

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.
- > Passed Corrosion Resistant Test. *Appx. 7.1*



Applications:

- > Automotive:
Interior applications, eg: switches, telematics, climate control system, dash board, 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		
			Min.	Typ.	Max.
● DSB-DSS-ST2-1	Blue, 470nm	120	180.0	220.0	450.0
● DST-DSS-WX1-1	True Green, 525nm	120	1125.0	1700.0	2240.0
● DST-DSS-VW1-1	True Green, 525nm	120	715.0	950.0	1400.0
● Not for new design					

Electrical Characteristics at Tj=25°C

Part Number	Min. (V)	Vf @ If = 20mA <i>Appx. 3.1</i>			Vr @ Ir = 10uA Min. (V)
		Typ. (V)	Max. (V)		
DSx-DSS	2.9	3.2	3.8		5.0

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	20	mA
Peak pulse current; (tp ≤ 10μs, Duty cycle = 0.005)	100	mA
Reverse voltage; Ir (max) = 10uA	5	V
ESD threshold (HBM)	1000	V
LED junction temperature	120	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +100	°C
Power dissipation (at room temperature)	80	mW
Thermal resistance		
- Junction / ambient, Rth JA	460	K/W
- Junction / solder point, Rth JS	240	K/W

Wavelength Grouping

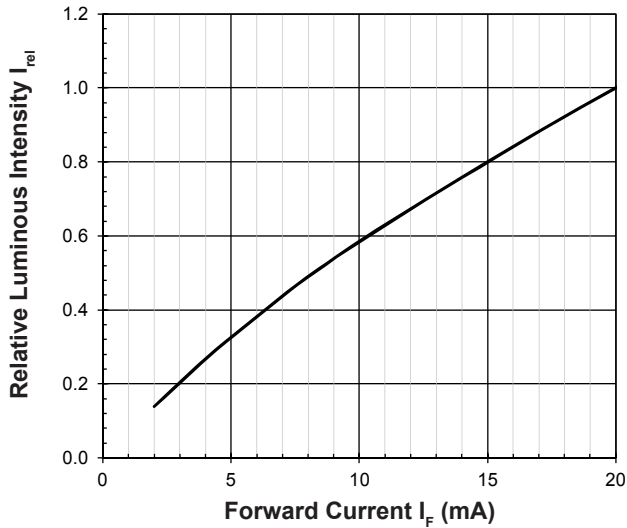
Color	Group	Wavelength distribution (nm) Appx. 2.2
DSB;Blue	Full	465 - 475
	A	465 - 470
	B	470 - 475
DST; True Green	Full	520 - 535
	A	520 - 525
	B	525 - 530
	C	530 - 535

Luminous Intensity Group at Tj=25°C

Brightness Group	Luminous Intensity Appx. 1.1 IV (mcd)
S1	180.0 ... 224.0
S2	224.0 ... 285.0
T1	285.0 ... 355.0
T2	355.0 ... 450.0
V1	715.0 ... 900.0
V2	900.0 ... 1125.0
W1	1125.0 ... 1400.0
W2	1400.0 ... 1800.0
X1	1800.0 ... 2240.0

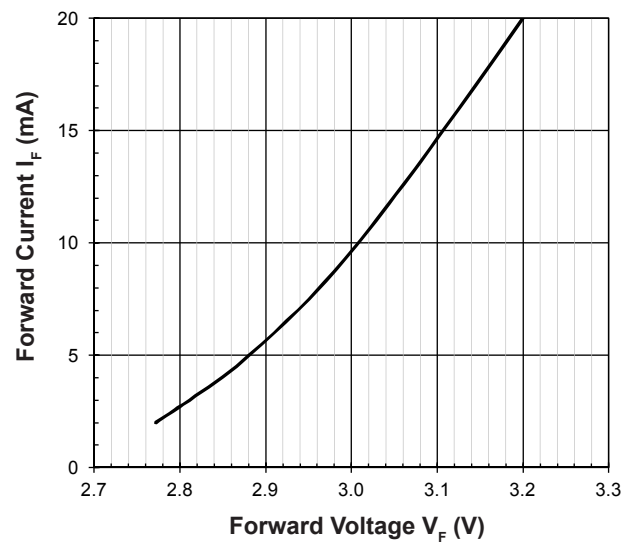
Relative Luminous Intensity Vs Forward Current Appx. 4.1

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



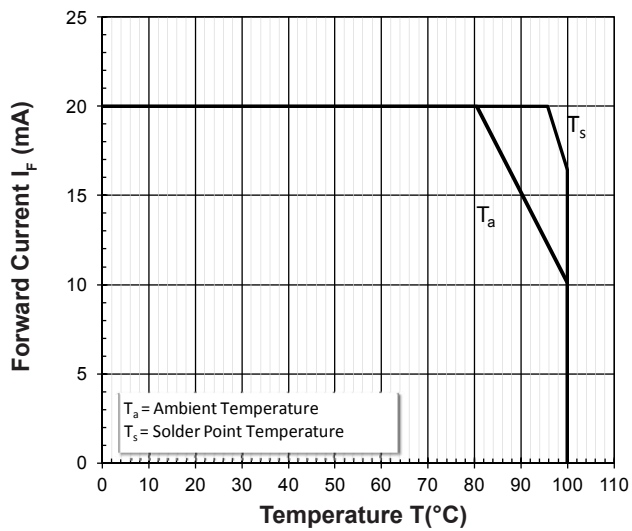
Forward Current Vs Forward Voltage Appx. 4.1

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



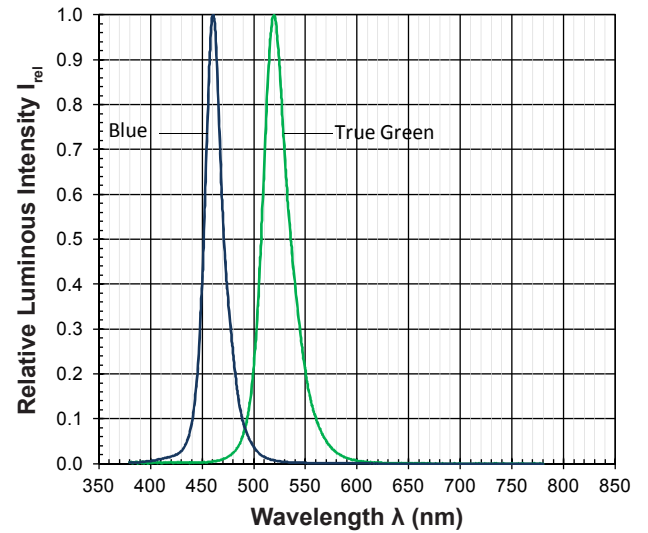
Maximum Current Vs Temperature

$$I_F = f(T)$$



Relative Spectral Emission Appx. 4.1

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



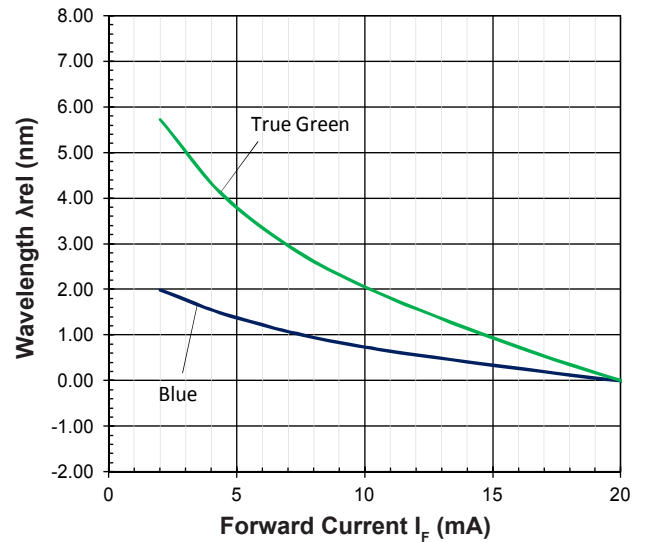
Allowable Forward Current Vs Duty Ratio

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

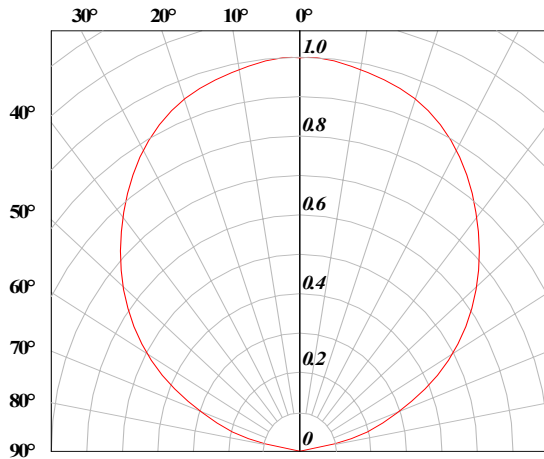


Wavelength Shift Vs Forward Current Appx. 4.1

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

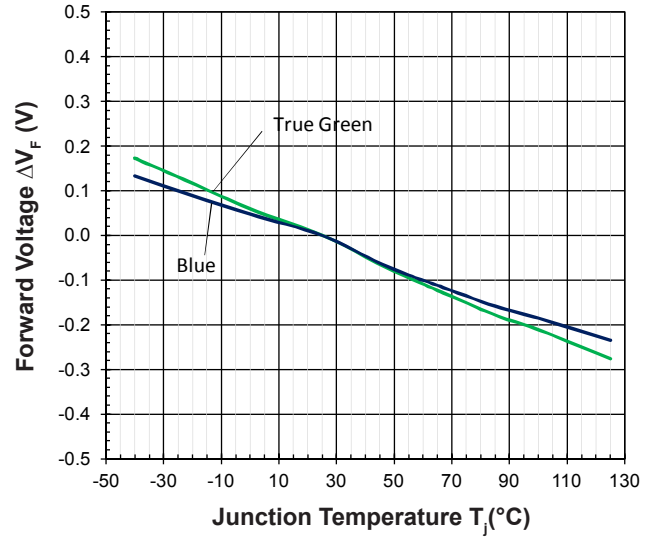


Radiation Pattern Appx. 4.1



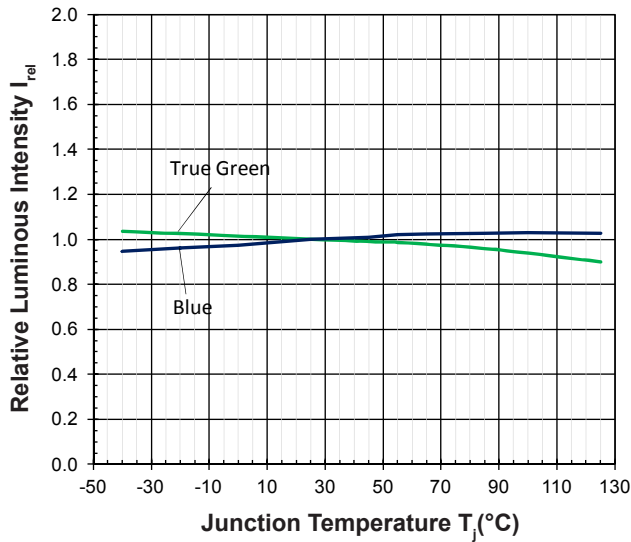
Forward Voltage Vs Junction Temperature Appx. 4.1

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



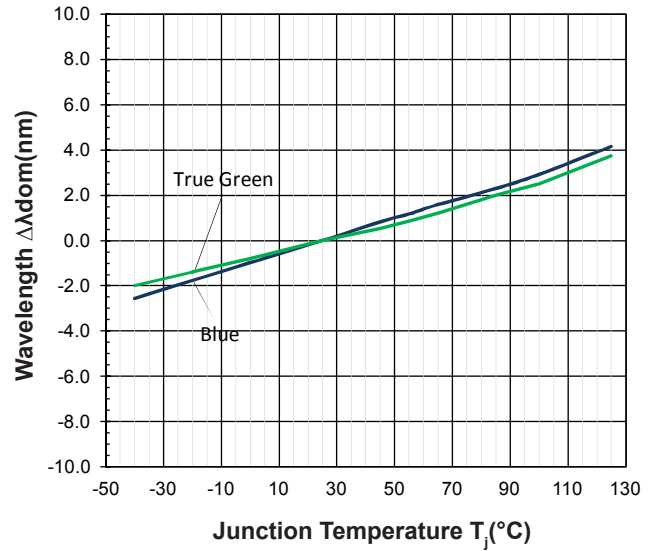
Relative Luminous Intensity Vs Junction Temperature Appx. 4.1

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

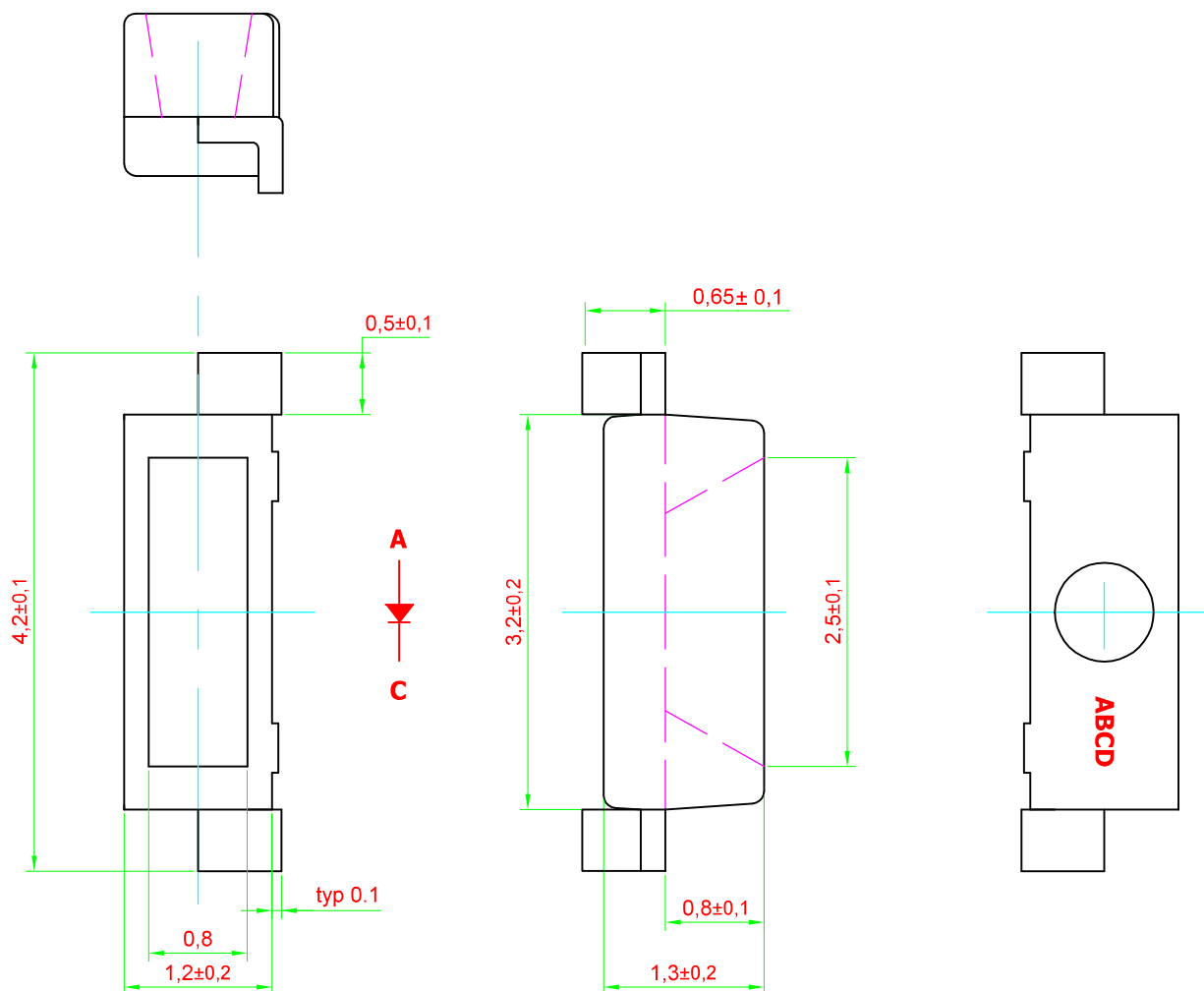


Wavelength Vs Junction Temperature Appx. 4.1

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



Right Angle DomiLED • InGaN : DSx-DSS Package Outlines Appx. 5.1

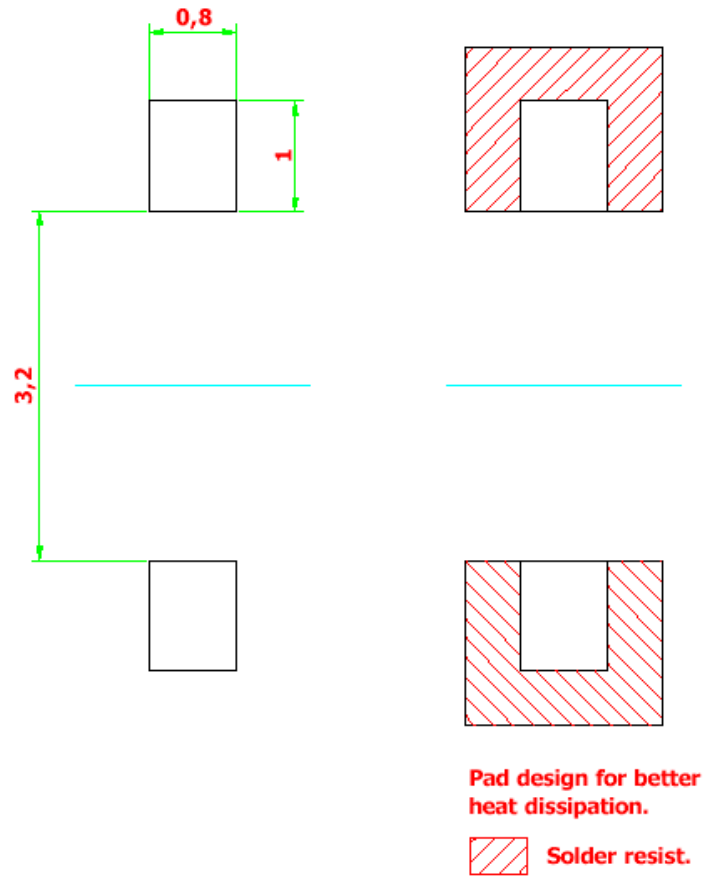


Note : Primary thermal path is through Cathode lead of LED package.

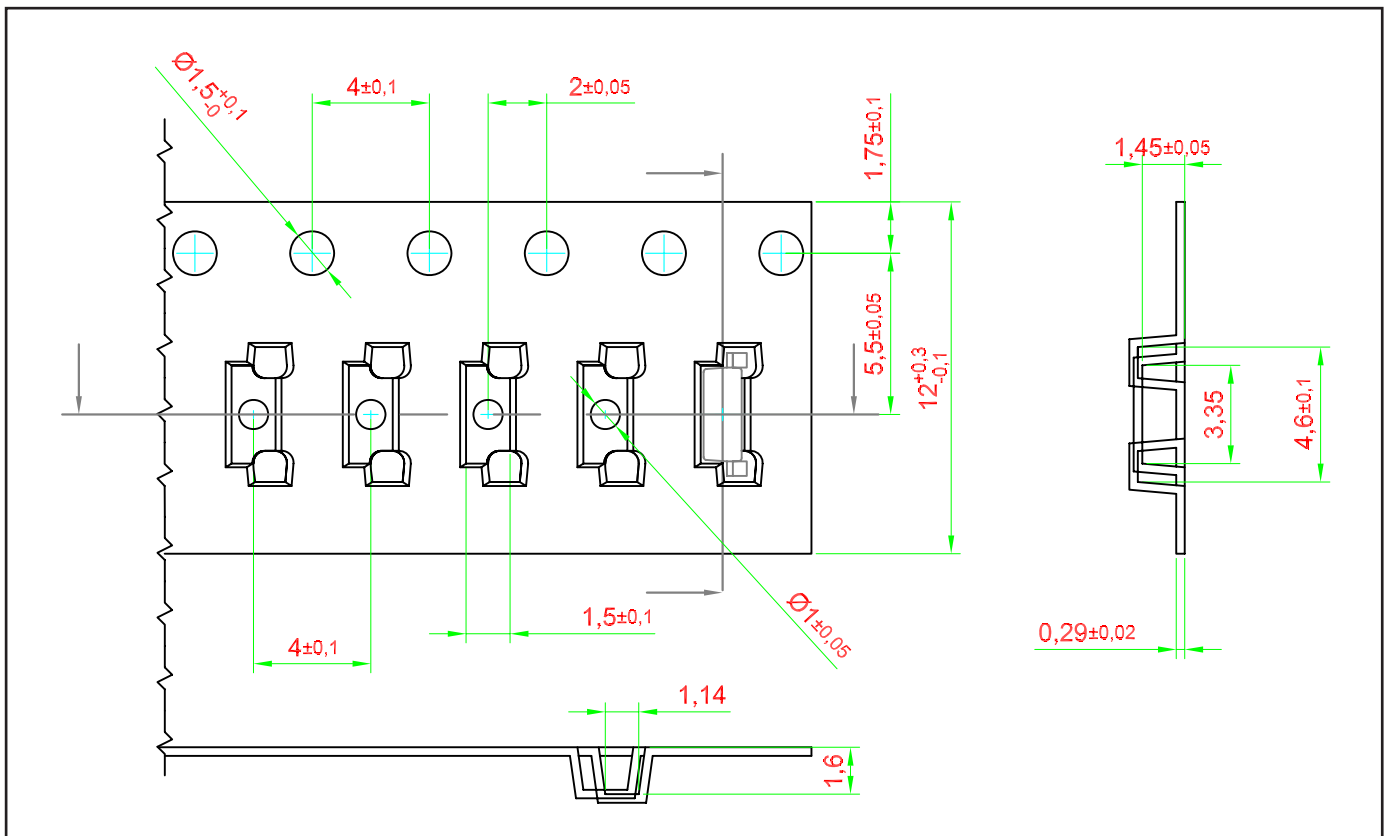
Material

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

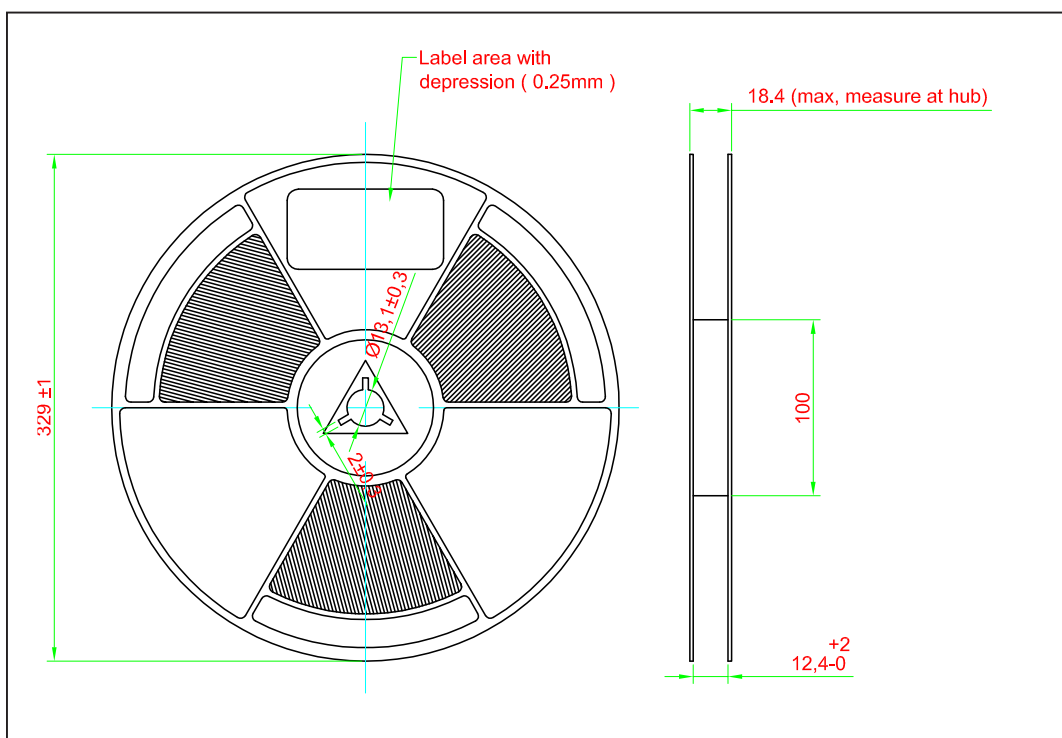
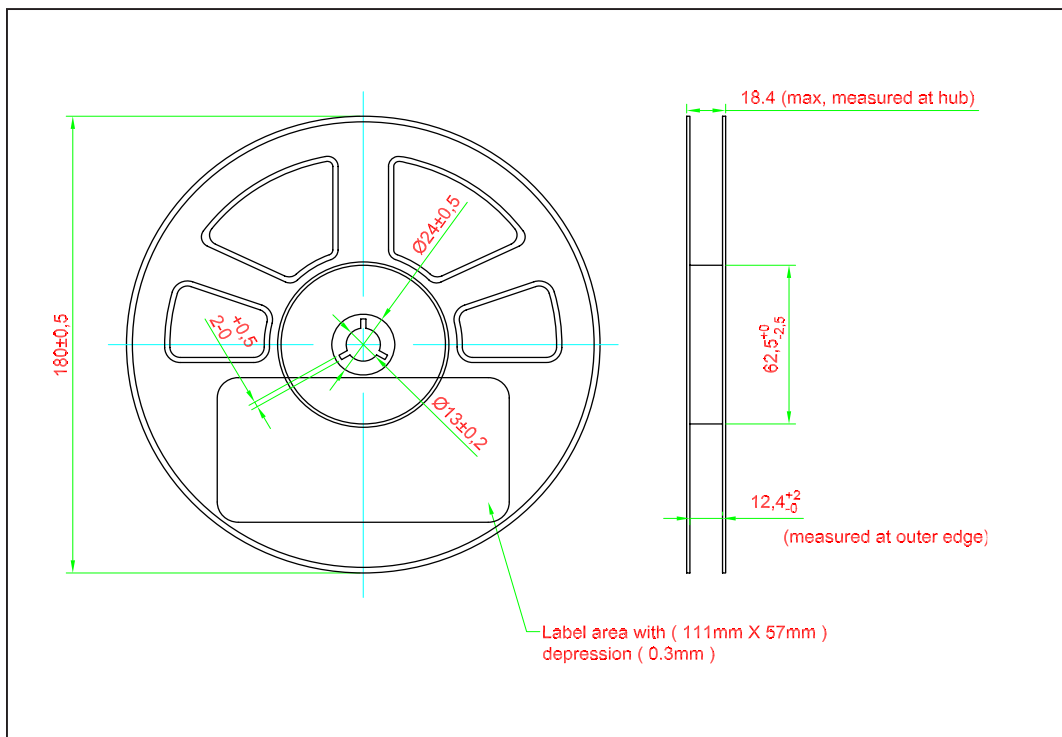
Recommended Solder Pad Appx. 5.1



Taping and orientation *Appx. 5.1*



Packaging Specification

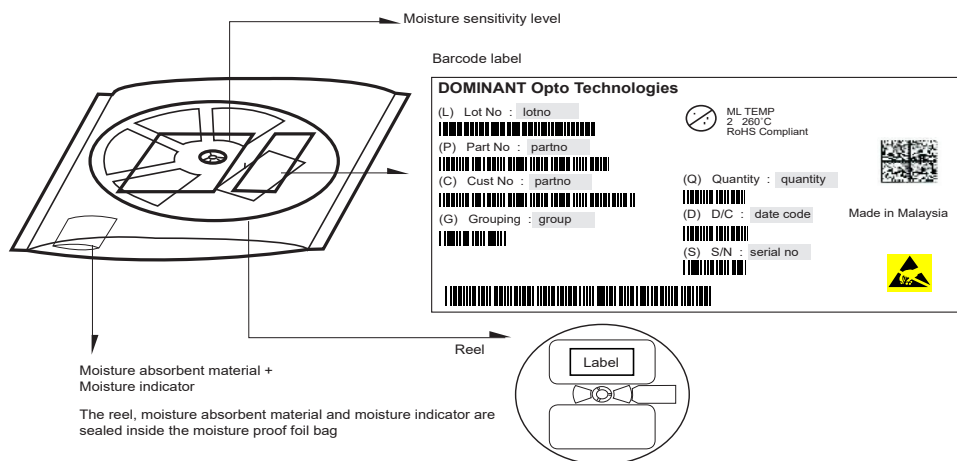


	Reel Diameter (mm)	Quantity (pcs)	*Ordering Number
Standard Packing	180	2500	DSx-DSS-xxx-x
Optional Packing	329	9000	DSx-DSS-xxx-x-9

Notes:

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

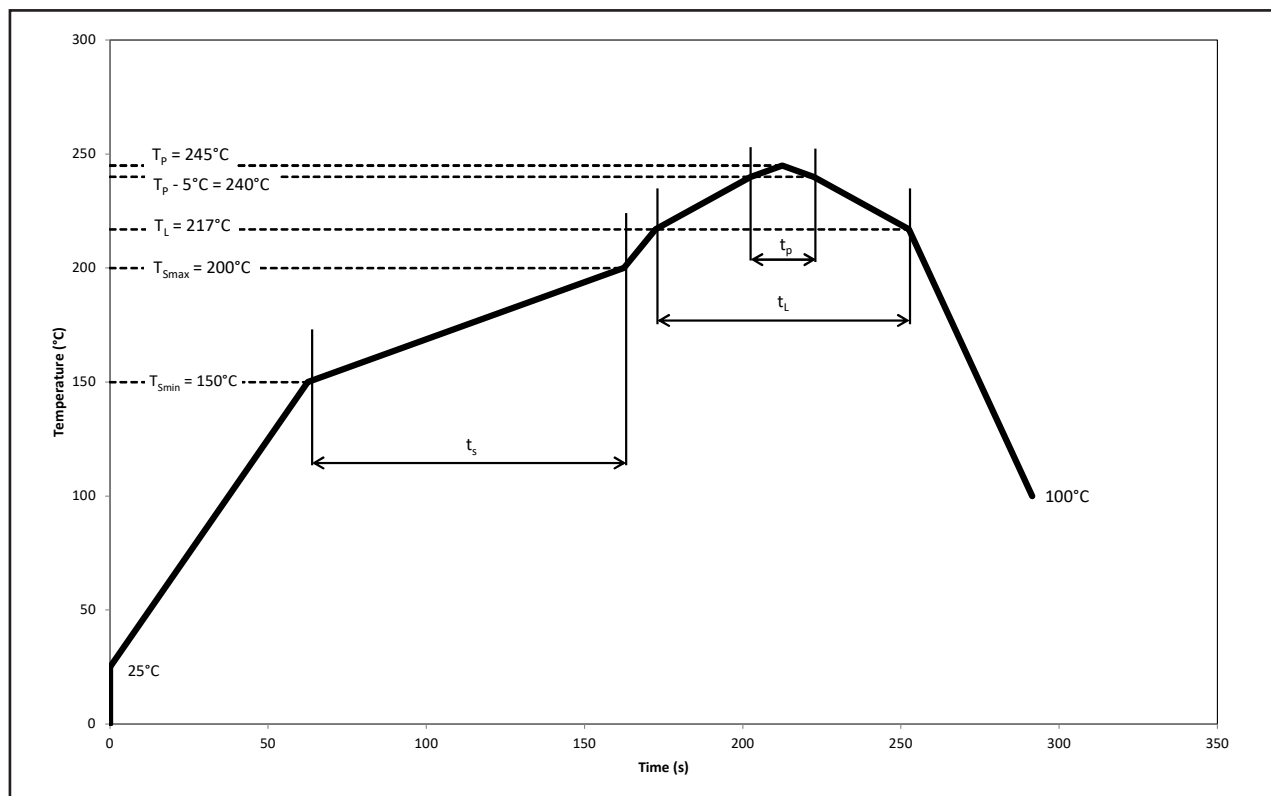
Packaging Specification



Quantity per bag (pcs)	Average 1pc Right Angle DomiLED (g)	1 completed bag (g)
2500	0.010	240 ± 10
9000	0.010	520 ± 10

Recommended Pb-free Soldering Profile

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



Profile Feature	Symbol	Min.	Pb-Free Assembly		Unit
			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 $T_p - 5^\circ\text{C}$	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.

7) Corrosion Robustness:

- 7.1 Test conditions: 40°C / 90% rh / $15 \text{ ppm H}_2\text{S}$ / 336 h .
= Stricter than IEC 60068-2-43 (H_2S) [25°C / 75% rh / $10 \text{ ppm H}_2\text{S}$ / 21 days].

Revision History

Page	Subjects	Date of Modification
-	Initial release	04 Aug 2010
1, 9	Update product photo Error in carrier tape	21 Jun 2012
1	Update Application	13 Sep 2013
2	Add new partno: DST-DSS-WX1-1 Add Thermal Resistance	25 Oct 2013
1, 6, 8, 10	Add Fetures Add Notes in Packaging Outline Update Carrier Tape Update Packaging Specification	10 Mar 2016
5, 6, 7, 13	Update Features Update Graph Update Package Outline Add Appendix	03 Oct 2016
2, 10, 11, 12, 13	Not for New Design: DSB-DSS-ST2-1, DST-DSS-WX1-1, DST-DSS-VW1-1 Update Packaging Specification Update Recommended Pb-free Soldering Profile Update Appendix	20 Jun 2022
7, 11	Update Package Outline Update Packaging Specification	10 Jul 2025

NOTE

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Dispose of product is in accordance with local, regional, national and international regulations.

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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