DOMINANT™
Opto Technologies
Innovating Illumination

DATA SHEET:

Right Angle DomiLED

AlInGaP : DSS-KSS

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 sideway illumination.
> 120° viewing angle.
> Small package outline (LxWxH) of 4.20 x 1.05 x 1.25mm.
> Qualified according to JEDEC moisture sensitivity Level 2.
> Compatible to IR reflow soldering.
> Environmental friendly; RoHS compliance.
> Compliance to automotive standard; AEC-Q102.
> Passed Corrosion Resistant Test. *Appx. 6.1*

Applications:

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

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Optical Characteristics at Tj=25˚C

Part Number	Color	Viewing Angle°	Luminous Intensity @ IF = 30mA IV (mcd) Appx. 1.1		
			Min.	Typ.	Max.
DSS-KSS-U6V6-1	Super Red, 635 nm	120	520.0	715.0	970.0

Electrical Characteristics at Tj=25˚C

Part Number	Vf @ IF = 30mA Appx. 3.1			Vr @ Ir = 10uA Appx. 7.1
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
DSS-KSS	2.00	2.25	2.45	12

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	50	mA
Peak pulse current; (Ts=55 ˚C, tp ≤ 100µs, Duty cycle = 0.03)	200	mA
Reverse voltage Appx 7.1	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 = 30mA, Ts = 25 ˚C) - Real Thermal Resistance Junction / solder point, $R_{th\ JS\ real}$ (Typ=80) - Electrical Thermal Resistance Junction / solder point, $R_{th\ JS\ el}$ (Typ=75)	 110 105	 K/W K/W

Wavelength Grouping at Tj=25˚C

Color	Group	Wavelength distribution (nm) *Appx. 2.2*
DSS; Super red	Full	627 - 638

Luminous Intensity Group at Tj=25˚C

Brightness Group	Luminous Intensity *Appx. 1.1* IV (mcd)
U6	520.0 ... 610.0
U7	610.0 ... 715.0
V5	715.0 ... 820.0
V6	820.0 ... 970.0

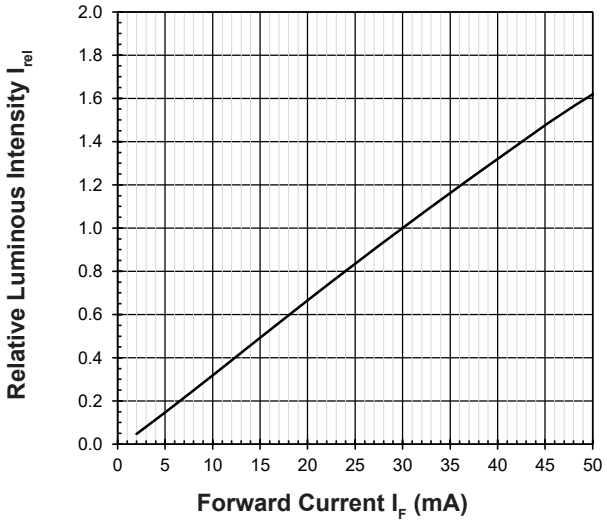
Vf Bining (Optional)

Vf @ If = 30mA	Forward Voltage (V) *Appx. 3.1*
V24	2.00 ... 2.15
V25	2.15 ... 2.30
V26	2.30 ... 2.45

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

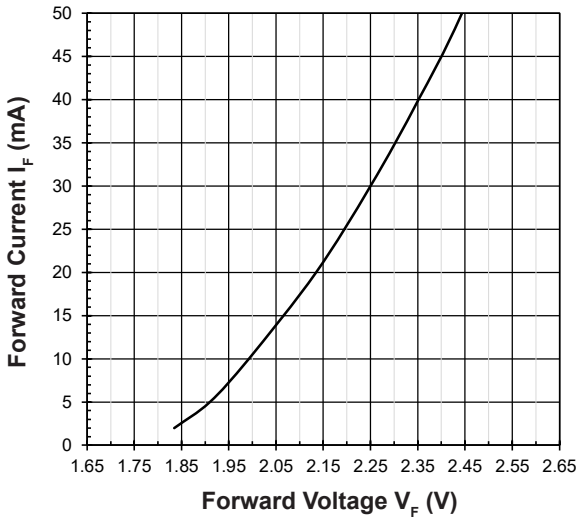
Relative Luminous Intensity Vs Forward Current *Appx. 4.1*

$I_V/I_V(30mA) = f(I_F)$; $T_j = 25°C$



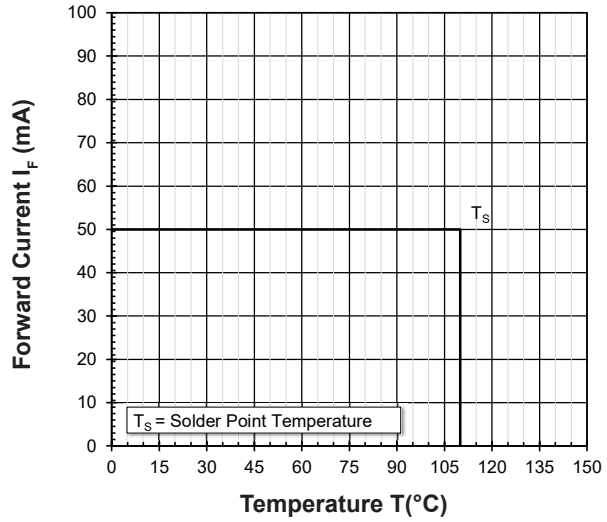
Forward Current Vs Forward Voltage *Appx. 4.1*

$I_F = f(V_F)$; $T_j = 25°C$



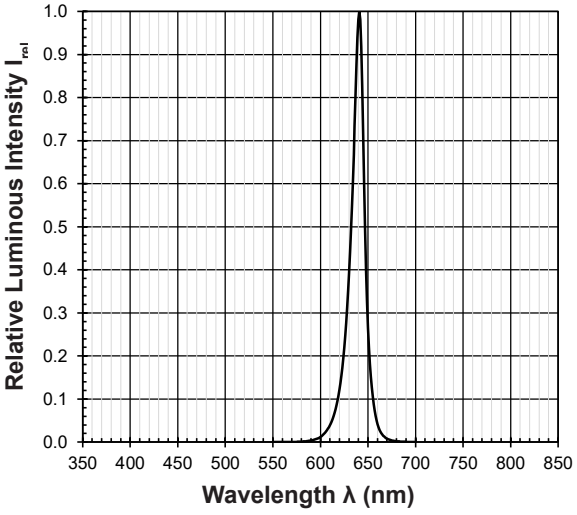
Maximum Current Vs Temperature

$I_F=f(T)$



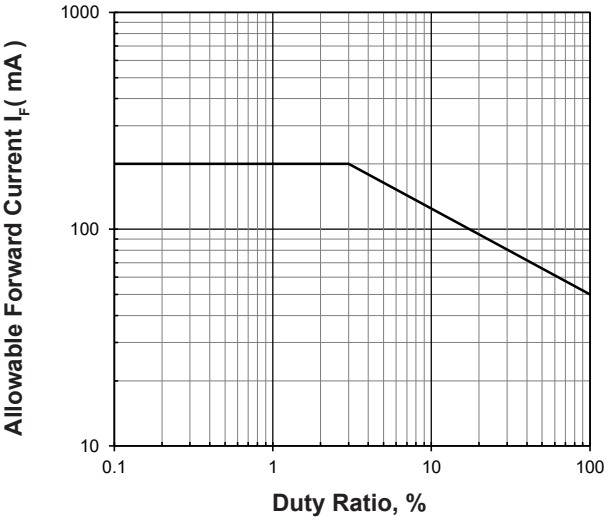
Relative Spectral Emission *Appx. 4.1*

$I_{rel} = f(\lambda)$; $T_j = 25°C$; $I_F = 30mA$

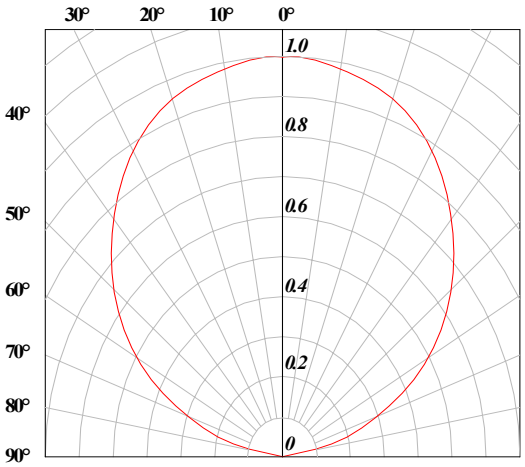


Allowable Forward Current Vs Duty Ratio

(T_s= 55°C; $t_p \leq 100\mu s$)

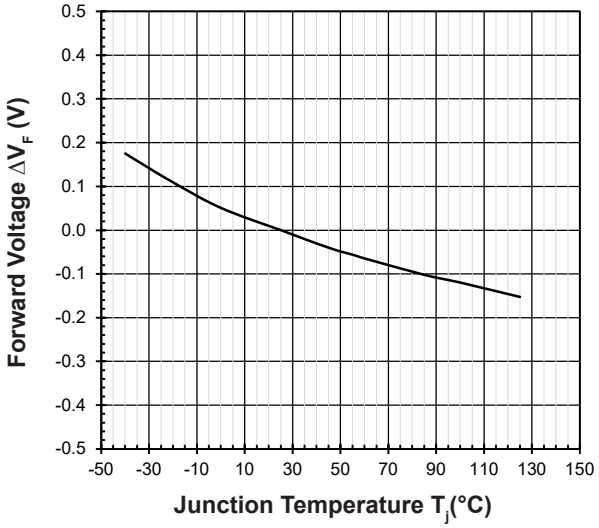


Radiation Pattern *Appx. 4.1*



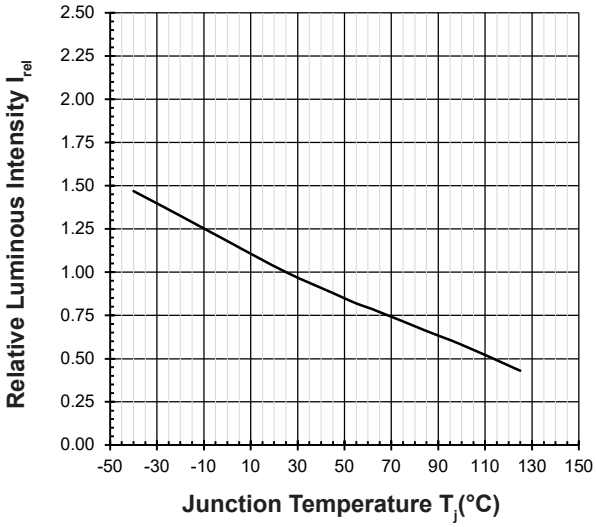
Forward Voltage Vs Junction Temperature *Appx. 4.1*

$\Delta V_F = V_F - V_F(25°C) = f(T_j)$; I_F =30mA



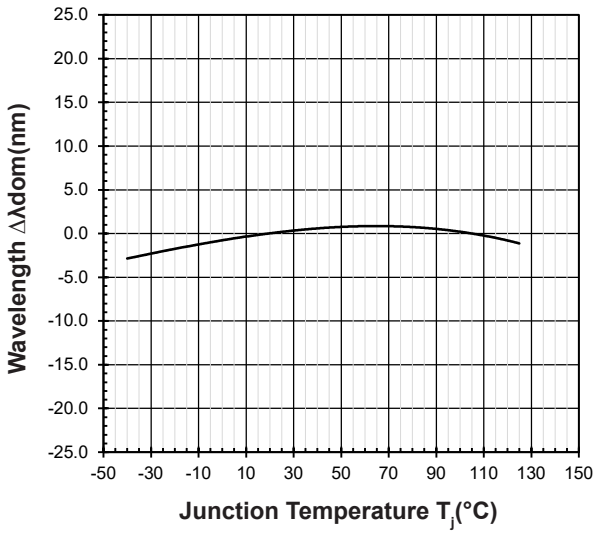
Relative Luminous Intensity Vs Junction Temperature *Appx. 4.1*

$I_V/I_V(25°C) = f(T_j)$; I_F = 30mA

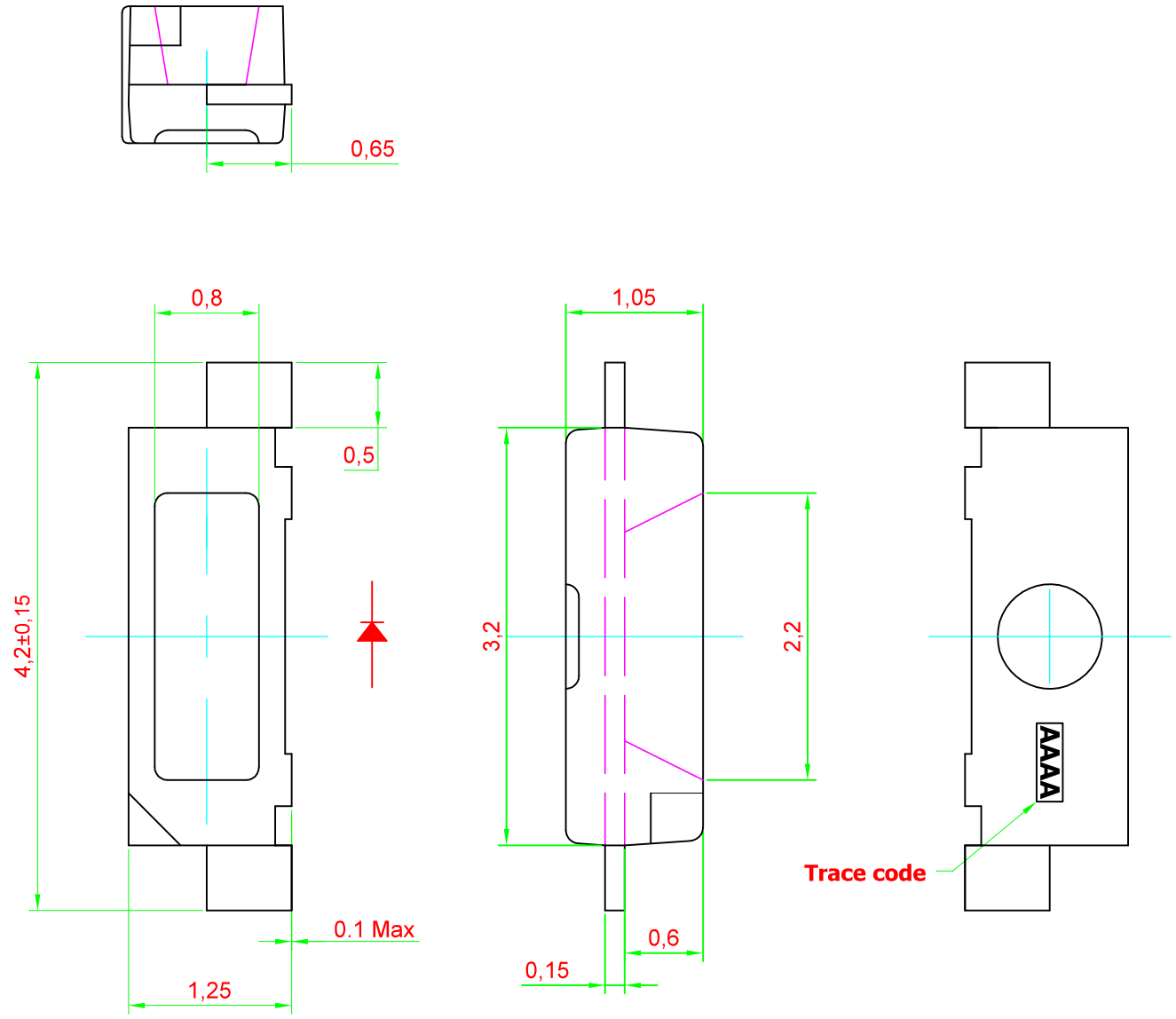


Wavelength Vs Junction Temperature *Appx. 4.1*

$\Delta\lambda dom = \lambda dom - \lambda dom\ (25°C) = f(T_j)$; I_F =30mA



Right Angle DomiLED • AlInGaP : DSS-KSS Package Outlines *Appx. 5.1*

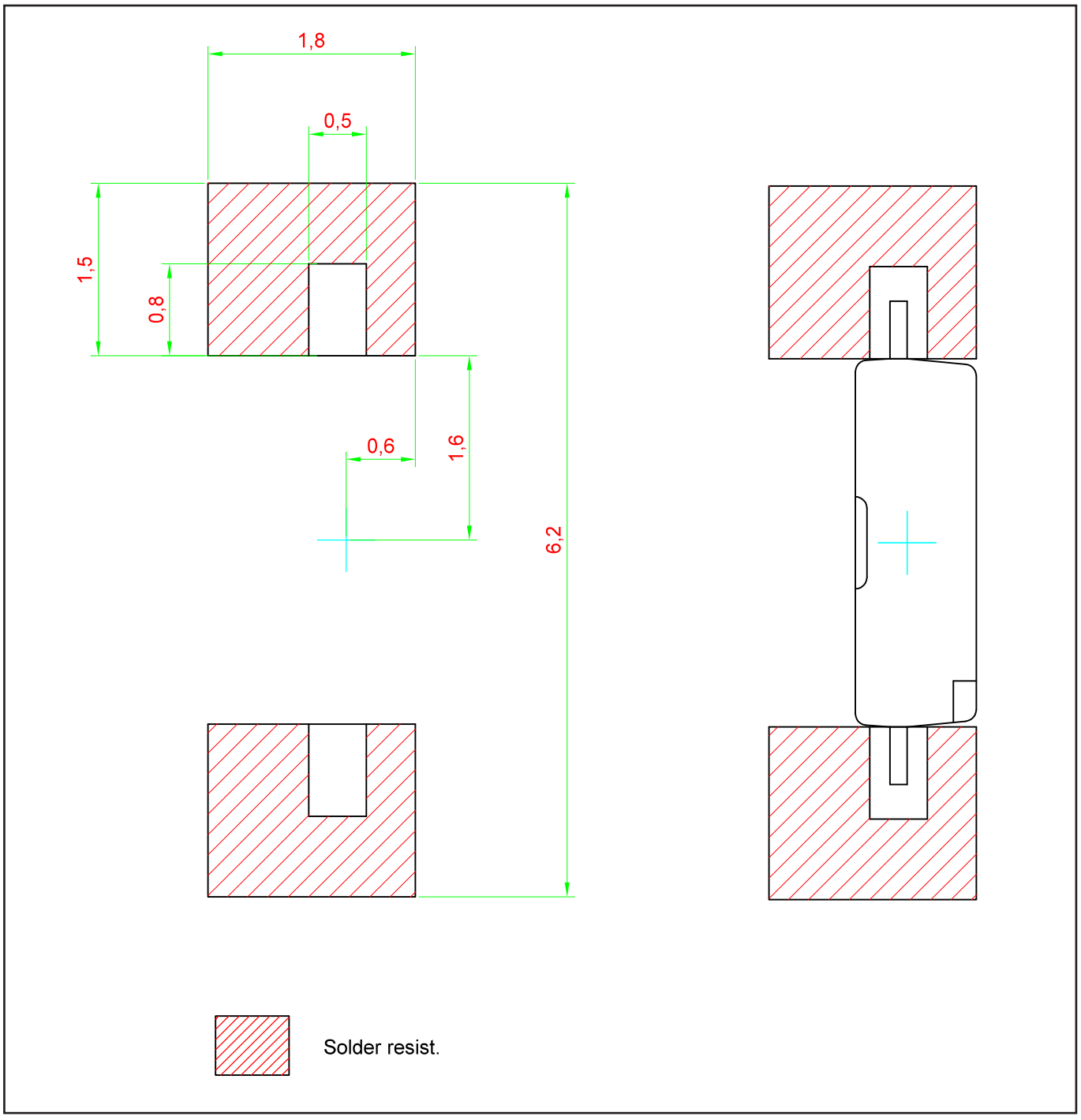


Note : Primary thermal path is through Anode lead of LED package
General Tolerances ± 0.10

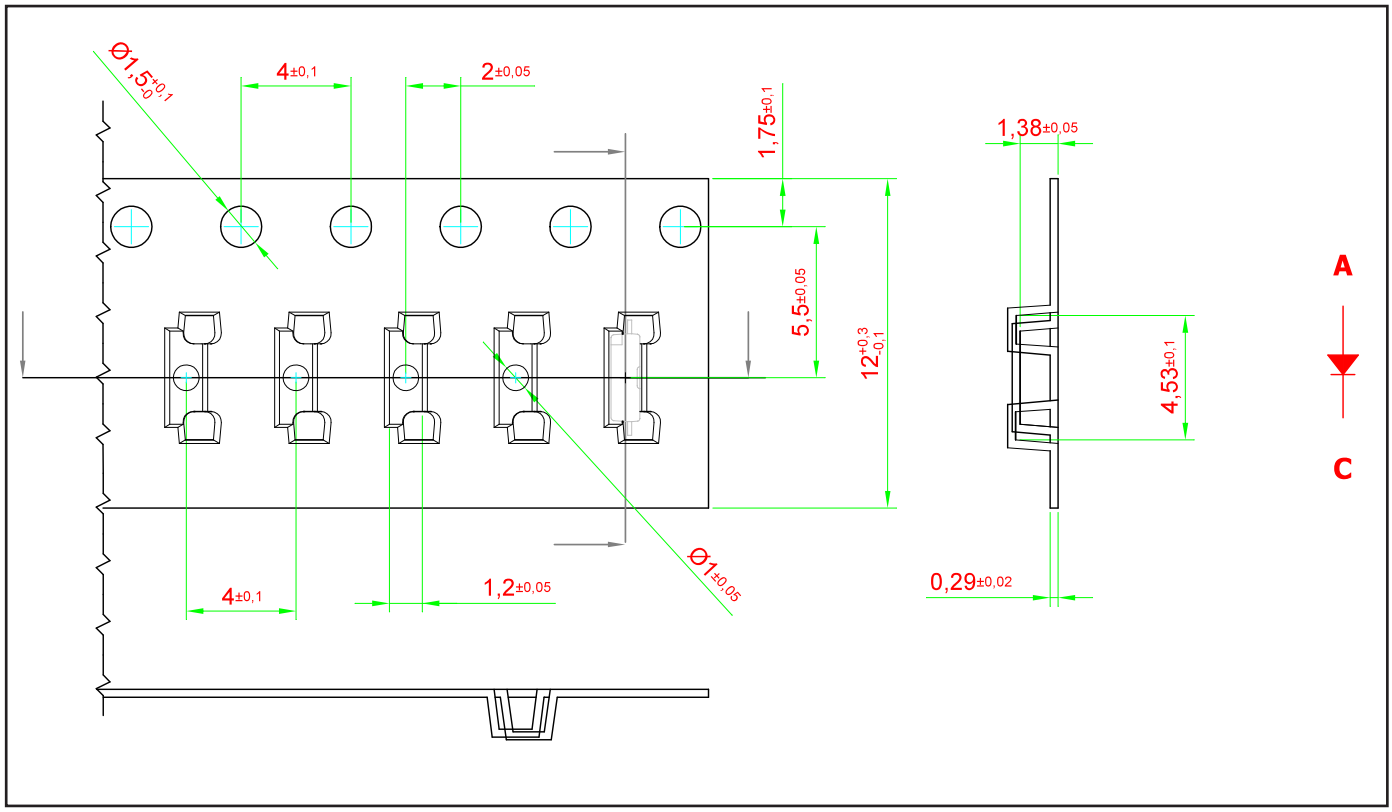
Material

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

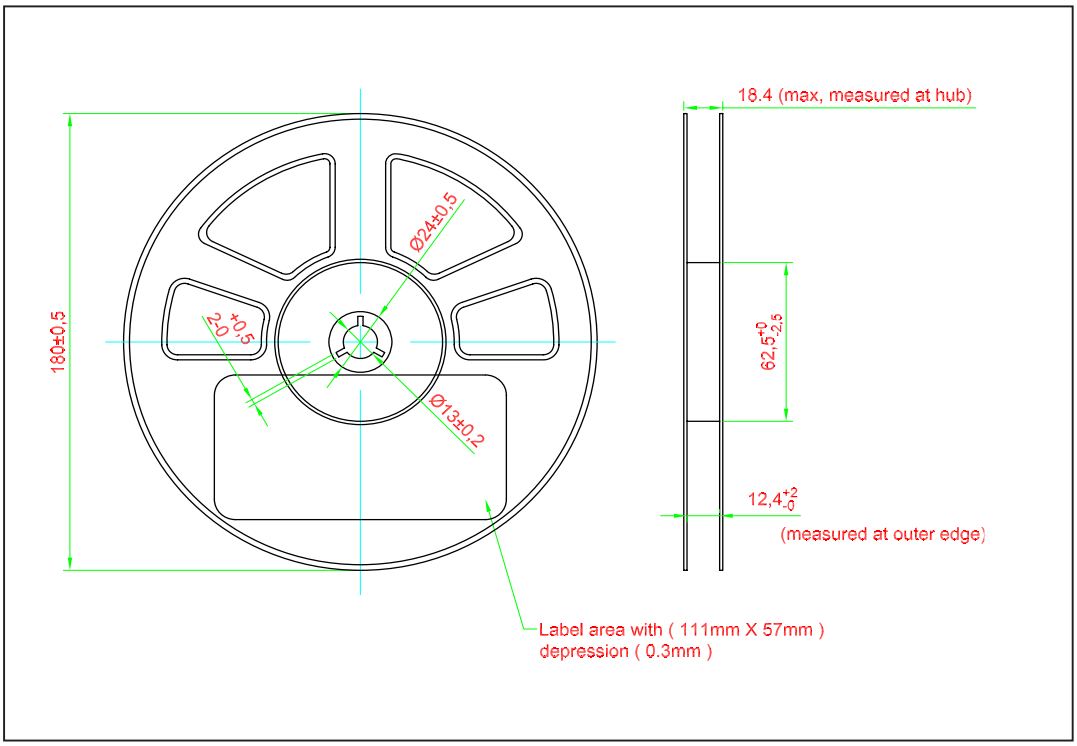
Recommended Solder Pad *Appx. 5.1*

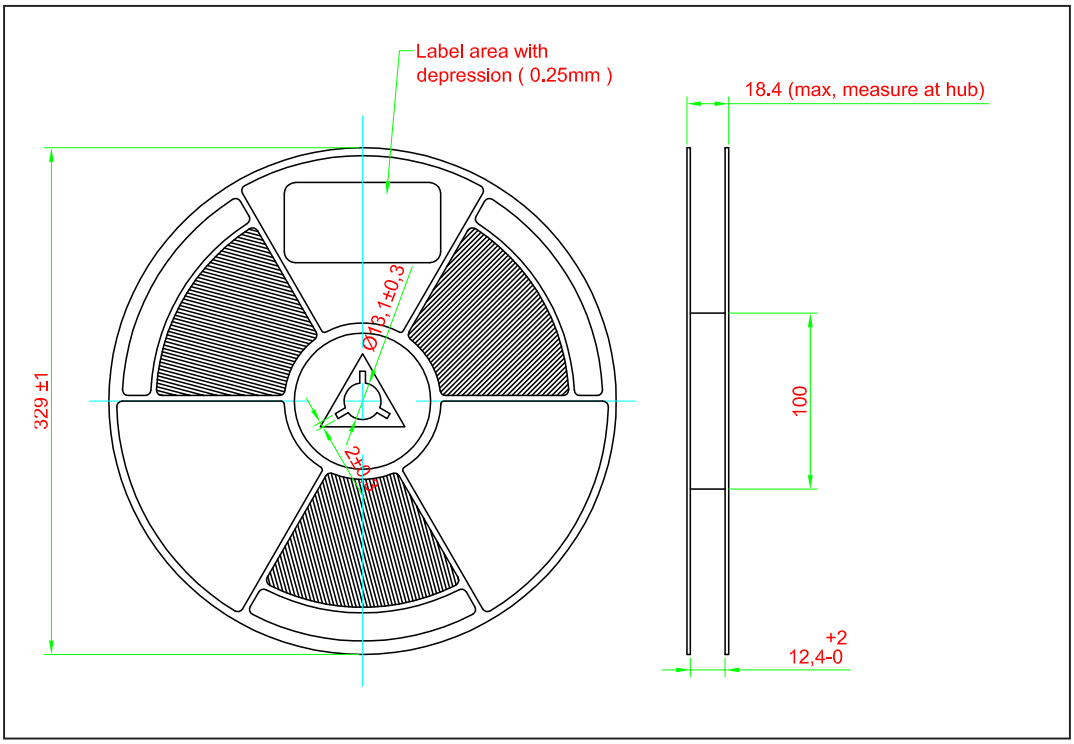


Taping and orientation *Appx. 5.1*



Packaging Specification



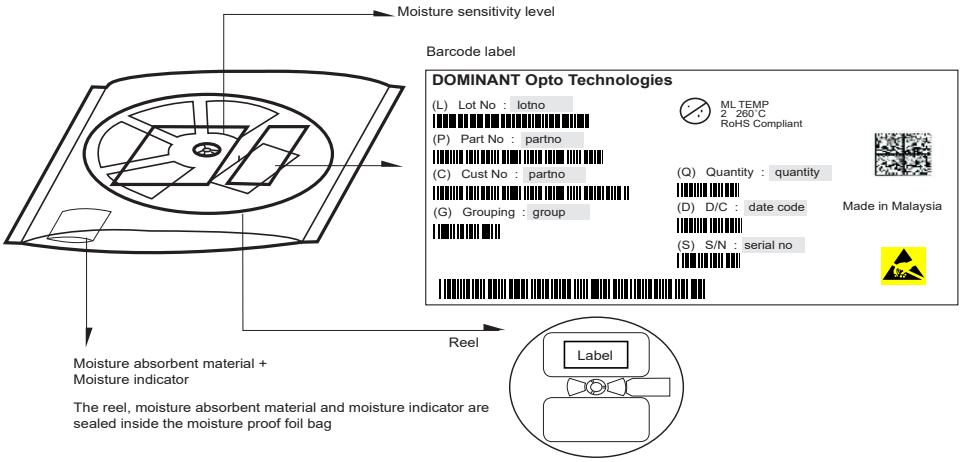


	Reel Diameter (mm)	Quantity (pcs)	*Ordering Number
Standard Packing	180	2500	DSx-KSS-xxx-x
Optional Packing	329	9000	DSx-KSS-xxx-x-9

Notes:

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

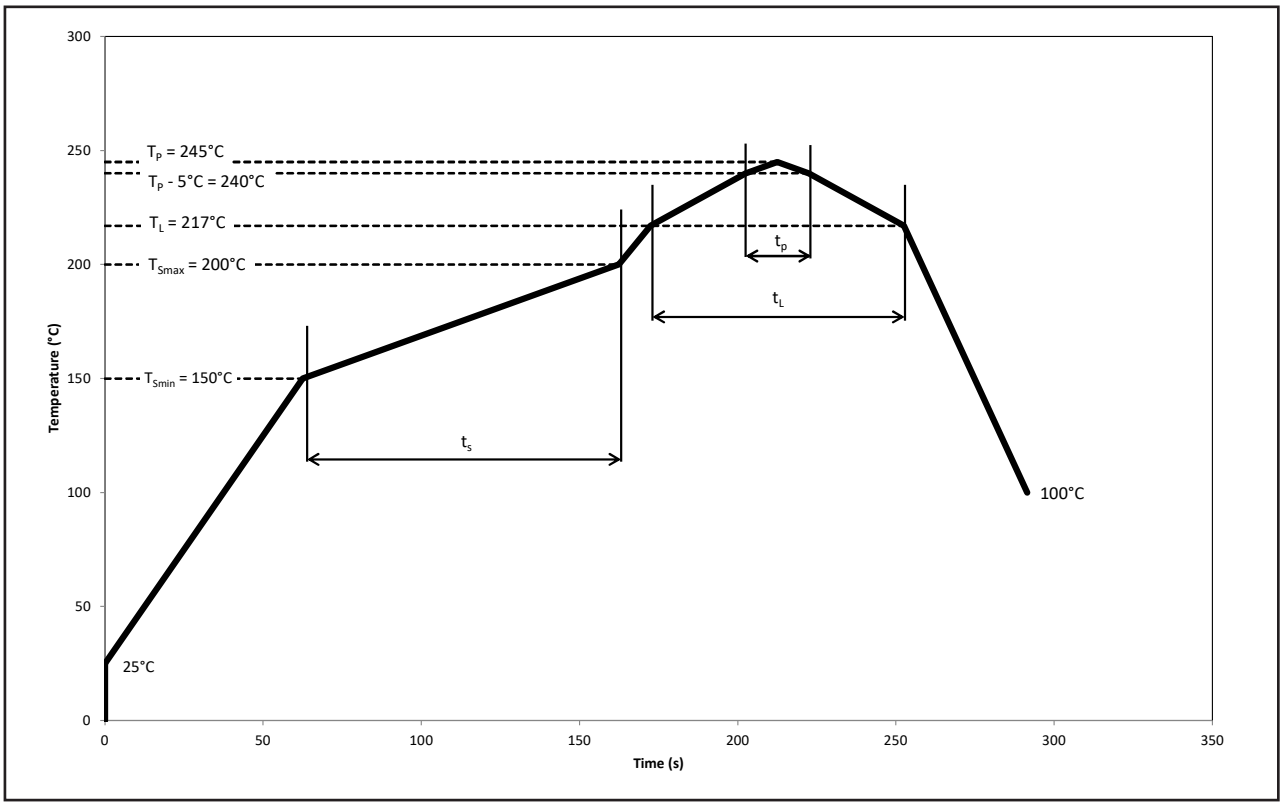
Packaging Specification



Quantity per bag (pcs)	Average 1pc Right Angle DomiLED (g)	1 completed bag (g)
2500	0.008	235 ± 10
9000	0.008	490 ± 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 ± 8 % and an expanded uncertainty of ± 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 ± 8 % and an expanded uncertainty of ± 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 ± 8 % and an expanded uncertainty of ± 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 ± 8 % and an expanded uncertainty of ± 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 ± 0.5nm and an expanded uncertainty of ± 1nm (accordingly to GUM with a coverage factor of k=3).

3) Voltage:

3.1 Forward Voltage, Vf is measured when a current pulse of 8 ms(typ) with an internal reproducibility of ± 0.05V and an expanded uncertainty of ± 0.1V (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 specifiec in mm.

6) Corrosion Robustness:

6.1 Test conditions: 40 °C / 90 % rh / 15 ppm H_2S / 336 h.

= Stricter than IEC 60068-2-43 (H_2S) [25 °C / 75% rh / 10 ppm H_2S / 21 days].

7) Reverse Voltage:

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

Revision History

Page	Subjects	Date of Modification
-	Initial Release	13 Nov 2024

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.

Please contact us for more information:

DOMINANT Opto Technologies Sdn. Bhd.
Lot 6, Batu Berendam, FTZ Phase III, 75350 Melaka, Malaysia
Tel: (606) 283 3566 Fax: (606) 283 0566
E-mail: sales@dominant-semi.com