

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-Q102.
- > Superior Corrosion Resistant.



Applications:

- > Automotive:

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

Exterior application: eg: Turn Signal, Rear Combination Lamp (RCL), Center High Mounted Stop Lamp (CHMSL).

Optical Characteristics at Tj=25°C

Part Number	Color	Viewing Angle°	Luminous Flux <i>Appx. 1.2</i> IF = 40mA IV (lm)			Luminous Intensity <i>Appx. 1.1</i> IF = 40mA IV (mcd)
			Min.	Typ.	Max.	Typ.
DSS-MHS-E3G2-3	Super Red, 635 nm	120	2.47	3.22	4.20	1100
DSS-MHS-FG3-2	Super Red, 630 nm	120	2.82	3.68	4.90	1300
DSA-MHS-HJ3-4	Amber, 625 nm	120	4.90	6.30	8.20	2100
DSA-MHS-H3K2-2	Amber, 617 nm	120	5.50	7.15	9.35	2400
DSY-MHS-H3K2-4	Yellow, 592 nm	120	5.50	7.15	9.35	2400
DSY-MHS-HJ3-3	Yellow, 589 nm	120	4.90	6.30	8.20	2100
DSY-MHS-G3J2-2	Yellow, 586 nm	120	4.20	5.50	7.15	1900

Electrical Characteristics at Tj=25°C

Part Number	Vf @ If = 40mA <i>Appx. 3.1</i>			Vr @ Ir = 10uA <i>Appx. 6.1</i>
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
DSx-MHS	1.90	2.25	2.65	12

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	60	mA
Peak pulse current; (Ts=55 °C, tp ≤ 100µs, Duty cycle = 0.03)	200	mA
Reverse voltage <i>Appx. 6.1</i>	12	V
ESD threshold (HBM)	2	KV
LED junction temperature	125	°C
Operating temperature	-40 ... +110	°C
Storage temperature	-40 ... +110	°C
Thermal resistance (Rated current = 40mA, Ts = 25 °C)		
- Real Thermal Resistance		
Junction / solder point, Rth JS real (Typ = 70)	150	K/W
- Electrical Thermal Resistance		
Junction / solder point, Rth JS el (Typ = 50)	100	K/W

Wavelength Grouping at Tj=25°C

Color	Group	Wavelength distribution (nm) <i>Appx. 2.2</i>
DSS; Super Red	Full	627 - 637
	W	627 - 630
	X	630 - 633
	Y	633 - 637
DSA; Amber	Full	612 - 627
	W	612 - 616
	X	616 - 620
	Y	620 - 624
	Z	624 - 627
DSY; Yellow	Full	583 - 595
	W	583 - 586
	X	586 - 589
	Y	589 - 592
	Z	592 - 595

Luminous Intensity Group at Tj=25°C

Brightness Group	Luminous Intensity <i>Appx. 1.2</i> IV (lm)
E3	2.47 ... 2.82
F2	2.82 ... 3.22
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

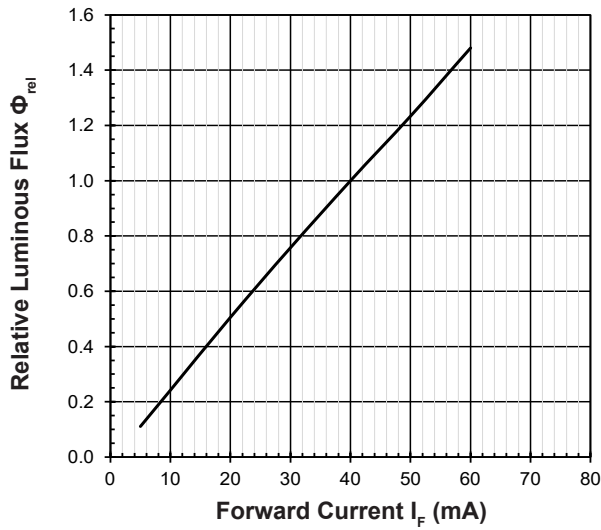
Vf Bining (Optional)

Vf @ If = 40mA	Forward Voltage (V) <i>Appx. 3.1</i>
V43	1.90 ... 2.05
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 to incorporate special part number to incorporate Vf binning.

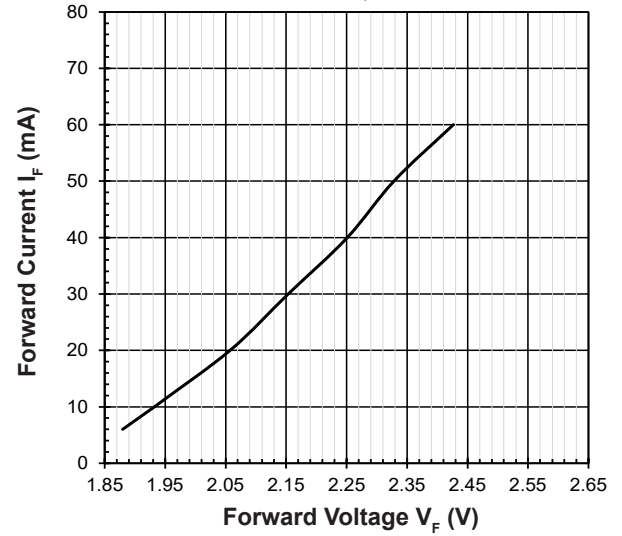
Relative Luminous Flux Vs Forward Current

$$\Phi_V / \Phi_V(40\text{mA}) = f(I_F); T_j = 25^\circ\text{C}$$



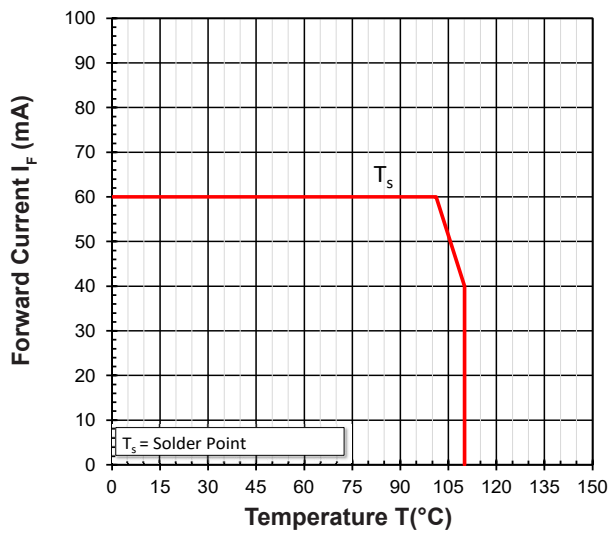
Forward Current Vs Forward Voltage

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



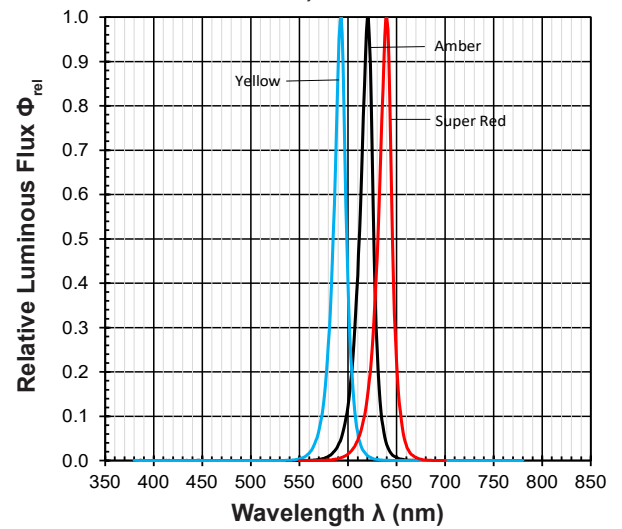
Maximum Current Vs Temperature

$$I_F = f(T)$$



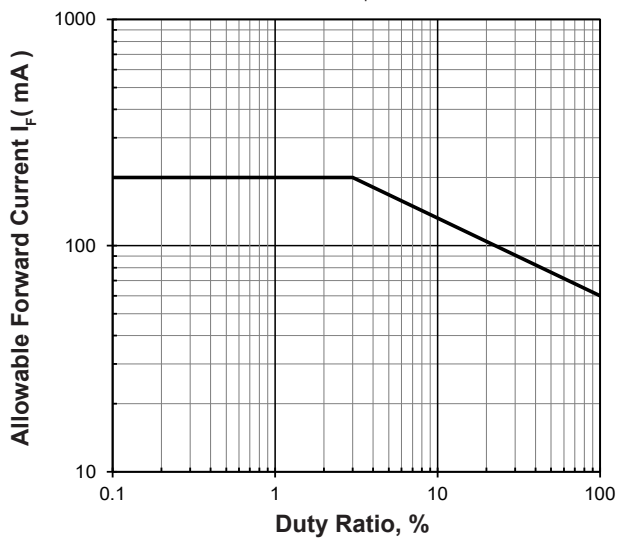
Relative Spectral Emission

$$\Phi_{\text{rel}} = f(\lambda); T_j = 25^\circ\text{C}; I_F = 40\text{mA}$$

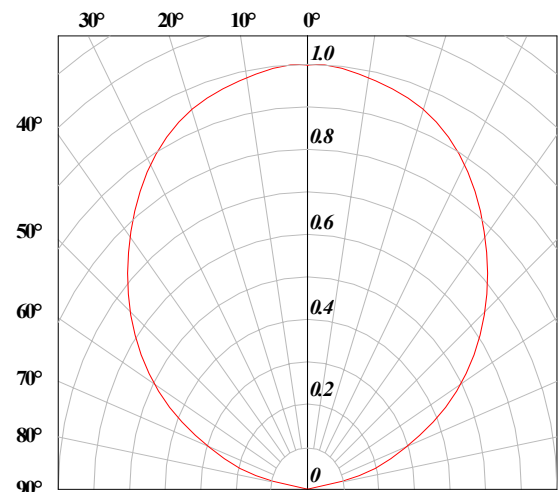


Allowable Forward Current Vs Duty Ratio

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

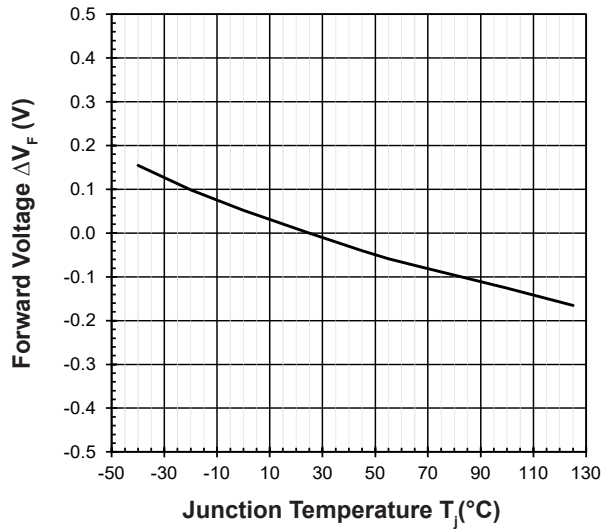


Radiation Pattern



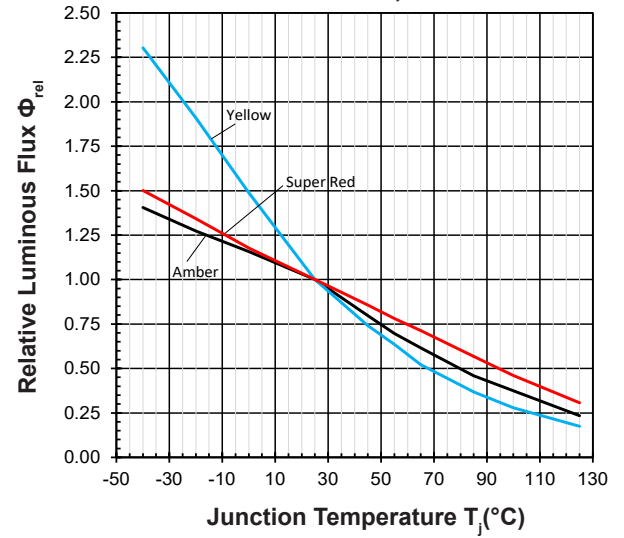
Forward Voltage Vs Junction Temperature

$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_J); I_F = 40\text{mA}$$



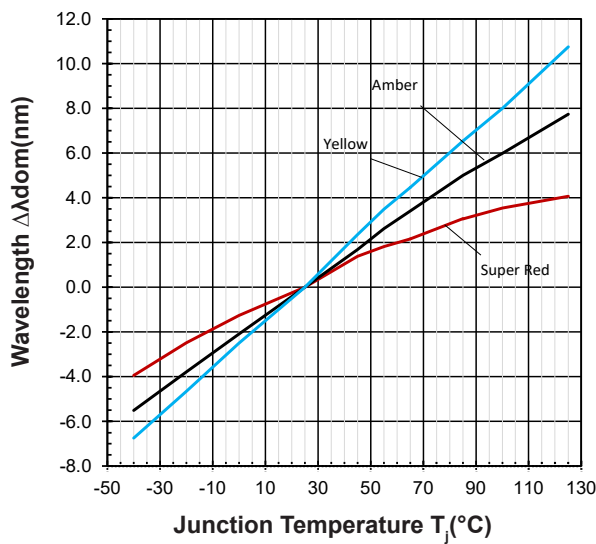
Relative Luminous Flux Vs Junction Temperature

$$\Phi_V/\Phi_V(25^\circ\text{C}) = f(T_J); I_F = 40\text{mA}$$

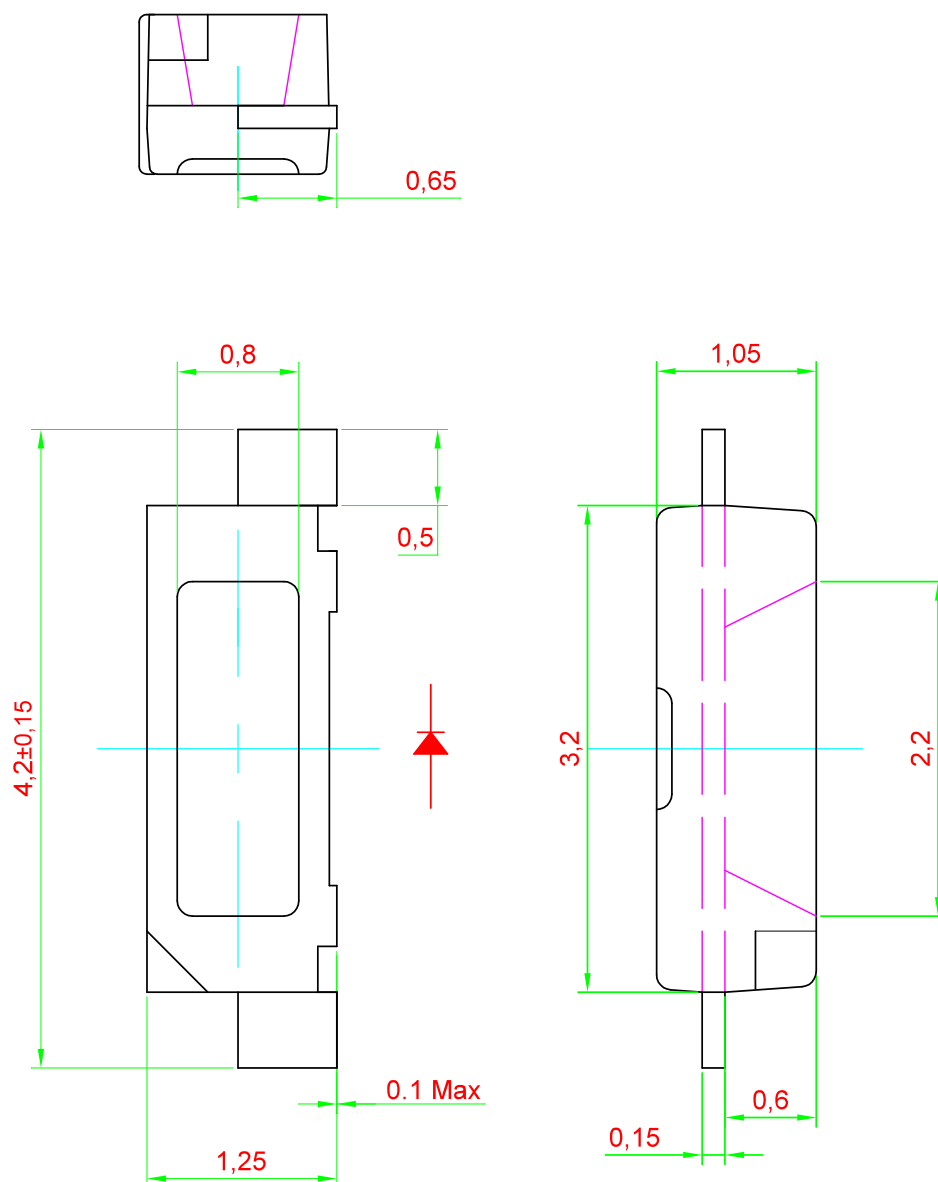


Wavelength Vs Junction Temperature

$$\Delta \lambda_{dom} = \lambda_{dom} - \lambda_{dom}(25^\circ\text{C}) = f(T_J); I_F = 40\text{mA}$$



Right Angle DomiLED • AllnGaP : DSx-MHS Package Outlines

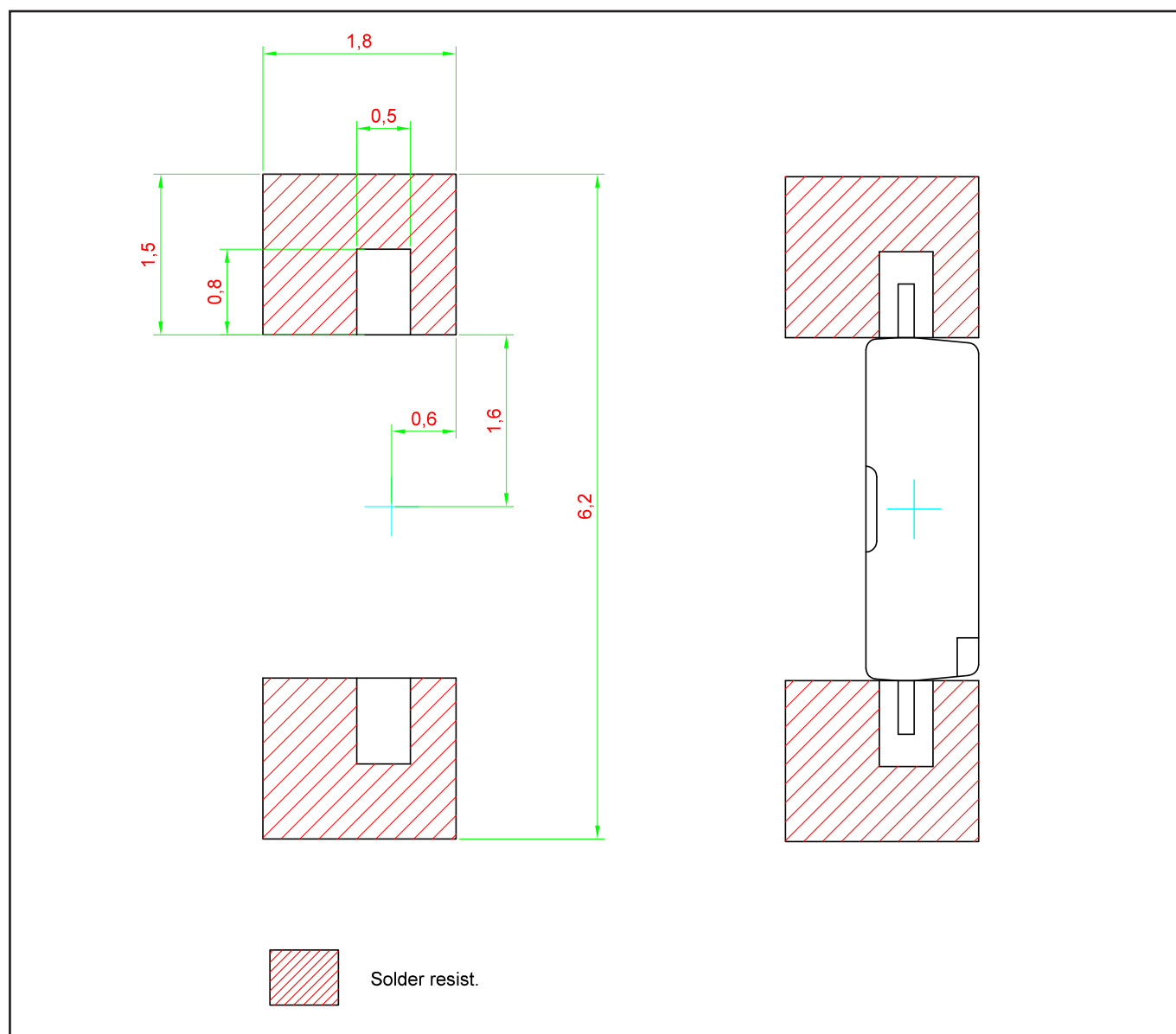


Note : Primary thermal path is through Anode lead of LED package.

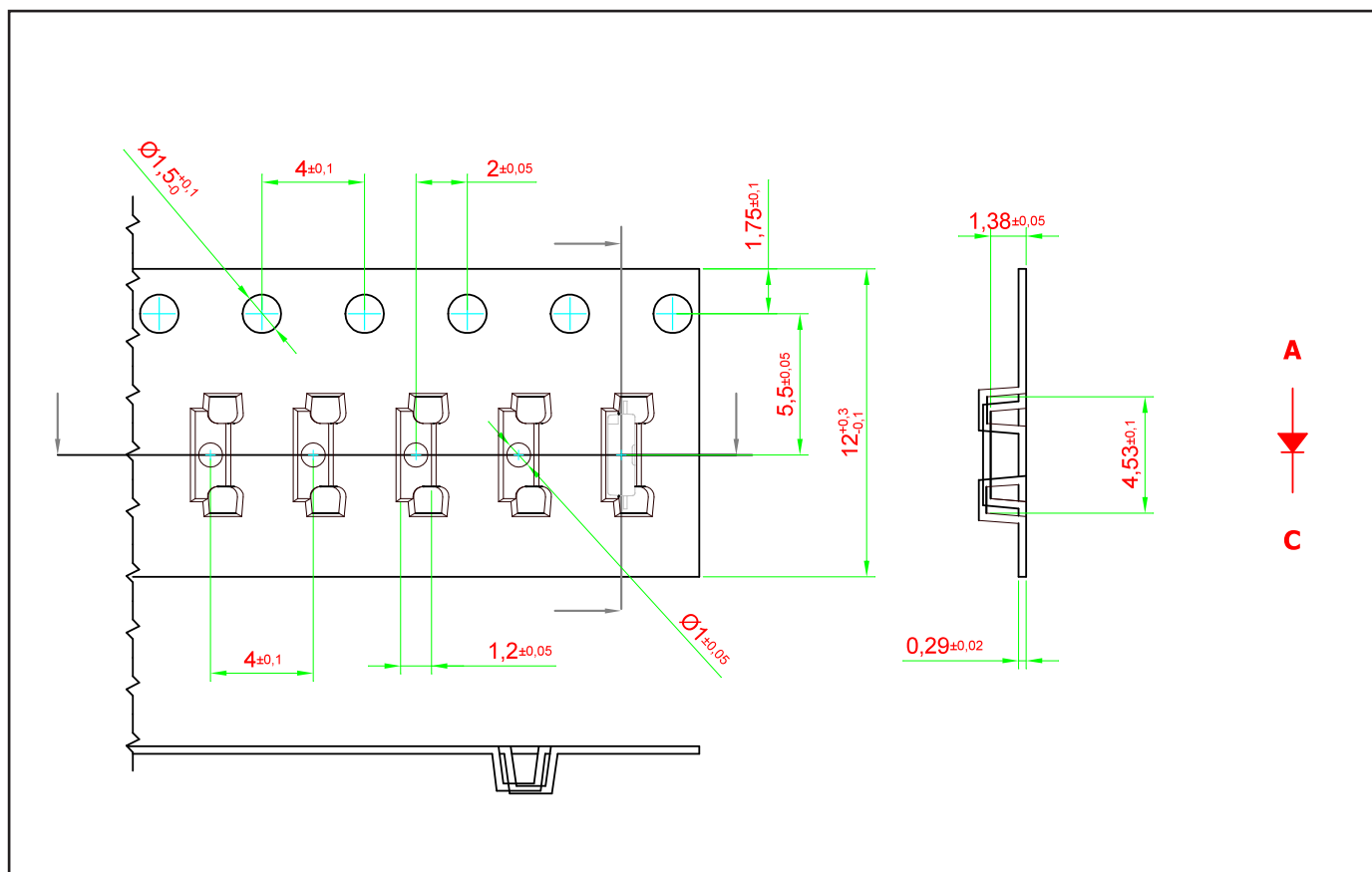
Material

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

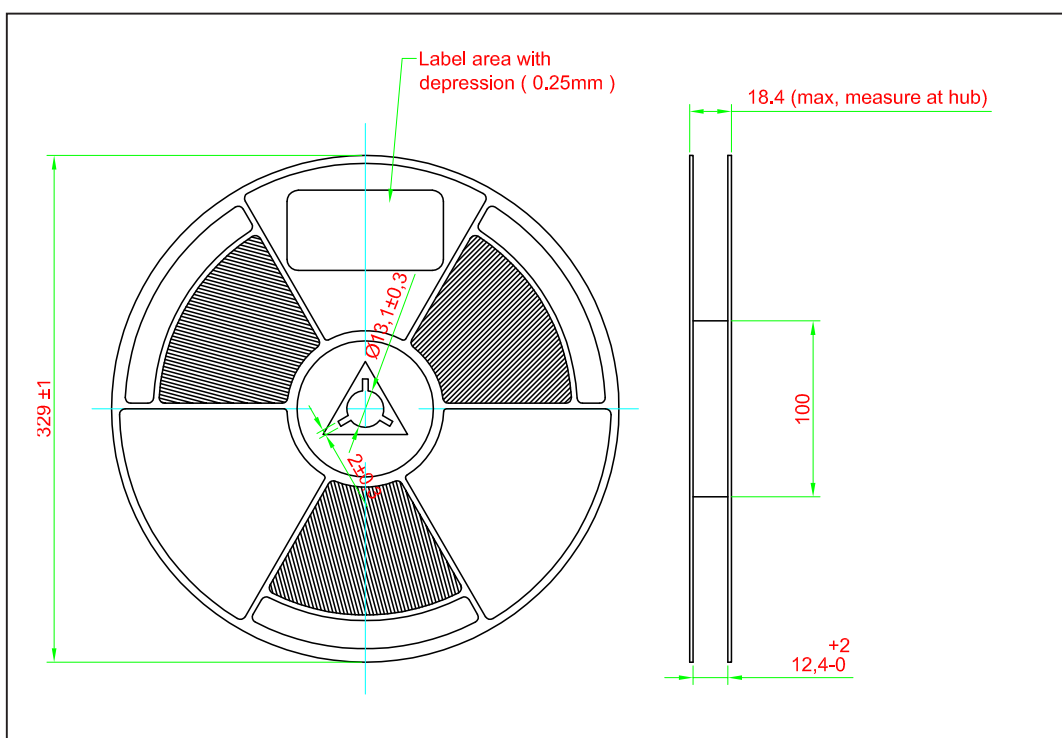
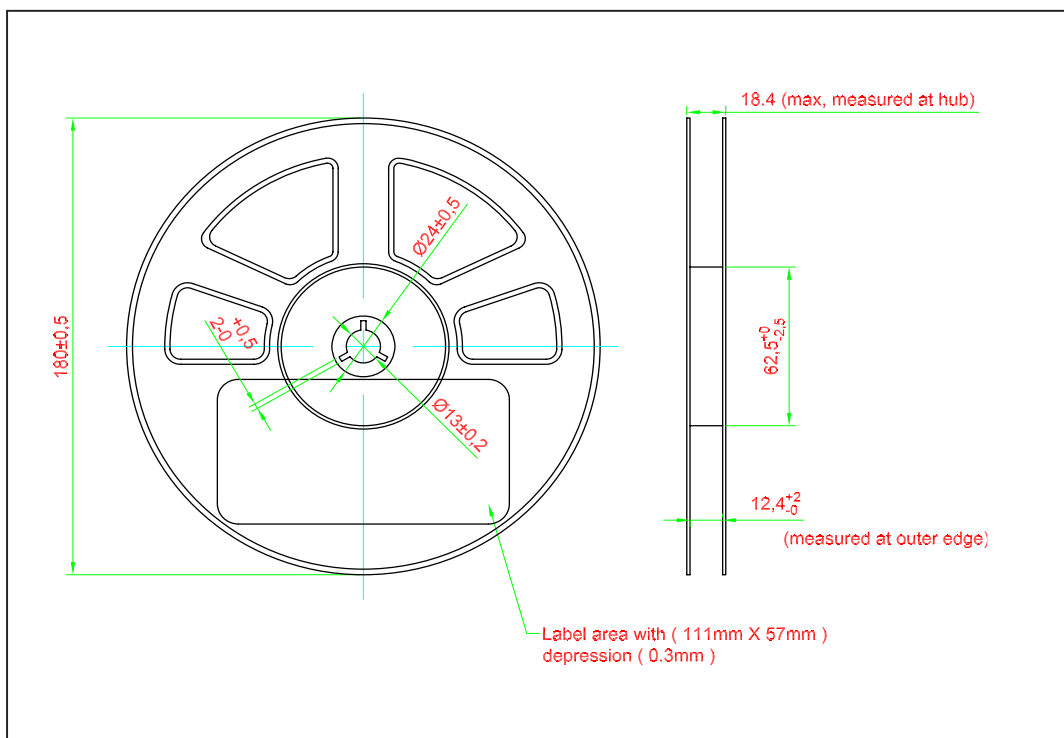
Recommended Solder Pad



Taping and orientation



Packaging Specification

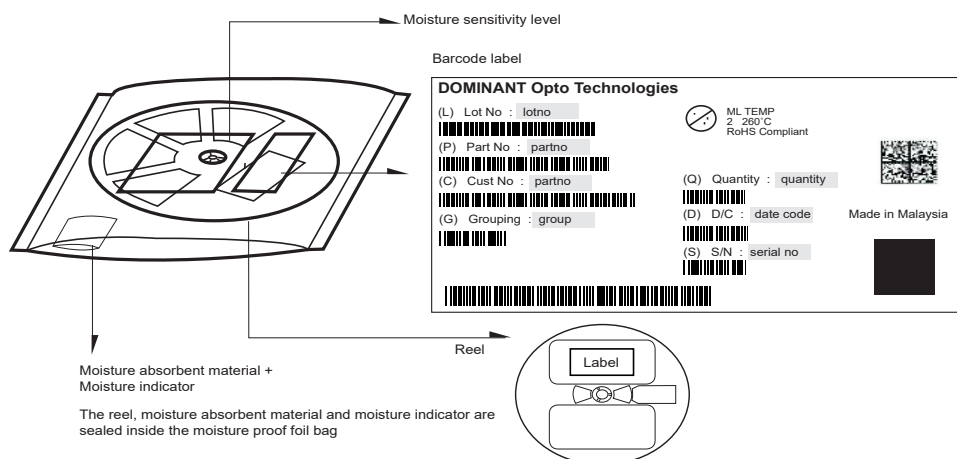


	Reel Diameter (mm)	Quantity (pcs)	*Ordering Number
Standard Packing	180	2500	DSx-MHS-xxx-x
Optional Packing	329	9000	DSx-MHS-xxx-x-9

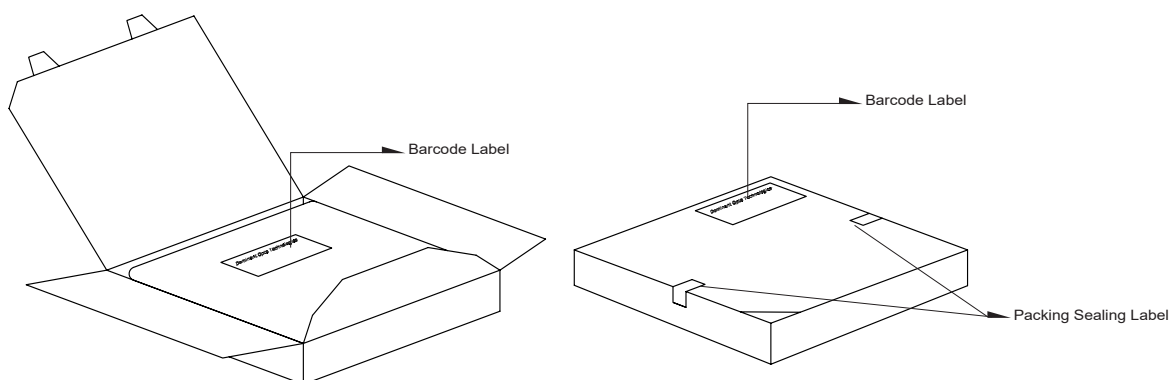
Notes:

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

Packaging Specification



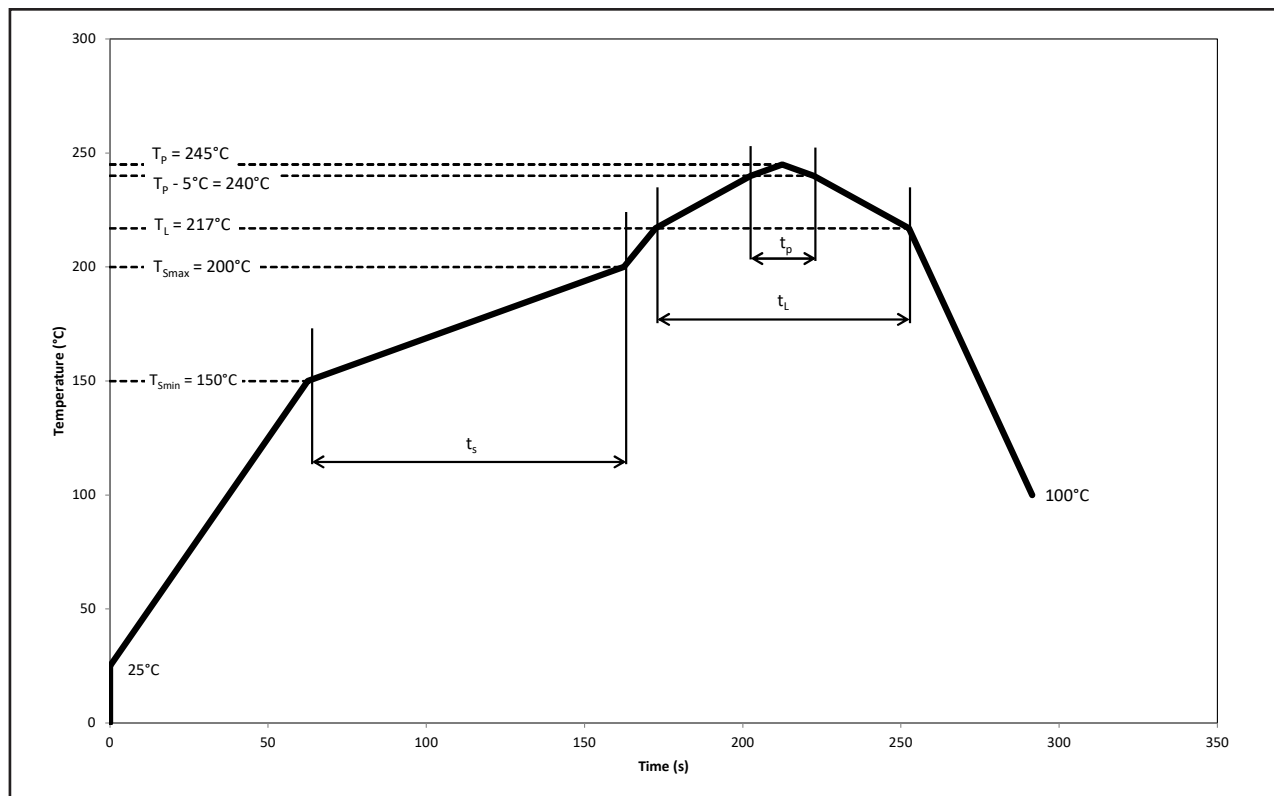
Quantity per bag (pcs)	Average 1pc Right Angle DomiLED (gram)	1 completed bag (gram)
2500	0.008	235 ± 10
9000	0.008	490 ± 10



Reel Diameter (mm)	Packing Box Dimensions (mm)
180	210 x 210 x 20
329	345 x 345 x 20

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 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 ± 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
-	Initial Release	15 Jul 2021
8	Update Recommended Solder Pad	05 Sep 2022
7	Update Package Outline	03 Oct 2022

NOTE

All the information contained in this document is considered to be reliable at the time of publishing. However, DOMINANT Opto Technologies does not assume any liability arising out of the application or use of any product described herein.

DOMINANT Opto Technologies reserves the right to make changes to any products in order to improve reliability, function or design.

DOMINANT Opto Technologies products are not authorized for use as critical components in life support devices or systems without the express written approval from the Managing Director of DOMINANT Opto Technologies.

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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