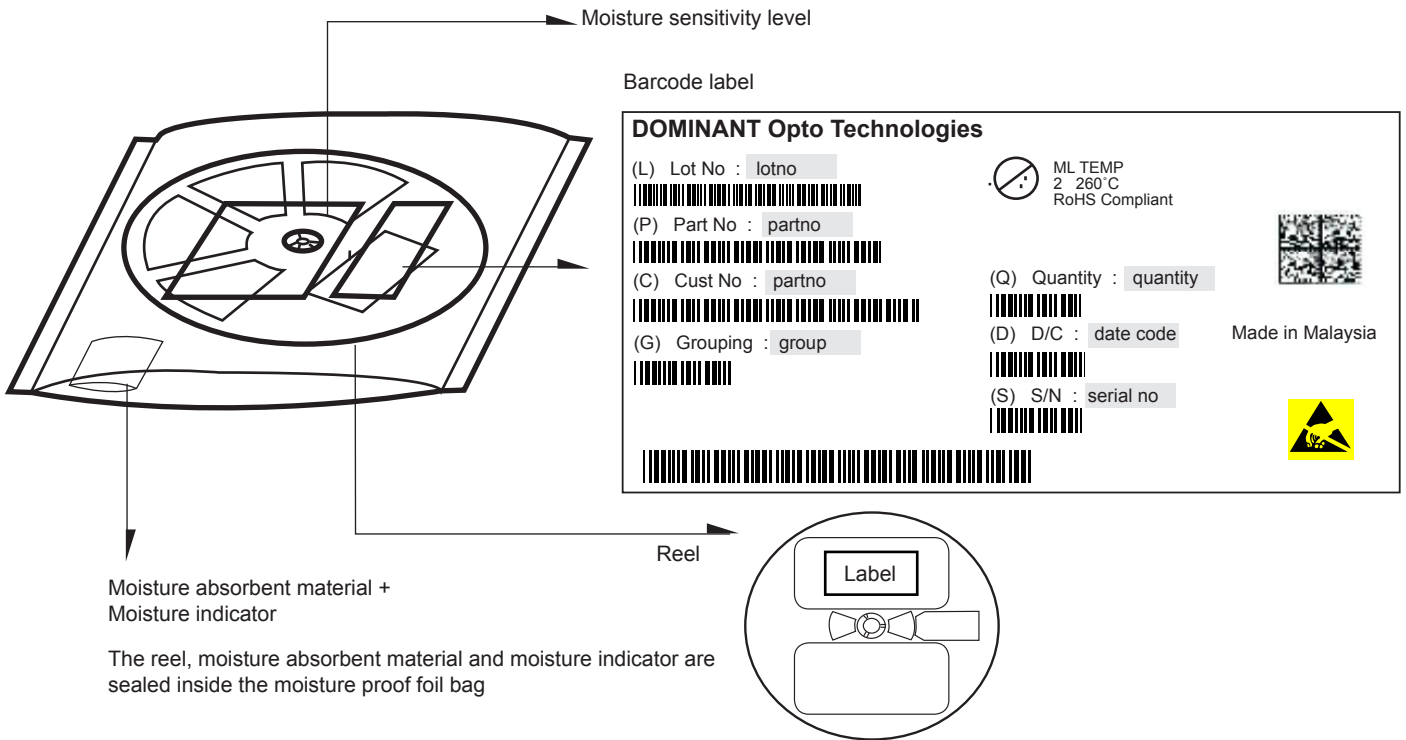
- Reels come in quantity of 3000 units.
- Reel diameter is 180 mm.



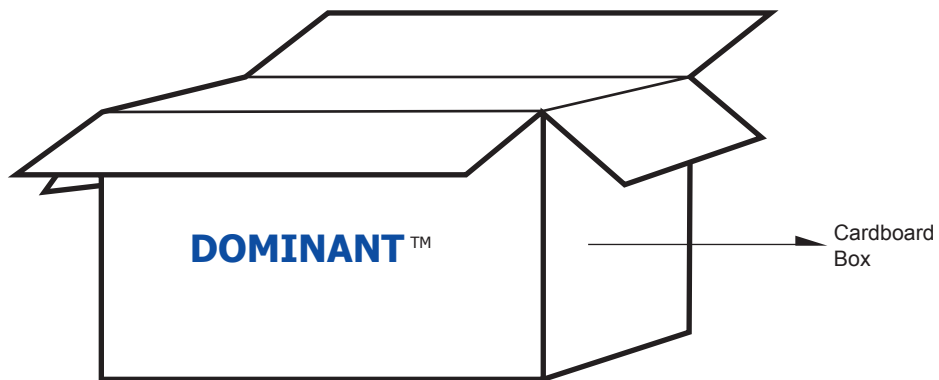
### Packaging Specification



**Packaging Specification**



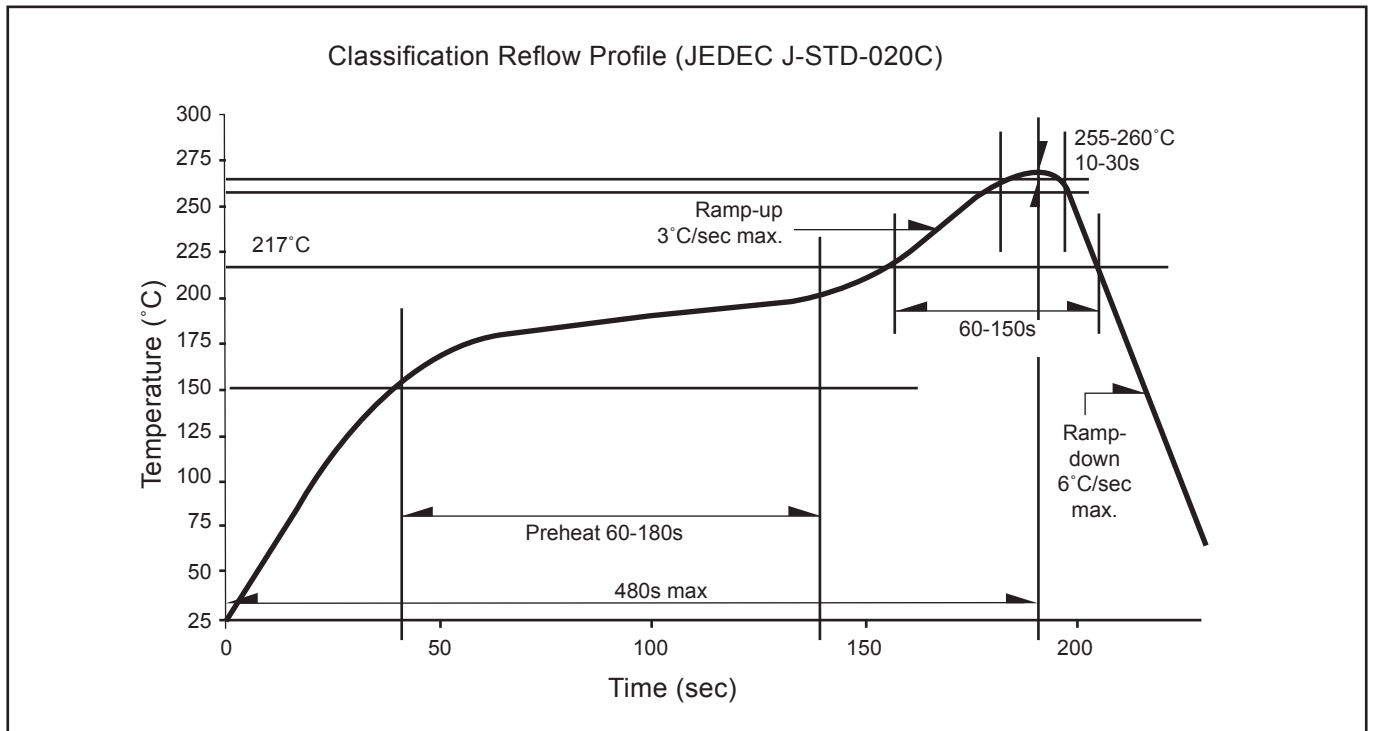
	Average 1pc Mini DomiLED	1 completed bag (3000pcs)
Weight (gram)	0.007	200 ± 10



**For Mini DomiLED**

Cardboard Box Size	Dimensions (mm)	Empty Box Weight (kg)	Reel / Box
Super Small	325 x 225 x 190	0.38	7 reels MAX
Small	325 x 225 x 280	0.54	11 reels MAX
Medium	570 x 440 x 230	1.46	48 reels MAX
Large	570 x 440 x 460	1.92	96 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.

### 7) **Corrosion Robustness:**

- 7.1 Test conditions:  $40\text{ }^\circ\text{C}$  /  $90\%$  rh /  $15\text{ ppm H}_2\text{S}$  /  $336\text{ h}$ .  
= Stricter than IEC 60068-2-43 ( $\text{H}_2\text{S}$ ) [ $25\text{ }^\circ\text{C}$  /  $75\%$  rh /  $10\text{ ppm H}_2\text{S}$  /  $21\text{ days}$ ].

**Revision History**

Page	Subjects	Date of Modification
-	Initial Release	30 Aug 2017
2, 13	Not for New Design: DLS-HRS-UV1-1, DLR-HRS-U2V-1, DLA-HRS-VW1-1, DLO-HRS-VW1-1, DLY-HRS-VW1-1 Update Appendix	06 Aug 2020

**NOTE**

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