

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.
- > 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. 4.1*



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 Ordering Number	Color	Viewing Angle°	Luminous Intensity @ IF = 20mA <i>Appx. 1.1</i>		
			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

Electrical Characteristics at Tj=25°C

Part Number	Min. (V)	Vf @ If = 20mA <i>Appx. 3.1</i>			Vr @ Ir = 10uA
		Typ. (V)	Max. (V)	Min. (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
(Mounting on FR4 PCB, pad size ≥ 5 mm ² per pad)		

Wavelength Grouping

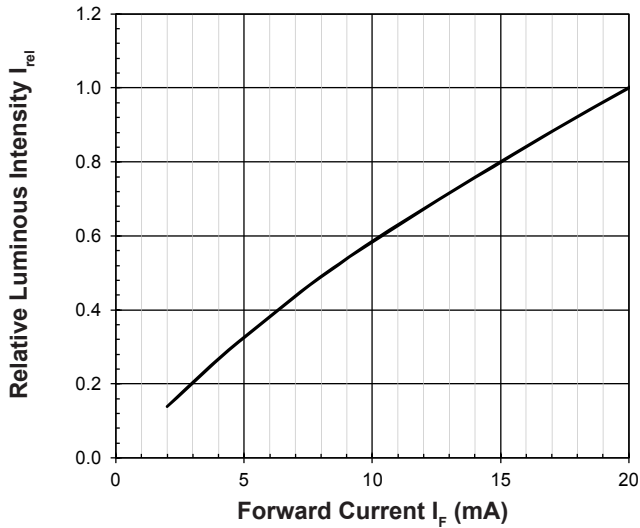
Color	Group	Wavelength distribution (nm) <small>Appx. 2.2</small>
DSB;Blue	Full	465 - 475
	A	465 - 470
	B	470 - 475
DST; True Green	Full	520 - 535
	A	520 - 525
	B	525 - 530
	C	530 - 535

Luminous Intensity Group at Tj=25°C

Brightness Group	Luminous Intensity <small>Appx. 1.1</small> 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

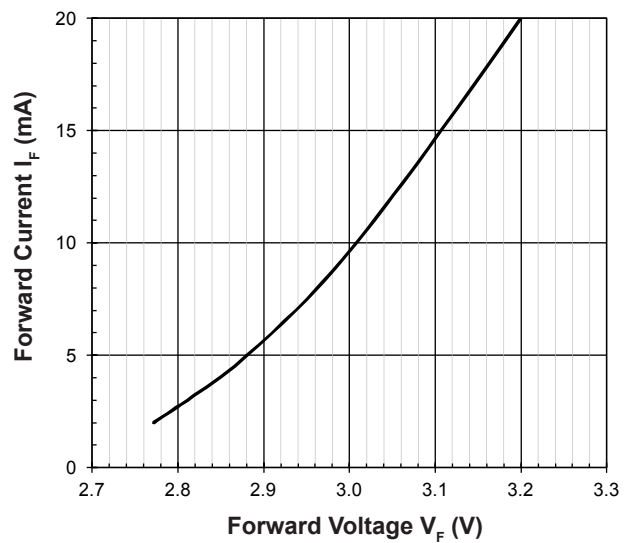
Relative Luminous Intensity Vs Forward Current

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



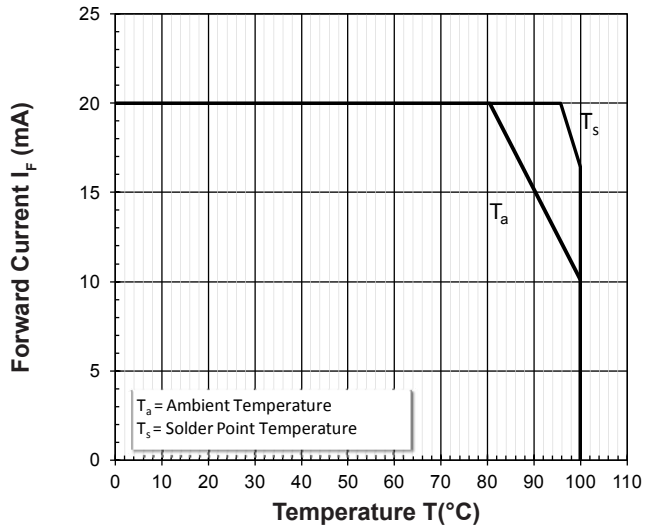
Forward Current Vs Forward Voltage

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



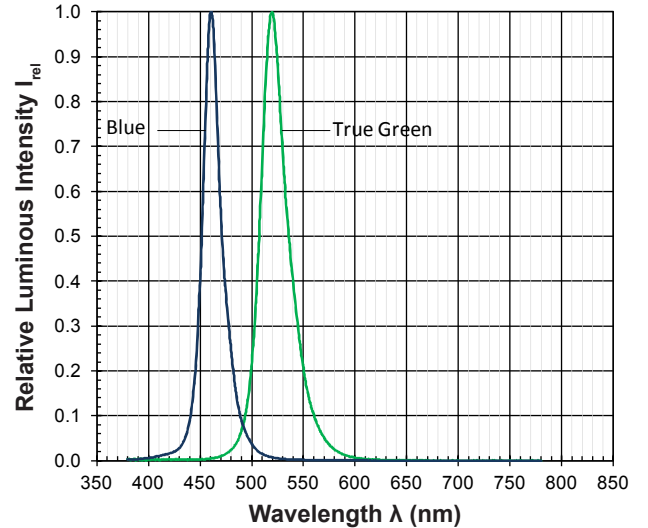
Maximum Current Vs Temperature

$I_F = f(T)$



Relative Spectral Emission

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



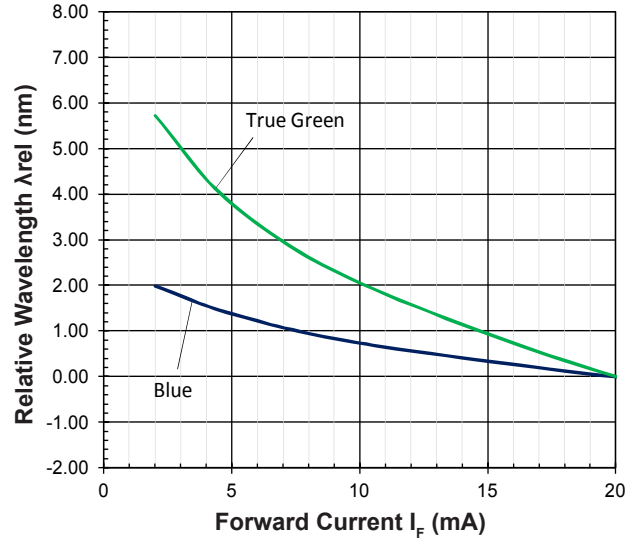
Allowable Forward Current Vs Duty Ratio

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

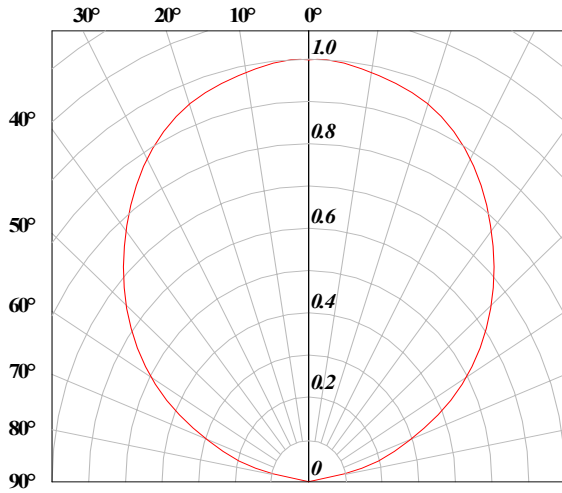


Relative Wavelength Shift Vs Forward Current

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

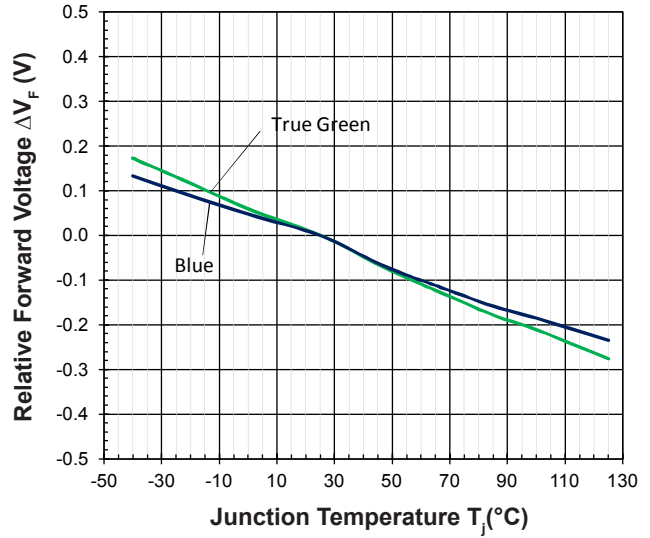


Radiation Pattern



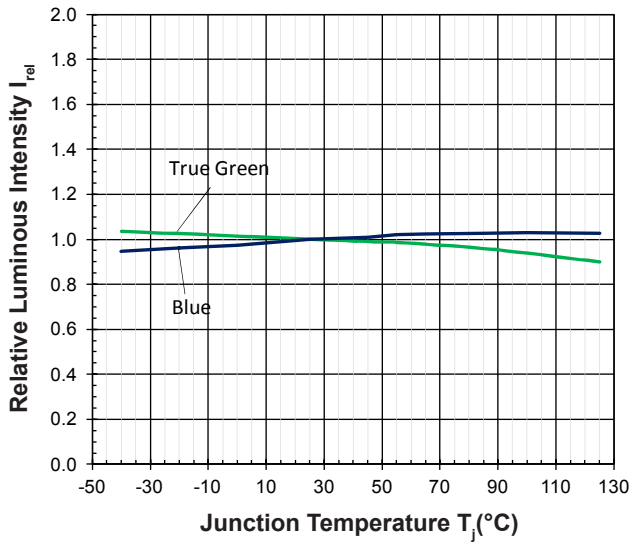
Relative Forward Voltage Vs Junction Temperature

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



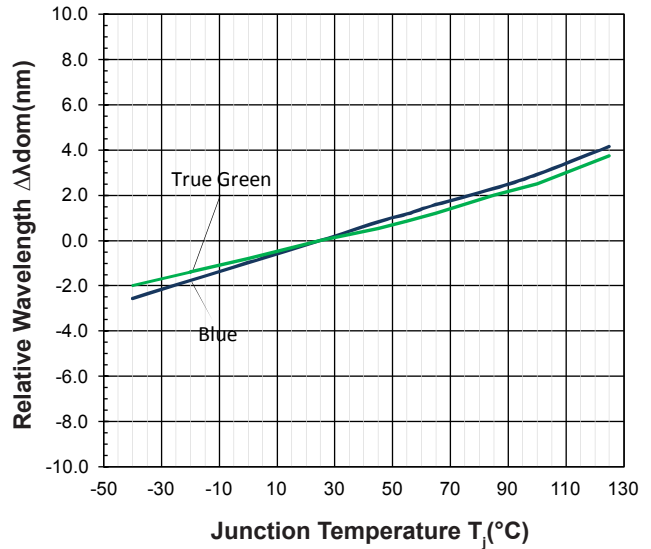
Relative Luminous Intensity Vs Junction Temperature

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

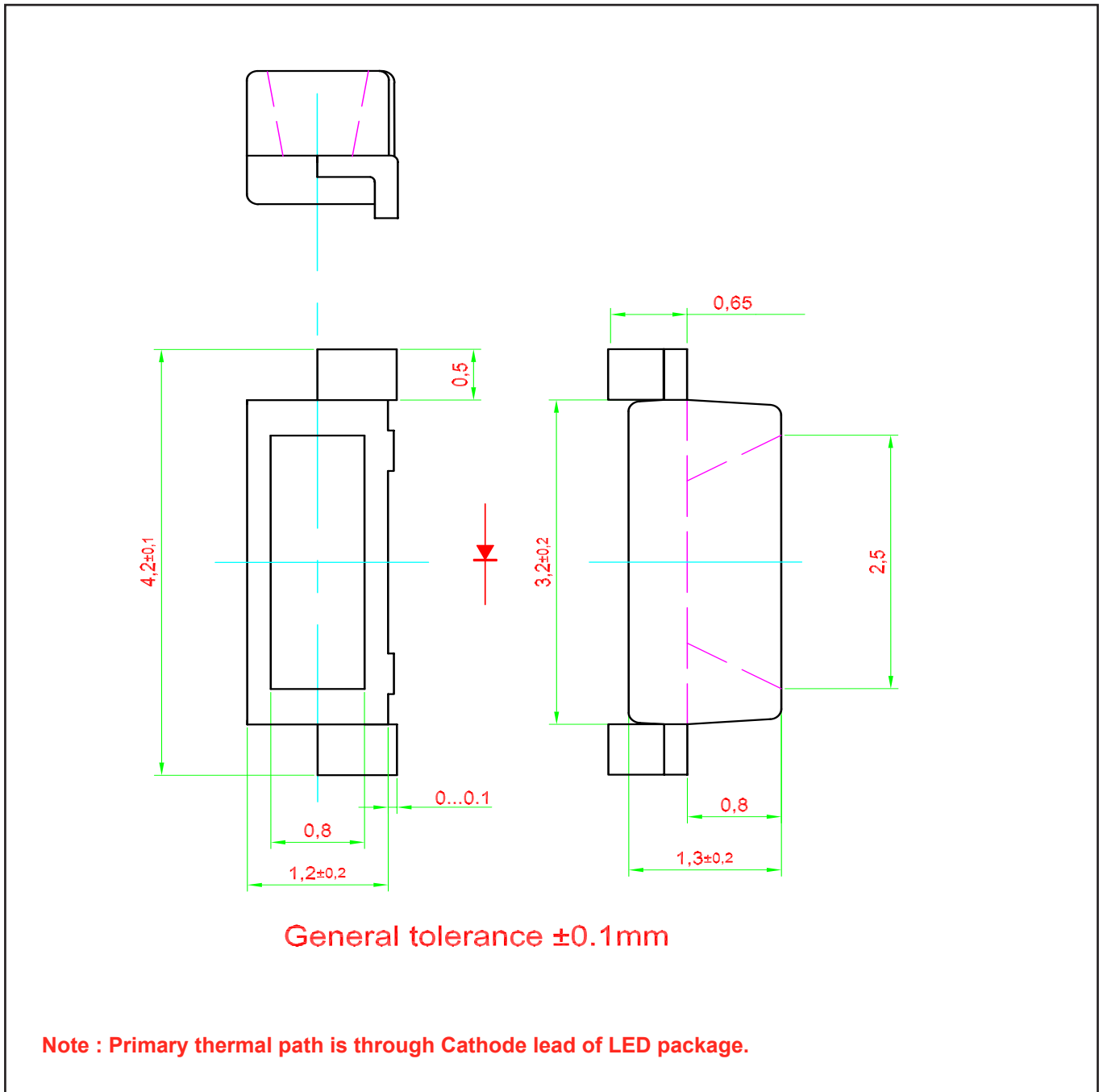


Relative Wavelength Vs Junction Temperature

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



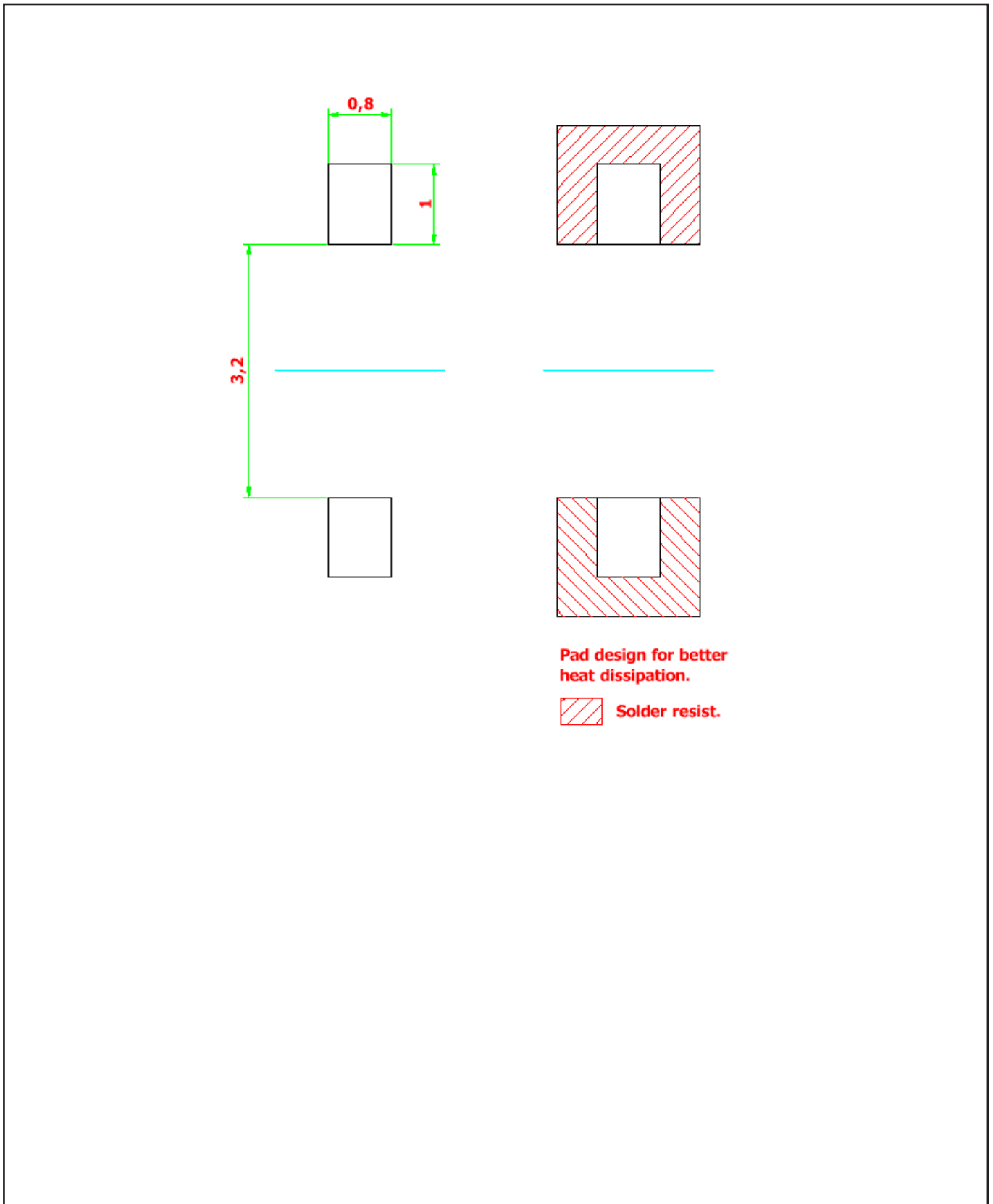
DomiLED™ • InGaN : DSx-DSS Package Outlines



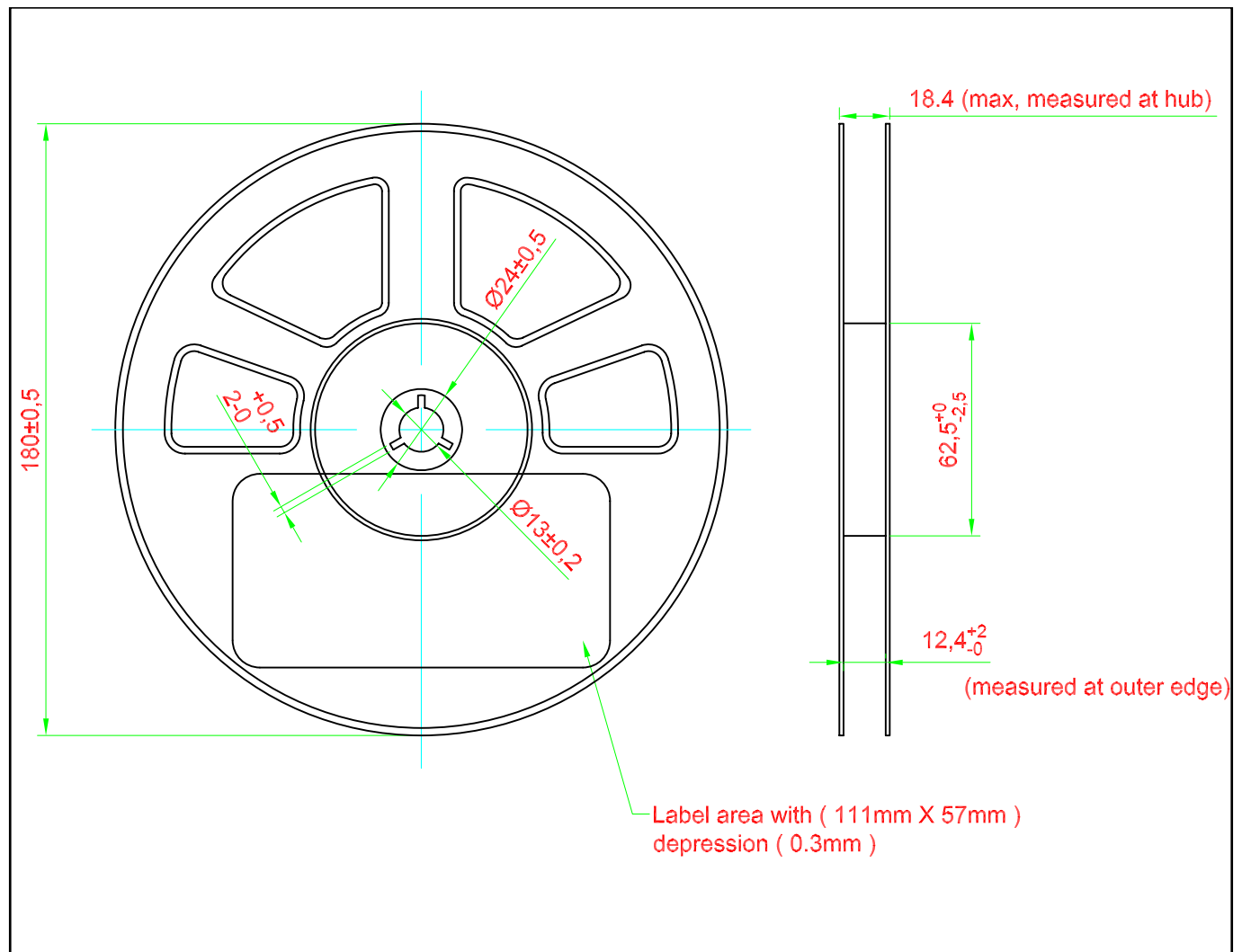
Material

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

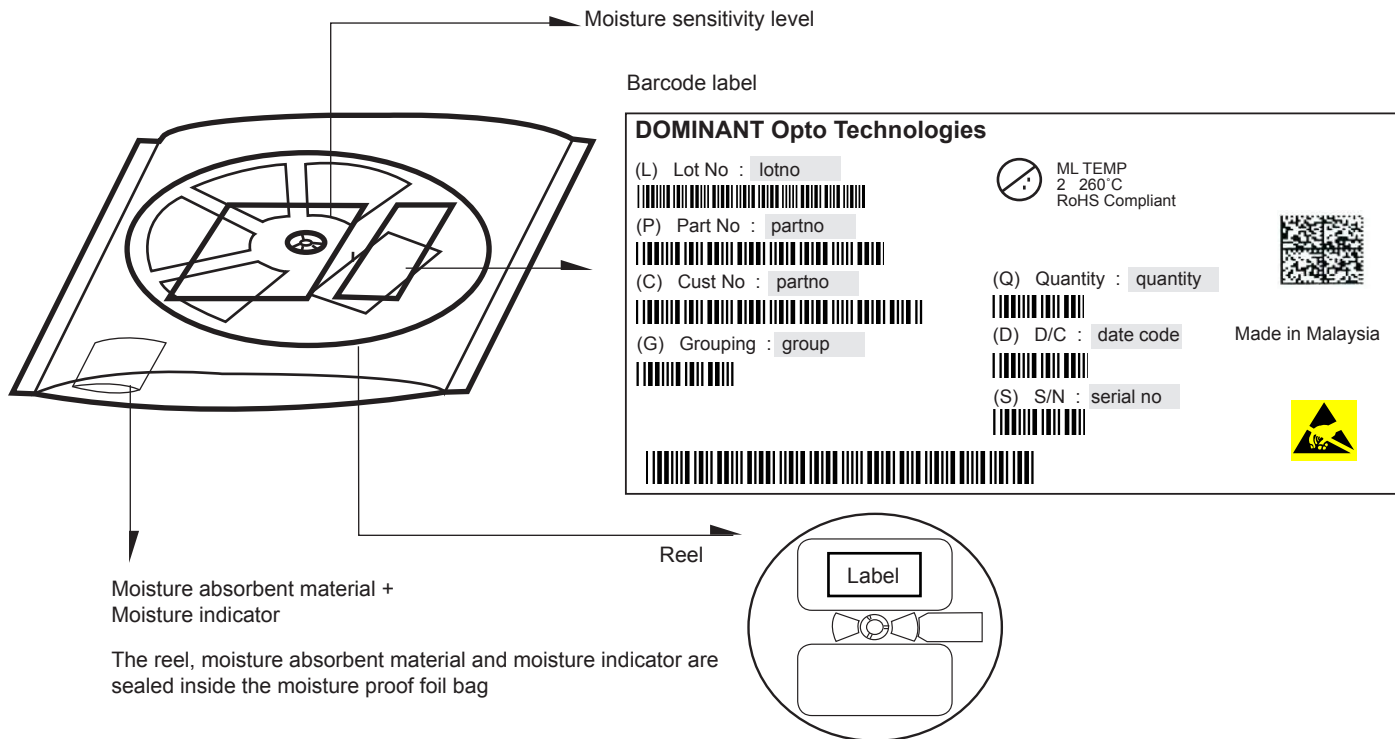
Recommended Solder Pad



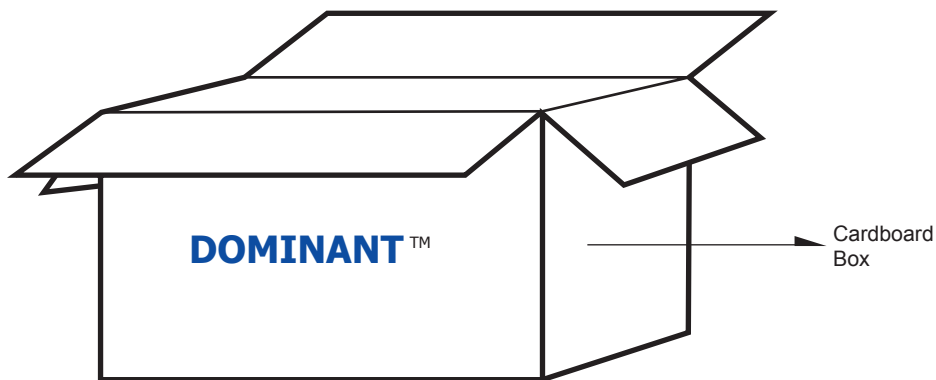
Packaging Specification



Packaging Specification



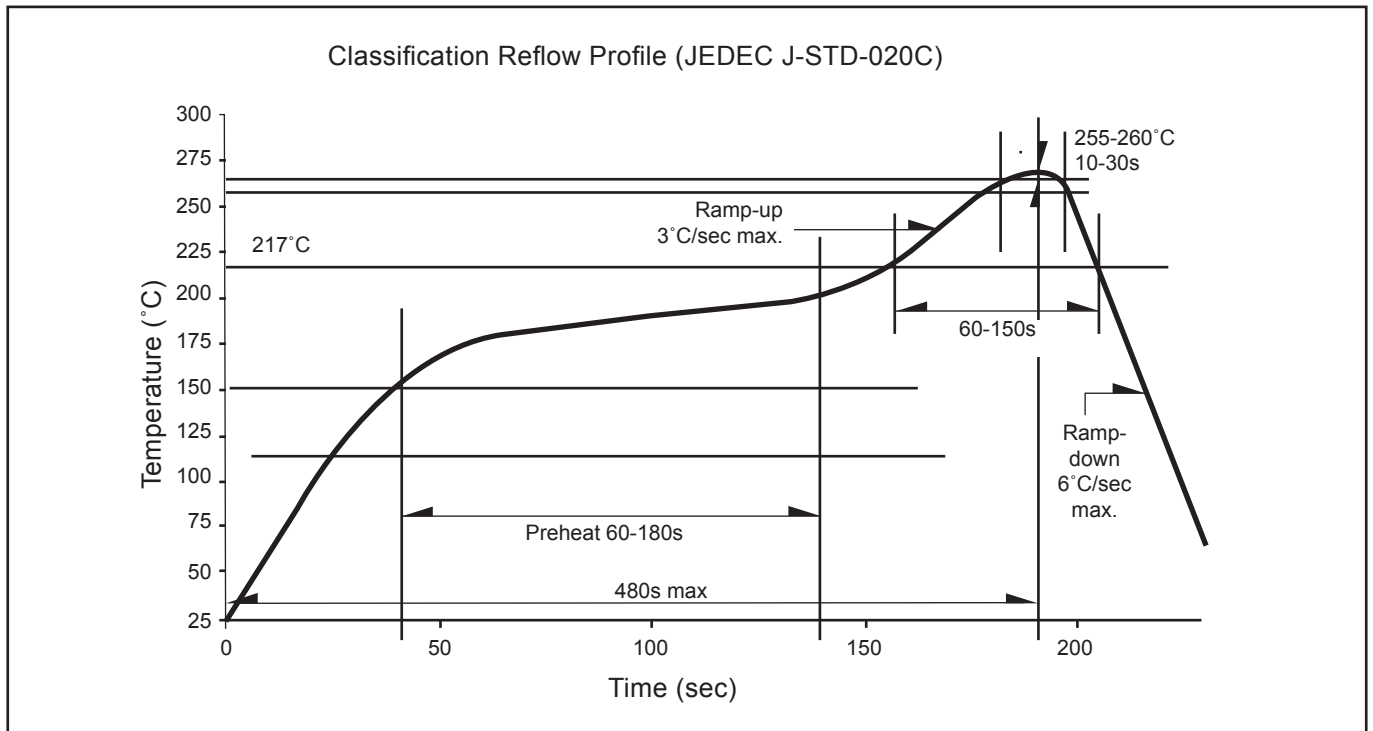
	Average 1pc Right Angle DomiLED	1 completed bag (2500pcs)
Weight (gram)	0.010	240 ± 10



For Right Angle DomiLED

Cardboard Box Size	Dimensions (mm)	Empty Box Weight (kg)	Reel / Box
Super Small	325 x 225 x 190	0.38	7 reels MAX
Small	325 x 225 x 280	0.54	11 reels MAX
Medium	570 x 440 x 230	1.46	48 reels MAX
Large	570 x 440 x 460	1.92	96 reels MAX

Recommended Pb-free Soldering Profile



Appendix

1) **Brightness:**

- 1.1 Luminous intensity is measured 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 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 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 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 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) **Corrosion Robustness:**

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

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

NOTE

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About Us

DOMINANT Opto Technologies is a dynamic Malaysian Corporation that is among the world's leading SMT LED Manufacturers. An excellence – driven organization, it offers a comprehensive product range for diverse industries and applications. Featuring an internationally certified quality assurance acclaim, DOMINANT's extra bright LEDs are perfectly suited for various lighting applications in the automotive, consumer and communications as well as industrial sectors. With extensive industry experience and relentless pursuit of innovation, DOMINANT's state-of-art manufacturing, research and testing capabilities have become a trusted and reliable brand across the globe. More information about DOMINANT Opto Technologies can be found on the Internet at <http://www.dominant-semi.com>.

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