

Part Number: AA3528SURCKT-AMT

Hyper Red

Features

- Industry standard PLCC-2 package.
- High reliability LED package.
- Wide viewing angle.
- Single color.
- Suitable for all SMD assembly and solder process.
- Available on tape and reel.
- Ideal for backlighting.
- Package : 2,000pcs / reel.
- Moisture sensitivity level : level 3.
- RoHS compliant.

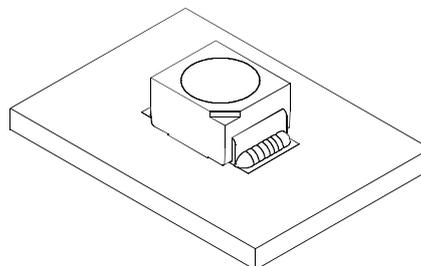
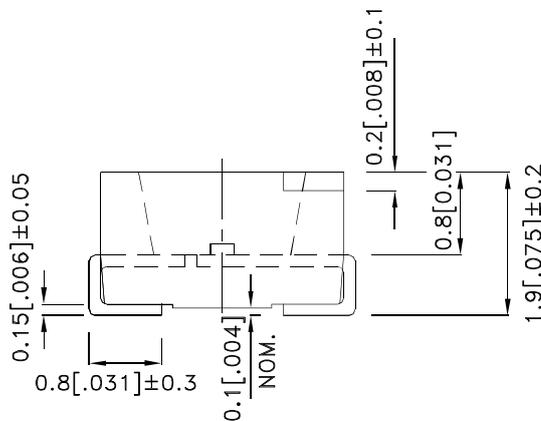
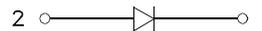
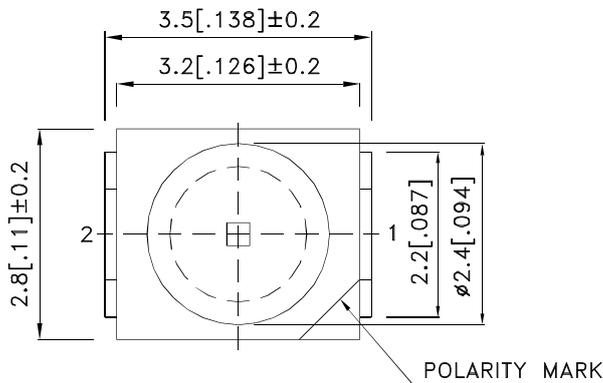
Description

The Hyper Red source color devices are made with Al-GaN on GaAs substrate Light Emitting Diode.

Applications

- Traffic signaling.
- Backlighting (illuminated advertising , general lighting).
- Interior and exterior automotive lighting.
- Substitution of micro incandescent lamps.
- Reading lamps.
- Signal and symbol luminaire for orientation.
- Marker lights (e.g. Steps, exit ways, etc).
- Decorative and entertainment lighting.
- Indoor and outdoor commercial and residential architectural lighting.

Package Dimensions



Notes:

1. All dimensions are in millimeters (inches).
2. Tolerance is $\pm 0.25(0.01)$ 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 No.	Emitting Color (Material)	Lens Type	Iv (mcd) [2] @ 20mA			Viewing Angle [1]
			Code.	Min.	Max.	2θ1/2
AA3528SURCKT-AMT	Hyper Red (AlGaInP)	Water Clear	P	200	300	120°
			Q	300	400	
			R	400	500	
			S	500	700	
			*H	*55	*80	
			*M	*80	*120	
			*N	*120	*200	
			*P	*200	*300	

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.

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Value	Unit
Power dissipation	P _D	75	mW
Reverse Voltage	V _R	5	V
Junction temperature	T _J	115	°C
Operating Temperature	T _{op}	-40 To +100	°C
Storage Temperature	T _{stg}	-40 To +115	°C
DC Forward Current	I _F	30	mA
Peak Forward Current [2]	I _{FM}	185	mA
Electrostatic Discharge Threshold (HBM)		3000	V
Thermal Resistance (Junction/ambient) [1]	R _{th(j-a)}	410	°C/W

Notes:

1. R_{th(j-a)} Results from mounting on PC board FR4 (pad size≥16 mm² per pad),

2. 1/10 Duty Cycle, 0.1ms Pulse Width.

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.

Electrical / Optical Characteristics at Ta=25°C

Parameter	Symbol	Value	Unit
Wavelength at peak emission I _F =20mA [Typ.]	λ _{peak}	645	nm
Dominant Wavelength I _F =20mA [Min.]	λ _{dom} [1]	620	nm
Dominant Wavelength I _F =20mA [Max.]	λ _{dom} [1]	640	nm
Spectral bandwidth at 50%Φ _{REL MAX} I _F =20mA [Typ.]	Δλ	28	nm
Forward Voltage I _F =20mA [Min.]	V _F [2]	-	V
Forward Voltage I _F =20mA [Typ.]		1.95	
Forward Voltage I _F =20mA [Max.]		2.5	
Reverse Current (V _R = 5V) [Max.]	I _R	10	uA
Temperature coefficient of λ _{peak} I _F =20mA, -10°C ≤ T ≤ 100°C [Typ.]	TC _{λ_{peak}}	0.13	nm/°C
Temperature coefficient of λ _{dom} I _F =20mA, -10°C ≤ T ≤ 100°C [Typ.]	TC _{λ_{dom}}	0.06	nm/°C
Temperature coefficient of V _F I _F =20mA, -10°C ≤ T ≤ 100°C [Typ.]	TC _V	-2.8	mV/°C

Notes:

1. The dominant Wavelength (λ_d) above is the setup value of the sorting machine. (Tolerance λ_d : ±1nm.)

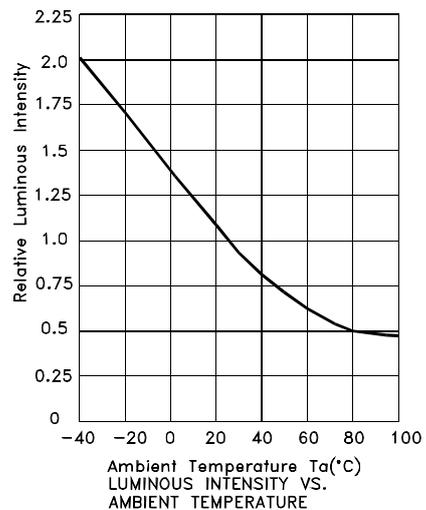
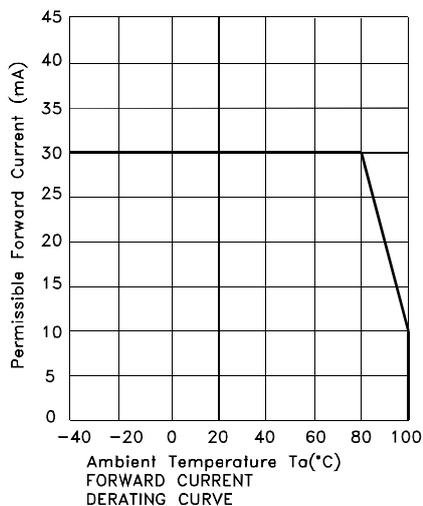
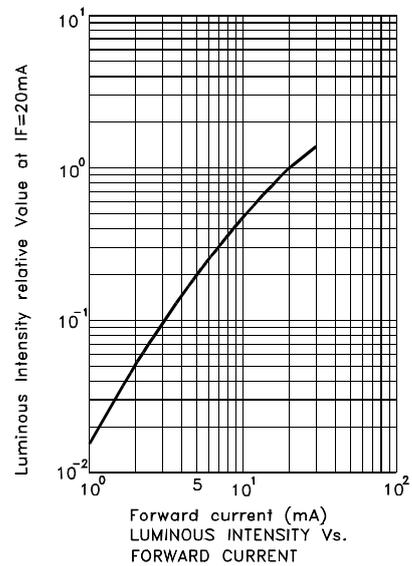
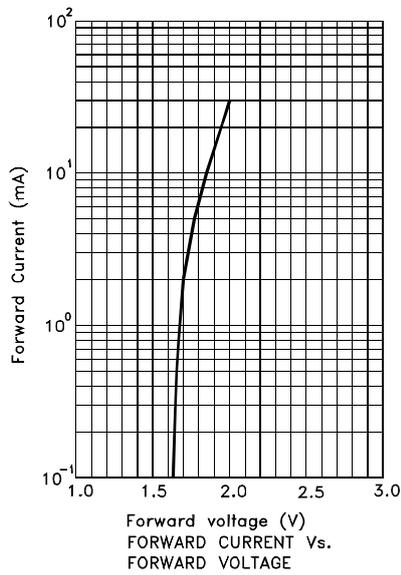
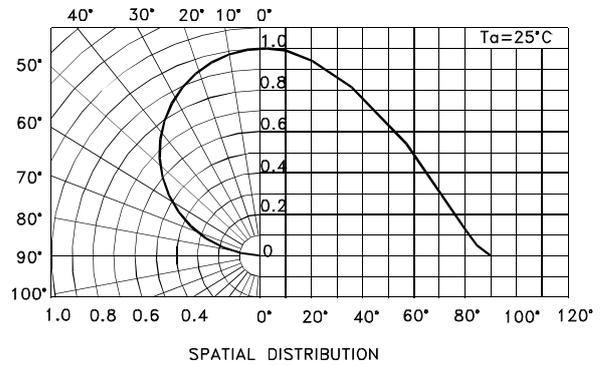
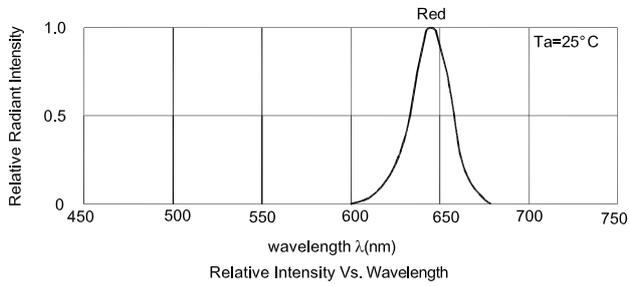
2. Forward Voltage: +/-0.1V.

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.

Hyper Red

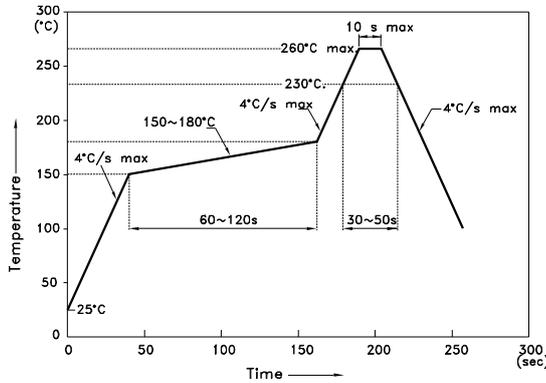
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Reflow soldering is recommended and the soldering profile is shown below.
Other soldering methods are not recommended as they might cause damage to the product.

Reflow Soldering Profile For Lead-free SMT Process.

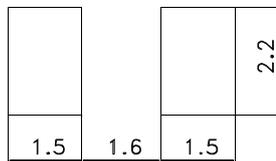


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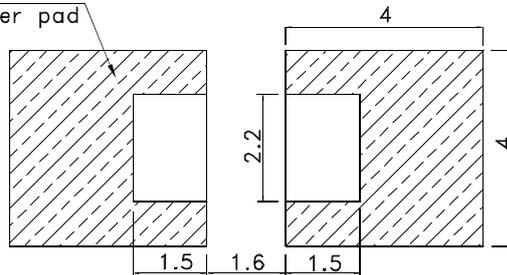
1. We recommend the reflow temperature 245°C(+/-5°C). The maximum soldering temperature should be limited to 260°C.
2. Don't cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

Recommended Soldering Pattern (Units : mm; Tolerance: ± 0.1)

Pad design for improved heat dissipation

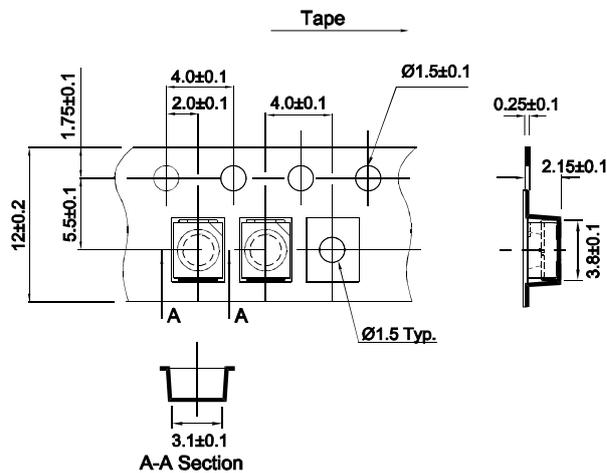


Cu-area > 16mm²
per pad

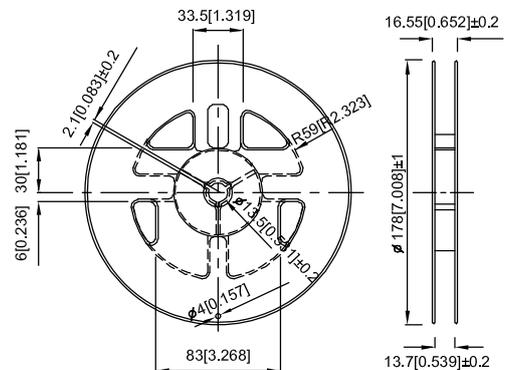


▨ Solder resist

Tape Specifications (Units : mm)



Reel Dimension



Reliability Test Items And Conditions

The reliability of products shall be satisfied with items listed below

Lot Tolerance Percent Defective (LTPD) : 10%

No.	Test Item	Standards	Test Condition	Test Times / Cycles	Number of Damaged
1	Continuous operating test	-	Ta = 25°C ,IF = maximum rated current*	1,000 h	0 / 22
2	High Temp. operating test	EIAJ ED-4701/100(101)	Ta = 100°C IF = derated current at 100°C	1,000 h	0 / 22
3	Low Temp. operating test	-	Ta = -40°C, IF = maximum rated current*	1,000 h	0 / 22
4	High temp. storage test	EIAJ ED-4701/100(201)	Ta = maximum rated storage temperature	1,000 h	0 / 22
5	Low temp. storage test	EIAJ ED-4701/100(202)	Ta = -40°C	1,000 h	0 / 22
6	High temp. & humidity storage test	EIAJ ED-4701/100(103)	Ta = 60°C, RH = 90%	1,000 h	0 / 22
7	High temp. & humidity operating test	EIAJ ED-4701/100(102)	Ta = 60°C, RH = 90% IF = maximum rated current*	1,000 h	0 / 22
8	Soldering reliability test	EIAJ ED-4701/100(301)	Moisture soak : 30°C,70% RH, 72h Preheat : 150~180°C(120s max.) Soldering temp : 260°C(10s)	2 times	0 / 18
9	Thermal shock operating test	-	Ta = -40°C(15min) ~ 100°C(15min) IF = derated current at 100°C	1,000 cycles	0 / 22
10	Thermal shock test	-	Ta = -40°C(15min) ~ 100°C(15min)	1,000 cycles	0 / 22
11	Electric Static Discharge (ESD)	EIAJ ED-4701/100(304)	C = 100pF , R2 = 1.5KΩ V = 3000V	Once each Polarity	0 / 22
12	Vibration test	-	a = 196m/s ² , f = 100~2KHz , t = 48min for all xyz axes	4 times	0 / 22

* : Refer to forward current vs. derating curve diagram

Failure Criteria

Items	Symbols	Conditions	Failure Criteria
luminous Intensity	Iv	IF = 20mA	Testing Min. Value < Spec.Min.Value x 0.5
Forward Voltage	Vf	IF = 20mA	Testing Max. Value ≥ Spec.Max.Value x 1.2
Reverse Current	IR	VR = Maximum Rated Reverse Voltage	Testing Max. Value ≥ Spec.Max.Value x 2.5
High temp. storage test	-	-	Occurrence of notable decoloration, deformation and cracking