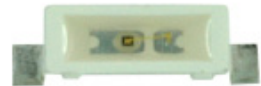


Right Angle DomiLED

High Brightness AlInGaP : DSx-PSS

DomiLED

Synonymous with function and performance, the 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.
- > Designed for sideways illumination.
- > 120° viewing angle.
- > Small package outline.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > Compliance to automotive standard; AEC-Q101.
- > Pass Corrosion Resistant Test. *Appx. 4.1*



Applications:

- > Automotive: interior applications, eg: switches, telematics, climate control system, dashboard, etc.
- > Consumer Appliances: LCD illumination as in PDAs, LCD TV.
- > Display: full color display video notice board.
- > Industry: white goods (eg: Oven, microwave, etc.).

Optical Characteristics at Tj=25°C

Part Number	Color	Viewing Angle°	Luminous Intensity @ IF = 20mA IV (mcd) Appx. 1.1		
			Min.	Typ.	Max.
● DSA-PSS-VW1-1	Amber, 615nm	120	715.0	1050.0	1400.0
● DSA-PSS-V2W-1	Amber, 615nm	120	900.0	1350.0	1800.0
● DSY-PSS-VW1-1	Yellow, 587nm	120	715.0	1050.0	1400.0
● Not for new design					

Electrical Characteristics at Tj=25°C

Part Number	Vf @ If = 20mA Appx. 3.1			Vr @ Ir = 10uA Appx. 6.1
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
DSx-PSS	1.8	2.1	2.5	12

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	50	mA
Peak pulse current; (tp ≤ 10μs, Duty cycle = 0.005)	200	mA
Reverse voltage Appx. 6.1	12	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 (Rated current = 20mA, Ts = 25 °C)		
- Real Thermal Resistance		
Junction / ambient, Rth JA real	520	K/W
Junction / solder point, Rth JS real	280	K/W
- Electrical Thermal Resistance		
Junction / ambient, Rth JA el	340	K/W
Junction / solder point, Rth JS el	180	K/W

Wavelength Grouping at Tj=25°C

Color	Group	Wavelength distribution (nm) <i>Appx. 2.2</i>
DSA; Amber	Full	610 - 621
	W	610 - 615
	X	615 - 621
DSY; Yellow	Full	582 - 594
	W	582 - 585
	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)
V1	715.0 ... 900.0
V2	900.0 ... 1125.0
W1	1125.0 ... 1400.0
W2	1400.0 ... 1800.0

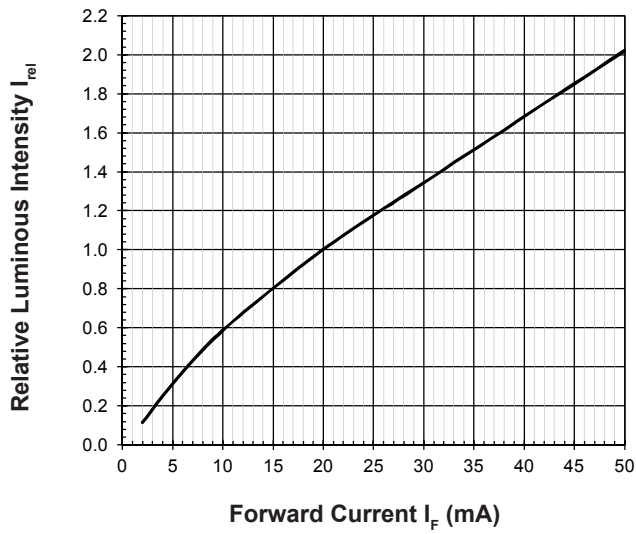
Vf Bining (Optional)

Vf @ If = 20mA	Forward Voltage (V) <i>Appx. 3.1</i>
V1	1.80 ... 1.95
V2	1.95 ... 2.10
V3	2.10 ... 2.25
V4	2.25 ... 2.40
V5	2.40 ... 2.55

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

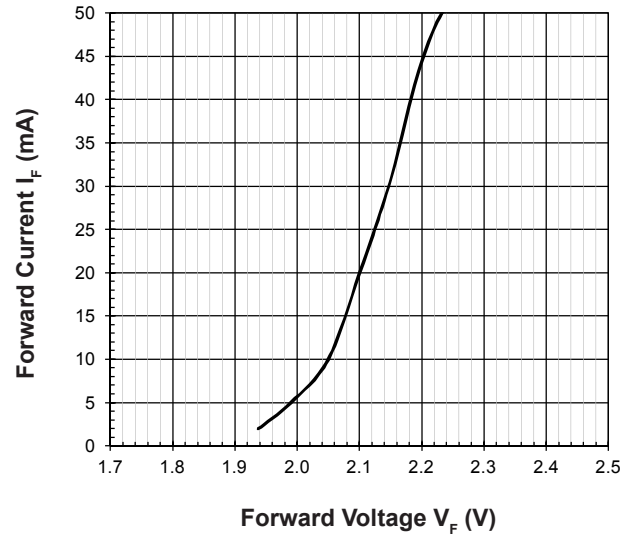
Relative Luminous Intensity Vs Forward Current Appx. 4.1

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



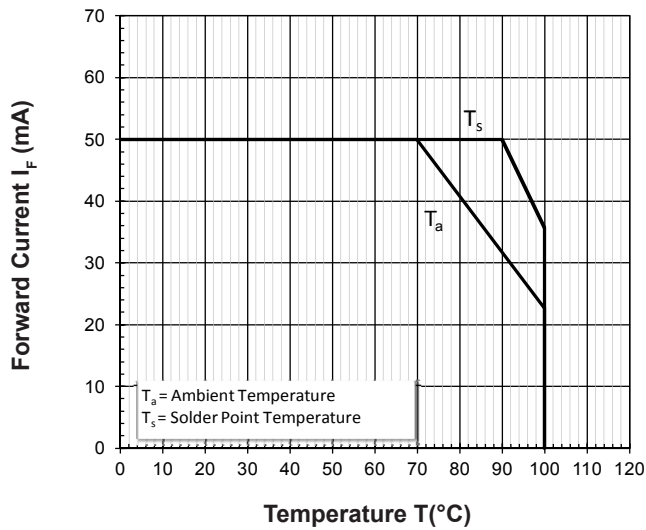
Forward Current Vs Forward Voltage Appx. 4.1

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



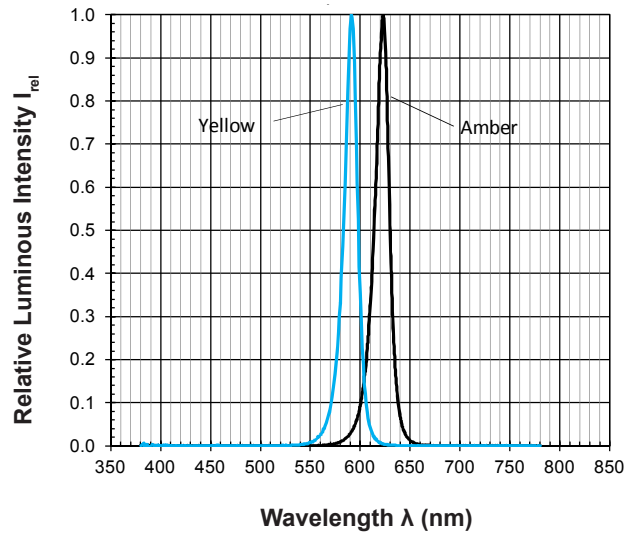
Maximum Current Vs Temperature

$$I_F = f(T)$$



Relative Spectral Emission Appx. 4.1

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

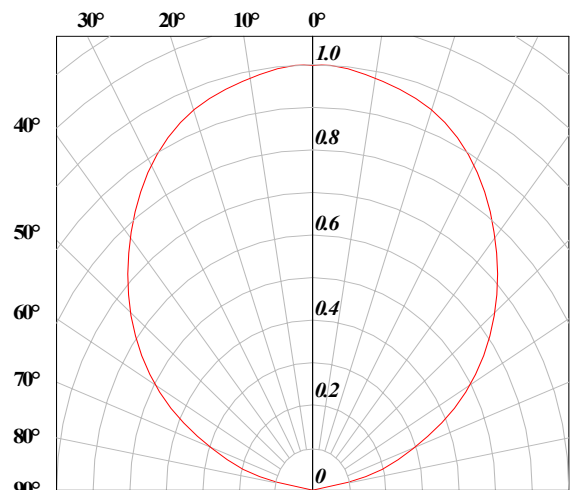


Allowable Forward Current Vs Duty Ratio

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

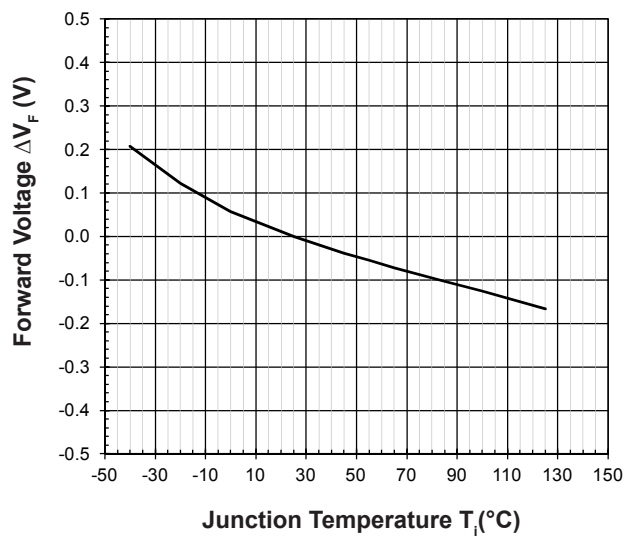


Radiation Pattern Appx. 4.1



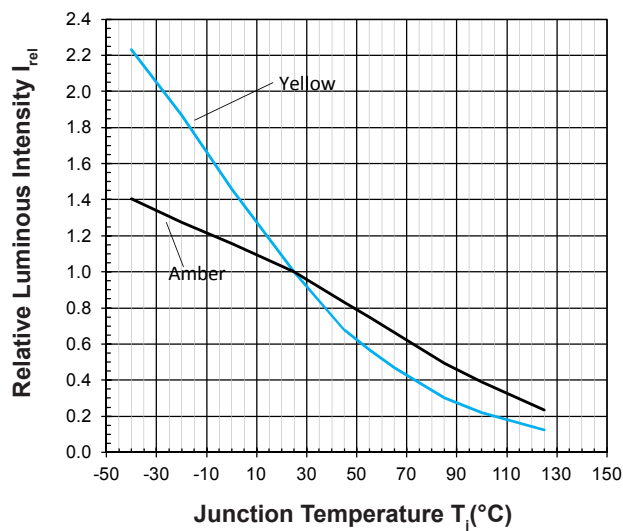
Forward Voltage Vs Junction Temperature *Appx. 4.1*

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



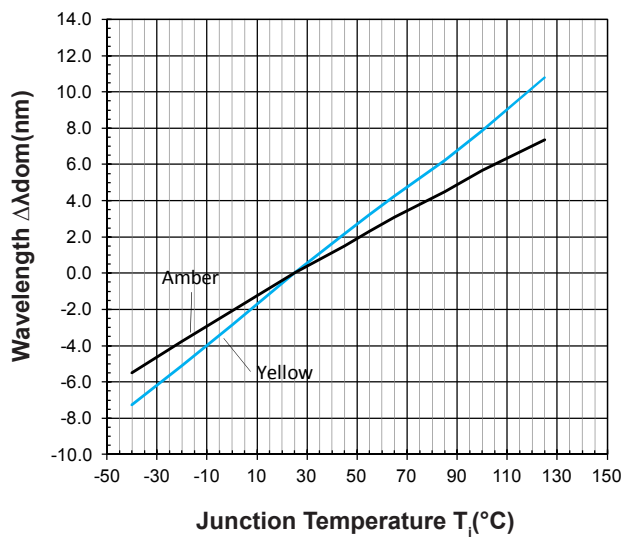
Relative Luminous Intensity Vs Junction Temperature *Appx. 4.1*

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

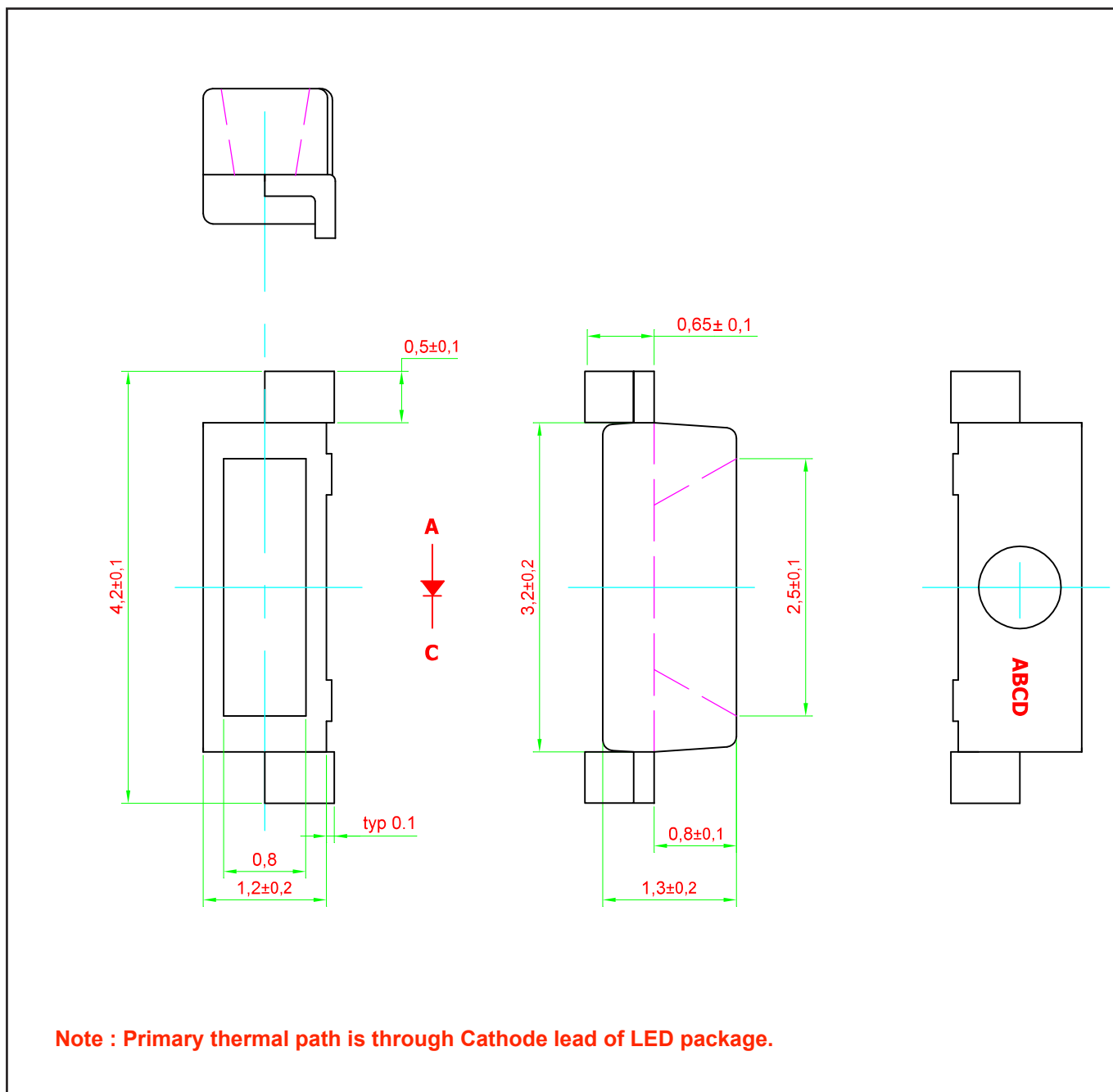


Wavelength Vs Junction Temperature *Appx. 4.1*

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



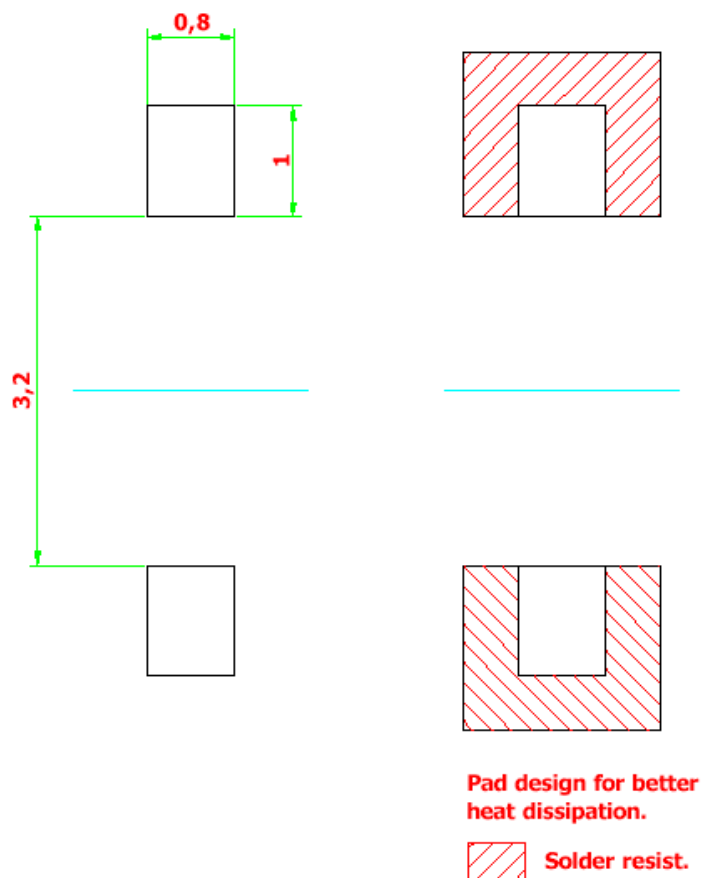
Right Angle DomiLED • AlInGaP : DSx-PSS Package Outlines Appx. 5.1



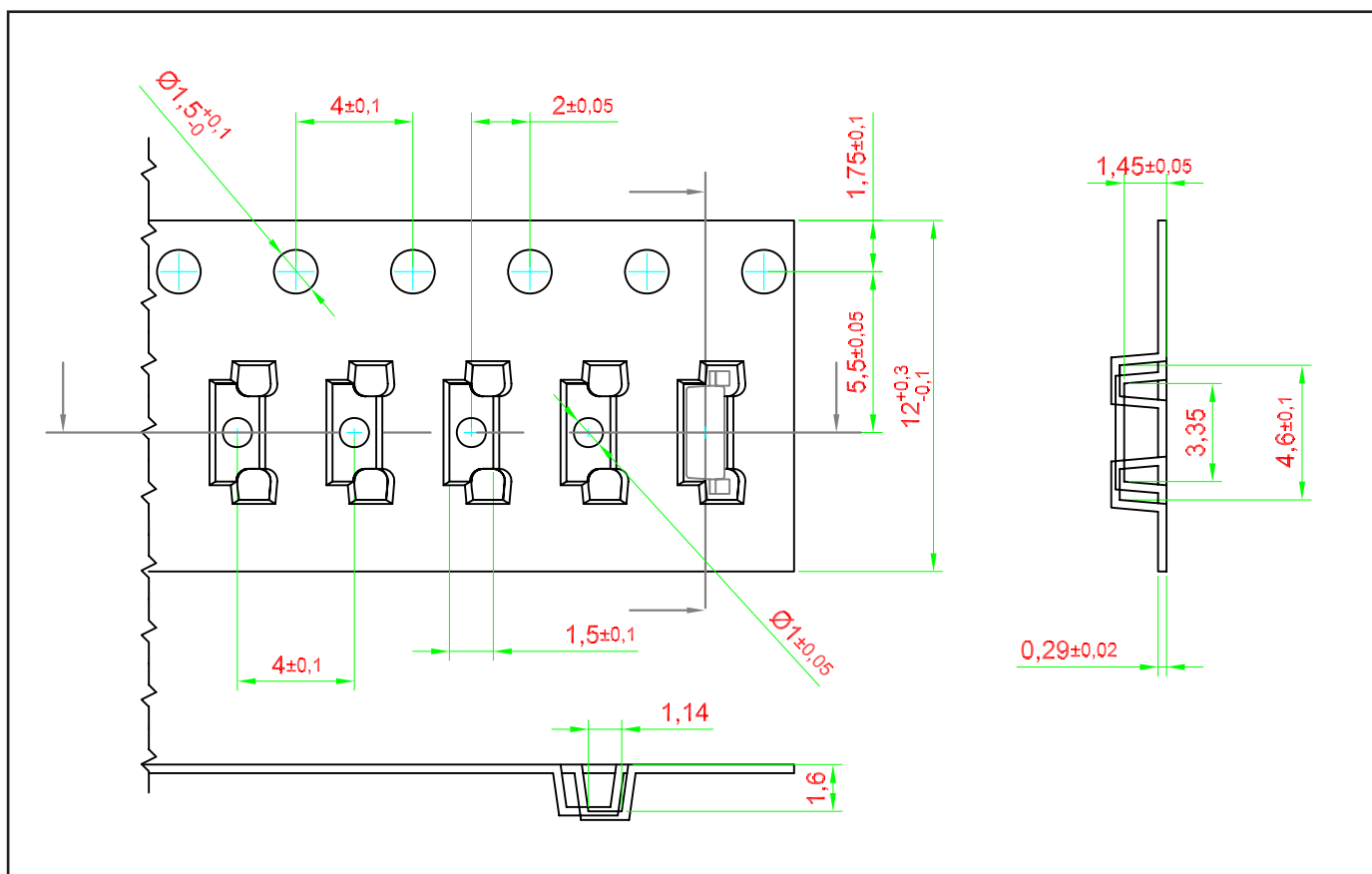
Material

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

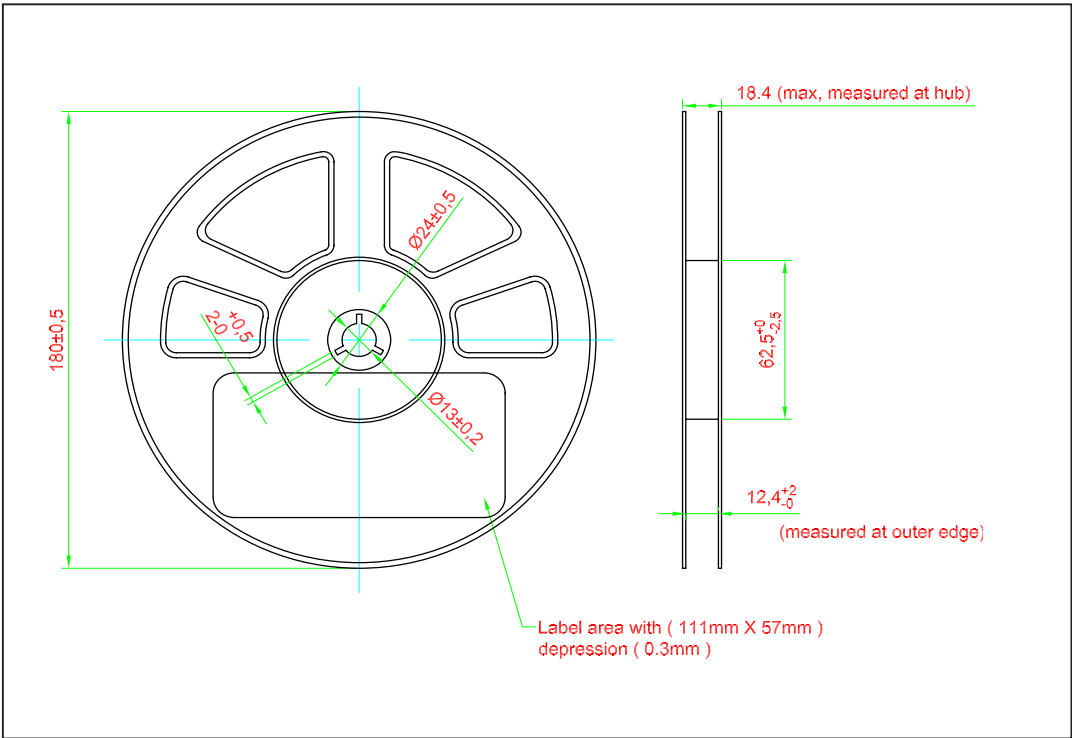
Recommended Solder Pad Appx. 5.1



Taping and orientation Appx. 5.1



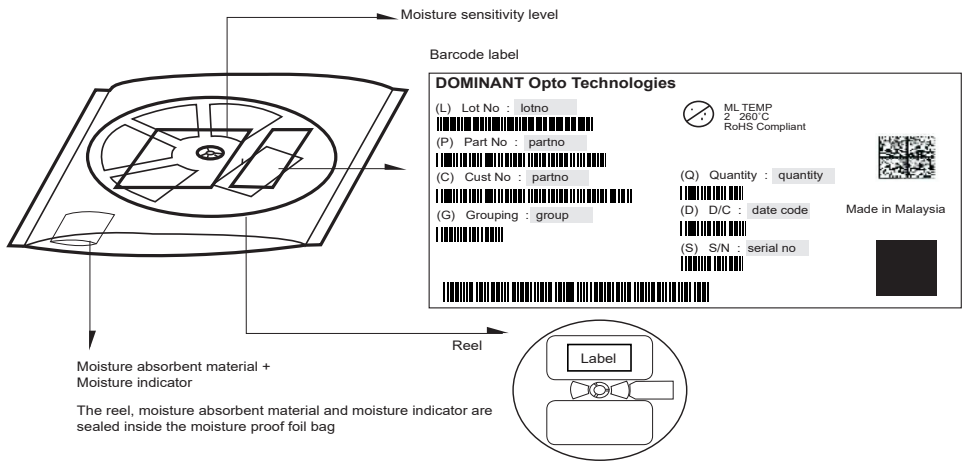
Packaging Specification



	Reel Diameter (mm)	Quantity (pcs)	*Ordering Number
Standard Packing	180	2500	DSx-PSS-xxx-x

Notes:
* For ordering purpose only. Please consult sales and marketing for details.

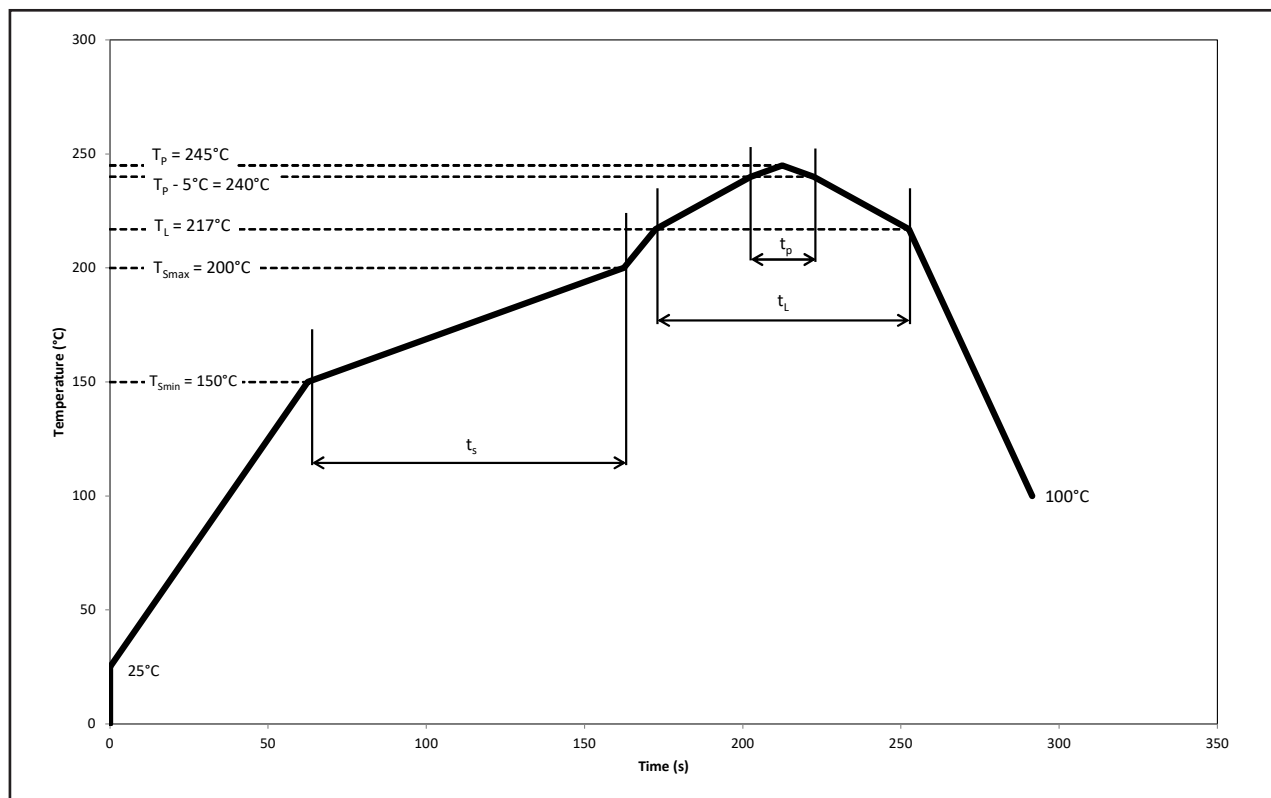
Packaging Specification



Quantity per bag (pcs)	Average 1pc Right Angle DomiLED (g)	1 completed bag (g)
2500	0.010	240 ± 10

Recommended Pb-free Soldering Profile

Product complies to MSL Level 2 acc. to JEDEC J-STD-020E



Profile Feature	Symbol	Pb-Free Assembly			Unit
		Min.	Recommended	Max.	
Ramp-up rate to preheat 25°C to T _{smin}	-	-	2	3	°C/s
Time t _s T _{smin} to T _{smax}	t _s	60	100	120	s
Ramp-up rate to peak T _L to T _P	-	-	2	3	°C/s
Liquidous temperature	T _L	-	217	-	°C
Time above liquidous temperature	t _L	60	80	150	s
Peak temperature	T _P	-	245	260	°C
Time within 5°C of the specified peak temperature T _P - 5°C	t _p	10	20	30	s
Ramp-down rate T _P to 100°C	-	-	3	6	°C/s
Time 25°C to T _P	-	-	-	480	s

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 ± 0.005 and an expanded uncertainty of ± 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 Due to the specific conditions of semiconductor devices' manufacturing processes, the provided typical data and calculated correlations of technical parameters should only be considered as statistical values. It is important to note that the actual parameters of individual devices may deviate from these typical data, calculated correlations or the typical characteristic line. Dominant reserves the right to update this typical data without prior notice, particularly in response to technical enhancements.

5) **Tolerance of Measure**

- 5.1 Unless otherwise noted in drawing, tolerances are specified with ± 0.1 and dimension are specified in mm.

6) **Reverse Voltage:**

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

Revision History

Page	Subjects	Date of Modification
1, 2, 5, 7, 9	Add Features Add Notes in Packaging Outline Update Carrier Tape Update Packaging Specification	10 Mar 2016
1, 2, 3, 4, 5, 6, 12	Update Features Add Electrical Thermal Resistance Add Vf Binning (Optional) Update Package Outline Update Graph Add Appendix	25 Aug 2016
1	Update Product Photo	02 Mar 2017
1, 5, 10, 12	Update Product Photo Update Graph: - Relative Forward Voltage Vs Junction Temperature - Relative Luminous Intensity Vs Junction Temperature - Relative Wavelength Vs Junction Temperature Update Packaging Specification Update Appendix	08 Nov 2018
2, 4	Update Thermal Resistance Update Graph: Allowable Forward Current Vs Duty Ratio	05 Mar 2019
2	Not for New Design: DSA-PSS-V2W-1, DSY-PSS-VW1-1	10 Jun 2020
6, 9, 10, 11	Update Package Outline Update Packaging Specification Update Recommended Pb-free Soldering Profile	10 Jul 2025

NOTE

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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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