

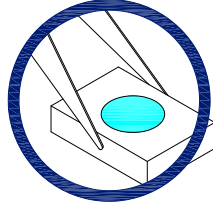


## Handling Precautions

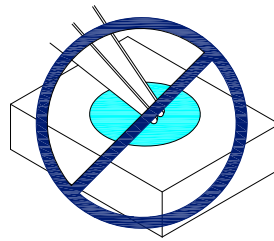
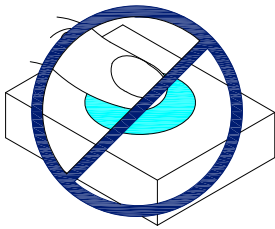
Compare to epoxy encapsulant that is hard and brittle, silicone is softer and flexible. Although its characteristic significantly reduces thermal stress, it is more susceptible to damage by external mechanical force.

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.

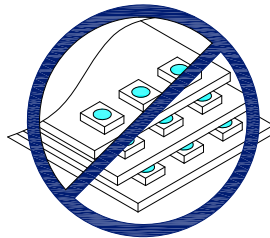
1. Handle the component along the side surfaces by using forceps or appropriate tools.



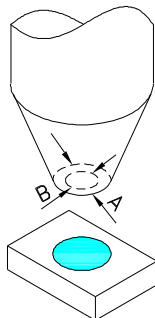
2. Do not directly touch or handle the silicone lens surface. It may damage the internal circuitry.



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



4. The outer diameter of the SMD pickup nozzle should not exceed the size of the LED to prevent air leaks. The inner diameter of the nozzle should be as large as possible.
5. A pliable material is suggested for the nozzle tip to avoid scratching or damaging the LED surface during pickup.
6. The dimensions of the component must be accurately programmed in the pick-and-place machine to insure precise pickup and avoid damage during production.



## Selection Guide

Part No.	Dice	Lens Type	Iv (mcd) [2] @ 20mA			Viewing Angle [1]
			Code.	Min.	Max.	2θ1/2
AAA3528QWDSYKS-AMT	White (InGaN)	Water Clear	R	400	500	120°
			S	500	700	
			T	700	1000	
	Super Bright Yellow (AlGaInP)		N	120	200	
			P	200	300	
			Q	300	400	

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%.

## Absolute Maximum Ratings at TA=25°C

Parameter	Symbol	Value		Unit	
		White	Super Bright Yellow		
Power dissipation	PD	100	75	mW	
Operating Temperature	Top	-40 To+ 100		°C	
Storage Temperature	Tstg	-40 To+ 110		°C	
Junction temperature	TJ	110	120	°C	
DC Forward Current (TA=25°C)	IF	25	30	mA	
Peak Forward Current [1] (TA=25°C)	IFM	150	175	mA	
Reverse Voltage (TA=25°C)	VR	5	5	V	
Electrostatic Discharge Threshold (HBM)		250	3000	V	
Thermal resistance (Junction/solder point)	1 chip on (typ.) 2 chip on (typ.) 1 chip on (max.) 2 chip on (max.)	Rth j-s Rth j-s Rth j-s [2] Rth j-s [2]	220 330 256 410	220 540 256 710	°C/W

Note:

1. 1/10 Duty Cycle, 0.1ms Pulse Width.
2. Rth(max) is based on statistic values.

## Electrical / Optical Characteristics at TA=25°C (White)

Parameter	Symbol	Value	Unit
Chromaticity coordinate x acc.to CIE1931 IF=20mA [Typ.]	x [1]	0.31	
Chromaticity coordinate y acc.to CIE1931 IF=20mA [Typ.]	y [1]	0.31	
Reverse Current (VR = 5V) [Max.]	IR	50	uA
Forward Voltage IF=20mA [Min.]	VF [2]	-	V
Forward Voltage IF=20mA [Typ.]		3.3	
Forward Voltage IF=20mA [Max.]		4.0	
Temperature coefficient of VF IF=20mA, -10 ° C ≤ T ≤ 100 ° C [Typ.]	TCv	-2.5	mV/° C
Temperature coefficient of x IF=20mA, -10 ° C ≤ T ≤ 100 ° C [Typ.]	TCx	-0.1	10 <sup>-3</sup> /° C
Temperature coefficient of y IF=20mA, -10 ° C ≤ T ≤ 100 ° C [Typ.]	TCy	-0.2	10 <sup>-3</sup> /° C

Notes:

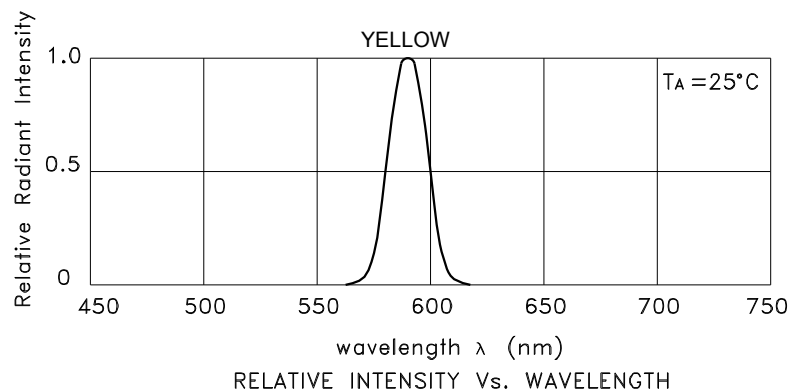
1. Measurement tolerance of the chromaticity coordinates is ±0.01.
2. Forward Voltage: +/-0.1V.

## Electrical / Optical Characteristics at TA=25°C (Yellow)

Parameter	Symbol	Value				Unit
		Code.	Min.	Typ.	Max.	
Wavelength at peak emission IF=20mA	$\lambda$ peak			590		nm
Dominant Wavelength IF=20mA	$\lambda$ dom [1]	2	584		586	nm
		3	586		588	
		4	588		590	
		5	590		592	
		6	592		594	
Spectral bandwidth at 50% $\Phi$ REL MAX IF=20mA	$\Delta\lambda$			20		nm
Forward Voltage IF=20mA	V <sub>F</sub> [2]			2.0	2.5	V
Reverse Current (V <sub>R</sub> = 5V)	I <sub>R</sub>				10	uA
Temperature coefficient of $\lambda$ peak IF=20mA, -10 ° C ≤ T ≤ 100 ° C	TC $\lambda$ peak			0.13		nm/° C
Temperature coefficient of $\lambda$ dom IF=20mA, -10 ° C ≤ T ≤ 100 ° C	TC $\lambda$ dom			0.04		nm/° C
Temperature coefficient of V <sub>F</sub> IF=20mA, -10 ° C ≤ T ≤ 100 ° C	TC <sub>v</sub>			-3.6		mV/° C

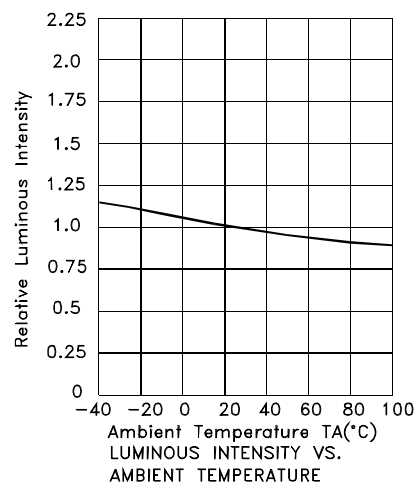
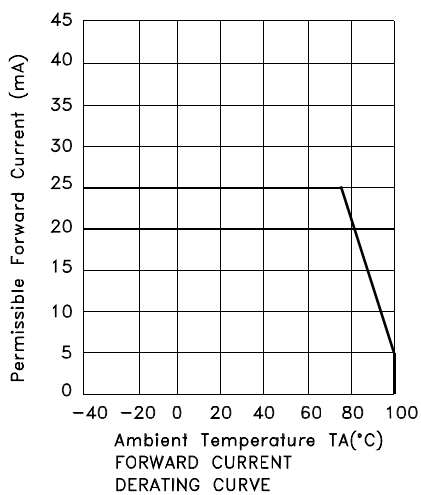
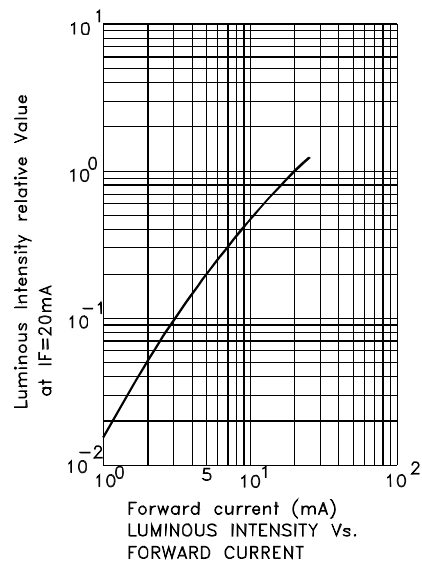
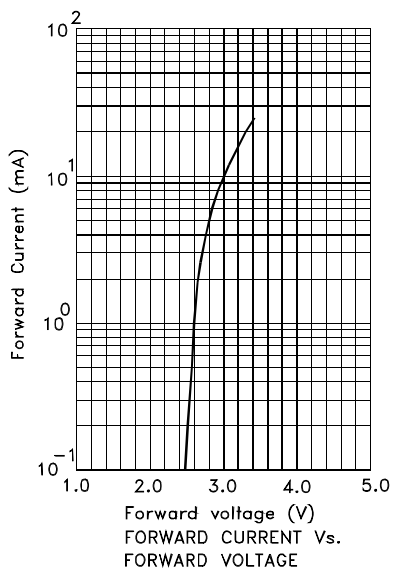
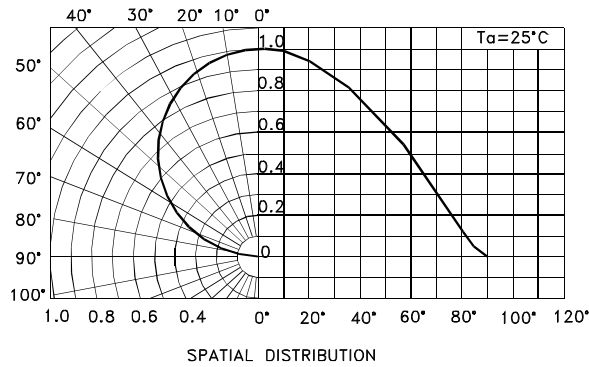
Notes:

1. The dominant Wavelength ( $\lambda$  d) above is the setup value of the sorting machine. (Tolerance  $\lambda$  d : ±1nm. )
2. Forward Voltage: +/-0.1V.



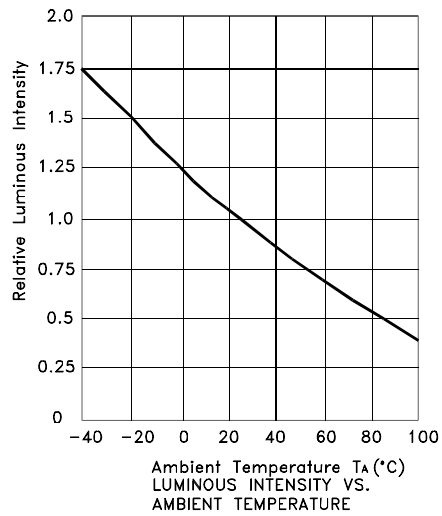
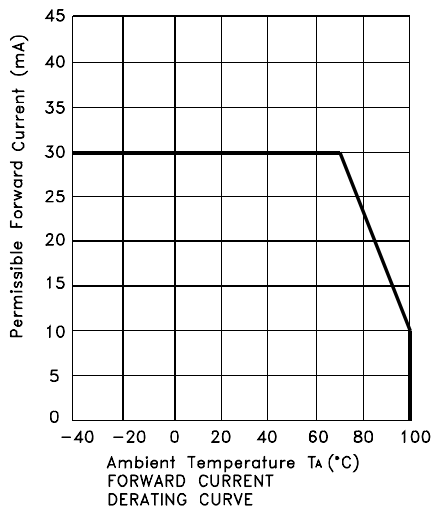
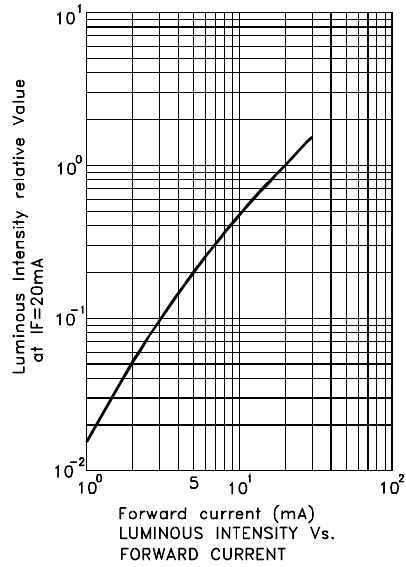
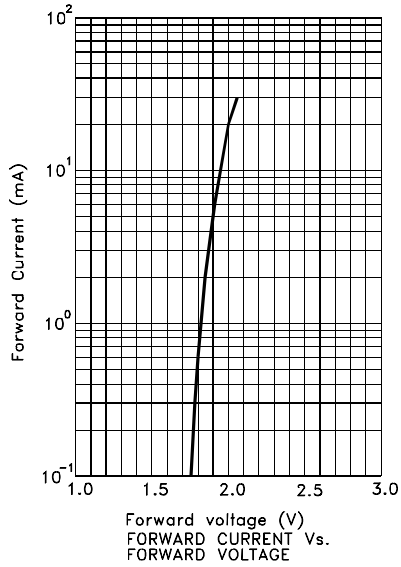
White

AAA3528QWDSYKS-AMT



## Super Bright Yellow

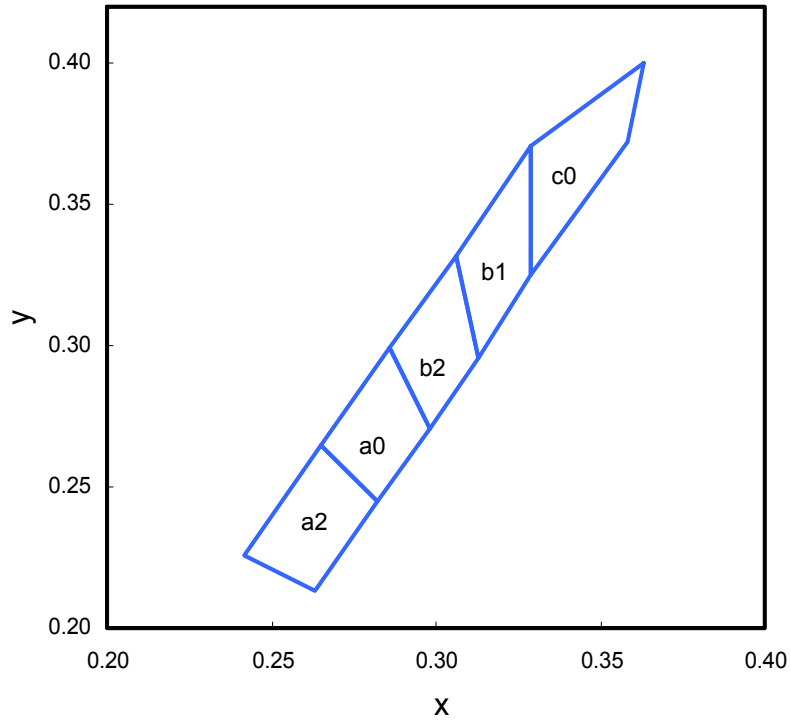
## AAA3528QWDSYKS-AMT



White

AAA3528QWDSYKS-AMT

## White CIE



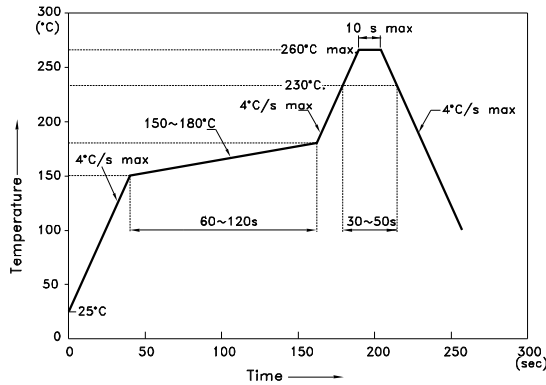
	x	y		x	y		x	y
a2	0.263	0.213	a0	0.282	0.245	b2	0.298	0.271
	0.282	0.245		0.298	0.271		0.313	0.296
	0.265	0.265		0.286	0.299		0.306	0.332
	0.242	0.226		0.265	0.265		0.286	0.299
b1	0.313	0.296	c0	0.329	0.325			
	0.329	0.325		0.358	0.372			
	0.329	0.371		0.363	0.400			
	0.306	0.332		0.329	0.371			

Notes:  
 Shipment may contain more than one chromaticity regions.  
 Orders for single chromaticity region are generally not accepted.  
 Measurement tolerance of the chromaticity coordinates is  $\pm 0.01$ .

## AAA3528QWDSYKS-AMT

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.

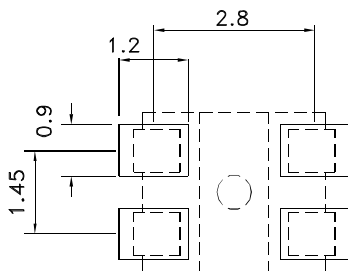
Reflow Soldering Profile For Lead-free SMT Process.



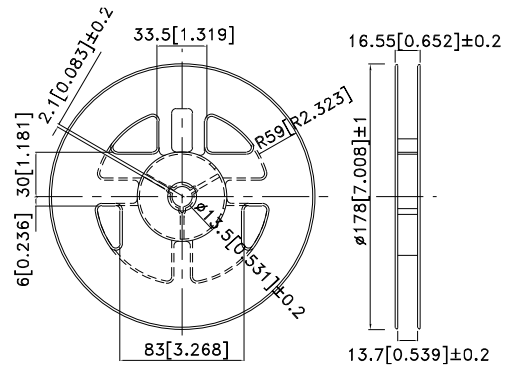
**NOTES:**

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.

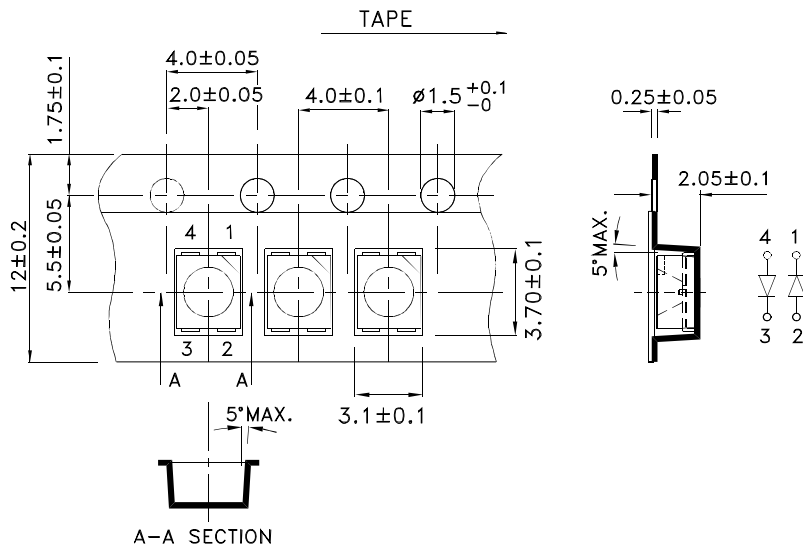
**Recommended Soldering Pattern  
(Units : mm; Tolerance: ± 0.1)**



**Reel Dimension**



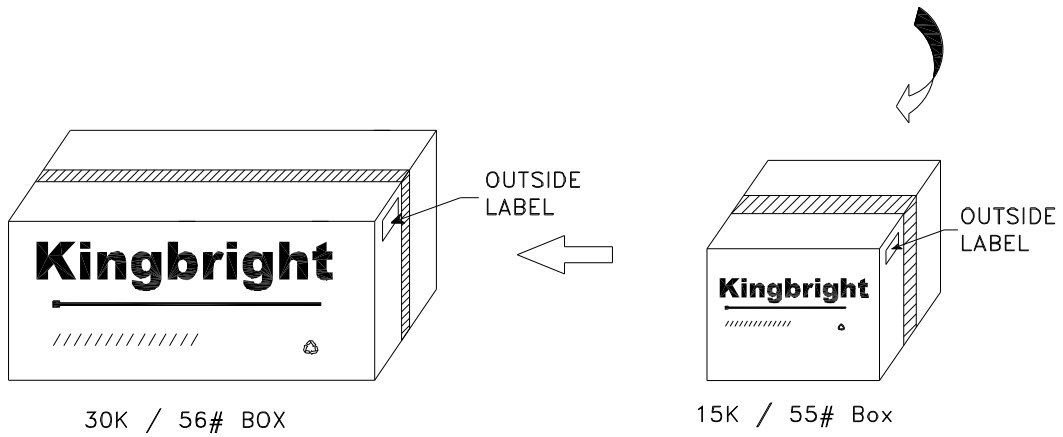
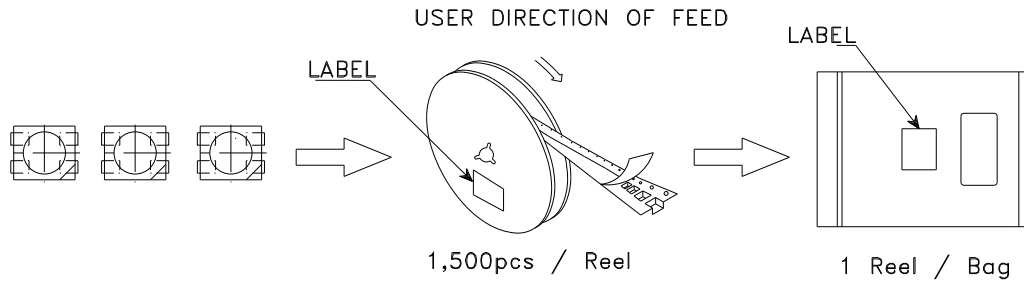
**Tape Dimensions  
(Units : mm)**






**PACKING & LABEL SPECIFICATIONS**

**AAA3528QWDSYKS-AMT**



<h1>Kingbright</h1>	
P/NO: AAA3528XXX	
QTY: 1,500 pcs	Q.C. <span style="border: 1px solid black; border-radius: 50%; padding: 2px;">Q C XX XX XXXX PASSED</span>
S/N: XXXX	
CODE: XXX	
LOT NO:	
 <small>XXXXXXXXXXXXXXXXXXXX</small>	
RoHS Compliant	

## 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 = maximum rated current*	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)	3 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) ~ maximum rated storage temperature(15min)	1,000 cycles	0 / 22
11	Electric Static Discharge (ESD)	EIAJ ED-4701/100(304)	C = 100pF , R2 = 1.5KΩ V = 250V(White) V=3000V(Yellow)	Once each Polarity	0 / 22
12	Vibration test	-	a = 196m/s <sup>2</sup> , 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