DOMINANT™
Opto Technologies
Innovating Illumination

DATA SHEET

Multi DomiLED

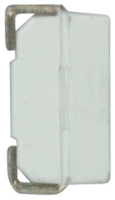
D6RTB-SKG

Multi DomiLED

Synonymous with function and performance, the Multi 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 tri-color surface mount LED.
- > Each color can be individually controlled
- > 120° viewing angle.
- > Small package outline (LxWxH) of 3.2 x 3.0 x 1.7mm.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > Superior Corrosion Resistant.
- > Compliance to automotive standard; AEC-Q101.



Applications:

- > Automotive: Interior applications, eg: switches, telematics, climate control system, dashboard, etc.
- > Signs: full color video
- > Consumer & Communication: backlighting of LCDs
- > General Lighting: architectural lighting, decorative lighting

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Optical Characteristics at Tj=25˚C

Part Ordering Number	Color, λ_{dom} (nm)			Luminous Intensity @ If = 20mA IV (mcd) *Appx. 1.1*		
	Chip #1	Chip #2	Chip #3	Chip #1	Chip #2	Chip #3
D6RTB-SKG-U3V3+W2X+S2T-1	Red 625nm	True Green 528nm	Blue 465nm	650.0-1280.0	1400.0-2850.0	224.0-450.0

Electrical Characteristics at Tj=25˚C

	Vf @ If = 20mA *Appx. 3.1*			V_r @ I_r = 10uA
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
Red	1.90	2.20	2.50	12
True Green	2.65	3.00	3.30	5
Blue	2.65	3.00	3.30	5

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	Red; AlInGaP=50; True Green, Blue; InGaN=50	mA
Peak pulse current; (tp ≤ 10μs, Duty cycle = 0.005)	Red ; AlInGaP=200 True Green, Blue; InGaN=200	mA
Reverse voltage	Red; AlInGaP=12; True Green, Blue; InGaN= 5	V
ESD threshold (HBM)	2000	V
LED junction temperature	125	˚C
Operating temperature	-40 … +115	˚C
Storage temperature	-40 … +125	˚C
Thermal resistance (1 chips on)		
- Real Thermal Resistance		
Junction / ambient, $R_{th\ JA\ real}$		
Red	360	K/W
Blue & True Green	390	K/W
Junction / solder point, $R_{th\ JS\ real}$		
Red	160	K/W
Blue & True Green	170	K/W
(Mounting on DOMINANT standard PCB)		

Wavelength Grouping

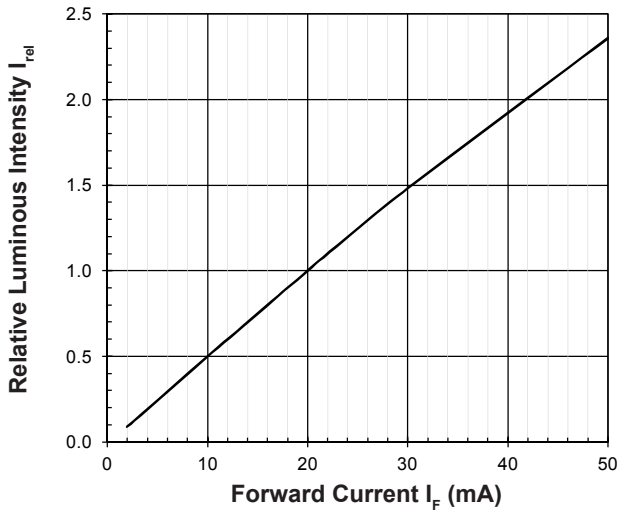
Color	Group	Wavelength distribution (nm) *Appx. 2.2*
Red	Full	619 - 629
True Green	Full	520 - 535
	A	520 - 525
	B	525 - 530
	C	530 - 535
Blue	Full	459 - 471
	A	459 - 463
	B	463 - 467
	C	467 - 471

Luminous Intensity Group at Tj=25˚C

Color	Brightness Group	Luminous Intensity *Appx. 1.1* IV (mcd)
Red	U3	650.0 ... 900.0
	V3	900.0 ... 1280.0
True Green	W2	1400.0 ... 1800.0
	X1	1800.0 ... 2240.0
	X2	2240.0 ... 2850.0
Blue	S2	224.0 ... 285.0
	T1	285.0 ... 355.0
	T2	355.0 ... 450.0

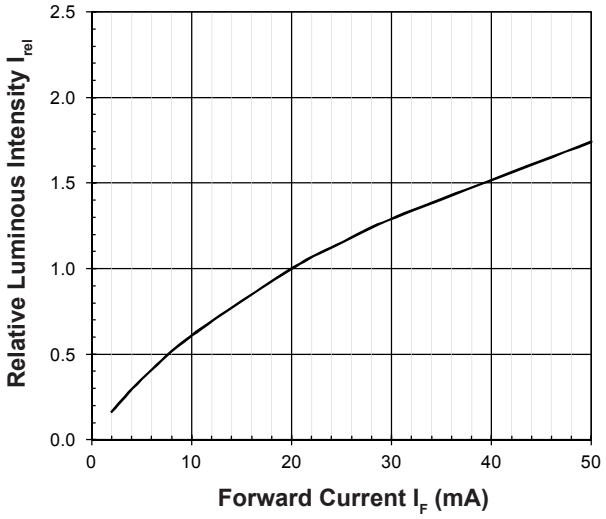
Relative Luminous Intensity Vs Forward Current (Red)

$I_V/I_V(20mA) = f(I_F)$; $T_j = 25°C$



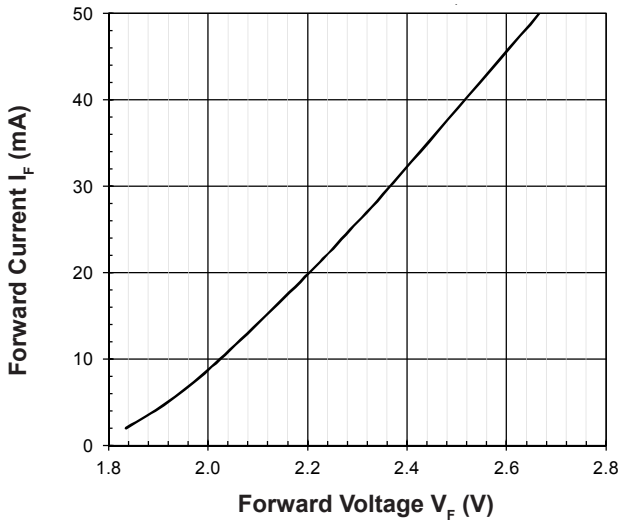
Relative Luminous Intensity Vs Forward Current (Blue & True Green)

$I_V/I_V(20mA) = f(I_F)$; $T_j = 25°C$



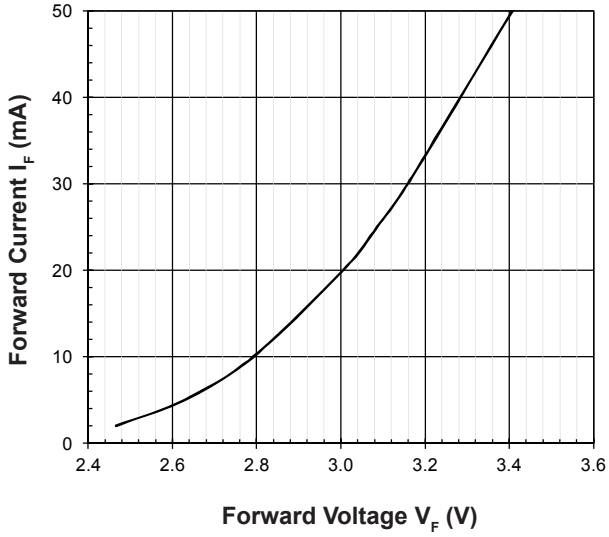
Forward Current Vs Forward Voltage (Red)

$I_F = f(V_F)$; $T_j = 25°C$

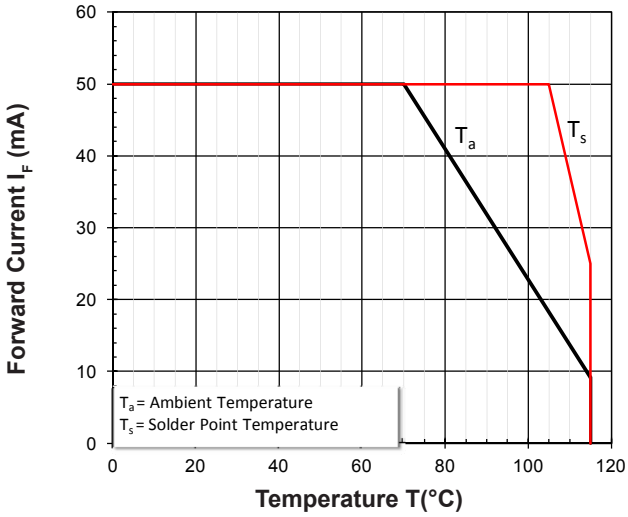


Forward Current Vs Forward Voltage (Blue & True Green)

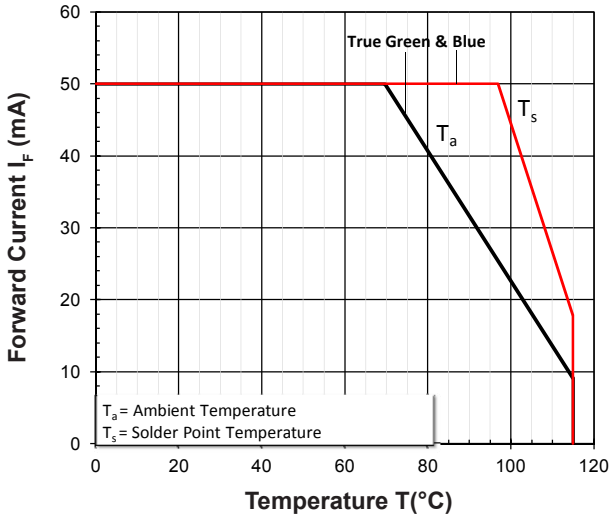
$I_F = f(V_F)$; $T_j = 25°C$



Maximum Current Vs Temperature (Red) $I_F=f(T)$

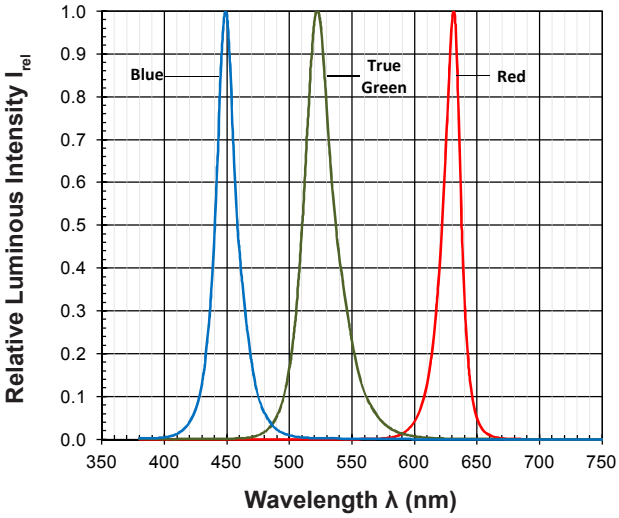


Maximum Current Vs Temperature (Blue & True Green) $I_F=f(T)$



Relative Spectral Emission

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

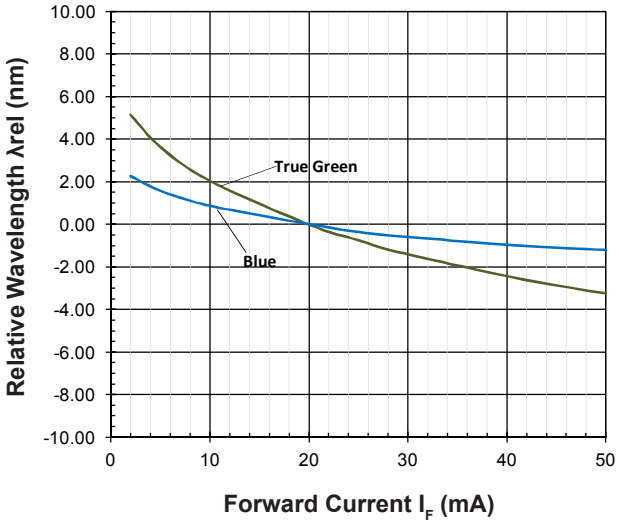


Allowable Forward Current Vs Duty Ratio

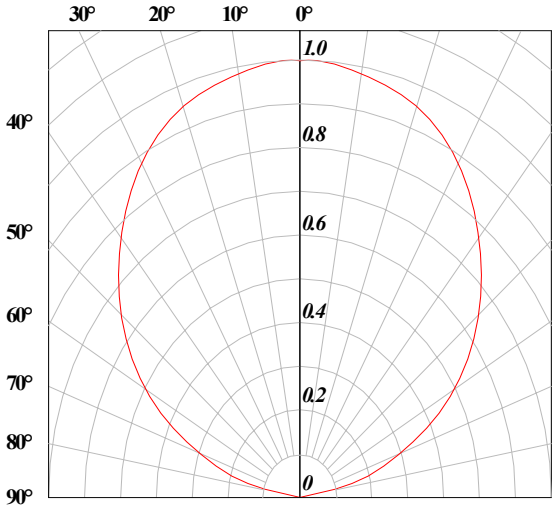
($T_j = 25°C$; $t_p \leq 10\mu s$)

Relative Wavelength Shift Vs Forward Current

$\lambda dom = f(I_F)$; $T_j = 25°C$

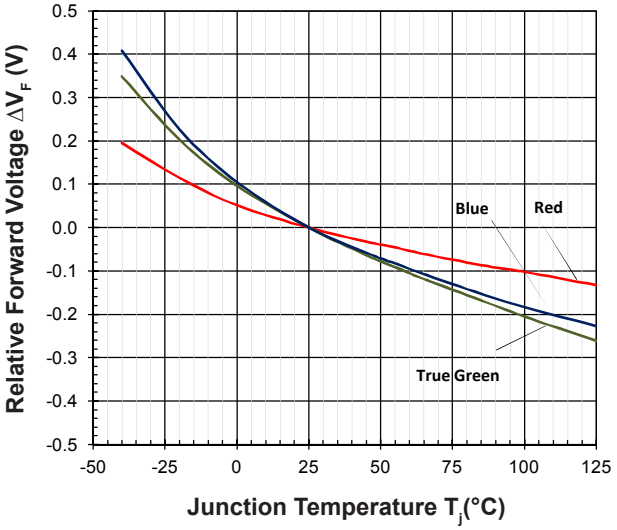


Radiation Pattern



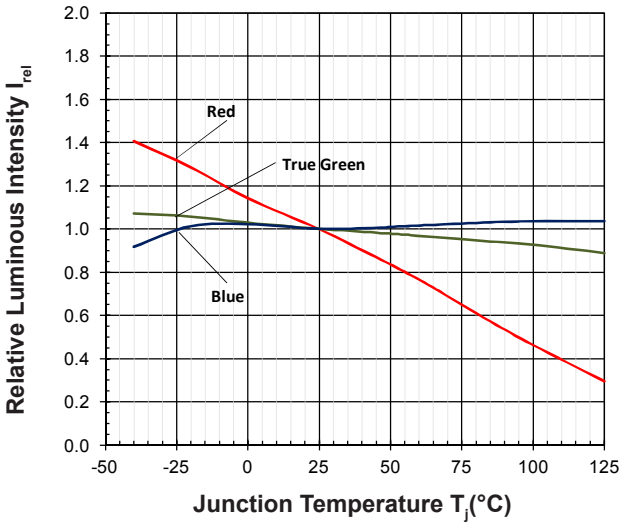
Relative Forward Voltage Vs Junction Temperature

$\Delta V_F = V_F - V_F(25°C) = f(T_j)$; I_F =20mA



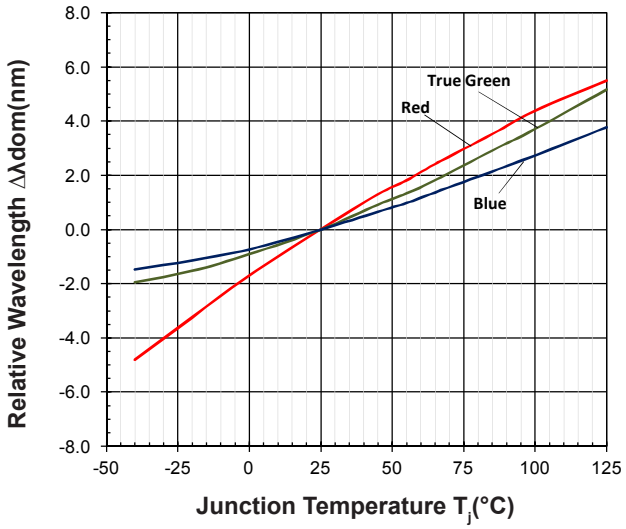
Relative Luminous Intensity Vs Junction Temperature

$I_V/I_V(25°C) = f(T_j)$; I_F = 20mA

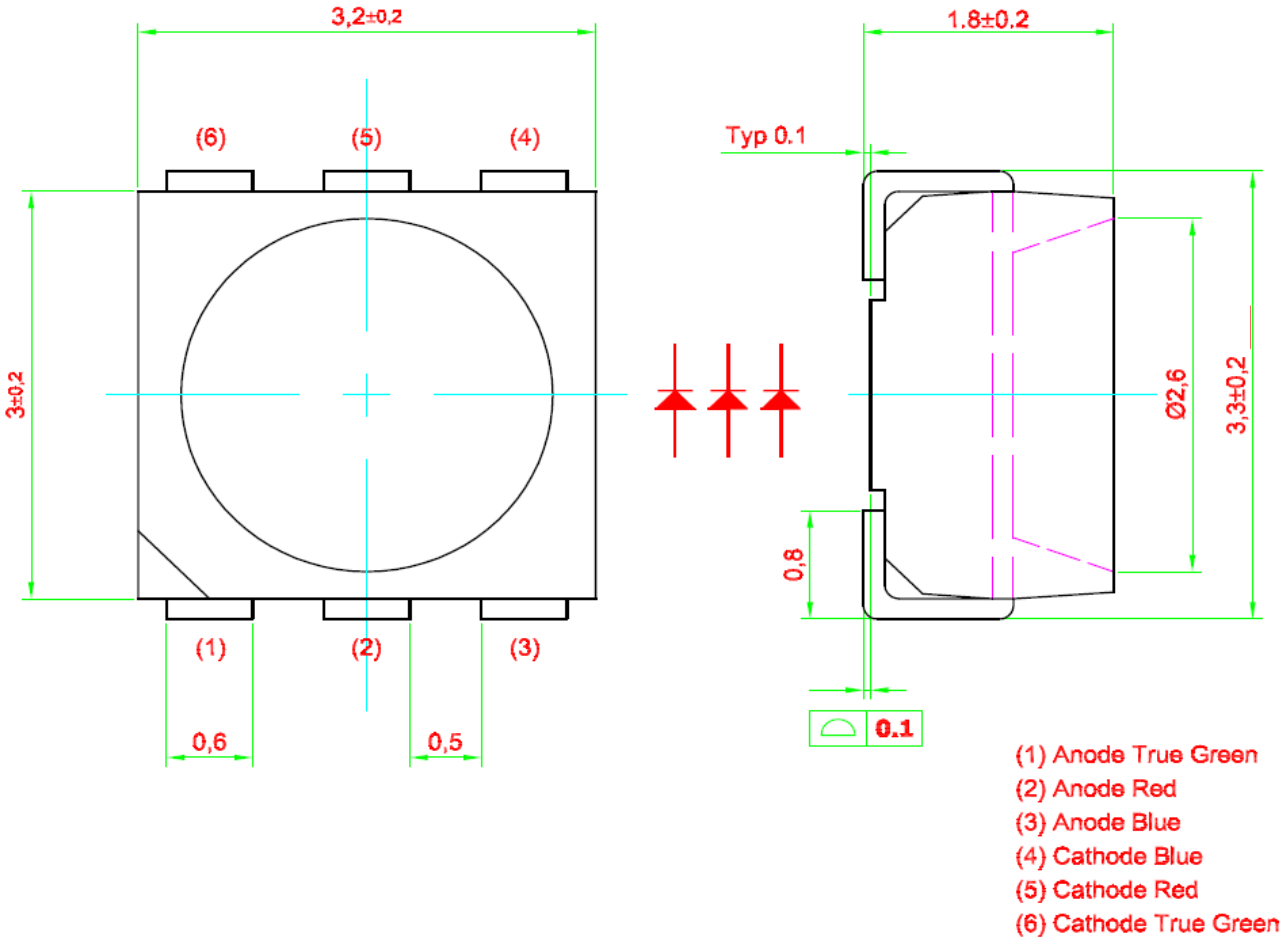


Relative Wavelength Vs Junction Temperature

$\Delta\lambda dom = \lambda dom - \lambda dom\ (25°C) = f(T_j)$; IF =20mA



Multi DomiLED : D6RTB-SKG Package Outlines



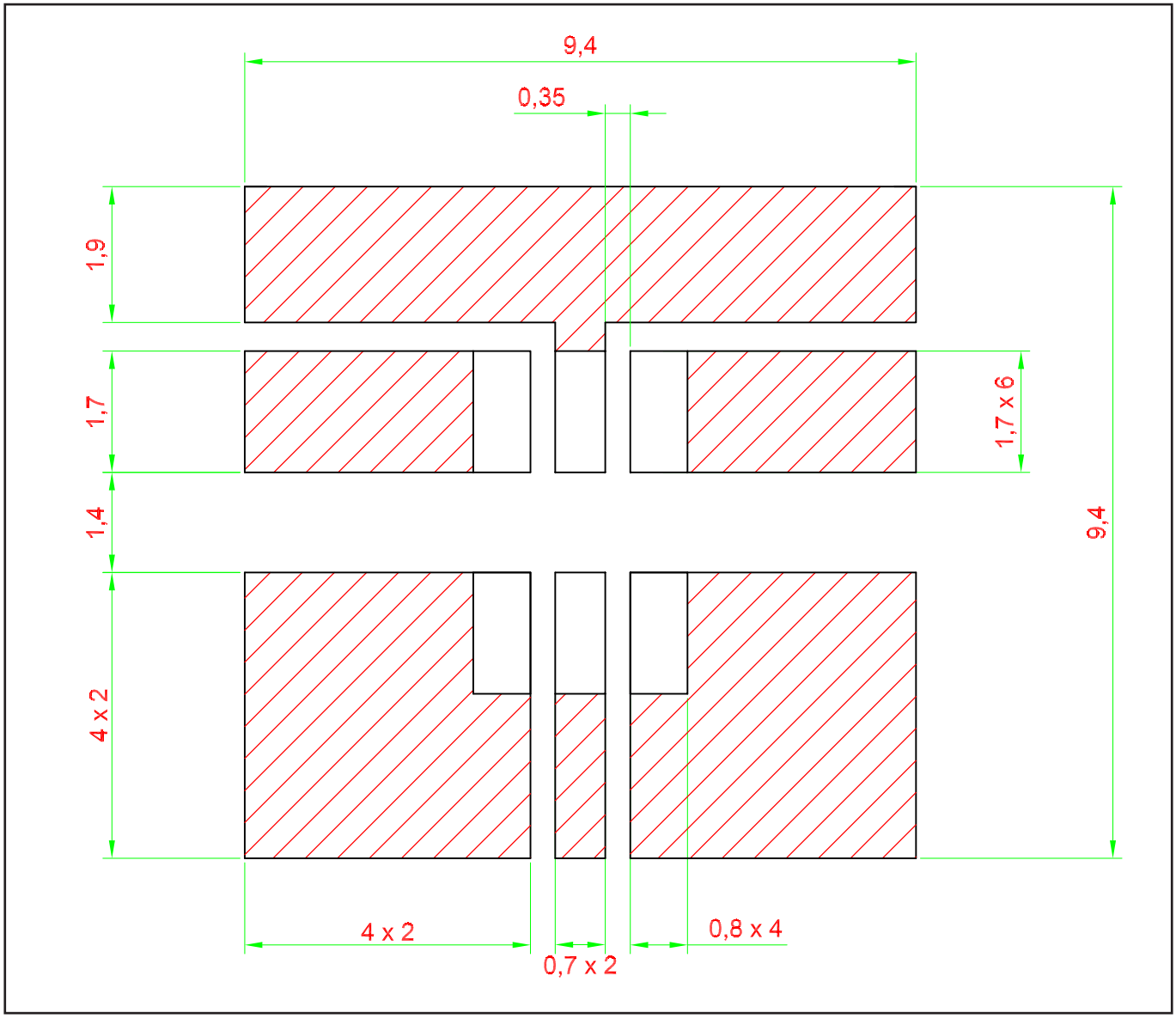
Note : Primary thermal path is through Cathode lead of LED package for Red, Anode lead for Blue and True Green.

Materials

	Materials
Lead Frame	Cu Alloy with NipdAu Plating
Housing	High temperature resistant plastic, PPA
Encapsulant	SIlicone
Lead-finishing	NipdAu Plating

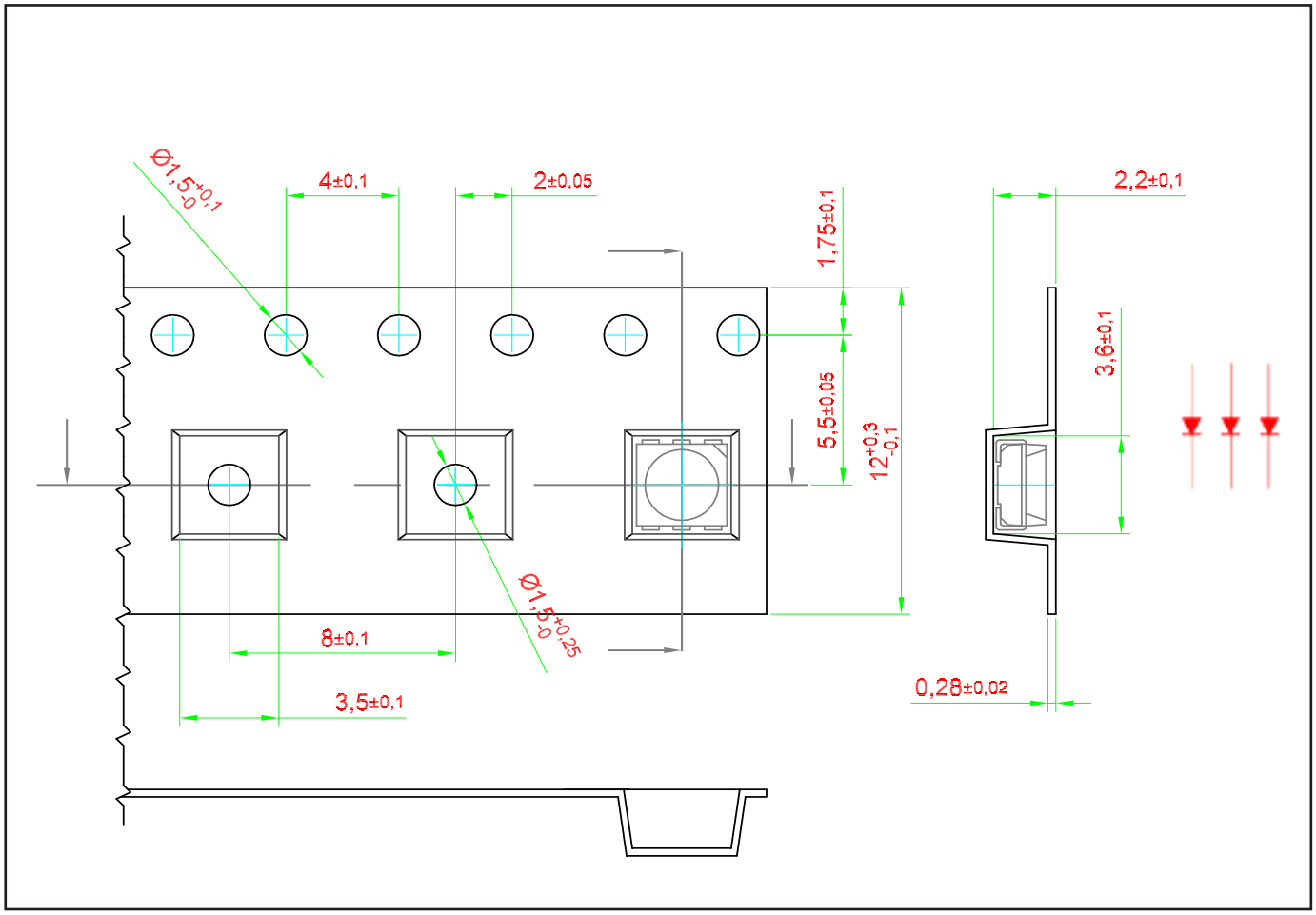
Note: Package is Pb-free.

Recommended Solder Pad

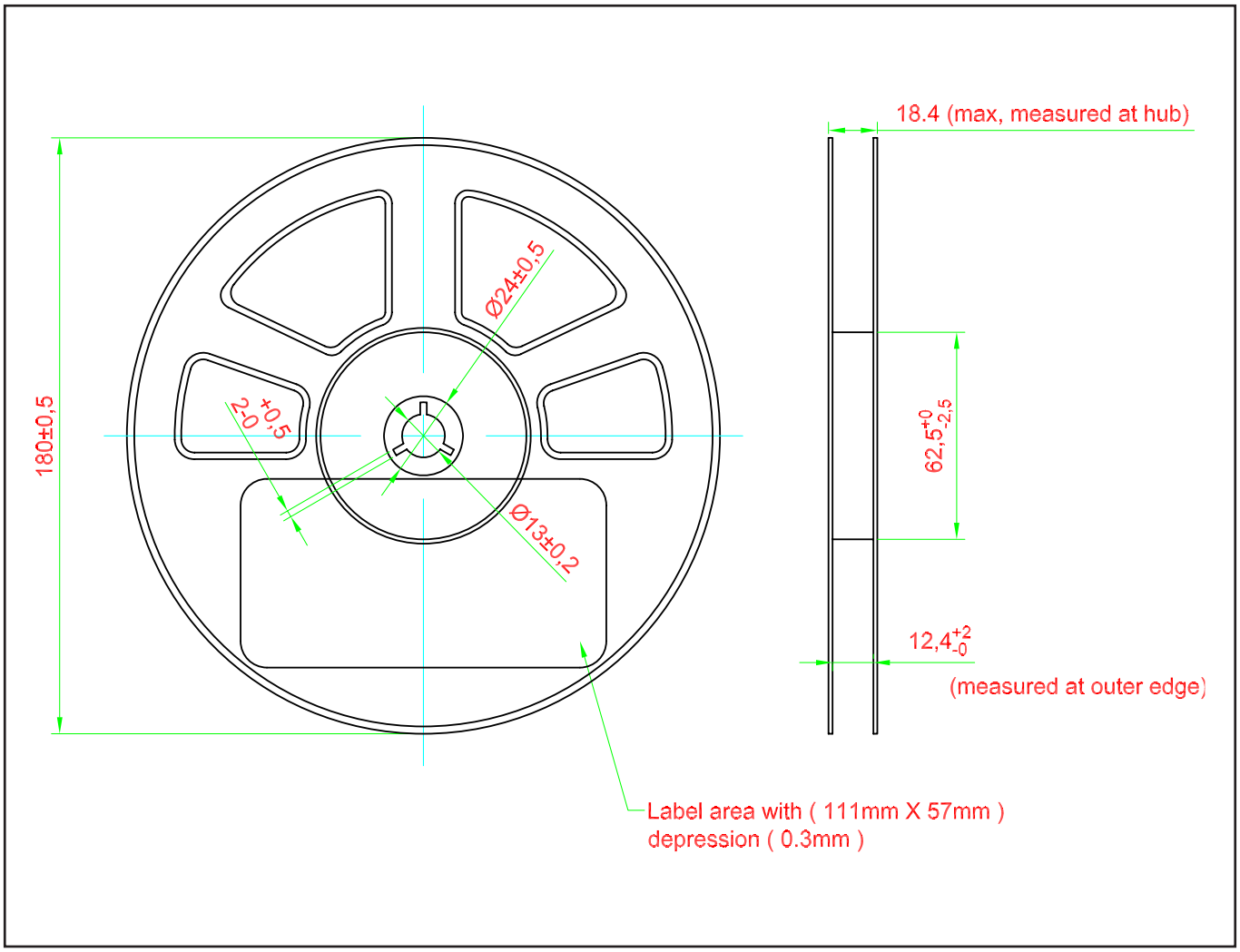


Taping and orientation

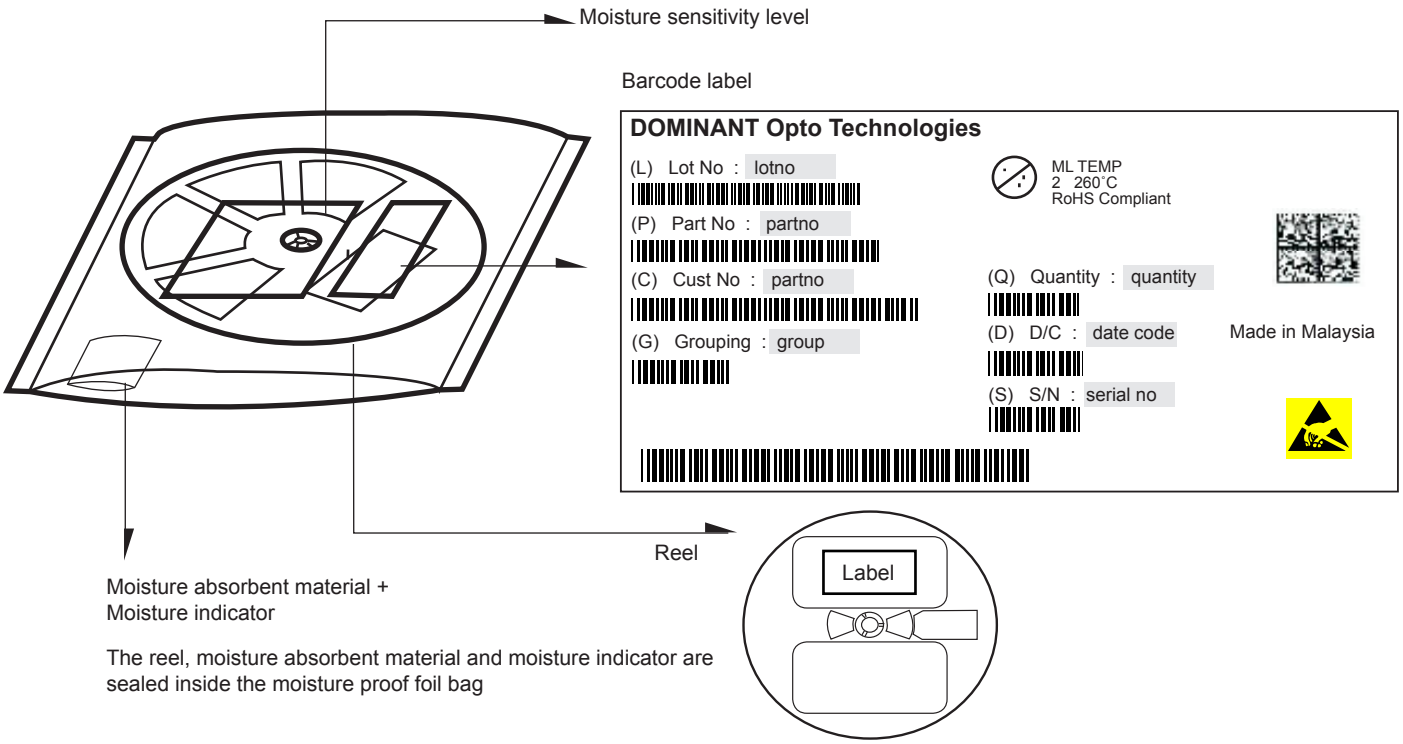
- Reels come in quantity of 1000 units.
- Reel diameter is 180 mm.



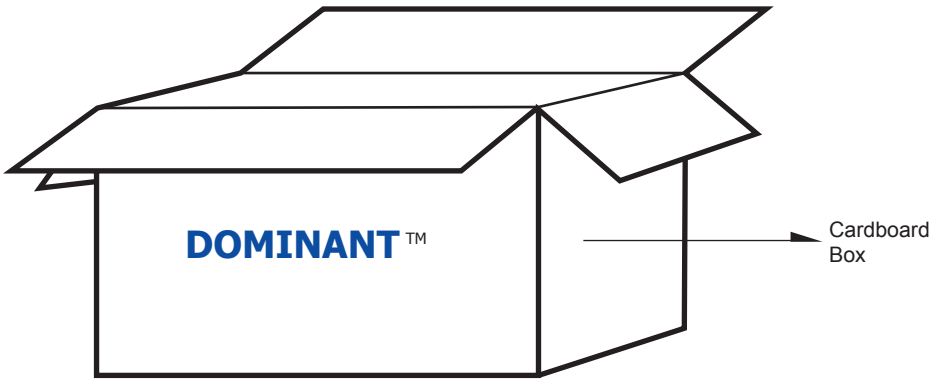
Packaging Specification



Packaging Specification



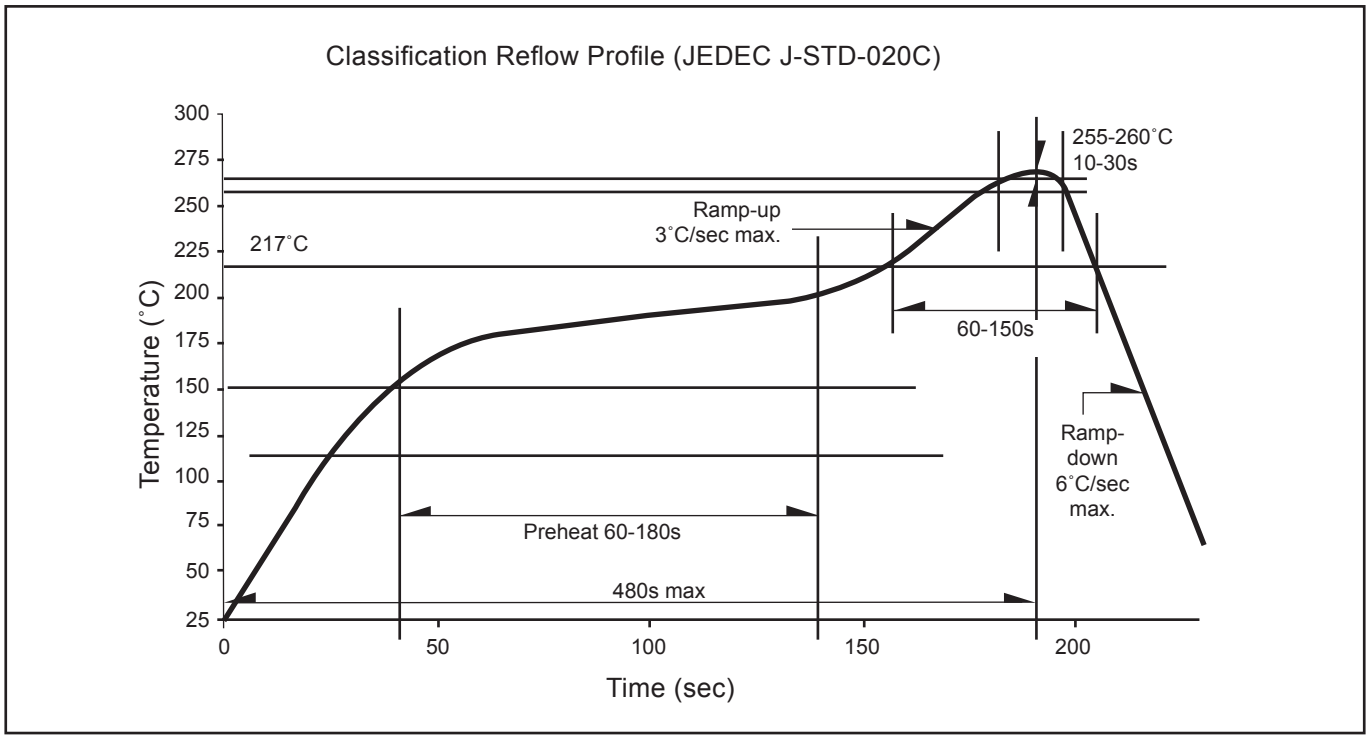
	Average 1pc Multi DomiLED	1 completed bag (1000pcs)
Weight (gram)	**0.034**	**240 ± 10**



For Multi 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 ± 8 % and an expanded uncertainty of ± 11 % (according to GUM with a coverage factor of k=3).

1.2 Luminous flux is measured 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 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 ± 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 with an internal reproducibility of ± 0.05V and an expanded uncertainty of ± 0.1V (accordingly to GUM with a coverage factor of k=3).

Revision History

Page	Subjects	Date of Modification
-	Initial Release	22 May 2017
5, 6, 7	Update Graph	29 Sep 2017

NOTE

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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, a ISO/TS 16949 and ISO 14001 certified company, can be found under http://www.dominant-semi.com.

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