

Power Right Angle

Power Right Angle DomiLED features a package with excellent luminous efficiency in high optimization in its optical design and provides stable SMT process to avoid topping issue.



Features:

- > Super high brightness surface mount LED.
- > 120° viewing angle.
- > Compact package outline (LxWxH) of 4.0 x 4.3 x 2.75 mm.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Low thermal resistance.
- > Superior corrosion robustness.
- > Compatible to IR reflow soldering.
- > Compliance to automotive standard; AEC-Q102.
- > Environmental friendly; RoHS compliance.
- > Desired for sideway illumination.



Applications:

- > Automotive:

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

Exterior applications, eg: Rear Combination Lamp (RCL),

Center High Mounted Stop Lamp(CHMSL).

Electrical Characteristics at Tj=25°C

Part Number	Color	Viewing Angle°	Luminous Flux @ 30mA (lm) <i>Appx. 1.2</i>		
			Min.	Typ.	Max.
D3S-HJS-D3F2-3	Super Red, 635nm	120	1.89	2.47	3.22
D3S-HJS-EF3-2	Super Red, 630nm	120	2.16	2.82	3.68
D3A-HJS-GH3-4	Amber, 625nm	120	3.68	4.90	6.30
D3A-HJS-G3J2-2	Amber, 617nm	120	4.20	5.50	7.15

Electrical Characteristics at Tj=25°C

Part Number	Vf @ If = 30mA <i>Appx. 3.1</i>			Vr @ Ir = 10uA <i>Appx. 6.1</i>
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
D3x-HJS	1.90	2.20	2.50	12

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	70	mA
Peak pulse current; (Ts=55 °C, tp ≤ 100µs, Duty cycle = 0.03)	140	mA
Reverse voltage; Ir _{max} = 10µA <i>Appx. 6.1</i>	12	V
ESD threshold (HBM)	2	KV
LED junction temperature	125	°C
Operating temperature	-40 ... +115	°C
Storage temperature	-40 ... +125	°C
Thermal resistance (Rated current = 30mA, Ts=25°C)		
- Real Thermal Resistance		
Junction / solder point, R _{th JS real}	100	K/W
- Electrical Thermal Resistance		
Junction / solder point, R _{th JS el}	85	K/W

Wavelength Grouping at Tj= 25°C

Color	Group	Wavelength distribution (nm) <i>Appx. 2.2</i>
D3S, Super Red	Full	627 - 637
	W	627 - 630
	X	630 - 634
	Y	634 - 637
D3A, Amber	Full	612 - 627
	W	612 - 616
	X	616 - 620
	Y	620 - 624
	Z	624 - 627

Luminous Flux Group at Tj=25°C

Brightness Group	Luminous Flux <i>Appx. 1.2</i> (lm)
D3	1.89 ... 2.16
E2	2.16 ... 2.47
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

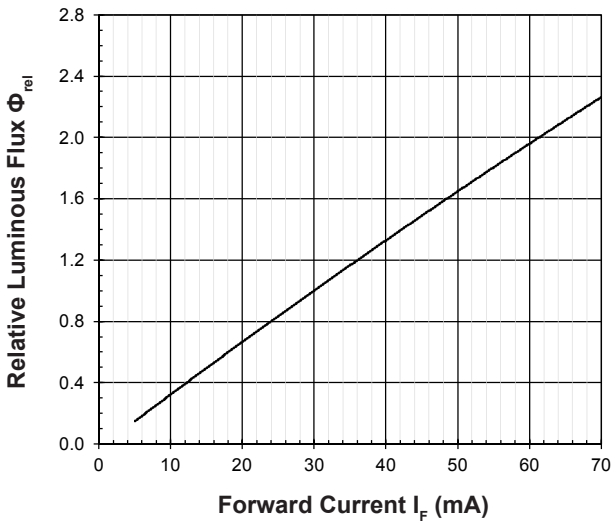
Vf Bining (Optional)

Vf Bin @ 30 mA	Forward Voltage (V) <small>Appx. 4.1</small>
V43	1.90 ... 2.05
V44	2.05 ... 2.20
V45	2.20 ... 2.35
V46	2.35 ... 2.50

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

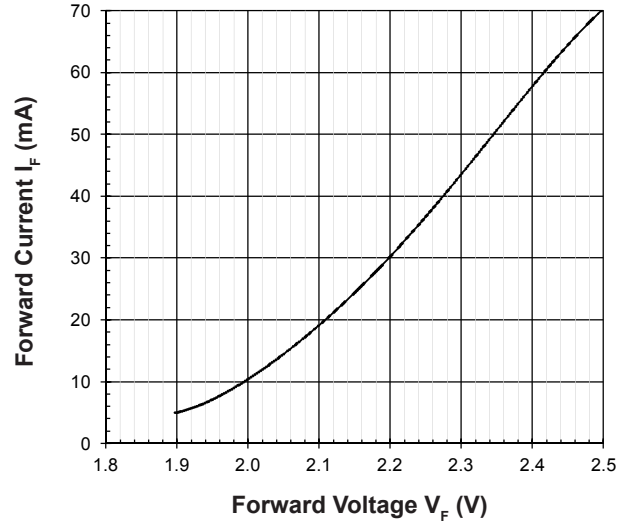
Relative Luminous Flux Vs Forward Current

$\Phi_v/\Phi_v(30\text{mA}) = f(I_F); T_j = 25^\circ\text{C}$



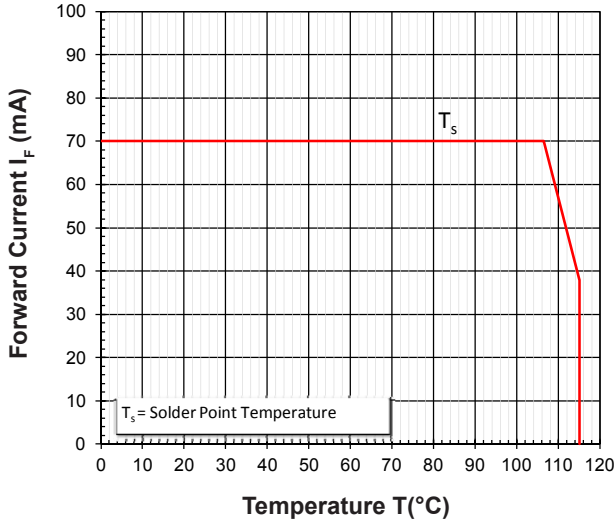
Forward Current Vs Forward Voltage

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



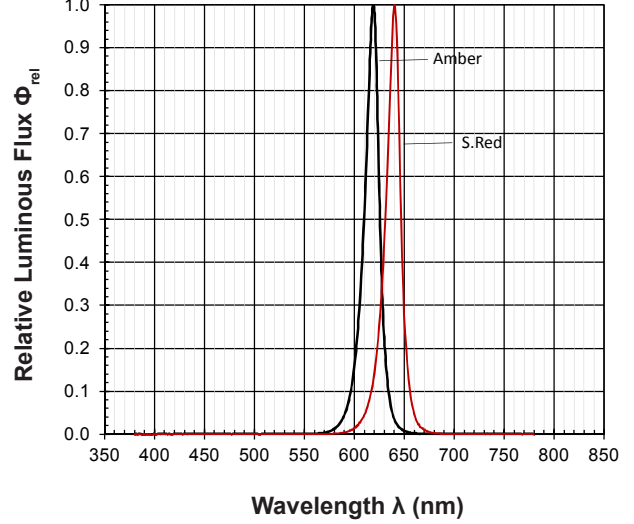
Maximum Current Vs Temperature

$I_F = f(T)$



Relative Spectral Emission

$\Phi_{rel} = f(\lambda); T_j = 25^\circ\text{C}; I_F = 30\text{mA}$

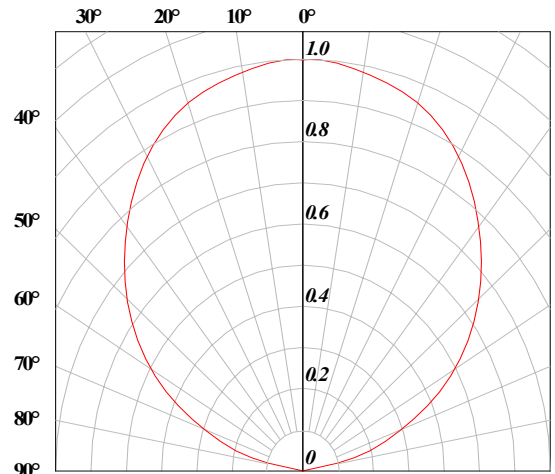


Allowable Forward Current Vs Duty Ratio

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

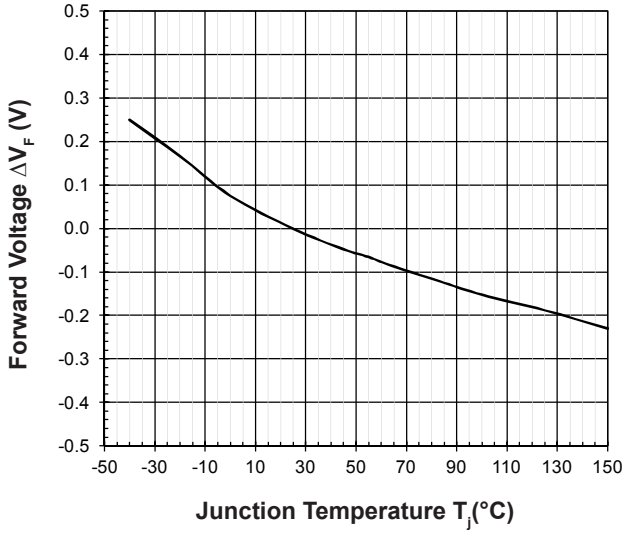


Radiation Pattern



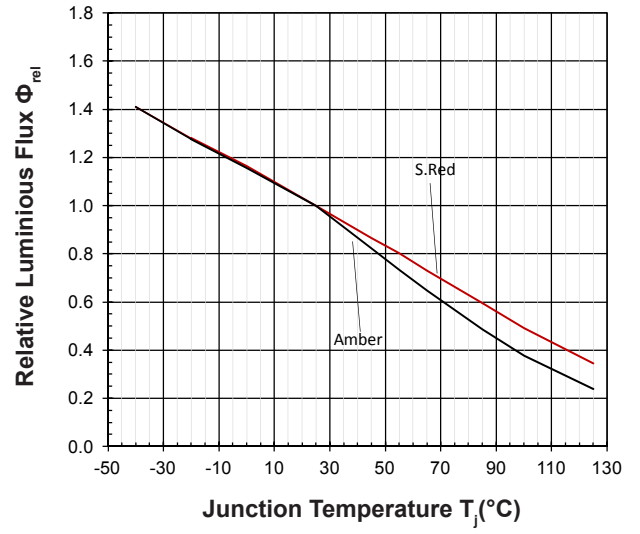
Forward Voltage Vs Junction Temperature

$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j); I_F = 30\text{mA}$$



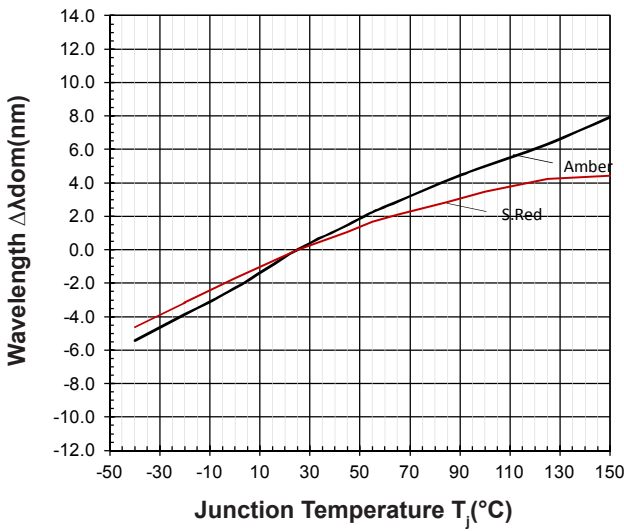
Relative Luminous Flux Vs Junction Temperature

$$\Phi_V/\Phi_V(25^\circ\text{C}) = f(T_j); I_F = 30\text{mA}$$

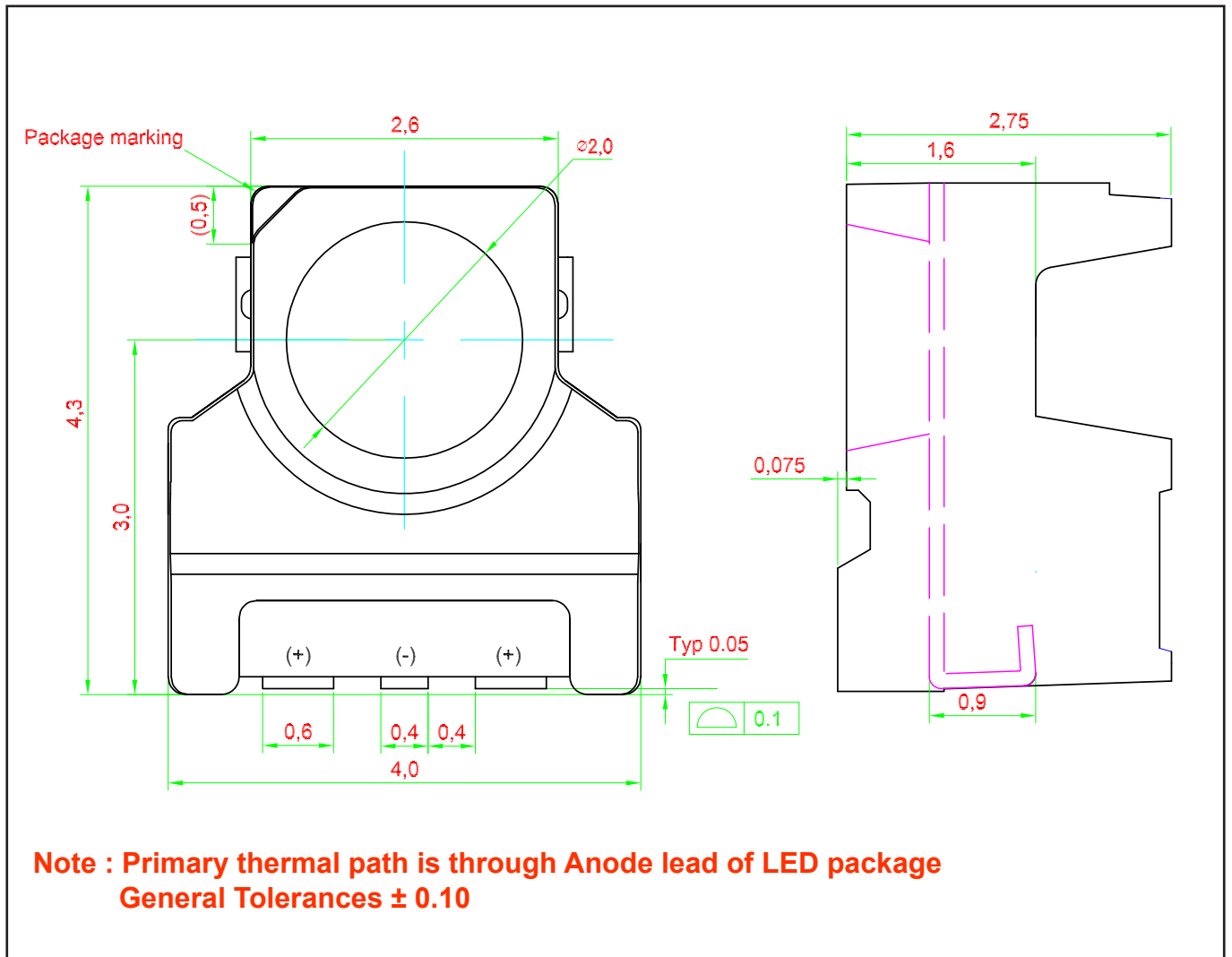


Wavelength Vs Junction Temperature

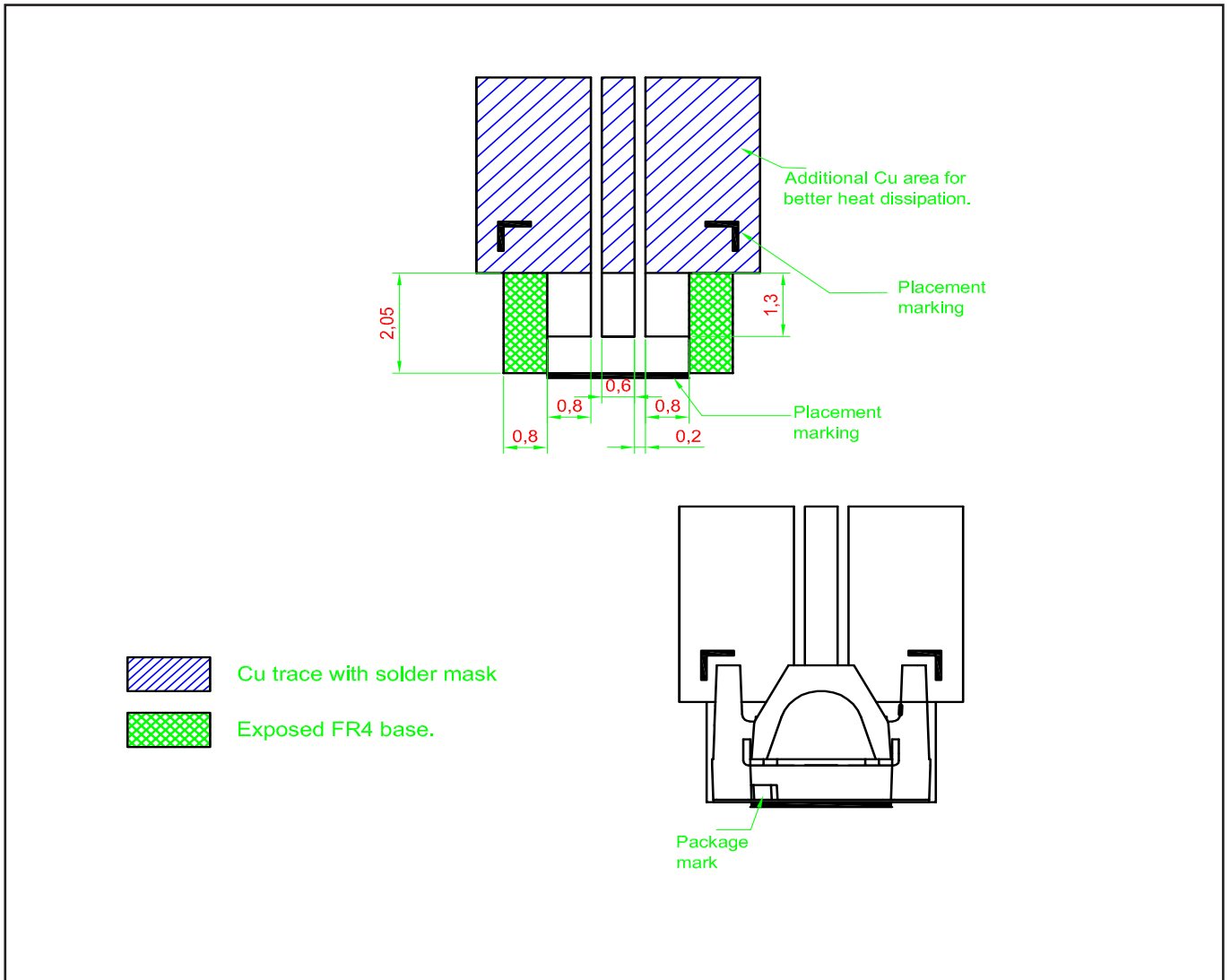
$$\Delta \lambda_{\text{dom}} = \lambda_{\text{dom}} - \lambda_{\text{dom}}(25^\circ\text{C}) = f(T_j); I_F = 30\text{mA}$$



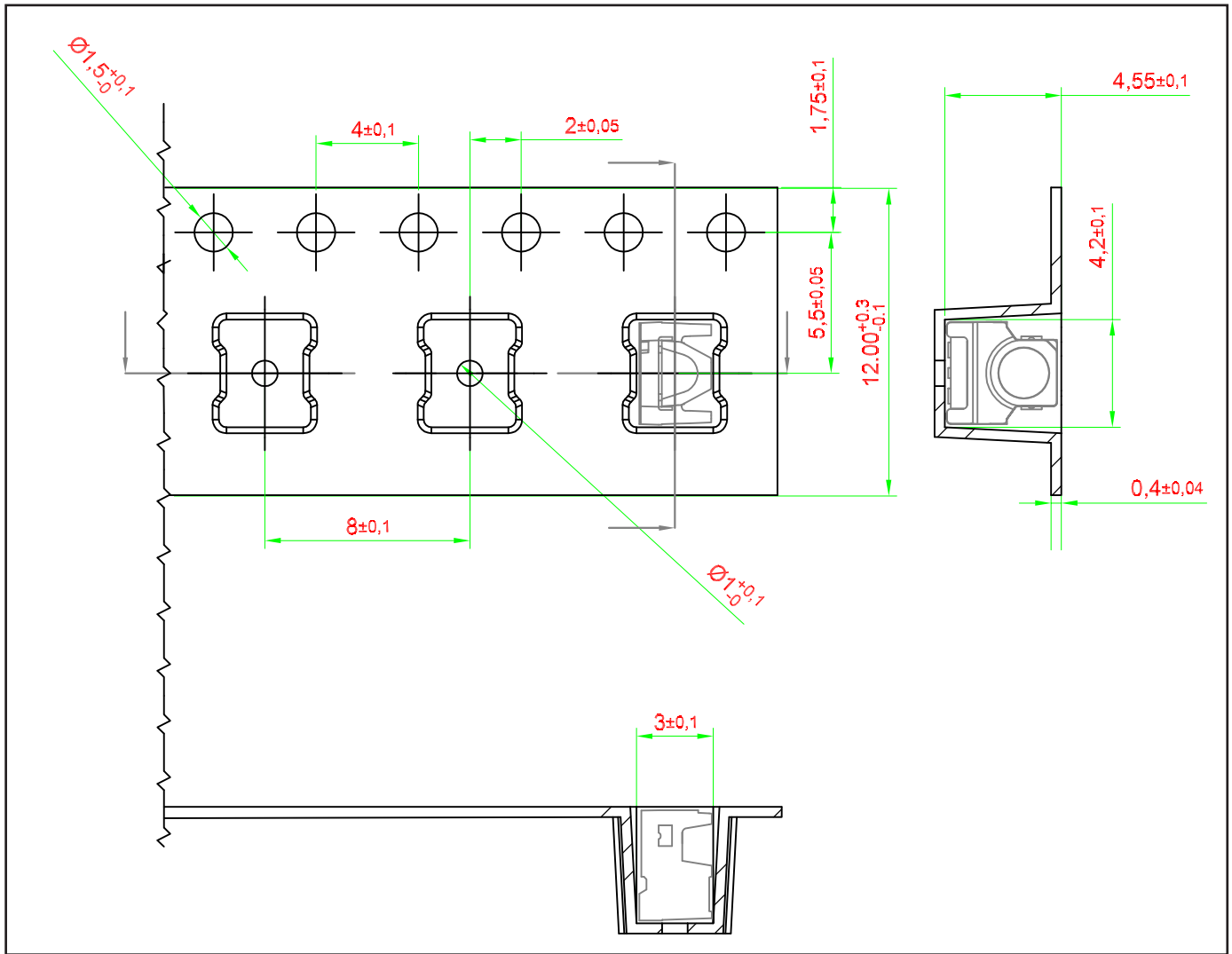
Power Right Angle DomiLED AllnGaP: D3x-HJS Package Outlines



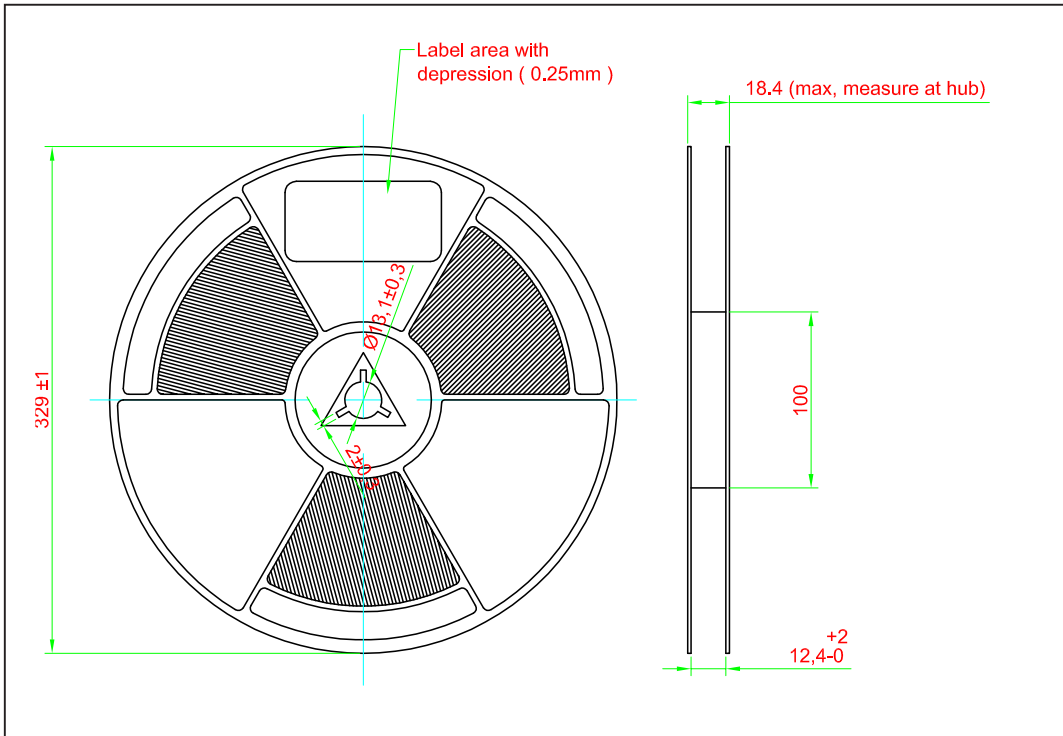
Recommended Solder Pad



Taping and orientation



Packaging Specification

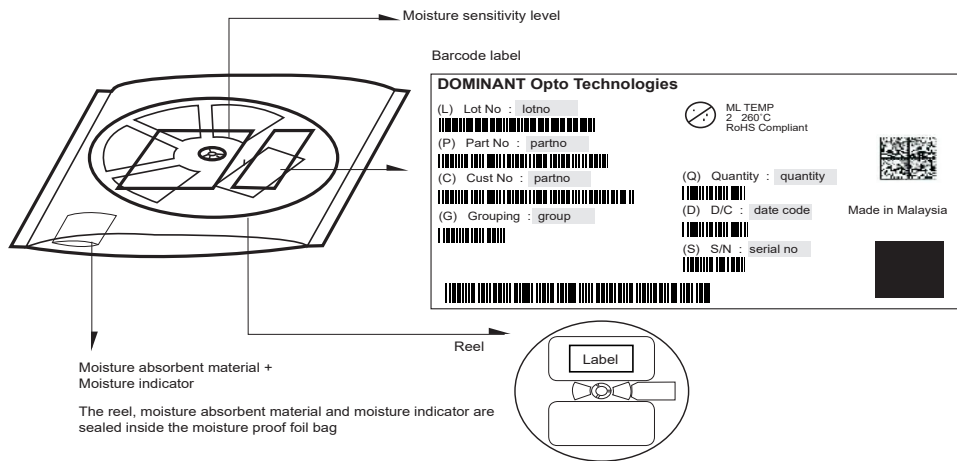


	Reel Diameter (mm)	Quantity (pcs)	*Ordering Number
Standard Packing	329	1500	D3x-HJS-xxx-x

Notes:

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

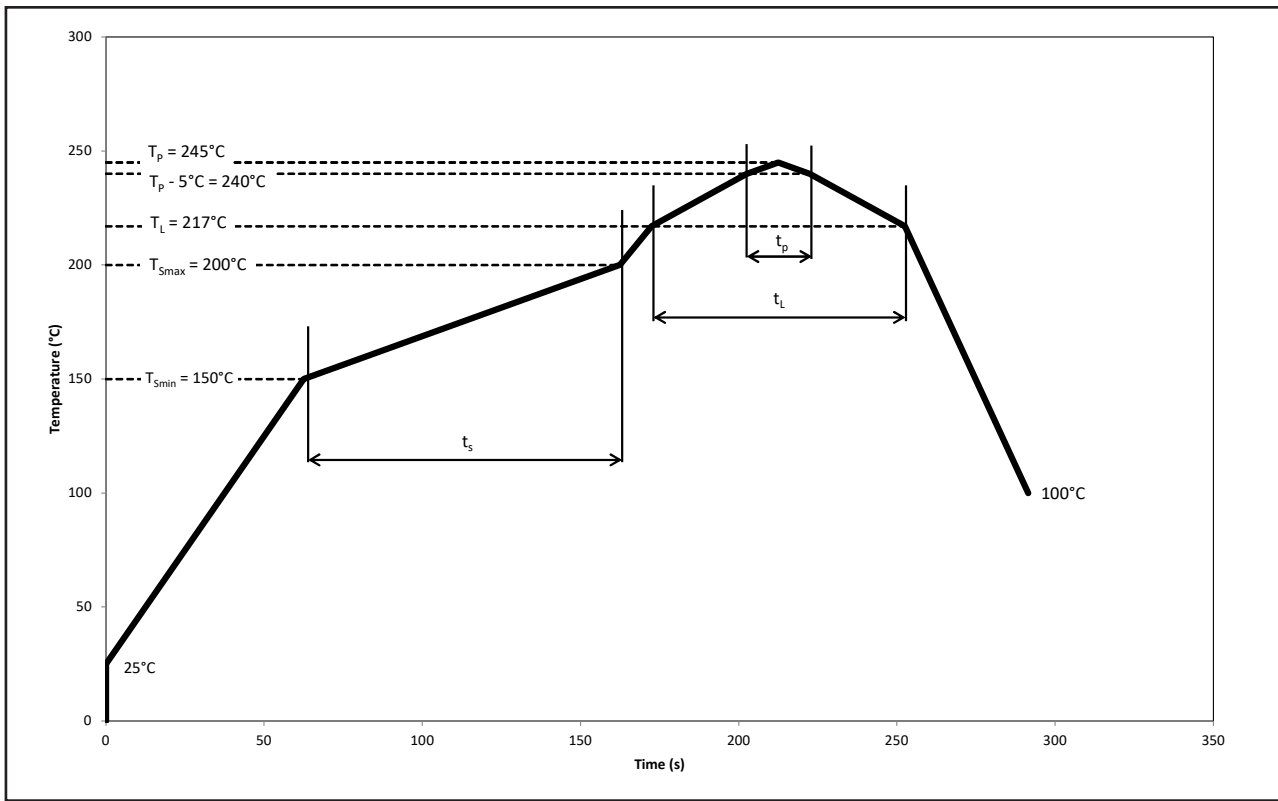
Packaging Specification



Quantity per bag (pcs)	Average 1pc Power Right Angle DomiLED (g)	1 completed bag (g)
1500	0.041	700 ± 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 $T_p - 5^\circ\text{C}$	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) **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].

Revision History

Page	Subjects	Date of Modification
-	Initial Release	16 Nov 2020
11	Update Packaging Specification	29 Feb 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
