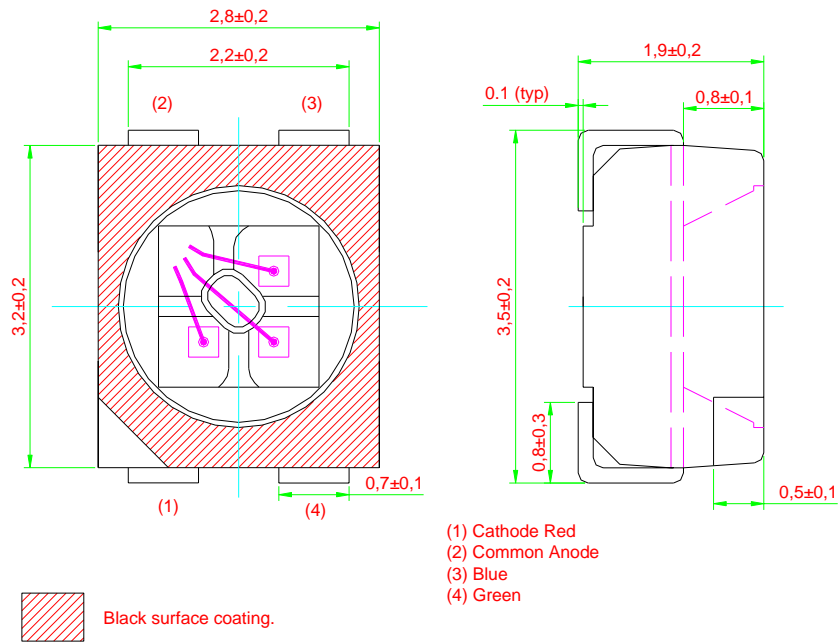




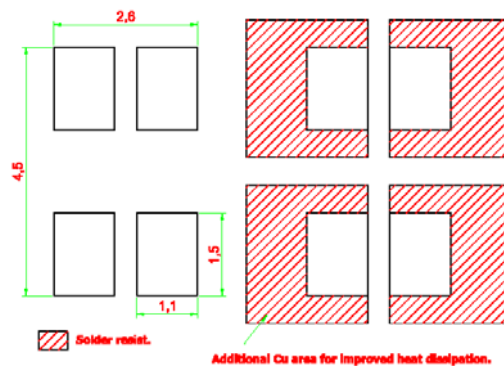
● **Feature:**

1. High brightness tri-color surface mount LED.
2. Capable for all video-standards.
3. The RGB-LED chips can be controlled individually.
4. 120° viewing angle.
5. Small package outline (LxWxH) of 2.8 x 3.2 x 1.9 mm.
6. Qualified according to JEDEC moisture sensitivity Level 2.
7. Compatible to both IR reflow soldering and TTW soldering.

● **Package Dimension:**



Recommended Solder Pad





● Optical Characteristics:

Part Number	Wavelength			Luminous Intensity		
	λ_{dom} (nm)			@ $I_f = 20mA$. I_v (mcd)		
	Chip 1	Chip 2	Chip 3	Chip 1	Chip 2	Chip 3
BL-PMRTB-SJB				112.5 ... 180.0	180.0 ... 450.0	45.0 ... 112.5
• BIN R S P				112.5 ... 180.0	180.0 ... 285.0	45.0 ... 71.5
• BIN R S Q				112.5 ... 180.0	180.0 ... 285.0	71.5 ... 112.5
• BIN R T P				112.5 ... 180.0	285.0 ... 450.0	45.0 ... 71.5
• BIN R T Q				112.5 ... 180.0	285.0 ... 450.0	71.5 ... 112.5
BL-PMRTB-CJB				112.5 ... 180.0	112.5 ... 285.0	45.0 ... 112.5
• BIN R R P	Red	True Green	Blue	112.5 ... 180.0	112.5 ... 180.0	45.0 ... 71.5
• BIN R R Q				112.5 ... 180.0	112.5 ... 180.0	71.5 ... 112.5
• BIN R S P				112.5 ... 180.0	180.0 ... 285.0	45.0 ... 71.5
• BIN R S Q				112.5 ... 180.0	180.0 ... 285.0	71.5 ... 112.5
	625	525	470			
BL-PMRTB-UJB				180.0 ... 285.0	285.0 ... 715.0	71.5 ... 180.0
• BIN S T Q				180.0 ... 285.0	285.0 ... 450.0	71.5 ... 112.5
• BIN S T R				180.0 ... 285.0	285.0 ... 450.0	112.5 ... 180.0
• BIN S U Q				180.0 ... 285.0	450.0 ... 715.0	71.5 ... 112.5
• BIN S U R				180.0 ... 285.0	450.0 ... 715.0	112.5 ... 180.0
• BIN T T Q				285.0 ... 450.0	285.0 ... 450.0	71.5 ... 112.5
• BIN T T R				285.0 ... 450.0	285.0 ... 450.0	112.5 ... 180.0
• BIN T U Q				285.0 ... 450.0	450.0 ... 715.0	71.5 ... 112.5
• BIN T U R				285.0 ... 450.0	450.0 ... 715.0	112.5 ... 180.0

Note:

1. Luminous intensity is measured with an accuracy of $\pm 11\%$.
2. Half group binning for luminous intensity is available as an option. Please refer to the following table for details.
3. Wavelength binning is available as an option. Please refer to the following table for details.
4. Special requirements such as V_f binning could be implemented upon customers' request. Binning scheme is as per the following table.



● **Absolute Maximum Ratings:**

Parameter	Maximum Value		Unit
	Red	Green, Blue	
DC forward current.	30	20	mA
Peak pulse current. ($t_p \leq 10 \mu s$, Duty cycle = 0.005)	1000	200	mA
Reverse voltage.	12	5	V
Power consumption.	75	85	V
Thermal resistance junction/ambient, $R_{th JA}$	Red	Green, Blue	K/W
1 chip on	480	530	
3 chips on	770	820	
Thermal resistance junction/solder point, $R_{th JS}$	Red	Green, Blue	K/W
1 chip on	260	290	
3 chips on	420	470	
LED junction temperature.	125		°C
Operating temperature.	-40 ... +100		°C
Storage temperature.	-40 ... +100		°C

● **Electrical Characteristics ($T_A = 25 \text{ }^\circ\text{C}$):**

Color	V_f at $I_f=20\text{mA}$ (V)		I_r at $V_r=12\text{V}$ (μA)		Temperature coefficient of V_f ($I_f=20\text{mA}$; $-10^\circ\text{C}<T<100^\circ\text{C}$) Typ. (mV/K)
	Typ.	Max	Typ.	Max	
Red	2.2	2.45	0.01	100	-2.0
True Green	3.7	4.25	0.01	10	-3.6
Blue	3.7	4.25	0.01	10	-3.1

● **Optical Characteristics ($T_A = 25 \text{ }^\circ\text{C}$):**

Color	Temperature coefficient ($I_f=20\text{mA}$; $-10^\circ\text{C}<T<100^\circ\text{C}$, typ.)		View Angle (deg.)
	λ_{peak} (nm/K)	$\lambda_{dom.}$ (nm/K)	
Red	0.15	0.05	120
True Green	0.04	0.03	
Blue	0.04	0.02	



● Half Group For Luminous Intensity:

If half grouping is required for luminous intensity, only one half group is allowed for each chip within a reel.

Groupings	Min. (mcd)	Max. (mcd)
N1	28.5	35.5
N2	35.5	45.0
P1	45.0	56.0
P2	56.0	71.5
Q1	71.5	90.0
Q2	90.0	112.5
R1	112.5	140.0
R2	140.0	180.0

Groupings	Min. (mcd)	Max. (mcd)
S1	180.0	224.0
S2	224.0	285.0
T1	285.0	355.0
T2	355.0	450.0
U1	450.0	560.0
U2	560.0	715.0

● Wavelength Grouping:

If wavelength binning is required, only one wavelength group is allowed for each chip within a reel.

Color	Group	Wavelength distribution (nm)
Red	Full	620 – 630
True Green	Full	520 - 536
	W	520 - 524
	X	524 - 528
	Y	528 – 532
	Z	532 - 536
Blue	Full	464 - 480
	W	464 - 468
	X	468 - 472
	Y	472 - 476
	Z	476 – 480

Wavelength is measured with an accuracy of ±1 nm.

● Vf Binning:

Vf Bin @ 20mA	Red, AlInGaP (V)	Blue & True Green, InGaN (V)
00	1.25 ... 1.55	3.05 ... 3.35
01	1.55 ... 1.85	3.35 ... 3.65
02	1.85 ... 2.15	3.65 ... 3.95
03	2.15 ... 2.45	3.95 ... 4.25

Forward voltage, Vf is measured with an accuracy of ±0.1 V.



● Typical electro-optical characteristics curves:

Fig. 1 Relative luminous intensity vs. forward current.

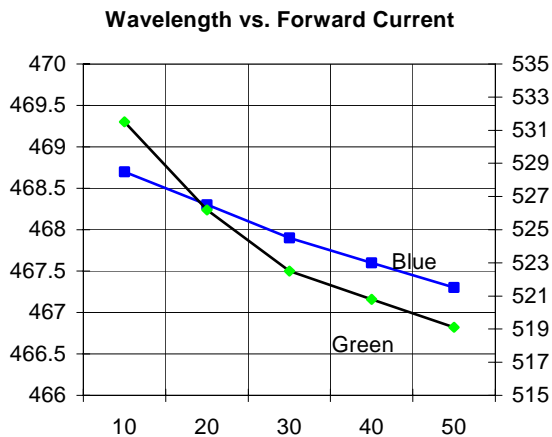


Fig. 2 Wavelength vs. forward current.

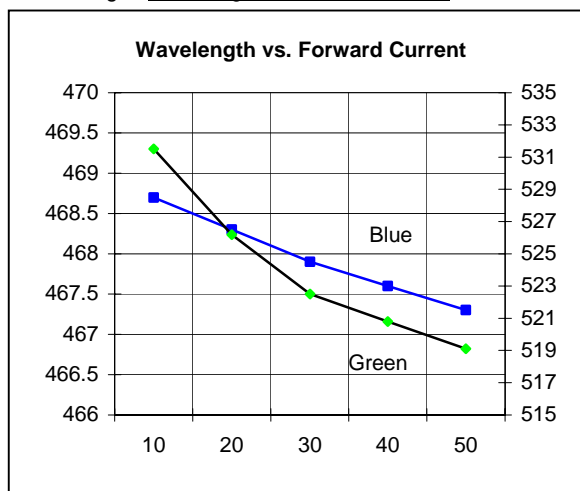


Fig. 3 Wavelength Distribution.

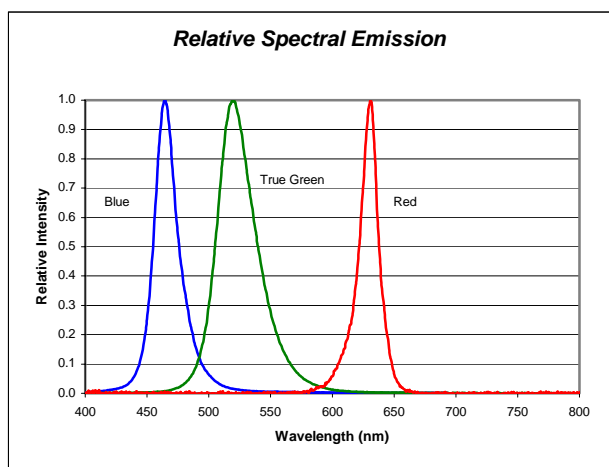


Fig. 4 Forward current vs. forward voltage.

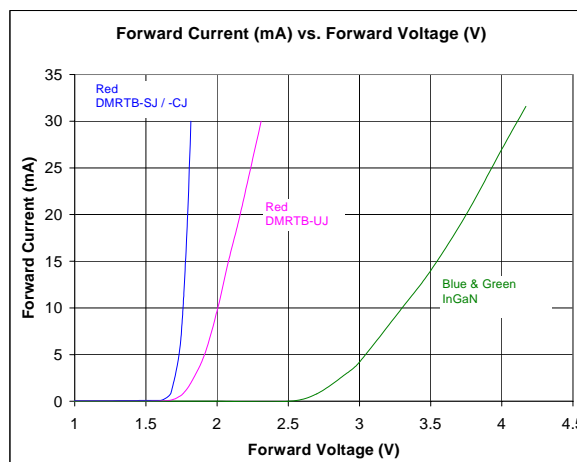


Fig. 5 Radiation pattern.

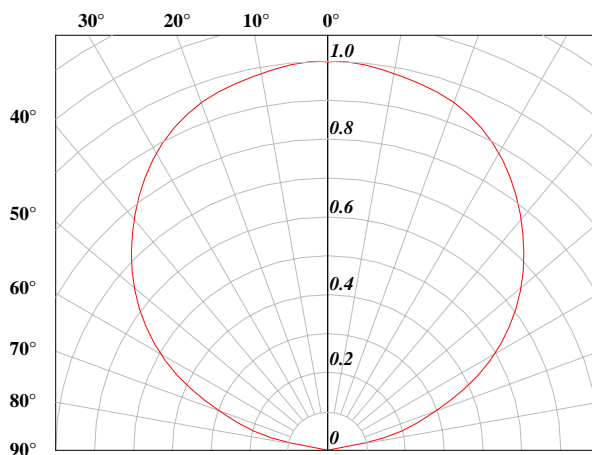




Fig 6. Maximum forward current vs. temperature (1 chip on)

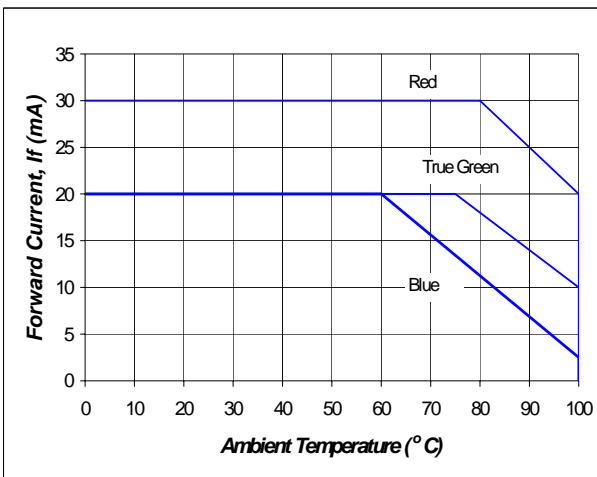


Fig 7. Maximum forward current vs. temperature (3 chips on)

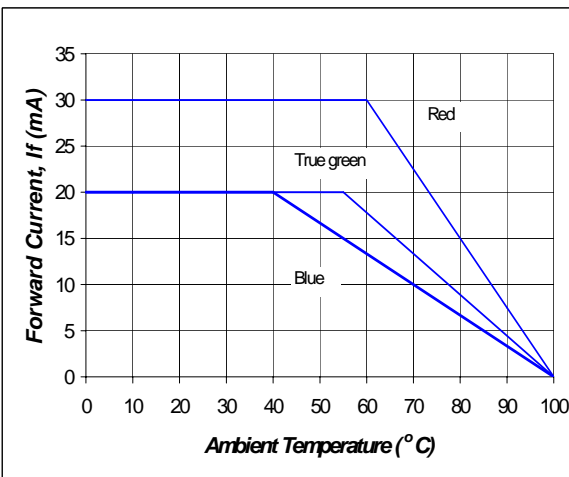


Fig 8. Maximum forward current vs. temperature (1 chip on)

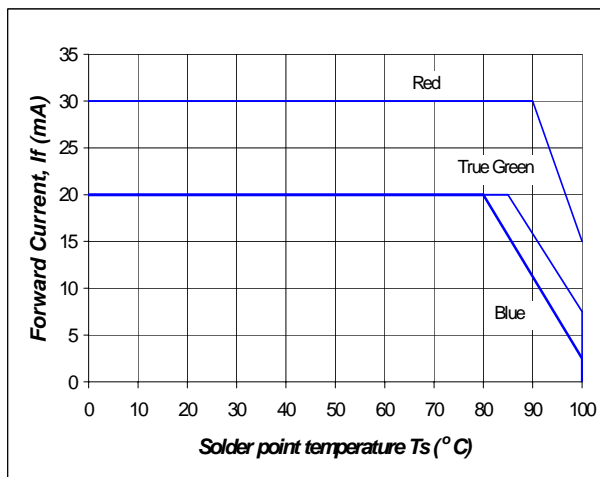


Fig 9. Maximum forward current vs. temperature (3 chips on)

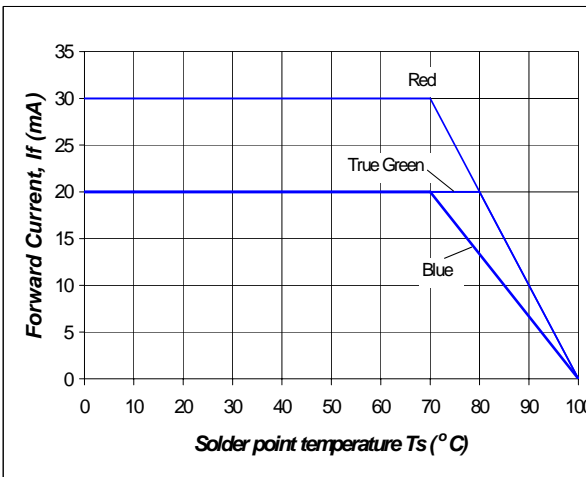


Fig 10. Recommended IR-reflow Soldering Profile

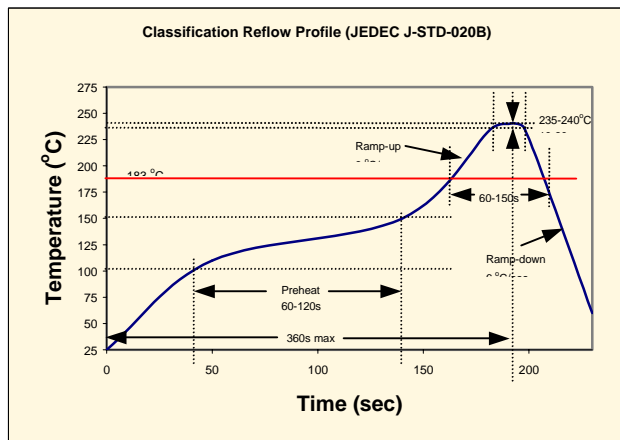
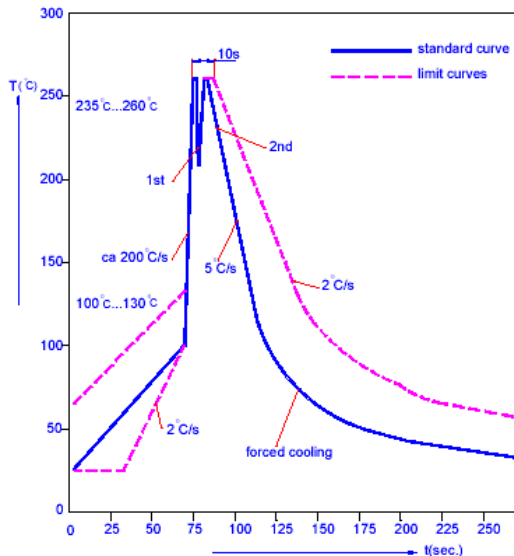


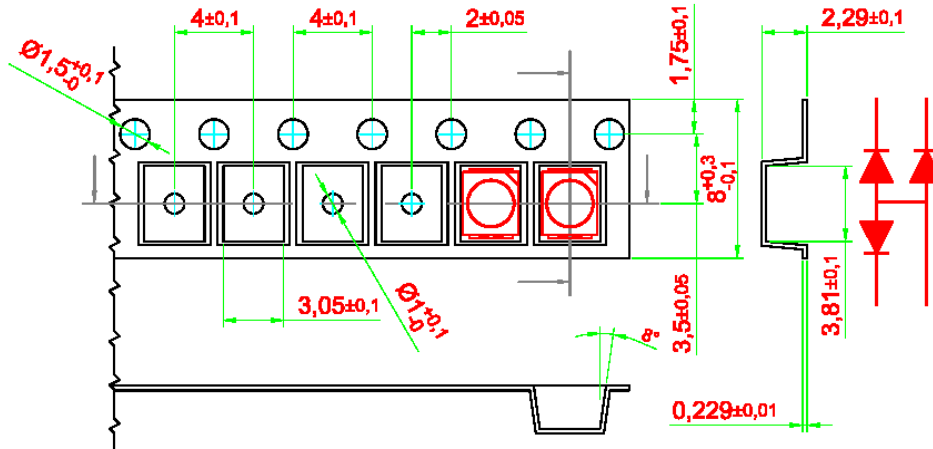
Fig 11. Recommended TTW Soldering Profile





● Taping And Orientation:

Reels with quantity of 500, 750, 1000, 1250, 1500, 1750, 2000 units. Reel diameter is 180 mm.



200 mm min. for $\phi 180$ reel.
200 mm min. for $\phi 330$ reel.

480 mm min. for $\phi 180$ reel.
960 mm min. for $\phi 330$ reel.

