

AAAF3529VBDSEJ3ZGS

3.5 x 2.8 mm Surface Mount SMD Chip LED



DESCRIPTIONS

- The Blue source color devices are made with InGaN Light Emitting Diode
- The Hyper Red device is based on light emitting diode chip made from AlGaNp
- The Green source color devices are made with InGaN on Sapphire Light Emitting Diode
- Electrostatic discharge and power surge could Damage the LEDs
- It is recommended to use a wrist band or anti-electrostatic glove when handling the LEDs
- All devices, equipments and machineries must be electrically grounded

FEATURES

- Outstanding material efficiency
- Low power consumption
- Can produce any color in visible spectrum, including white light
- Suitable for all SMD assembly and solder process
- Available on tape and reel
- Package: 2000pcs / reel
- Moisture sensitivity level: 3
- RoHS compliant

APPLICATIONS

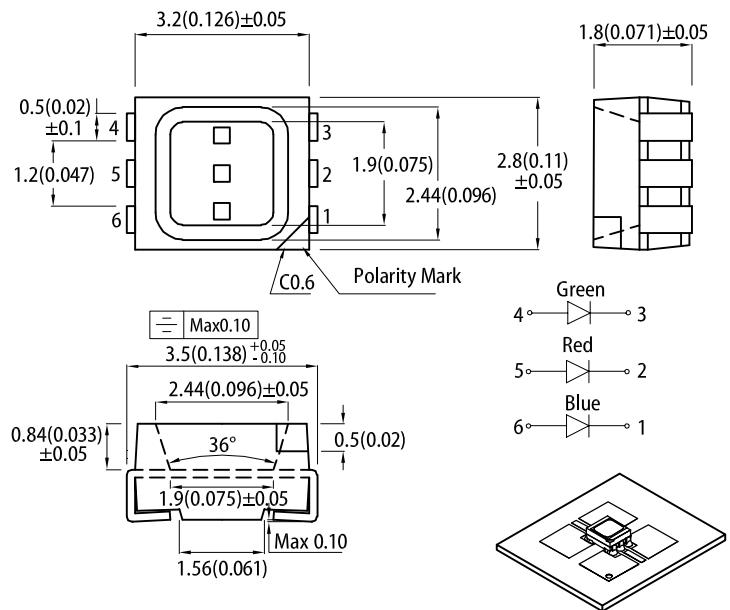
- Backlight
- Status indicator
- Home and smart appliances
- Wearable and portable devices
- Healthcare applications

ATTENTION

Observe precautions for handling electrostatic discharge sensitive devices

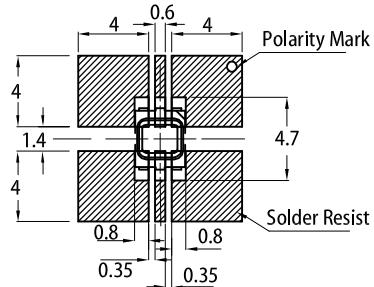


PACKAGE DIMENSIONS



RECOMMENDED SOLDERING PATTERN

(units : mm; tolerance : ± 0.1)



Notes:

- All dimensions are in millimeters (inches).
- Tolerance is ±0.25(0.01") unless otherwise noted.
- The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
- The device has a single mounting surface. The device must be mounted according to the specifications.

SELECTION GUIDE

Part Number	Emitting Color (Material)	Lens Type	I _v (mcd) @ 20mA ^[2]		Viewing Angle ^[1] 2θ1/2
			Min.	Typ.	
AAAF3529VBDSEJ3ZGS	Blue (InGaN)	Water Clear	200	300	130°
	Hyper Red (AlGaNp)		400	560	
	Green (InGaN)		400	580	

Notes:

- θ1/2 is the angle from optical centerline where the luminous intensity is 1/2 of the optical peak value.
- Luminous intensity / luminous flux: +/-15%.
- Luminous intensity value is traceable to CIE127-2007 standards.

ELECTRICAL / OPTICAL CHARACTERISTICS at $T_A=25^\circ\text{C}$

Parameter	Symbol	Emitting Color	Value		Unit
			Typ.	Max.	
Wavelength at Peak Emission $I_F = 20\text{mA}$	λ_{peak}	Blue Hyper Red Green	465 640 515	-	nm
Dominant Wavelength $I_F = 20\text{mA}$	$\lambda_{\text{dom}}^{[1]}$	Blue Hyper Red Green	470 625 525	-	nm
Spectral Bandwidth at 50% Φ REL MAX $I_F = 20\text{mA}$	$\Delta\lambda$	Blue Hyper Red Green	22 25 30	-	nm
Capacitance	C	Blue Hyper Red Green	100 27 45	-	pF
Forward Voltage $I_F = 20\text{mA}$	$V_F^{[2]}$	Blue Hyper Red Green	3.3 2.2 3.3	4.0 2.8 4.1	V
Reverse Current ($V_R = 5\text{V}$)	I_R	Blue Hyper Red Green	-	50 10 50	uA
Temperature Coefficient of λ_{peak} $I_F = 20\text{mA}$, $-10^\circ\text{C} \leq T \leq 85^\circ\text{C}$	$\text{TC}_{\lambda_{\text{peak}}}$	Blue Hyper Red Green	0.04 0.13 0.05	-	nm/°C
Temperature Coefficient of λ_{dom} $I_F = 20\text{mA}$, $-10^\circ\text{C} \leq T \leq 85^\circ\text{C}$	$\text{TC}_{\lambda_{\text{dom}}}$	Blue Hyper Red Green	0.03 0.06 0.03	-	nm/°C
Temperature Coefficient of V_F $I_F = 20\text{mA}$, $-10^\circ\text{C} \leq T \leq 85^\circ\text{C}$	TC_V	Blue Hyper Red Green	-2.9 -2.0 -2.9	-	mV/°C

Notes:

1. The dominant wavelength (λ_d) above is the setup value of the sorting machine. (Tolerance λ_d : $\pm 1\text{nm}$.)
2. Forward voltage: $\pm 0.1\text{V}$.
3. Wavelength value is traceable to CIE127-2007 standards.
4. Excess driving current and / or operating temperature higher than recommended conditions may result in severe light degradation or premature failure.

ABSOLUTE MAXIMUM RATINGS at $T_A=25^\circ\text{C}$

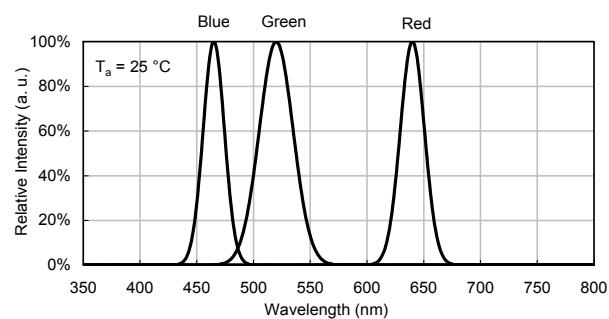
Parameter	Symbol	Value			Unit
		Blue	Hyper Red	Green	
Power Dissipation	P_D	120	140	123	mW
Reverse Voltage	V_R	5	5	5	V
Junction Temperature	T_j	115	115	115	°C
Operating Temperature	T_{op}	-40 to +85			°C
Storage Temperature	T_{stg}	-40 to +85			°C
DC Forward Current	I_F	30	50	30	mA
Peak Forward Current	$I_{\text{FM}}^{[1]}$	100	150	150	mA
Electrostatic Discharge Threshold (HBM)	-	250	3000	450	V
Thermal Resistance (Junction / Ambient)	$R_{\text{th JA}}^{[2]}$	220	210	280	°C/W
Thermal Resistance (Junction / Solder point)	$R_{\text{th JS}}^{[2]}$	125	115	170	°C/W

Notes:

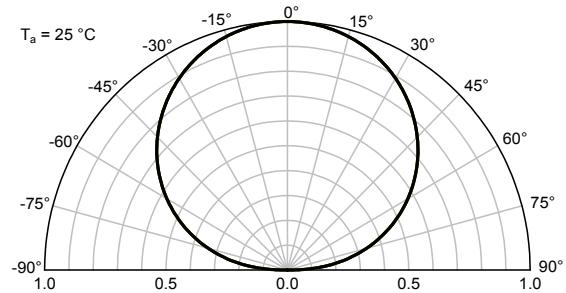
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. $R_{\text{th JA}}$, $R_{\text{th JS}}$ Results from mounting on PC board FR4 (pad size $\geq 16\text{ mm}^2$ per pad).
3. Relative humidity levels maintained between 40% and 60% in production area are recommended to avoid the build-up of static electricity – Ref JEDEC/JESD625-A and JEDEC/J-STD-033.

TECHNICAL DATA

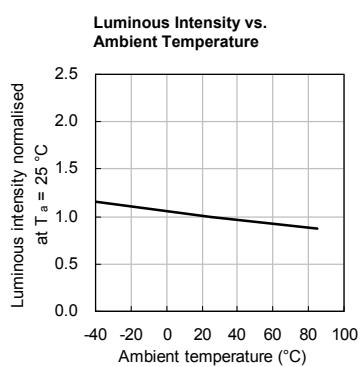
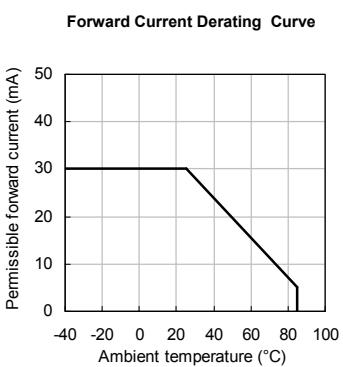
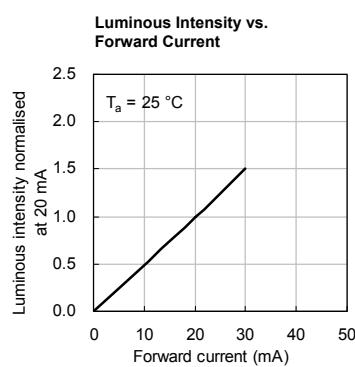
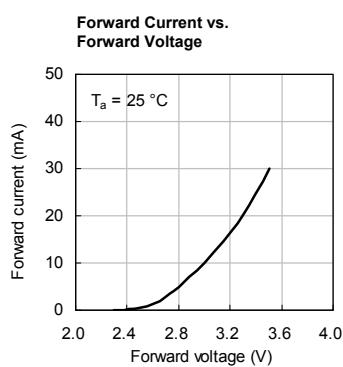
RELATIVE INTENSITY vs. WAVELENGTH



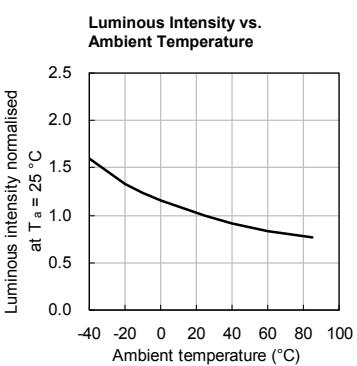
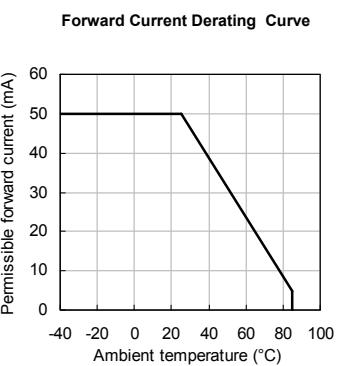
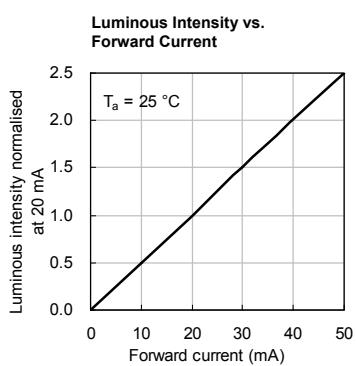
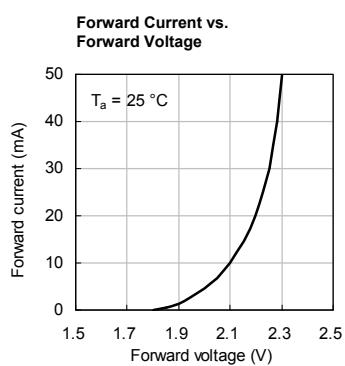
SPATIAL DISTRIBUTION



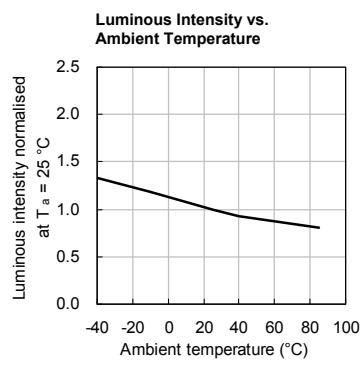
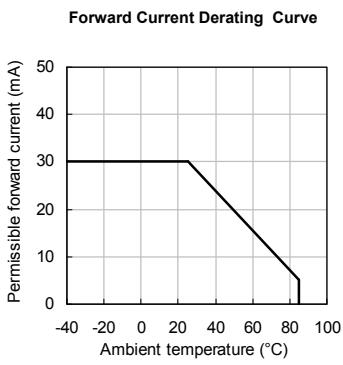
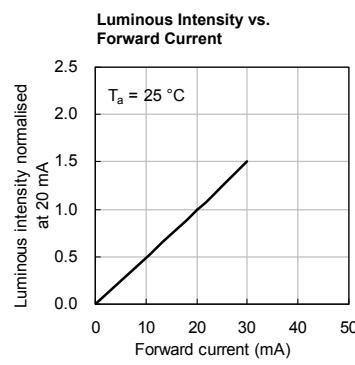
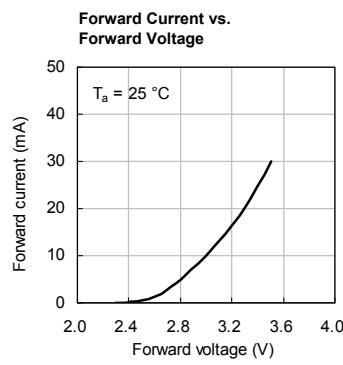
BLUE



HYPER RED

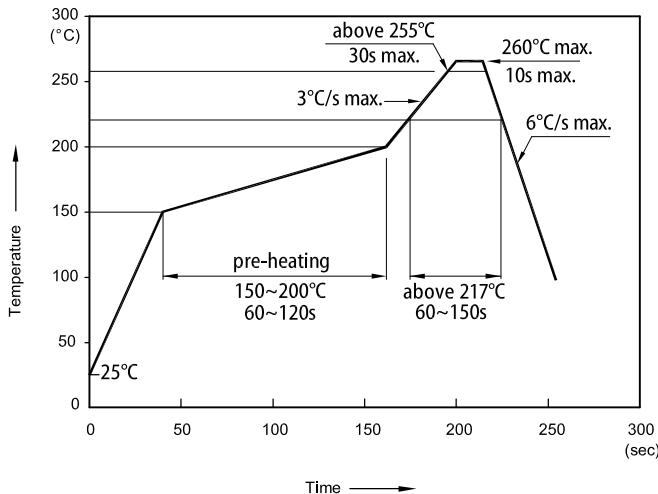


GREEN



TECHNICAL DATA

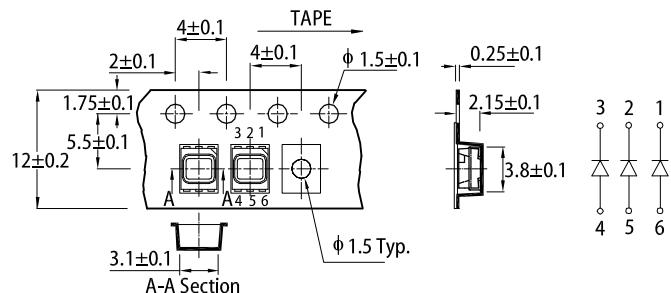
REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS



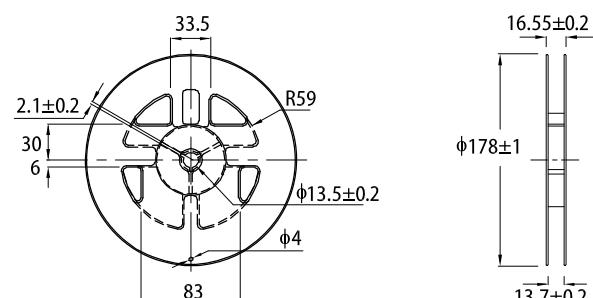
Notes:

1. Don't cause stress to the LEDs while it is exposed to high temperature.
2. The maximum number of reflow soldering passes is 2 times.
3. Reflow soldering is recommended. Other soldering methods are not recommended as they might cause damage to the product.

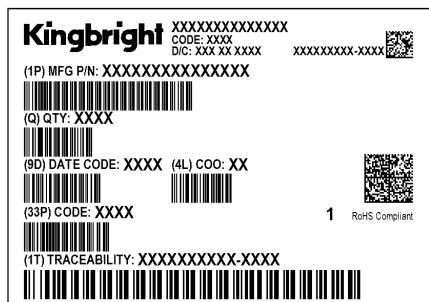
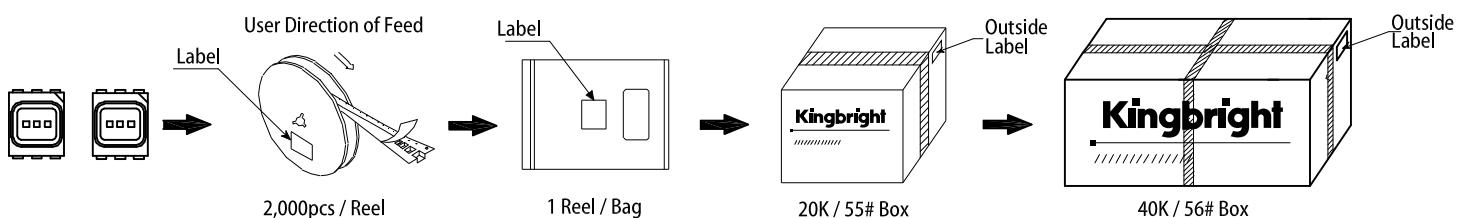
TAPE SPECIFICATIONS (units : mm)



REF. DIMENSION (units : mm)



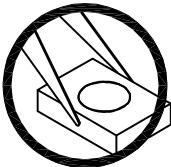
PACKING & LABEL SPECIFICATIONS



HANDLING PRECAUTIONS

Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force. As a result, special handling precautions need to be observed during assembly using silicone encapsulated LED products. Failure to comply might lead to damage and premature failure of the LED.

1. Handle the component along the side surfaces by using forceps or appropriate tools.



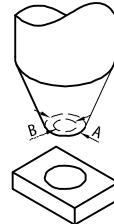
2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.



3. Do not stack together assembled PCBs containing exposed LEDs. Impact may scratch the silicone lens or damage the internal circuitry.



- 4-1. The inner diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks.
- 4-2. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup.
- 4-3. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.
5. As silicone encapsulation is permeable to gases, some corrosive substances such as H₂S might corrode silver plating of leadframe. Special care should be taken if an LED with silicone encapsulation is to be used near such substances.



PRECAUTIONARY NOTES

1. The information included in this document reflects representative usage scenarios and is intended for technical reference only.
2. The part number, type, and specifications mentioned in this document are subject to future change and improvement without notice. Before production usage customer should refer to the latest datasheet for the updated specifications.
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