

### Features

- 1206 1.1mm SMD LED
- High Brightness
- AllnGaP / InGaN Technology
- Small package
- High reliability
- Clear Lens

## Applications

- Consumer Electronics
- Wearables
- Automobile After Market
- Industrial Equipment

### Description

The IN-S126AT series is a popular low profile 1206 package with versatile design capabilities. It is a PCB type molding style LED which can be used in various applications.

## **Recommended Solder Pattern**

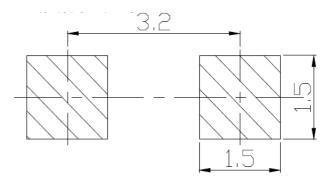
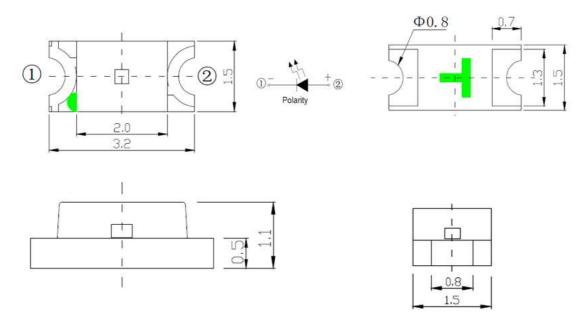


Figure 1. IN-S126AT Solder Pattern



## Package Dimensions in mm





## Absolute Maximum Rating at 25°C (Note 1)

Product	Emission Color	P <sub>d</sub> (mW)	I <sub>F</sub> (mA)	I <sub>FP</sub> * (mA)	V <sub>R</sub> (V)	Top (⁰C)	Тѕт (⁰С)
IN-S126ATYG	Yellow Green						
IN-S126ATY	Yellow	76	25	70			
IN-S126ATA	Amber	75	25	70	5	-30°C~+85°C	-40°C~+90°C
IN-S126ATR	Red						
IN-S126ATB	Blue						
IN-S126ATG	Green	75	25	100			
IN-S126AT5UW	White						

#### Notes

1. Condition for IFP is pulse of 1/10 duty and 0.1msec width

### **ESD Precaution**

ATTENTION: Electrostatic Discharge (ESD) protection



The symbol above denotes that ESD precaution is needed. ESD protection for GaP and AlGaAs based chips is necessary even though they are relatively safe in the presence of low static-electric discharge. Parts built with AlInGaP, GaN, or/and InGaN based chips are STATIC SENSITIVE devices. ESD precaution must be taken during design and assembly. If manual work or processing is needed, please ensure the device is adequately protected from ESD during the process.

Please be advised that normal static precautions should be taken in the handling and assembly of this device to prevent damage or degradation which may be induced by electrostatic discharge (ESD).



## **Electrical Characteristics** $T_A = 25$ C (Note 1)

	Emission		V <sub>F</sub> (V)		λ(nm)			Viewing Angel	l* <sub>∨</sub> (mcd)
Product	Color	l⊧(mA)	min.	max	λD	λP	Δλ	<b>2</b> <i>θ</i> 1/2	typ.
IN-S126ATYG	Yellow Green	20	1.8	2.6	573	576	15	120	35
IN-S126ATY	Yellow	20	1.8	2.6	591	594	15	120	120
IN-S126ATA	Amber	20	1.8	2.6	605	610	17	120	140
IN-S126ATR	Red	20	1.8	2.6	622	630	20	120	140
IN-S126ATB	Blue	20	2.8	3.6	468	472	30	120	140
IN-S126ATG	Green	20	2.8	3.6	520	526	35	120	560
IN-S126AT5UW	White	5	2.8	3.6	X=0.29 Y=0.29	-	-	120	180

#### Notes

1. Performance guaranteed only under conditions listed in above tables.

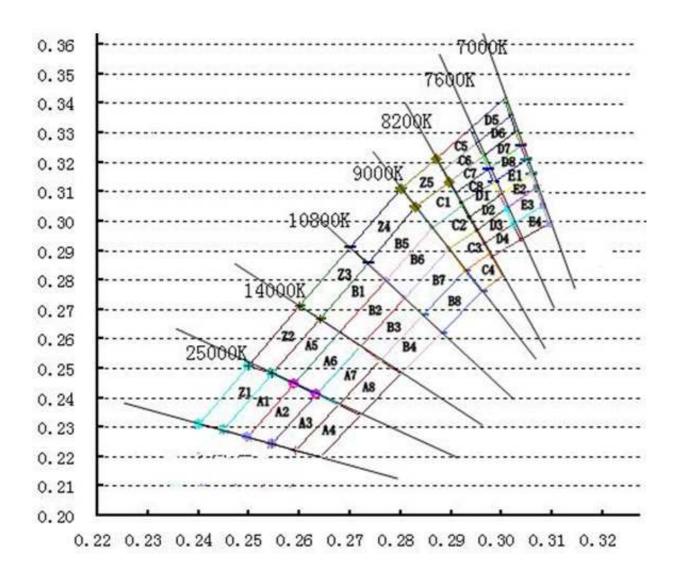


## IN-S126AT series Top View SMD LED 1206 PCB Type

# Chromaticity Bin (for White only)

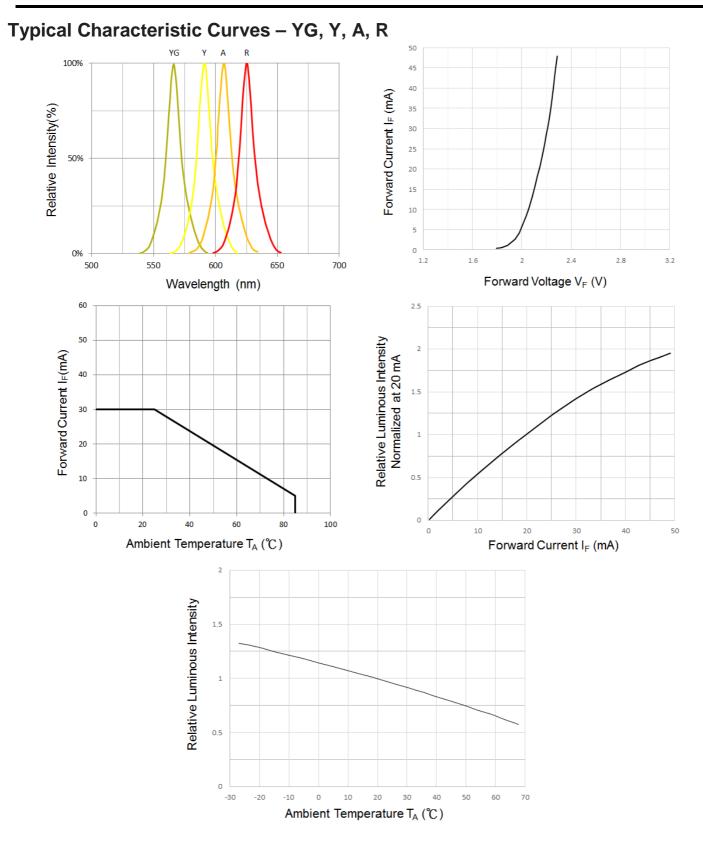
Bin Code	CIE-X	CIE-Y	Bin Code	CIE-X	CIE-Y	Bin Code	CIE-X	CIE-Y	Bin Code	CIE-X	CIE-Y
	0.2545	0.2480		0.2640	0.2670		0.2830	0.3050		0.2920	0.3060
A5	0.2589	0.2445	B1	0.2680	0.2623	C1	0.2863	0.2978	D1	0.2935	0.3015
AJ	0.2680	0.2623	DI	0.2772	0.2800	C1	0.2923	0.3052	DI	0.2997	0.3088
	0.2640	0.2670		0.2735	0.2860		0.2895	0.3134		0.2984	0.3133
	0.2589	0.2445		0.2720	0.2575		0,2863	0.2978		0.2935	0.3015
A6	0.2633	0.2410	B2	0.2680	0.2623	C2	0.2895	0.2905	D2	0.2950	0.2970
AO	0.2720	0.2575	D2	0.2772	0.2800	02	0.2950	0.2970	02	0.3009	0.3042
	0.2680	0.2623		0.2808	0.2740		0.2923	0.3052		0.2997	0.3088
	0.2677	0.2375		0.2720	0.2575		0.2895	0.2905		0.2950	0.2970
A7	0.2633	0.2410	B3	0.2760	0.2528	C3	0.2928	0.2833	D3	0.2965	0.2925
AI.	0.2720	0.2575	Do	0.2844	0.2680	03	0.2977	0.2891	05	0.3023	0.2990
	0.2760	0.2528		0.2808	0.2740		0.2950	0.2970		0.3009	0.3042
	0.2720	0.2340		0.2760	0.2528		0.2928	0.2833		0.2965	0.2925
A8	0.2677	0.2375	B4	0.2844	0.2680	C4	0.2977	0.2891	D4	0.2980	0.2880
AO	0.2760	0.2528	DI	0.2880	0.2620	01	0.3003	0.2812	104	0.3037	0.2937
	0.2800	0.2480		0.2800	0.2480		0.2960	0.2760		0.3023	0.2990
	0.2984	0.3133		0.2735	0.2860		0.2883	0.3172		0.2937	0.3312
E1	0.2997	0.3088	B5	0.2772	0.2800	C5	0.2870	0.3210	D5	0.2950	0.3266
E1	0.3058	0.3160	DJ	0.2863	0.2978	0.5	0.2937	0.3312		0.3017	0.3360
	0.3048	0.3207		0.2830	0.3050		0.2950	0.3266		0.3005	0.3415
	0.2997	0.3088		0.2772	0.2800		0.2883	0.3172		0.2950	0.3266
E0	0.3009	0.3042	B6	0.2808	0.2740	C6	0.2950	0.3266	D6	0.2962	0.3220
E2	0.3068	0.3113		0.2895	0.2905		0.2962	0.3220	00	0.3028	0.3304
	0.3058	0.3160		0.2863	0.2978		0.2895	0.3134		0.3017	0.3360
	0.3009	0.3042		0.2808	0.2740		0.2895	0.3134		0.2962	0.3220
E3	0.3023	0.2990	B7	0.2844	0.2680	C7	0.2908	0.3097	D7	0.2973	0.3177
1.5	0.3081	0.3053	ы	0.2928	0.2833	01	0.2973	0.3177	51	0.3038	0.3256
	0.3068	0.3113		0.2895	0.2905		0.2962	0.3220		0.3028	0.3304
	0.3023	0.2990		0.2844	0.2680		0.2908	0.3097		0.2973	0.3177
E4	0.3037	0.2937	B8	0.2928	0.2833	C8	0.2920	0.3060	D8	0.2984	0.3133
E/1	0.3093	0.2993	Бо	0.2960	0.2760	Co	0.2984	0.3133	100	0.3048	0.3207
	0.3081	0.3053		0.2880	0.2620		0.2973	0.3177		0.3038	0.3256
	0.25	0.251		0.26	0.271		0.27	0.291		0.28	0.311
Z2	0.26	0.271	Z3	0.27	0.291	Z4	0.28	0.311	Z5	0.2871	0.321
64	0.264	0.267	20	0.2735	0.286	61	0.283	0.305	2.5	0.2895	0.3134
	0.2545	0.248		0.264	0.267		0.2735	0.286		0.283	0, 305
	0.2497	0.2267		0.2497	0.2267		0.2593	0.2223		0.2640	0.2200
A1	0.245	0.229	A2	0.2589	0.2445	A3	0.2677	0.2375	A4	0.2593	0.2223
AI	0.2545	0.248	112	0.2633	0.241	ho	0.2633	0.2410		0,2677	0.2375
	0.2589	0.2445		0.2545	0.2245		0.2545	0.2245		0.2720	0.2340
	0.24	0.231									
71	0.25	0.251									
Z1	0.2545	0.248									
	0.245	0.2291									
	0.245	0. 2291									





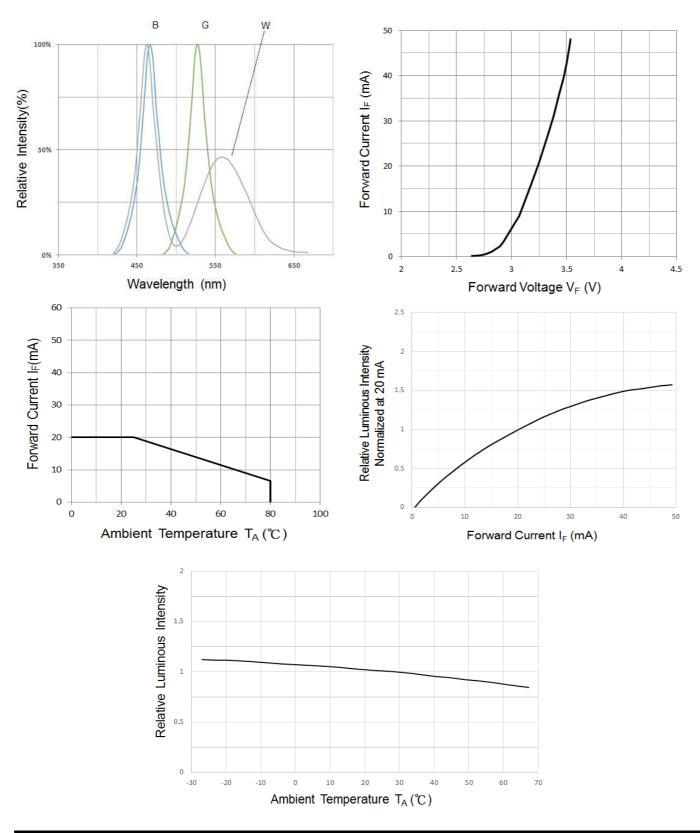


## IN-S126AT series Top View SMD LED 1206 PCB Type



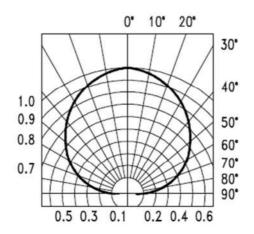


# Typical Characteristic Curves – B, G, W





## **Typical Characteristic Curves – Radiation Pattern**

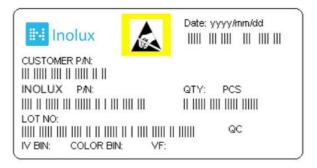


## **Ordering Information**

Product	Emission Color	Technolog y	Test Current I <sub>F</sub> (mA)	Luminous Intensity I <sub>V</sub> (mcd) (Typ.)	Forward Voltage V <sub>F</sub> (V) (Typ.)	Orderable Part Number
IN-S126ATYG	Yellow Green	AllnGaP	20	35	2.0	IN-S126ATYG
IN-S126ATY	Yellow	AllnGaP	20	120	2.0	IN-S126ATY
IN-S126ATA	Amber	AllnGaP	20	140	2.0	IN-S126ATA
IN-S126ATR	Red	AllnGaP	20	140	2.0	IN-S126ATR
IN-S126ATB	Blue	InGaN	20	140	3.2	IN-S126ATB
IN-S126ATG	Green	InGaN	20	560	3.2	IN-S126ATG
IN-S126AT5UW	White	InGaN	5	180	3.0	IN-S126AT5UW



## **Label Specifications**



## Inolux P/N:

I	Ν	-	S	1	2	6	А	Т			Х	-	х	х	Х	Х
			Material	P	ackag	e	Varia tion	Orientation	Current	Lens	Color			istor tam		
	olux VID		S = PCB Type	126A	= 3.2	x 1.6 x	1.1mm	T = Top Mount	(Blank) = 20mA 5=5mA	(Blank) = Clear U = Diffused	R=630nm A=610nm Y=594nm YG=576nm G=526nm B=472nm W=White					

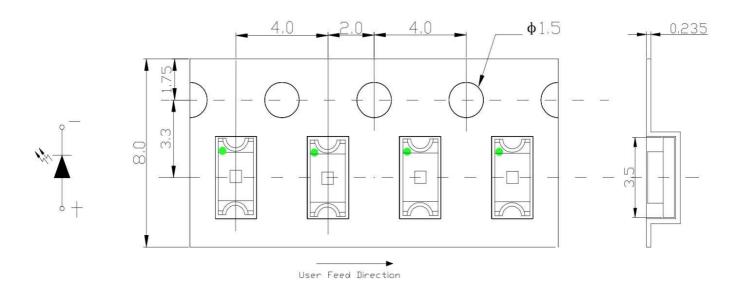
### Lot No.:

Z	2	0	1	7	01	24	001
Internal		Year (2017	, 2018,)	Month	Date	Serial	
Tracker		•					

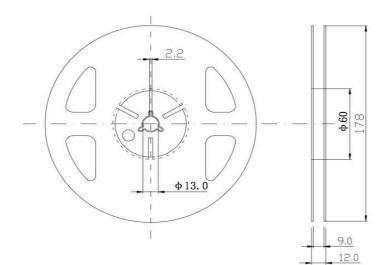


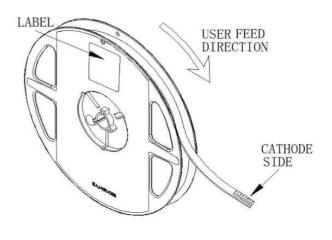
## Packaging Information: 3000pcs Per Reel

## Tape Dimension



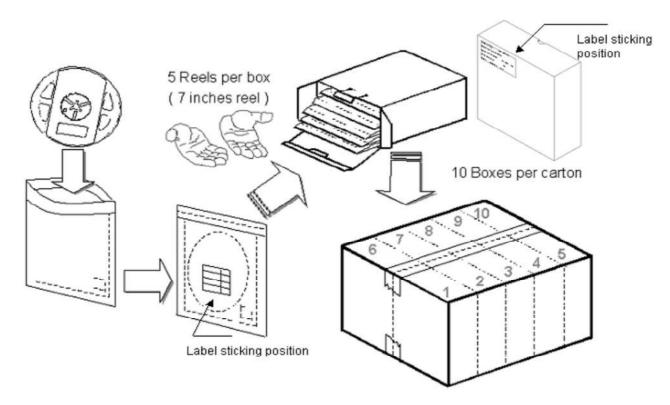
### **Reel Dimension**







## Packing Dimension



5 boxes per carton are available depending on shipment quantity.

	Specification	Material	Quantity
Carrier tape	Per EIA 481-1A specs	Conductive black tape	3000pcs per reel
Reel	Per EIA 481-1A specs	Conductive black	
Label	IN standard	Paper	
Packing bag	220x240mm	Aluminum laminated bag/ no-zipper	One reel per bag
Carton	IN standard	Paper	Non-specified

Others:

Each immediate box consists of 5 reels. The 5 reels may not necessarily have the same lot number or the same bin combinations of Iv,  $\lambda_D$  and Vf. Each reel has a label identifying its specification; the immediate box consists of a product label as well.

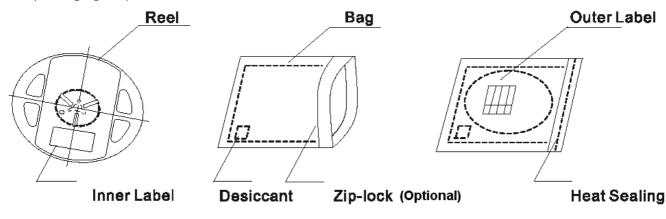


## **Dry Pack**

All SMD optical devices are **MOISTURE SENSITIVE**. Avoid exposure to moisture at all times during transportation or storage. Every reel is packaged in a moisture protected anti-static bag. Each bag is properly sealed prior to shipment.

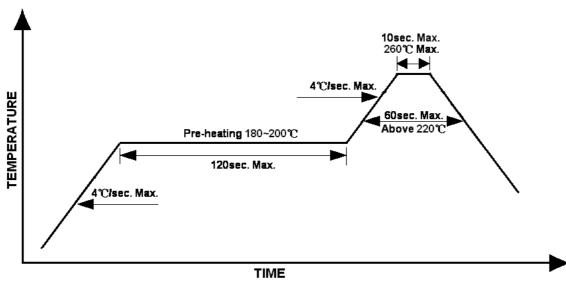
Upon request, a humidity indicator will be included in the moisture protected anti-static bag prior to shipment.

The packaging sequence is as follows:



### **Reflow Soldering**

- Recommended tin glue specifications: melting temperature in the range of 178~192 °C
- The recommended reflow soldering profile is as follows (temperatures indicated are as measured on the surface of the LED resin):



Lead-free Solder Profile



## Precautions

- Avoid exposure to moisture at all times during transportation or storage.
- Anti-Static precaution must be taken when handling GaN, InGaN, and AlInGaP products.
- It is suggested to connect the unit with a current limiting resistor of the proper size. Avoid applying a reverse voltage.
- Avoid operation beyond the limits as specified by the absolute maximum ratings.
- Avoid direct contact with the surface through which the LED emits light.
- If possible, assemble the unit in a clean room or dust-free environment.

### Reworking

- Rework should be completed within 5 seconds under 260 °C.
- The iron tip must not come in contact with the copper foil.
- Twin-head type is preferred.

### Cleaning

Following are cleaning procedures after soldering:

- An alcohol-based solvent such as isopropyl alcohol (IPA) is recommended.
- Temperature x Time should be 50°C x 30sec. or <30°C x 3min
- Ultra sonic cleaning: < 15W/ bath; bath volume ≤ 1liter
- Curing: 100 °C max, <3min

### **Cautions of Pick and Place**

- Avoid stress on the resin at elevated temperature.
- Avoid rubbing or scraping the resin by any object.
- Electro-static may cause damage to the component. Please ensure that the equipment is properly grounded. Use of an ionizer fan is recommended.



## **Reliability**

TailuresReferenceFor all reliability monitoring tests according to JEDEC Level 2J-STD-0201.) Baking at 85°C for 24hrs 2.) Moisture storage at 85°C f0% R.H. for 168hrsSolderability10/1/22/0JESD22-B102-B And CNS-5067Accelerated aging 155°C/24hrs Tinning speed: 2.5+0.5cm/s Tinning speed: 2.5+0.5cm/sResistance to soldering heat10/1/40/0CNS-5067Dipping soldering terminal only Soldering terminal only Soldering bath temperature A: 260+/-5°C; 10+/-1s B: 350+/10°C; 3+/-0.5s10/1/40/0CNS-118291.) Precondition: 85°C baking for 24hrs B: 350+/10°C; 3+/-0.5c0perating life test10/1/45/0JESD-A101-BTamb: 55°C Tamb: 55°C IF=20mA; duration 1000hrsHigh temperature bias10/1/20IN specs.Tamb: 55°C IF=20mA Duration: 1000hrsHigh temperature cycle10/1/40/0JESD-A101-A Left 2.2Tamb: 55°C IF=20mA Duration: 1000hrsPulse life test10/1/40/0JESD-A104-A Left 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air typeHigh humidity type test10/1/40/0CNS-6117 90+5/-10% R.H. for 500hrs	Item	Frequency/ lots/ samples/	Standards	Conditions
Preconditionmonitoring tests according to JEDEC Level 22.) Moisture storage at 85°C/60% R.H. for 168hrsSolderability1Q/1/22/0JESD22-B102-B And CNS-5068Accelerated aging 155°C/24hrs Tinning speed: 2.5+0.5cm/s Tinning: A: 215°C/3+1s or B: 260°C/10+1sResistance to soldering heatCNS-5067Dipping soldering terminal only Soldering bath temperature A: 260+/-5°C; 10+/-1s B: 350+/-10°C; 3+/-0.5sOperating life test1Q/1/40/0CNS-118291.) Precondition: 85°C bakin g for 24hrs 85°C/60% R.H. for 168hrs 2.) Tamb25°C; IF=20mA; duration 1000hrsHigh humidity, high temperature bias1Q/1/45/0JESD-A101-BTamb: 85°C Humidity: 85% R.H., IF=5mA Duration: 1000hrsPulse life test1Q/1/40/0IN specs.Tamb: 55°C IF=20mA, Duration: 1000hrsPulse life test1Q/1/40/0JESD-A104-A IEC 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air typeHigh humidity storage test1Q/1/40/0CNS-554100+10°C for 500hrs	item	failures	Reference	
to JEDEC Level 2   168hrs     Solderability   1Q/ 1/22/0   JESD22-B102-B And CNS-5068   Accelerated aging 155°C/24hrs Tinning speed: 2.5+0.5cm/s Tinning speed: 2.5+0.5cm/s     Resistance to soldering heat   CNS-5067   Dipping soldering terminal only Soldering bath temperature A: 260+/5°C; 10+/-1s B: 350+/10°C; 34'-0.5s     Operating life test   1Q/ 1/40/0   CNS-11829   1.) Precondition: 85°C bakin g for 24hrs 85°C / 60%R.H. for 168hrs 2.) Tamb25°C; IF=20mA; duration 1000hrs     High humidity, high temperature bias   1Q/ 1/45/0   JESD-A101-B   Tamb: 85°C Humidity: 85% R.H., IF=5mA Duration: 1000hrs     High temperature bias   1Q/ 1/20   IN specs.   Tamb: 55°C IF=20mA, lp=100mA, Duty cycle=0.125 (tp=125 µ s,T=1sec) Duration: 500hrs     Pulse life test   1Q/ 1/76/0   JESD-A104-A IEC 68-2-14, Nb   A cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air type     High humidity storage test   1Q/ 1/40/0   CNS-5117   60-3°C 90+5/-10% R.H. for 500hrs		For all reliability	J-STD-020	1.) Baking at 85℃ for 24hrs
Solderability1Q/1/22/0JESD22-B102-B And CNS-5068Accelerated aging 155°C / 24hrs Tinning speed: 2.540.5cm/s Tinning: A: 215°C / 341s or B: 260°C / 10+1sResistance to soldering heatCNS-5067Dipping soldering terminal only Soldering bath temperature A: 2604/-5°C; 104/-1s B: 3504/-10°C; 34-0.5sOperating life test1Q/1/40/0CNS-118291.) Precondition: 85°C bakin g for 24hrs 85°C / 60%R.H. for 168hrs 2.) Tamb25°C; IF=20mA; duration 1000hrsHigh humidity, high temperature bias1Q/1/45/0JESD-A101-BTamb: 85°C Humidity: 85% R.H., IF=5mA Duration: 1000hrsPulse life test1Q/1/40/0IN specs.Tamb: 55°C IF=20mA, buration: 1000hrsPulse life test1Q/1/40/0JESD-A104-A IEC 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C Thismin Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air typeHigh humidity storage test1Q/1/40/0CNS-6117 60+3°C60+3°C 60+3°C	Precondition	monitoring tests according		2.) Moisture storage at 85°C/ 60% R.H. for
SolderabilityAnd CNS-5068Tinning speed: 2.5+0.5cm/s Tinning: A: 215°C/3+15 or B: 260°C/10+15 Dipping soldering terminal only Soldering bath temperature A: 260+/-5°C; 10+/-15 B: 350+/-10°C; 3+/-0.5sResistance to soldering heat1Q/1/40/0CNS-5067Dipping soldering terminal only 		to JEDEC Level 2		168hrs
Tinning: A: 215 C/ 3+1s or B: 260 C/ 10+1sResistance to soldering heatCNS-5067Dipping soldering terminal only Soldering bath temperature A: 260+/5C; 10+/1s B: 350+/10°C; 3+/-0.5sOperating life test1Q/ 1/ 40/ 0CNS-118291.) Precondition: 85°C bakin g for 24hrs 85°C / 60% R.H. for 168hrs 2.) Tamb25°C; IF=20mA; duration 1000hrsHigh humidity, high temperature bias1Q/ 1/ 45/ 0JESD-A101-BTamb: 85°C Humidity: 85% R.H., IF=5mA Duration: 1000hrsHigh temperature bias1Q/ 1/ 20IN specs.Tamb: 55°C IF=20mA, buration: 1000hrsPulse life test1Q/ 1/ 40/ 0ISD-A104-A IEC 68-2-14, NbTamb25°C, If=20mA, Ip=100mA, Duty cycle=0.125 (tp=125 µ/ s,T=1sec) Duration: 500hrs)Temperature cycle1Q/ 1/ 76/ 0JESD-A104-A IEC 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air typeHigh humidity storage test1Q/ 1/ 40/ 0CNS-611760+3°C 60+3°C 90+5/-10% R.H. for 500hrsHigh temperature type1Q/ 1/ 40/ 0CNS-554100+10°C for 500hrs		1Q/ 1/ 22/ 0	JESD22-B102-B	Accelerated aging 155℃/ 24hrs
Resistance to soldering heatCNS-5067Dipping soldering terminal only Soldering bath temperature A: 260+/-5°C; 10+/-1s B: 350+/-10°C; 3+/-0.5sOperating life test1Q/ 1/ 40/ 0CNS-118291.) Precondition: 85°C bakin g for 24hrs 85°C 60% R.H. for 168hrs 2.) Tamb25°C; IF=20mA; duration 1000hrsHigh humidity, high temperature bias1Q/ 1/ 45/ 0JESD-A101-BTamb: 85°C Humidity: 85% R.H., IF=5mA Duration: 1000hrsHigh temperature bias1Q/ 1/ 20IN specs.Tamb: 55°C IF=20mA, Duration: 1000hrsPulse life test1Q/ 1/ 40/ 0Tamb25°C; If=20mA, Ip=100mA, Duty cycle=0.125 (tp=125 µ s,T=1sec) Duration 500hrs)Temperature cycle1Q/ 1/ 76/ 0JESD-A104-A IEC 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air typeHigh humidity storage test1Q/ 1/ 40/ 0CNS-6117 60+3°C 90+5/-10% R.H. for 500hrsHigh temperature type1Q/ 1/ 40/ 0CNS-554	Solderability		And CNS-5068	Tinning speed: 2.5+0.5cm/s
Resistance to soldering heatSoldering bath temperature A: 260+/-5°C; 10+/-1s B: 350+/-10°C; 3+/-0.5sOperating life test1Q/1/40/0CNS-118291.) Precondition: 85°C bakin g for 24hrs 85°C/60%R.H. for 168hrs 2.) Tamb25°C; IF=20mA; duration 1000hrsHigh humidity, high temperature bias1Q/1/45/0JESD-A101-BTamb: 85°C Humidity: 85% R.H., IF=5mA Duration: 1000hrsHigh temperature bias1Q/1/20IN specs.Tamb: 55°C IF=20mA Duration: 1000hrsPulse life test1Q/1/40/0ISD-A104-A LEC 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air typeHigh humidity storage test1Q/1/40/0CNS-6117 G0+3°C 90+5/-10% R.H. for 500hrs				Tinning: A: 215℃/ 3+1s or B: 260℃/ 10+1s
soldering heatA: 260+/-5°C; 10+/-1s B: 350+/-10°C; 3+/-0.5sOperating life test1Q/ 1/ 40/ 0CNS-118291.) Precondition: 85°C bakin g for 24hrs 85°C/ 60%R.H. for 168hrs 2.) Tamb25°C; IF=20mA; duration 1000hrsHigh humidity, high temperature bias1Q/ 1/ 45/ 0JESD-A101-BTamb: 85°C Humidity: 85% R.H., IF=5mA Duration: 1000hrsHigh temperature bias1Q/ 1/ 20IN specs.Tamb: 55°C IF=20mA, IP=100mA, Duty cycle=0.125 (Ip=125 µ/s, T=1sec) Duration: 500hrs)Pulse life test1Q/ 1/ 76/ 0JESD-A104-A IEC 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air typeHigh humidity storage test1Q/ 1/ 40/ 0CNS-6117 00-125 (ID % R.H. for 500hrs			CNS-5067	Dipping soldering terminal only
B: 350+/-10°C; 3+/-0.5sOperating life test1Q/1/40/0CNS-118291.) Precondition: 85°C bakin g for 24hrs 85°C/60%R.H. for 168hrs 2.) Tamb25°C; IF=20mA; duration 1000hrsHigh humidity, high temperature bias1Q/1/45/0JESD-A101-BTamb: 85°C Humidity: 85% R.H., IF=5mA Duration: 1000hrsHigh temperature bias1Q/1/20IN specs.Tamb: 55°C IF=20mA Duration: 1000hrsHugh temperature bias1Q/1/40/0IN specs.Tamb: 55°C IF=20mA Duration: 1000hrsPulse life test1Q/1/40/0JESD-A104-A IEC 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min 300 cycles 2 chamber/Air-to-air typeHigh humidity storage test1Q/1/40/0CNS-6117 60+3°C 90+5/-10% R.H. for 500hrs	Resistance to			Soldering bath temperature
Operating life test $1Q/1/40/0$ CNS-118291.) Precondition: 85°C bakin g for 24hrs 85°C/60%R.H. for 168hrs 2.) Tamb25°C; IF=20mA; duration 1000hrsHigh humidity, high temperature bias $1Q/1/45/0$ JESD-A101-BTamb: 85°C Humidity: 85% R.H., IF=5mA Duration: 1000hrsHigh temperature bias $1Q/1/20$ IN specs.Tamb: 55°C IF=20mA Duration: 1000hrsHigh temperature bias $1Q/1/40/0$ IN specs.Tamb: 55°C IF=20mA Duration: 1000hrsPulse life test $1Q/1/40/0$ JESD-A104-A IEC 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air typeHigh humidity storage test $1Q/1/40/0$ CNS-6117 60+3°C 90+5/-10% R.H. for 500hrs	soldering heat			A: 260+/-5℃; 10+/-1s
Operating life test85°C/ 60% R.H. for 168hrs 2.) Tamb25°C; IF=20mA; duration 1000hrsHigh humidity, high temperature bias1Q/ 1/ 45/ 0JESD-A101-BTamb: 85°C Humidity: 85% R.H., IF=5mA Duration: 1000hrsHigh temperature bias1Q/ 1/ 20IN specs.Tamb: 55°C IF=20mA Duration: 1000hrsPulse life test1Q/ 1/ 40/ 0Tamb25°C; If=20mA, Ip=100mA, Duty cycle=0.125 (tp=125 µ s,T=1sec) Duration 500hrs)Temperature cycle1Q/ 1/ 76/ 0JESD-A104-A IEC 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air typeHigh humidity storage test1Q/ 1/ 40/ 0CNS-6117 90+5/-10% R.H. for 500hrs	_			B: 350+/-10℃; 3+/-0.5s
Line2.) Tamb25°C; IF=20mA; duration 1000hrsHigh humidity, high temperature bias1Q/ 1/ 45/ 0JESD-A101-BTamb: 85°C Humidity: 85% R.H., IF=5mA Duration: 1000hrsHigh temperature bias1Q/ 1/ 20IN specs.Tamb: 55°C IF=20mA Duration: 1000hrsPulse life test1Q/ 1/ 40/ 0Tamb25°C, IF=20mA,, Ip=100mA, Duty cycle=0.125 (tp=125 μ s,T=1sec) Duration 500hrs)Temperature cycle1Q/ 1/ 76/ 0JESD-A104-A IEC 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air typeHigh humidity storage test1Q/ 1/ 40/ 0CNS-6117 90+5/-10% R.H. for 500hrs		1Q/ 1/ 40/ 0	CNS-11829	1.) Precondition: 85°C bakin g for 24hrs
High humidity, high temperature bias1Q/ 1/ 45/ 0JESD-A101-BTamb: 85°C Humidity: 85% R.H., IF=5mA Duration: 1000hrsHigh temperature bias1Q/ 1/ 20IN specs.Tamb: 55°C IF=20mA Duration: 1000hrsHigh temperature bias1Q/ 1/ 40/ 0IN specs.Tamb: 55°C IF=20mA Duration: 1000hrsPulse life test1Q/ 1/ 40/ 0Tamb25°C, If=20mA,, Ip=100mA, Duty cycle=0.125 (tp=125 μ s,T=1sec) Duration 500hrs)Temperature cycle1Q/ 1/ 76/ 0JESD-A104-A IEC 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air typeHigh humidity storage test1Q/ 1/ 40/ 0CNS-6117 CNS-55460+3°C 90+5/-10% R.H. for 500hrs	Operating life test			85°C/ 60%R.H. for 168hrs
high temperature biasIQ/ 1/ 20IN specs.Tamb: 55°C IF=20mA Duration: 1000hrsHigh temperature bias1Q/ 1/ 40/ 0IN specs.Tamb: 55°C IF=20mA Duration: 1000hrsPulse life test1Q/ 1/ 40/ 0Tamb25°C, If=20mA, Ip=100mA, Duty cycle=0.125 (tp=125 μ s,T=1sec) Duration 500hrs)Temperature cycle1Q/ 1/ 76/ 0JESD-A104-A IEC 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air typeHigh humidity storage test1Q/ 1/ 40/ 0CNS-611760+3°C 90+5/-10% R.H. for 500hrs				2.) Tamb25℃; IF=20mA; duration 1000hrs
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biasDuration: 1000hrsHigh temperature bias1Q/ 1/ 20IN specs.Tamb: 55°C IF=20mA Duration: 1000hrsPulse life test1Q/ 1/ 40/ 0Tamb25°C, If=20mA, Ip=100mA, Duty cycle=0.125 (tp=125 µ s,T=1sec) Duration 500hrs)Temperature cycle1Q/ 1/ 76/ 0JESD-A104-A IEC 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air typeHigh humidity storage test1Q/ 1/ 40/ 0CNS-611760+3°C 90+5/-10% R.H. for 500hrs	high temperature			Humidity: 85% R.H., IF=5mA
High temperature biasIQ/ 1/ 40/ 0IF=20mA Duration: 1000hrsPulse life test1Q/ 1/ 40/ 0Tamb25°C, If=20mA,, Ip=100mA, Duty cycle=0.125 (tp=125 µ s,T=1sec) Duration 500hrs)Temperature cycle1Q/ 1/ 76/ 0JESD-A104-A IEC 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air typeHigh humidity storage test1Q/ 1/ 40/ 0CNS-611760+3°C 90+5/-10% R.H. for 500hrsHigh temperature tigh temperature1Q/ 1/ 40/ 0CNS-554100+10°C for 500hrs	bias			Duration: 1000hrs
bias IIF=20mA Duration: 1000hrs Tamb25°C, If=20mA,, Ip=100mA, Duty cycle=0.125 (tp=125 $\mu$ s,T=1sec) Duration 500hrs) IQ/ 1/ 76/ 0 Temperature cycle IIC 68-2-14, Nb High humidity IQ/ 1/ 40/ 0 High humidity IQ/ 1/ 40/ 0 KNS-6117 High temperature IQ/ 1/ 40/ 0 KNS-554 IIC 68-254 IIF=20mA Duration: 1000hrs Duration: 500hrs Storage test IIC 68-2-14, Nb IIC 60+3°C IIC 60+3°C	High tomporature	1Q/ 1/ 20	IN specs.	Tamb: 55℃
Pulse life test1Q/ 1/ 40/ 0Tamb25°C, If=20mA,, Ip=100mA, Duty cycle=0.125 (tp=125 µ s,T=1sec) Duration 500hrs)Temperature cycle1Q/ 1/ 76/ 0JESD-A104-A IEC 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air typeHigh humidity storage test1Q/ 1/ 40/ 0CNS-611760+3°C 90+5/-10% R.H. for 500hrsHigh temperature tigh temperature1Q/ 1/ 40/ 0CNS-554100+10°C for 500hrs				IF=20mA
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Temperature cycle1Q/ 1/ 76/ 0JESD-A104-A IEC 68-2-14, NbA cycle: -40 degree C 15min; +85 degree C 15min Thermal steady within 5 min 300 cycles 2 chamber/ Air-to-air typeHigh humidity storage test1Q/ 1/ 40/ 0CNS-611760+3°C 90+5/-10% R.H. for 500hrsHigh temperature High temperature1Q/ 1/ 40/ 0CNS-554100+10°C for 500hrs	Pulse life test			cycle=0.125 (tp=125 μ s,T=1sec)
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Temperature cycle Thermal steady within 5 min   10/1/40/0 CNS-6117 Thermal steady within 5 min   10/1/40/0 CNS-6117 60+3°C   90+5/-10% R.H. for 500hrs 90+5/-10% R.H. for 500hrs		1Q/ 1/ 76/ 0	JESD-A104-A	A cycle: -40 degree C 15min; +85 degree C
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Cycle   300 cycles     2 chamber/ Air-to-air type     High humidity   1Q/ 1/ 40/ 0     Storage test   00+3°C     High temperature   1Q/ 1/ 40/ 0     CNS-554   100+10°C for 500hrs				Thermal steady within 5 min
High humidity storage test   1Q/ 1/ 40/ 0   CNS-6117   60+3℃ 90+5/-10% R.H. for 500hrs     High temperature   1Q/ 1/ 40/ 0   CNS-554   100+10℃ for 500hrs	cycle			
High humidity storage test   1Q/ 1/ 40/ 0   CNS-6117   60+3℃ 90+5/-10% R.H. for 500hrs     High temperature   1Q/ 1/ 40/ 0   CNS-554   100+10℃ for 500hrs				
storage test   90+5/-10% R.H. for 500hrs     High temperature   1Q/ 1/ 40/ 0   CNS-554   100+10°C for 500hrs	High humidity	1Q/ 1/ 40/ 0	CNS-6117	
High temperature 1Q/1/40/0 CNS-554 100+10℃ for 500hrs	<b>.</b> .			90+5/-10% R.H. for 500hrs
	High temperature	1Q/ 1/ 40/ 0	CNS-554	100+10℃ for 500hrs
storage test	storage test			
Low temperature 1Q/1/40/0 CNS-6118 -40+5°C for 500hrs		1Q/ 1/ 40/ 0	CNS-6118	-40+5℃ for 500hrs
storage test	storage test			



### **Revision History**

Changes since last revision	Page	Version No.	Revision Date
Initial Release		1.0	02-07-2017

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