Kingbright

AA3528EC
3.5 x 2.8 mm Surface Mount LED Lamp

DESCRIPTION

- The High Efficiency Red source color devices are made with Gallium Arsenide Phosphide on Gallium Phosphide Orange Light Emitting Diode
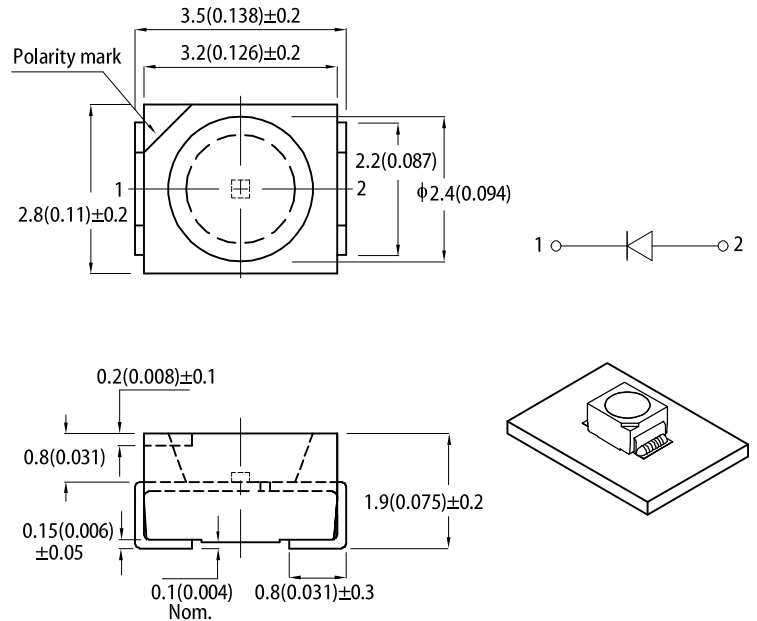
FEATURES

- Single color
- Suitable for all SMD assembly and solder process
- Available on tape and reel
- Ideal for backlighting
- Package: 2000 pcs / reel
- Moisture sensitivity level: 3
- Halogen-free
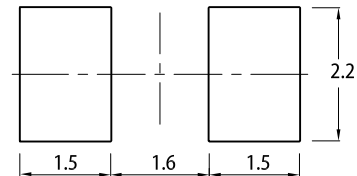- RoHS compliant

APPLICATIONS

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

PACKAGE DIMENSIONS

RECOMMENDED SOLDERING PATTERN
(units : mm; tolerance : ± 0.1)

Notes:
1. All dimensions are in millimeters (inches).
2. Tolerance is ±0.25(0.01") unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.
4. 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	Iv (mcd) @ 20mA [2]		Viewing Angle [1]
			Min.	Typ.	2θ1/2
AA3528EC	■ High Efficiency Red (GaAsP/GaP)	Water Clear	12	25	120°
			*8	*12	

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

ELECTRICAL / OPTICAL CHARACTERISTICS at T_A=25°C

Parameter	Symbol	Emitting Color	Value		Unit
			Typ.	Max.	
Wavelength at Peak Emission I_F = 20mA	λ_{peak}	High Efficiency Red	627	-	nm
Dominant Wavelength I_F = 20mA	λ_{dom} [1]	High Efficiency Red	617	-	nm
Spectral Bandwidth at 50% Φ REL MAX I_F = 20mA	$\Delta\lambda$	High Efficiency Red	45	-	nm
Capacitance	C	High Efficiency Red	15	-	pF
Forward Voltage I_F = 20mA	V_F [2]	High Efficiency Red	2.0	2.5	V
Reverse Current (V_R = 5V)	I_R	High Efficiency Red	-	10	µA
Temperature Coefficient of λ_{peak} I_F = 20mA, -10°C ≤ T ≤ 85°C	$TC_{\lambda peak}$	High Efficiency Red	0.13	-	nm/°C
Temperature Coefficient of λ_{dom} I_F = 20mA, -10°C ≤ T ≤ 85°C	$TC_{\lambda dom}$	High Efficiency Red	0.06	-	nm/°C
Temperature Coefficient of V_F I_F = 20mA, -10°C ≤ T ≤ 85°C	TC_V	High Efficiency Red	-1.9	-	mV/°C

Notes:
1. The dominant wavelength (λd) above is the setup value of the sorting machine. (Tolerance λd : ±1nm.)
2. Forward voltage: ±0.1V.
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.
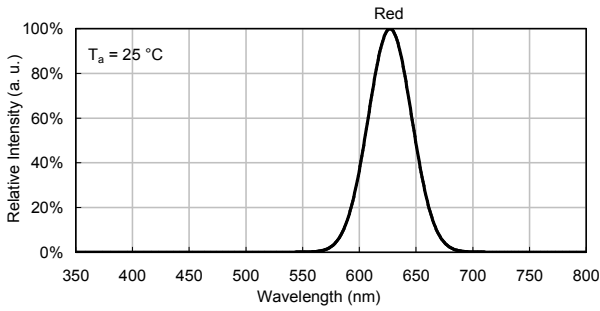
ABSOLUTE MAXIMUM RATINGS at T_A=25°C

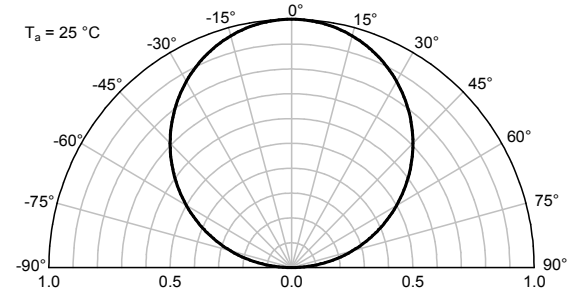| Parameter	Symbol	Value	Unit
Power Dissipation	P_D	75	mW
Reverse Voltage	V_R	5	V
Junction Temperature	T_j	125	°C
Operating Temperature	T_{op}	-40 to +85	°C
Storage Temperature	T_{stg}	-40 to +85	°C
DC Forward Current	I_F	30	mA
Peak Forward Current	I_{FM} [1]	160	mA
Electrostatic Discharge Threshold (HBM)	–	8000	V
Thermal Resistance (Junction / Ambient)	$R_{th\ JA}$ [2]	340	°C/W
Thermal Resistance (Junction / Solder point)	$R_{th\ JS}$ [2]	170	°C/W

Notes:
1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. $R_{th\ JA}$,$R_{th\ JS}$ Results from mounting on PC board FR4 (pad size ≥ 16 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.
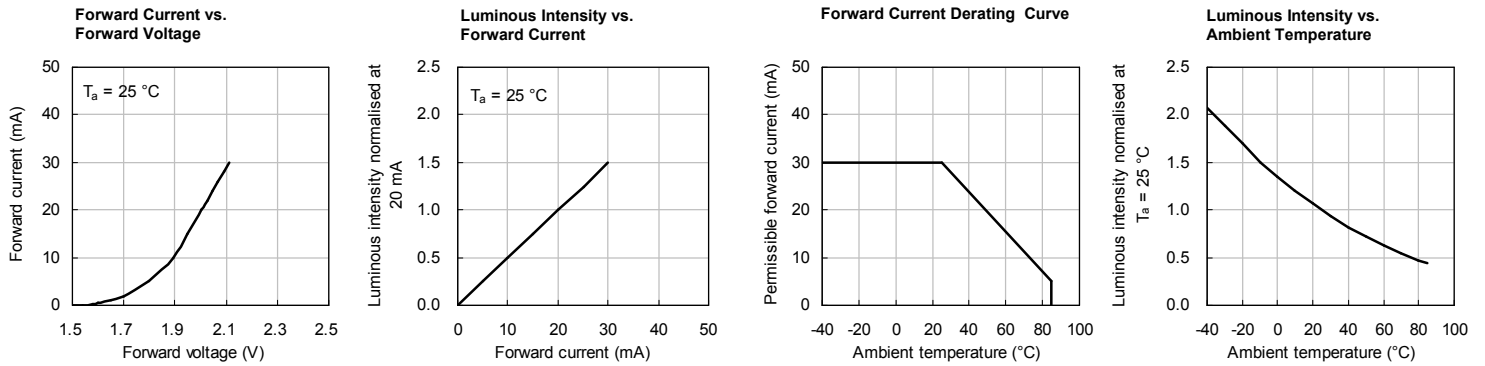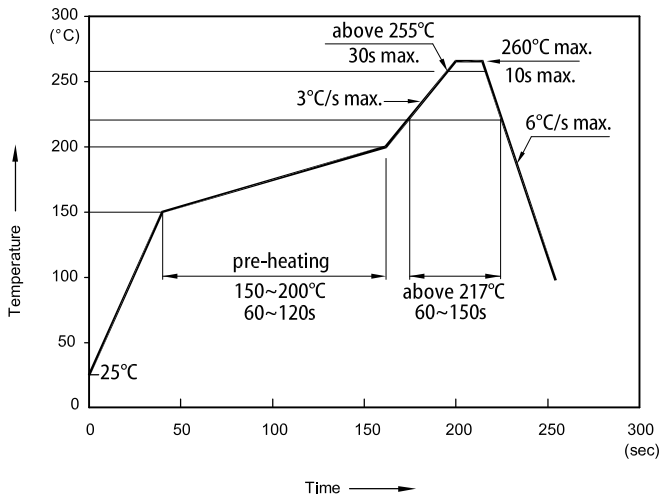
TECHNICAL DATA

RELATIVE INTENSITY vs. WAVELENGTH
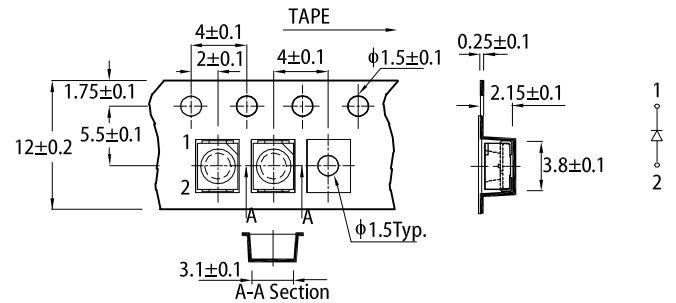

SPATIAL DISTRIBUTION

HIGH EFFICIENCY RED

Forward Current vs. Forward Voltage

Luminous Intensity vs. Forward Current

Forward Current Derating Curve

Luminous Intensity vs. Ambient Temperature

REFLOW SOLDERING PROFILE for LEAD-FREE SMD PROCESS

TAPE SPECIFICATIONS (units : mm)
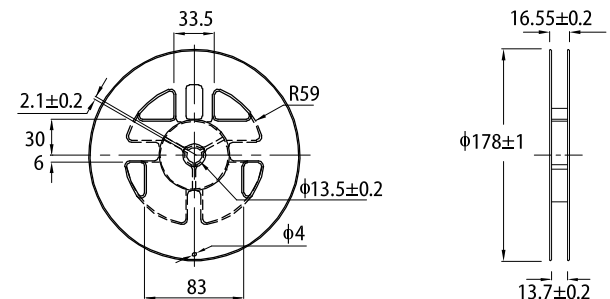

REEL DIMENSION (units : mm)

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
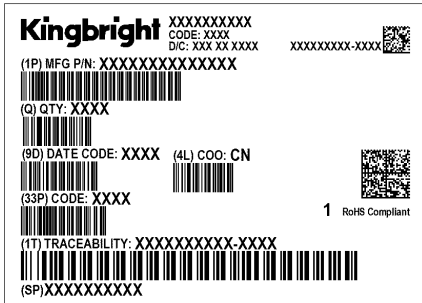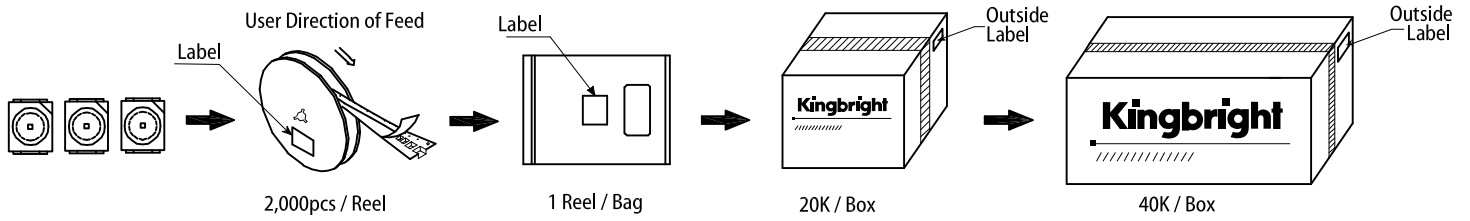*   cause damage to the product.*

PACKING & LABEL SPECIFICATIONS

User Direction of Feed

Label   Label

2,000pcs / Reel

1 Reel / Bag

20K / Box   Outside Label

40K / Box   Outside Label

Kingbright XXXXXXXXXX
CODE: XXXX
D/C: XXX XX XXXX   XXXXXXXXX-XXXX

(1P) MFG P/N: XXXXXXXXXXXXXX

(Q) QTY: XXXX

(9D) DATE CODE: XXXX   **(4L) COO:** CN

(33P) CODE: XXXX

1   RoHS Compliant

(1T) TRACEABILITY: XXXXXXXXXX-XXXX

(SP) XXXXXXXXXX

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.
3. When using the products referenced in this document, please make sure the product is being operated within the environmental and electrical limits specified in the datasheet. If customer usage exceeds the specified limits, Kingbright will not be responsible for any subsequent issues.
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