

Power DomiLED

With its significant power in terms brightness, viewing angle and variety of application possibilities, Power DomiLED truly is a standout performer! Ideal for automotive interior lighting as well as home, office and industrial applications, it is also a proven performer in electronic signs and signals.



Features:

- > High brightness surface mount LED using thin film technology.
- > 120° viewing angle.
- > Small package outline (LxWxH) of 3.2 x 2.8 x 1.8mm.
- > Qualified according to JEDEC moisture sensitivity Level 2.
- > Compatible to IR reflow soldering.
- > Environmental friendly; RoHS compliance.
- > Passed Corrosion Resistant Test. *Appx. 4.1*



Applications:

> Automotive:

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

Exterior applications, eg: signal lighting, Center High Mounted Stop Light (CHMSL)

> Signage: full colour display video notice board, signage, special effect lighting.

> Industrial: white goods (eg: Oven, microwave, etc.), light bar, illuminated advertising.

> Lighting: architecture lighting, general lighting, garden light, channel light.



Optical Characteristics at Tj=25°C

Part Ordering Number	Color	Viewing Angle°	Luminous Intensity @ IF = 50mA IV (mcd) <i>Appx. 1.1</i>		
			Min.	Typ.	Max.
DWS-MJS-WX1-1	Super Red, 632nm	120	1125.0	1800.0	2240.0
DWR-MJS-W2X-1	Red, 625nm	120	1400.0	2240.0	2850.0
DWA-MJS-W2X-1	Amber, 615nm	120	1400.0	2240.0	2850.0
DWO-MJS-W2X-1	Orange, 605nm	120	1400.0	2240.0	2850.0
DWO-MJS-XY2-1	Orange, 605nm	120	1800.0	2850.0	4500.0
DWY-MJS-W2X-1	Yellow, 587nm	120	1400.0	2240.0	2850.0
DWY-MJS-WX1-1	Yellow, 587nm	120	1125.0	1800.0	2240.0

Electrical Characteristics at Tj=25°C

Part Number	Vf @ If = 50mA <i>Appx. 3.1</i>			Vr @ Ir = 10uA
	Min. (V)	Typ. (V)	Max. (V)	Min. (V)
DWx-MJS	2.00	2.20	2.65	12

Absolute Maximum Ratings

	Maximum Value	Unit
DC forward current	70	mA
Peak pulse current; (tp ≤ 10µs, Duty cycle = 0.1)	100	mA
Reverse voltage	12	V
ESD threshold (HBM)	2000	V
LED junction temperature	125	°C
Operating temperature	-40 ... +100	°C
Storage temperature	-40 ... +100	°C
Power dissipation (at room temperature)	200	mW
Thermal resistance		
- Junction / ambient, Rth JA	300	K/W
- Junction / solder point, Rth JS	130	K/W
(Mounting on FR4 PCB, pad size ≥ 16 mm ² per pad)		

Wavelength Grouping at Tj= 25°C

Color	Group	Wavelength distribution (nm) <i>Appx. 2.2</i>
DWS; Super Red	Full	625 - 640
DWR; Red	Full	620 - 630
DWA; Amber	Full	610 - 621
	W	610 - 615
	X	615 - 621
DWO; Orange	Full	600 - 612
	W	600 - 603
	X	603 - 606
	Y	606 - 609
	Z	609 - 612
DWY; Yellow	Full	582 - 594
	W	582 - 585
	X	585 - 588
	Y	588 - 591
	Z	591 - 594

Luminous Intensity Group at Tj=25°C

Brightness Group	Luminous Intensity <i>Appx. 1.1</i> IV (mcd)
W1	1125.0...1400.0
W2	1400.0...1800.0
X1	1800.0...2240.0
X2	2240.0...2850.0
Y1	2850.0...3550.0
Y2	3550.0...4500.0

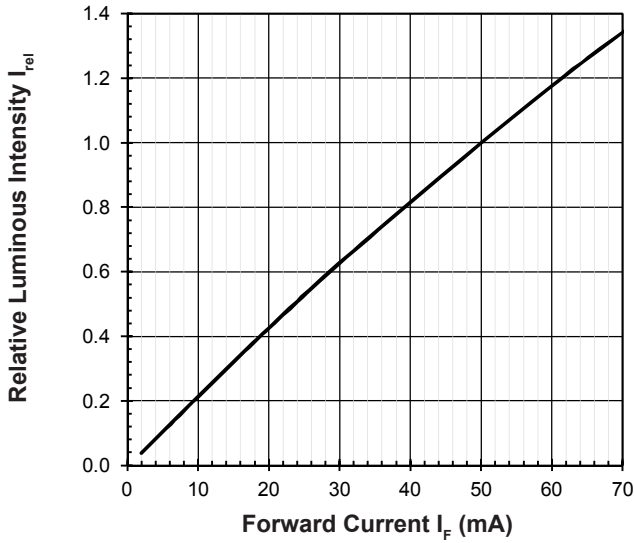
Vf Bining (Optional) at Tj= 25°C

Vf @ If = 50mA	Forward Voltage (V) <i>Appx. 3.1</i>
V5A	2.05 ... 2.20
V5B	2.20 ... 2.35
V5C	2.35 ... 2.50
V5D	2.50 ... 2.65

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

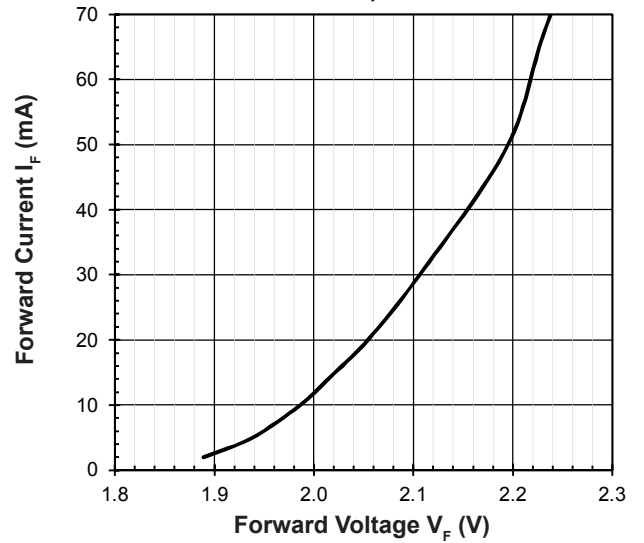
Relative Luminous Intensity Vs Forward Current

$I_v/I_v(50mA) = f(I_F); T_j = 25^\circ C$



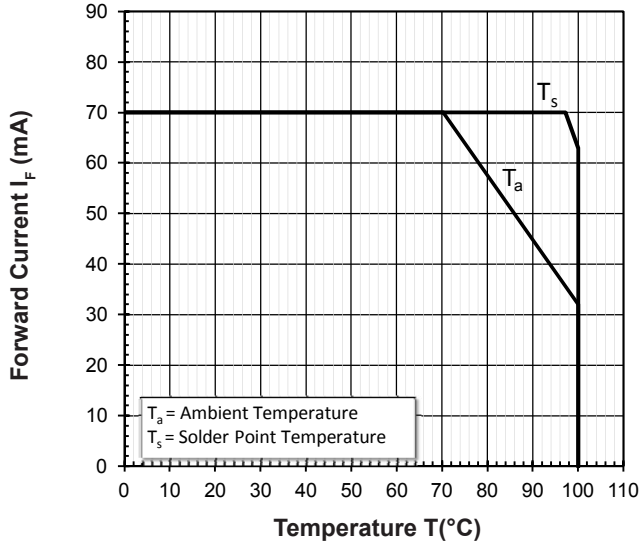
Forward Current Vs Forward Voltage

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



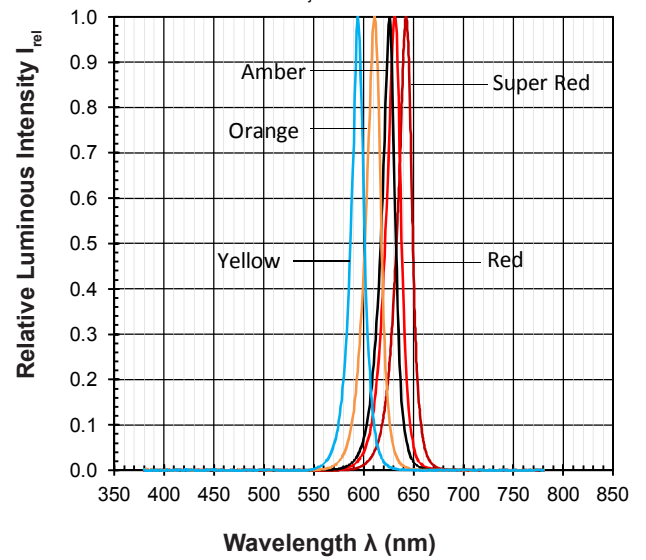
Maximum Current Vs Temperature

$I_F = f(T)$



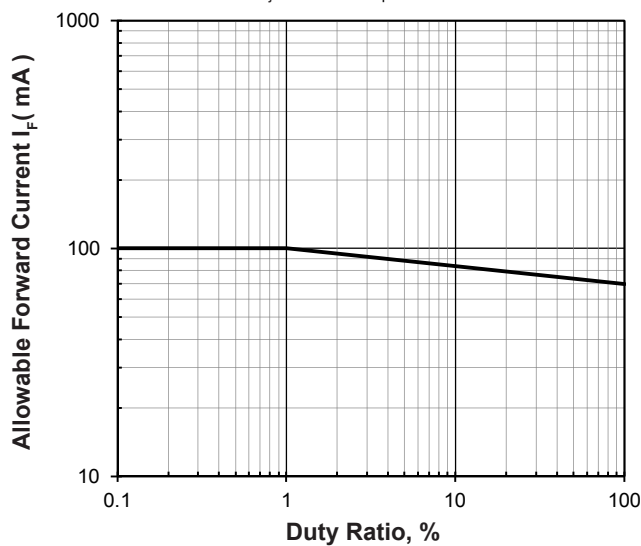
Relative Spectral Emission

$I_{rel} = f(\lambda); T_j = 25^\circ C; I_F = 50mA$

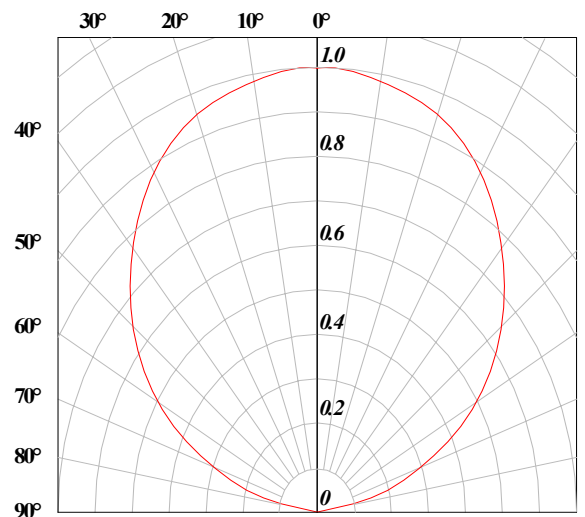


Allowable Forward Current Vs Duty Ratio

$(T_j = 25^\circ C; t_p \le 10\mu s)$

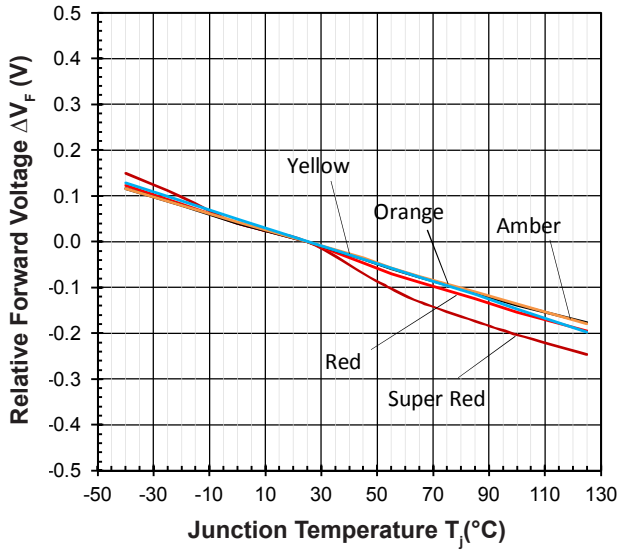


Radiation Pattern



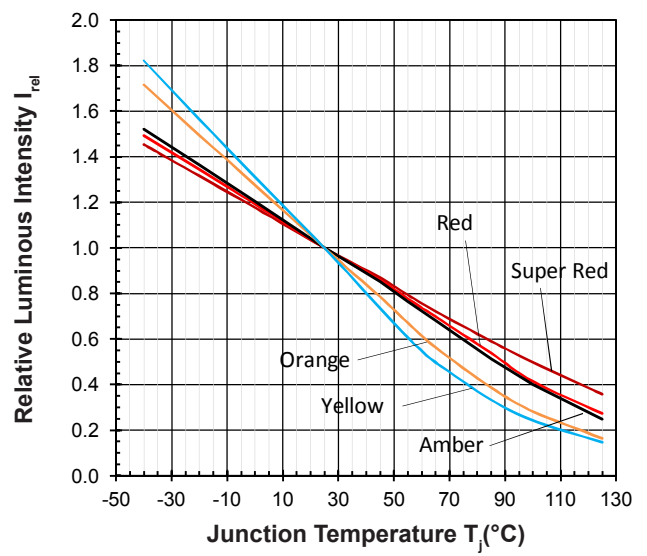
Relative Forward Voltage Vs Junction Temperature

$$\Delta V_F = V_F - V_F(25^\circ\text{C}) = f(T_j); I_F = 50\text{mA}$$



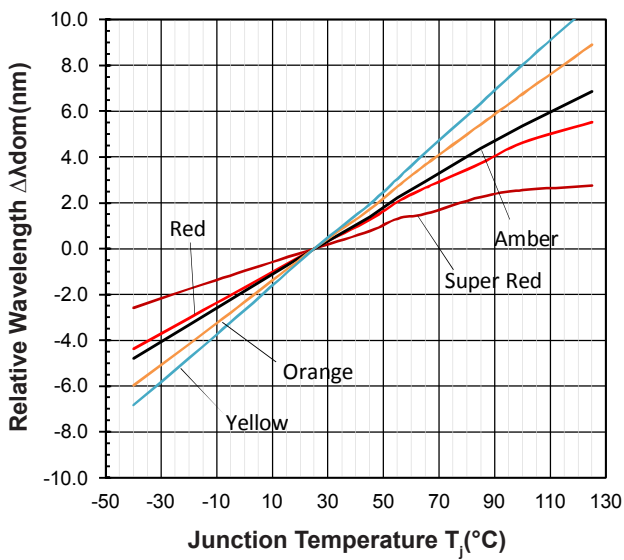
Relative Luminous Intensity Vs Junction Temperature

$$I_V/I_V(25^\circ\text{C}) = f(T_j); I_F = 50\text{mA}$$

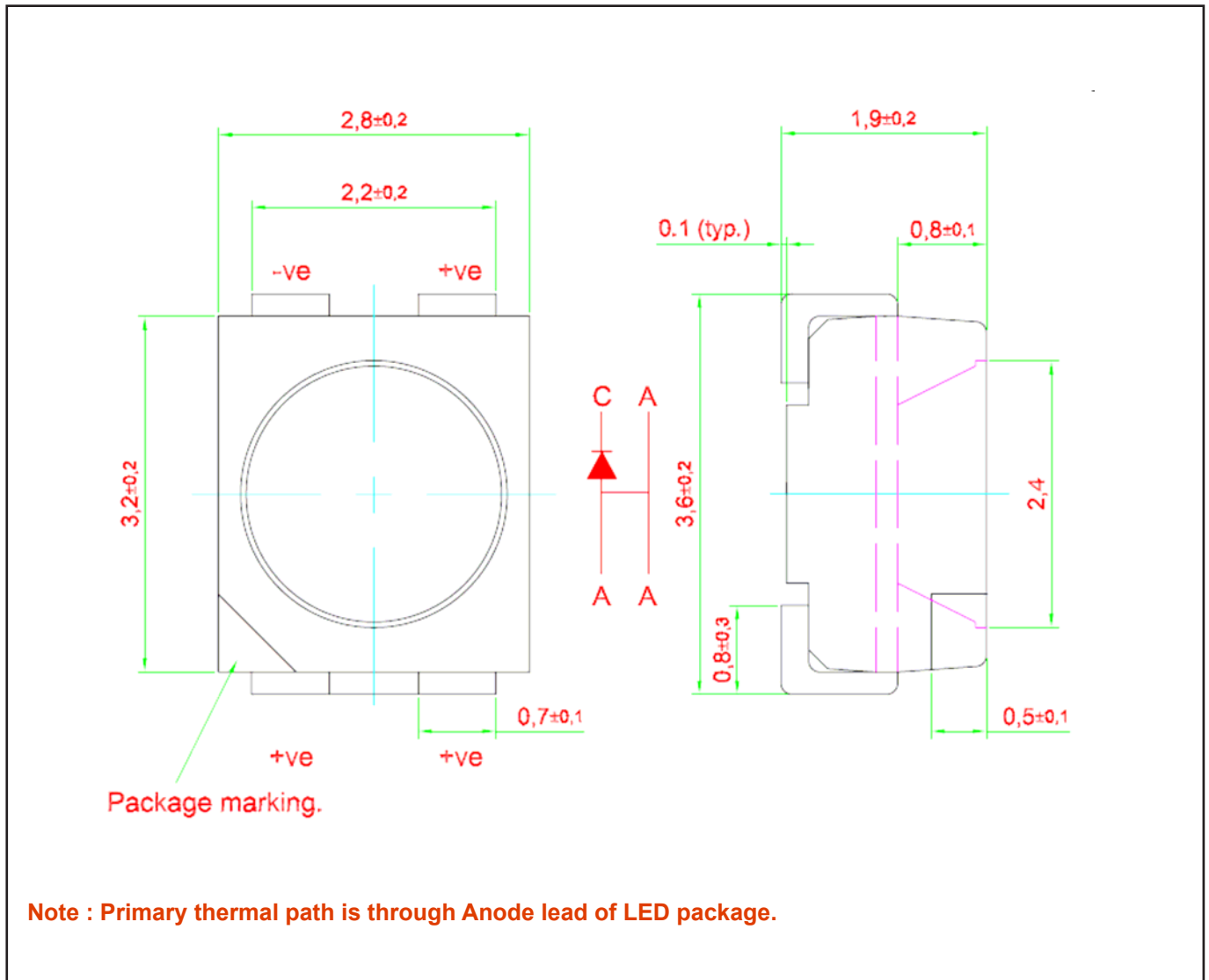


Relative Wavelength Vs Junction Temperature

$$\Delta \lambda_{dom} = \lambda_{dom} - \lambda_{dom}(25^\circ\text{C}) = f(T_j); I_F = 50\text{mA}$$



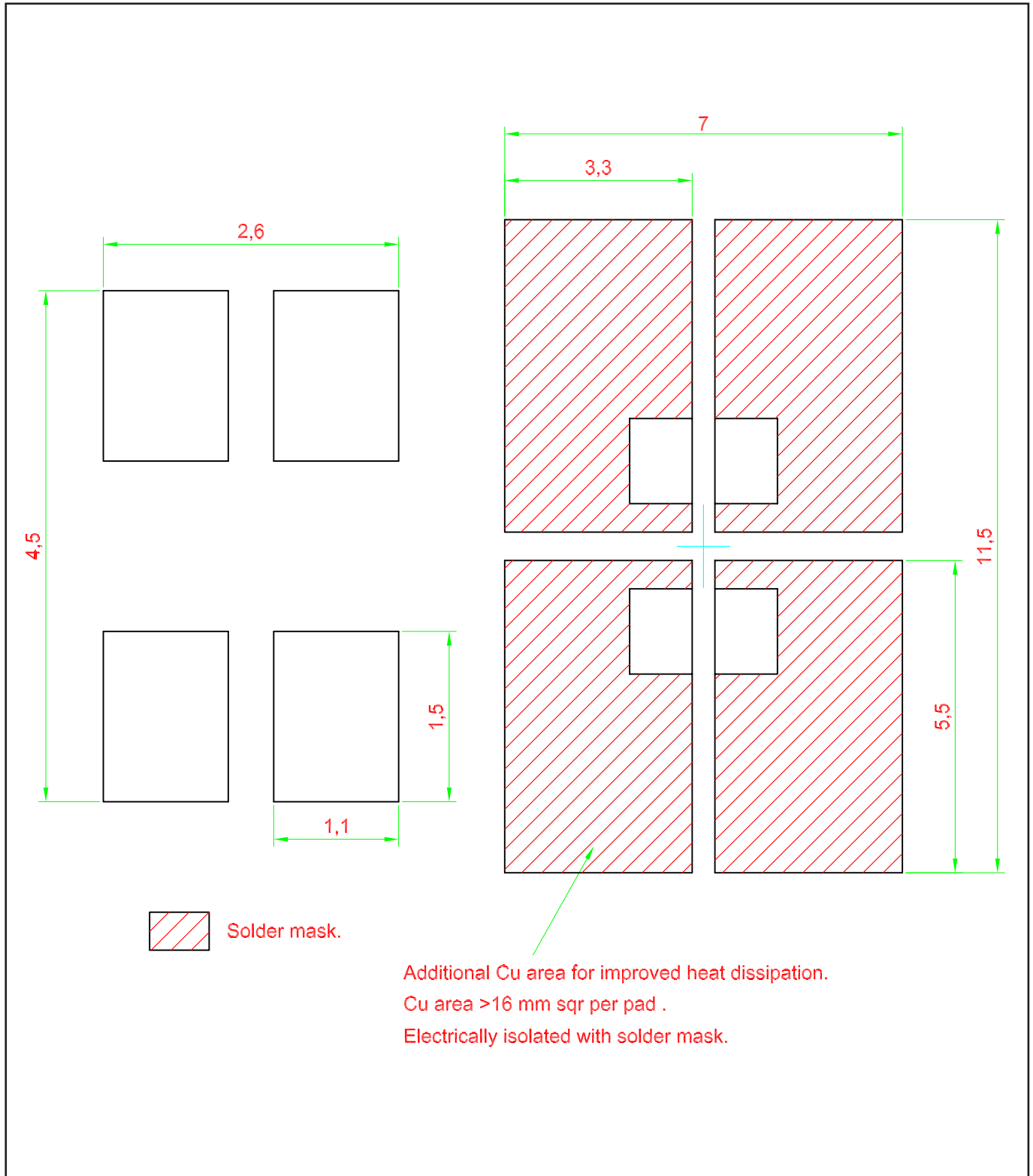
Power DomiLED • AllnGaP : DWx-MJS Package Outlines



Material

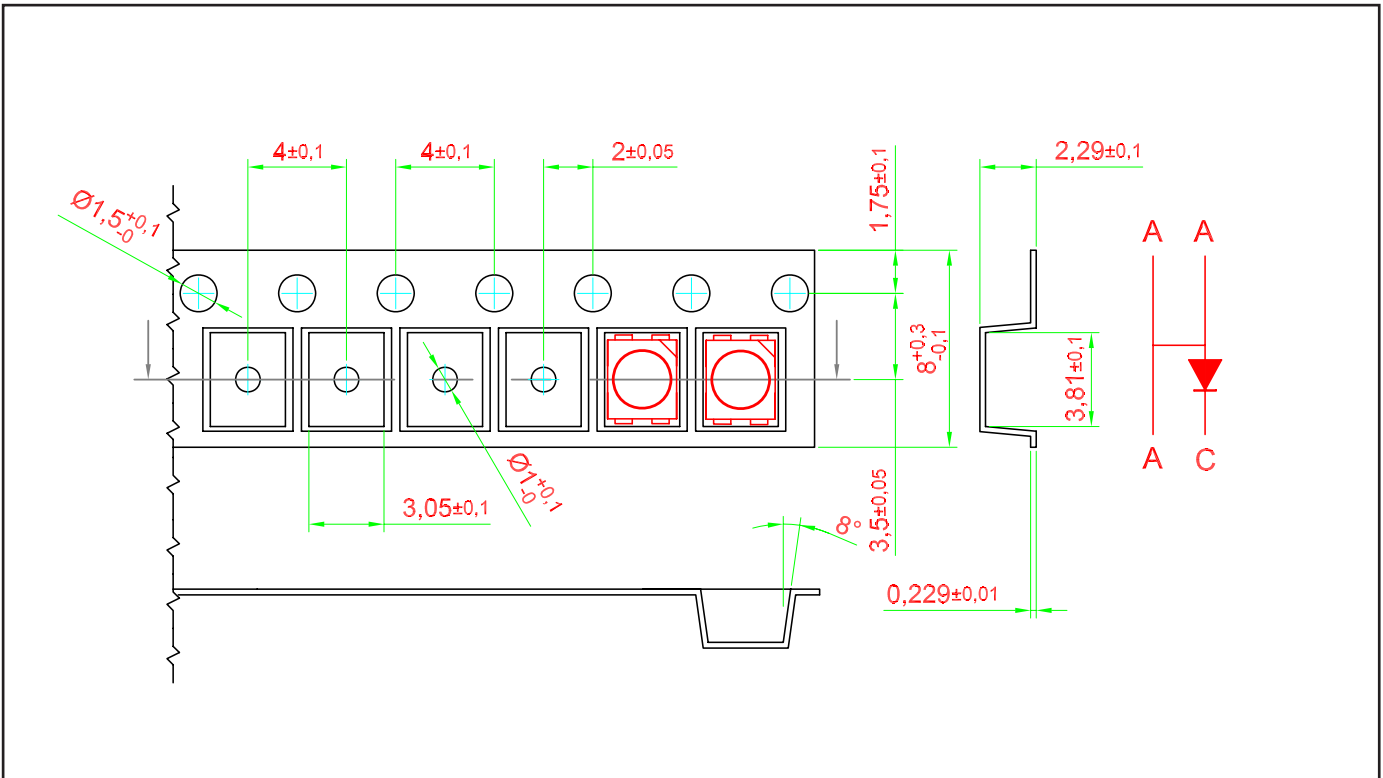
	Material
Lead-frame	Cu Alloy With Ag Plating
Package	High Temperature Resistant Plastic, PPA
Encapsulant	Epoxy
Soldering Leads	Sn-Sn Plating

Recommended Solder Pad



Taping and orientation

- Reels come in quantity of 2000 units.
- Reel diameter is 180 mm.

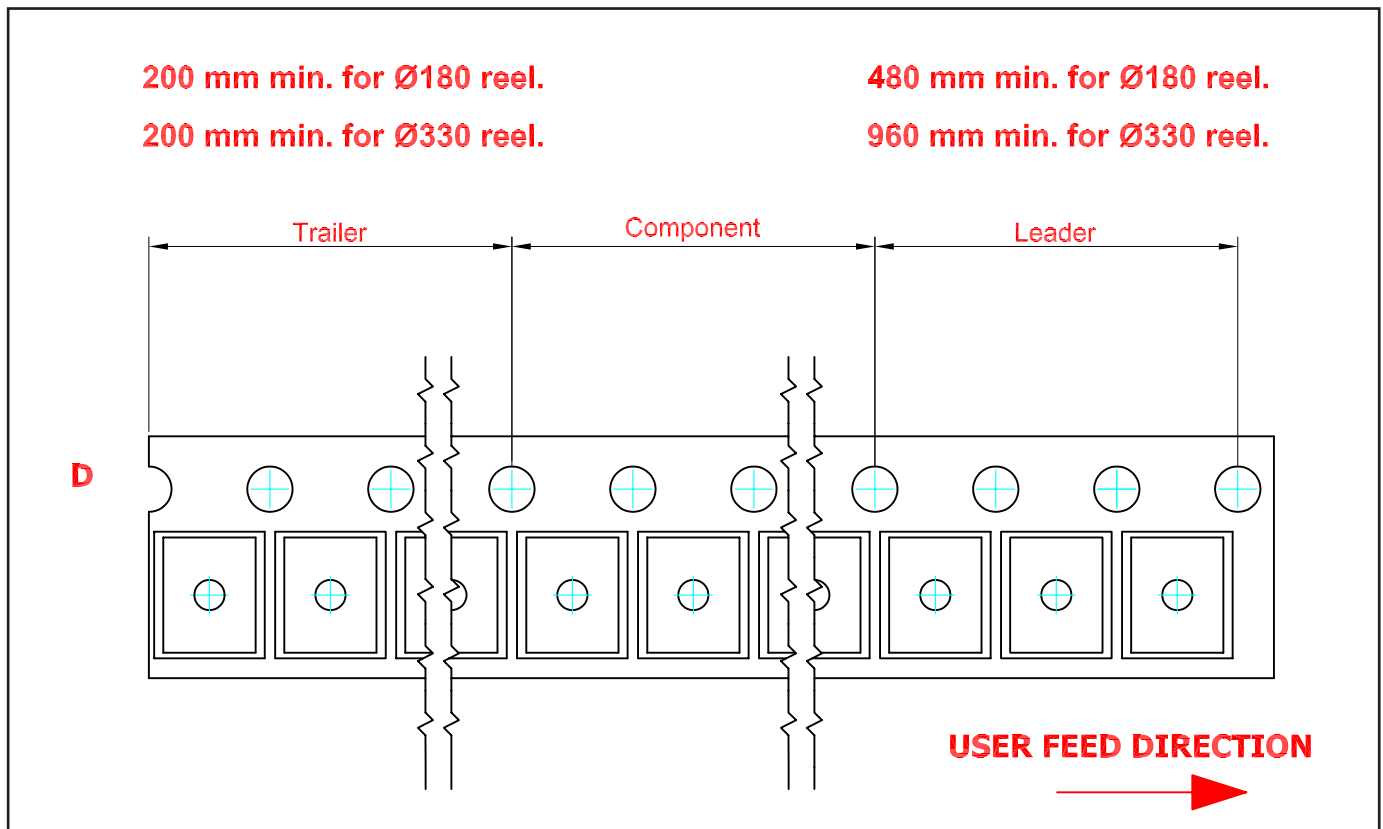


200 mm min. for Ø180 reel.

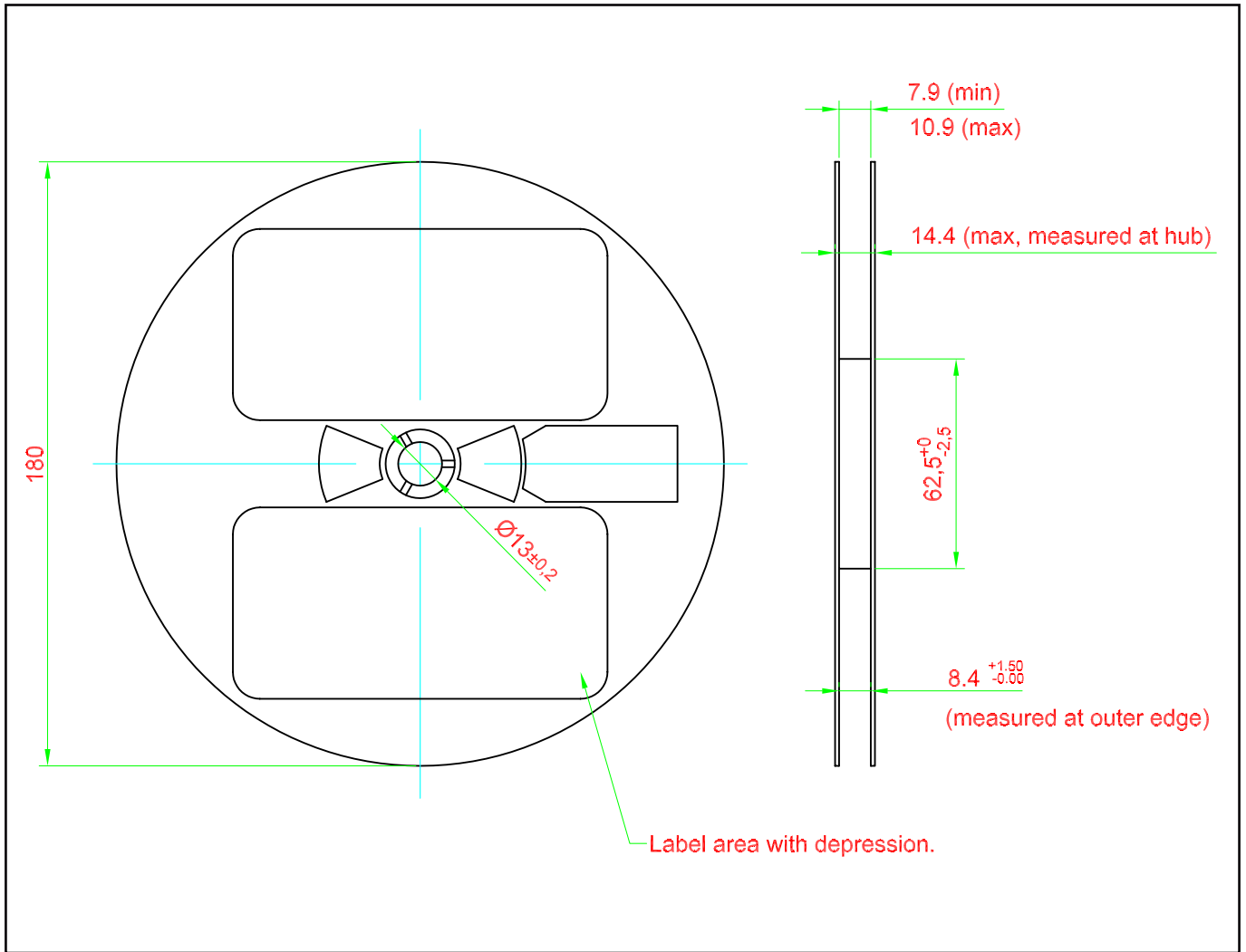
200 mm min. for Ø330 reel.

480 mm min. for Ø180 reel.

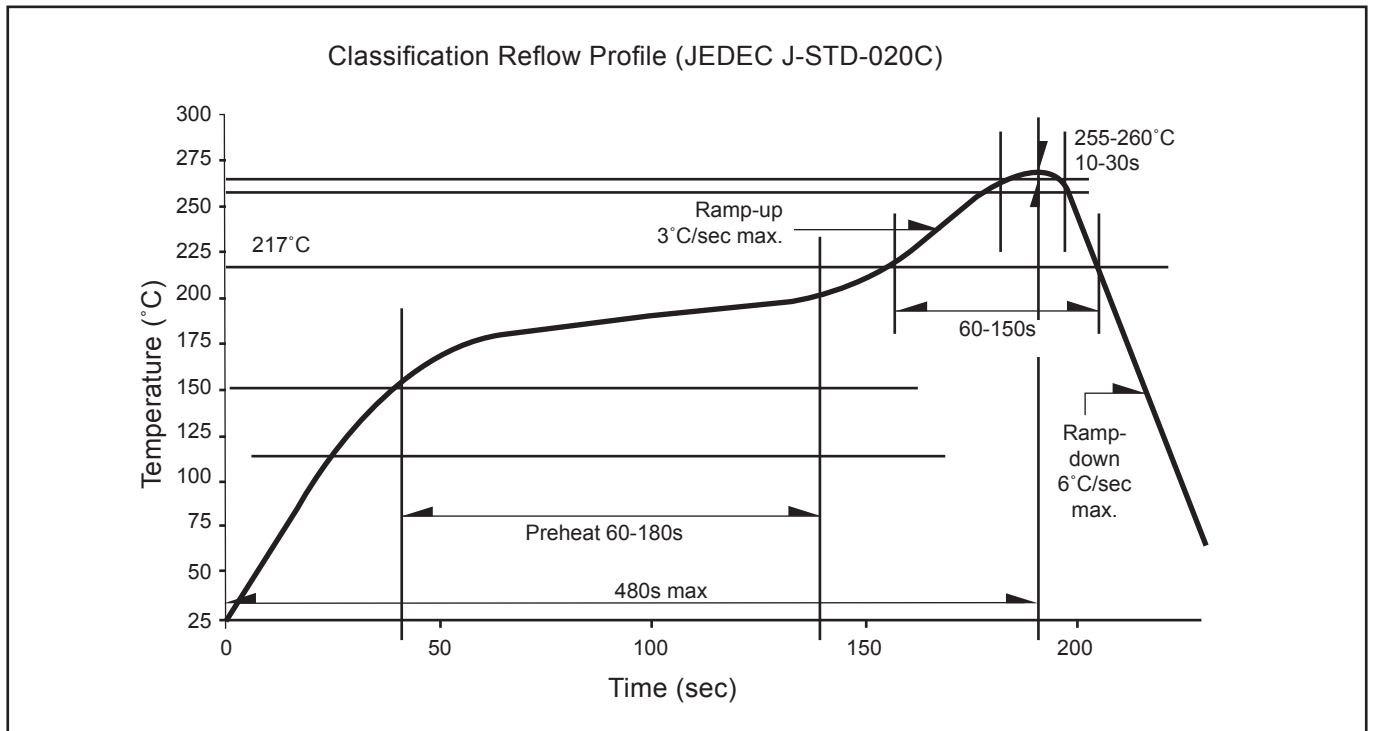
960 mm min. for Ø330 reel.



Packaging Specification



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: $40 \text{ }^\circ\text{C} / 90 \text{ } \%$ 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
2, 5	Update Vf max value Update Graph: Relative Luminous Intensity Vs Forward Current	29 Dec 2011
2	Add new partno: DWO-MJS-XY2-1	07 Sep 2012
1	Update Product Photo	06 Aug 2013
5	Amend Graph : Forward Current Vs Forward Voltage	27 Dec 2013
3	Update Temperature Coefficient of IV in Characteristics	26 Jun 2014
1, 5, 6, 7, 11, 13	Update Features Update Graph Add Notes in Package Outline Update Packaging Specification Add Appendix	04 Nov 2016
4	Typo Error on Vf Binning Naming	03 Jul 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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