

#### **Features**

- 0606 0.55mm 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-S66TATRGB is a tri-color 0606 package with versatile design capabilities. It is a PCB type LED which can be used in various applications.

### **Recommended Solder Pattern**

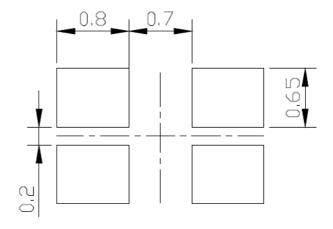


Figure 1. IN-S66TATRGB Solder Pattern

### Package Dimensions in mm

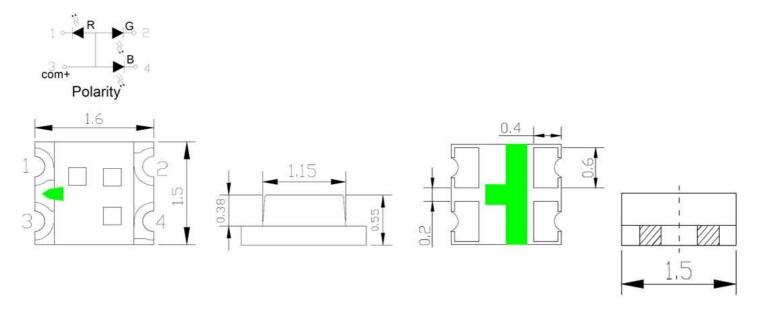


Figure 2. IN-S66TATRGB Package Dimensions



### 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 (°C)	T <sub>ST</sub> (°C)		
	Red	70	30	70					
IN-S66TATRGB	Green	90	30	100	5	-30°C~+85°C	-40°C~+90°C		
	Blue	90	30	100					

#### **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 AllnGaP, 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 $T_A = 25$ <sup>©</sup> (Note 1)

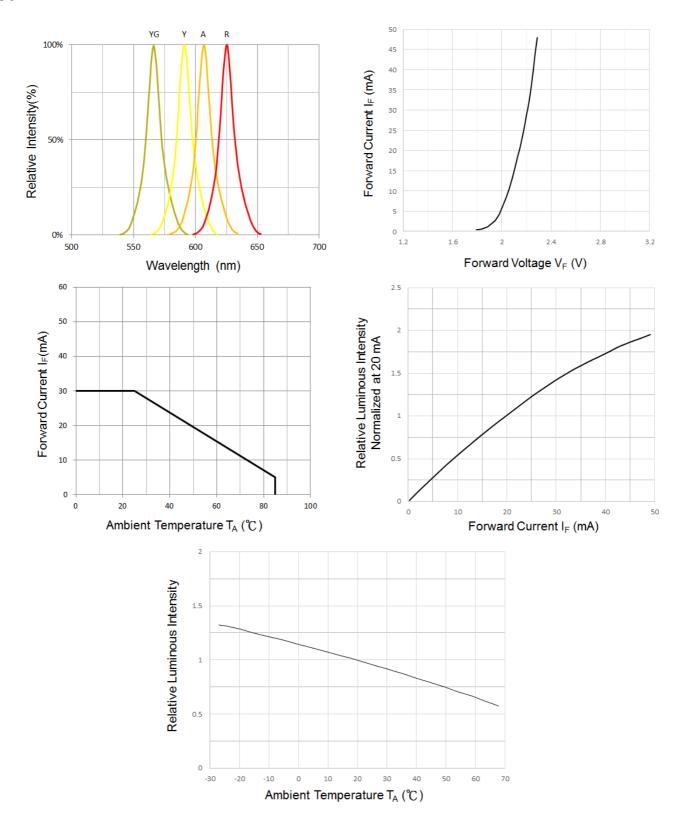
Product	Emission Color	I <sub>F</sub> (mA)	V <sub>F</sub> (V)			λ(nm)	Viewing Angel	I*v(mcd)	
			typ.	max	λ	λ <sub>P</sub>	Δλ	<b>2</b> \theta 1/2	typ.
	Red	20	2.2	2.6	624	630	20	120	100
IN-S66TATRGB	Green	20	3.2	3.6	525	530	35	120	400
	Blue	20	3.2	3.6	468	470	30	120	110

#### **Notes**

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

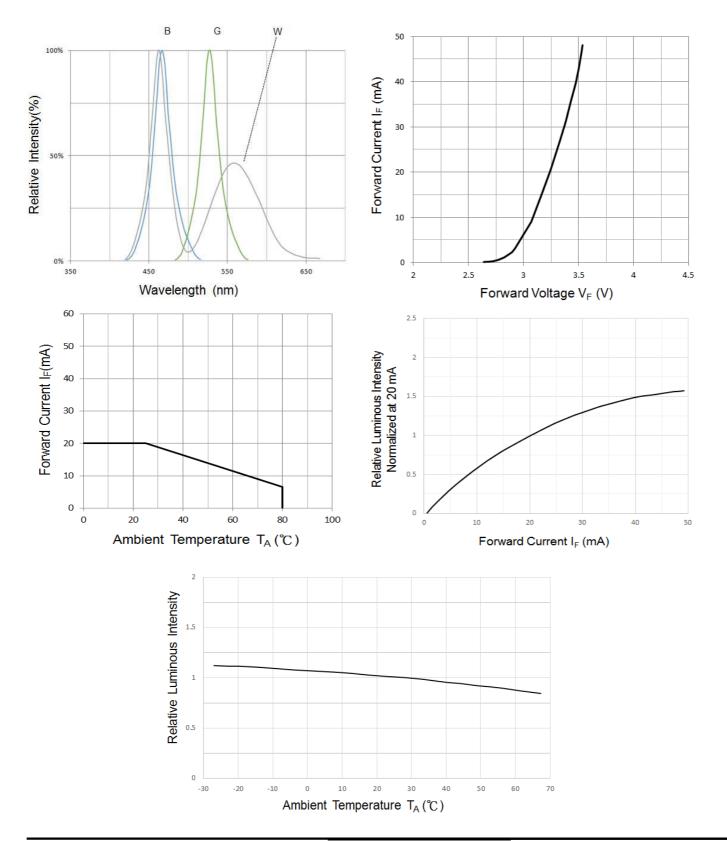


### Typical Characteristic Curves – YG, Y, A, R



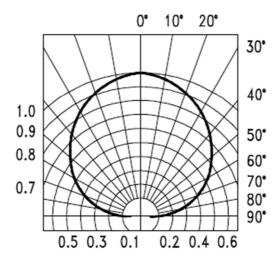


## Typical Characteristic Curves – B, G, W





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

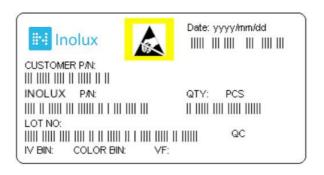


### **Ordering Information**

Product	Emission Color	Test Current I <sub>F</sub> (mA)	Luminous Intensity I <sub>√</sub> (mcd) (Typ.)	Forward Voltage V <sub>F</sub> (V) (Typ.)	Orderable Part Number
	Red	20	100	2.2	
IN-S66TATRGB	Green	20	400	3.2	IN-S66TATRGB
	Blue	20	110	3.2	



### **Label Specifications**



### Inolux P/N:

 N	-	S	6	6	Т	Α	Т			R	G	В		-	Х	Х	Χ	Χ
		Material	Pac	kage	Varia	ation	Orientation	Current	Lens		Color		Chip Type			ıstoı tam		
olux MD		S = PCB Type	66	5TB = 1.( 0.55r		x	T = Top Mount	(Blank) = 20mA	(Blank) = Clear	G	=630n =530n =471n	m	(blank) = Standard					

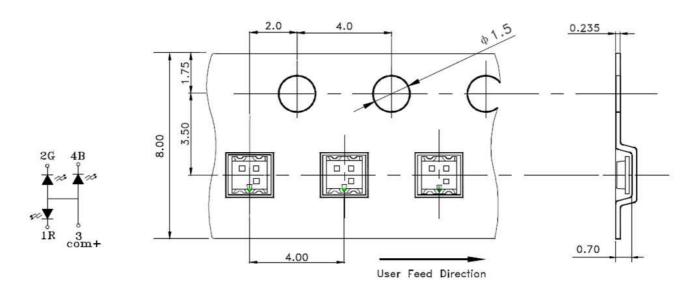
#### Lot No.:

Z	2	0	1	7	01	24	001
Internal		Voor (2017	2019 \	Month	Data	Corial	
Tracker		rear (2017	, 2018,)	ivionth	Date	Serial	

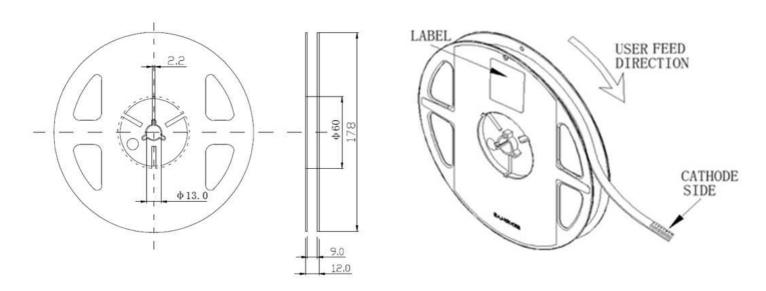


### Packaging Information: 4000pcs Per Reel

### Tape Dimension

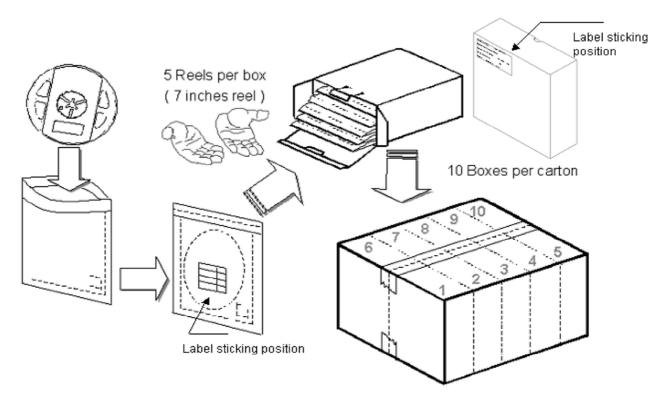


### **Reel Dimension**





### **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	4000pcs 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
Othorou	•		•

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, λ<sub>D</sub> and Vf. Each reel has a label identifying its specification; the immediate box consists of a product label as well.

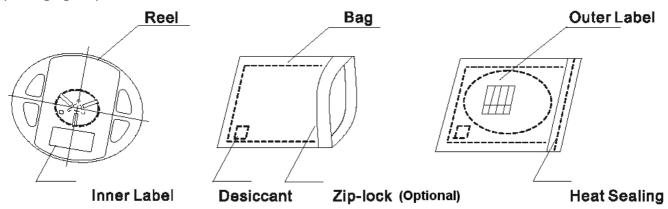


### **Dry Pack**

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.

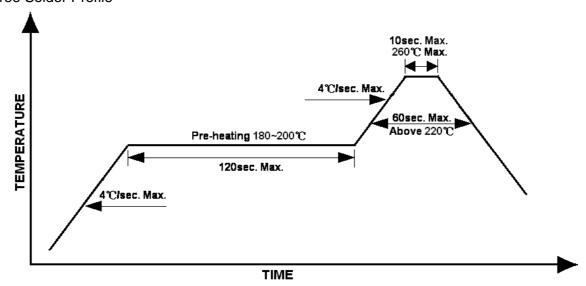
The packaging sequence is as follows:



### **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



## IN-S66TATRGB Top View SMD LED 0606 PCB Type

#### **Precautions**

- Avoid exposure to moisture at all times during transportation or storage.
- Anti-Static precaution must be taken when handling GaN, InGaN, and AllnGaP 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.



# IN-S66TATRGB Top View SMD LED 0606 PCB Type

Reliability

	Frequency/ lots/ samples/	Standards	Conditions
Item	failures	Reference	Conditions
	For all reliability	J-STD-020	1.) Baking at 85℃ for 24hrs
Precondition		J-81D-020	2.) Moisture storage at 85°C/60% R.H. for
Precondition	monitoring tests according to JEDEC Level 2		168hrs
	1Q/ 1/ 22/ 0	JESD22-B102-B	
Coldorobility	TQ/ 1/ 22/ 0	And CNS-5068	Accelerated aging 155℃/ 24hrs Tinning speed: 2.5+0.5cm/s
Solderability		And CNS-5000	
		ONIO 5007	Tinning: A: 215°C/ 3+1s or B: 260°C/ 10+1s
D		CNS-5067	Dipping soldering terminal only
Resistance to			Soldering bath temperature
soldering heat			A: 260+/-5℃; 10+/-1s
	10/1/10/0	010 44000	B: 350+/-10℃; 3+/-0.5s
	1Q/ 1/ 40/ 0	CNS-11829	1.) Precondition: 85°C bakin g for 24hrs
Operating life test			85°C/ 60%R.H. for 168hrs
	101111	.===	2.) Tamb25℃; IF=20mA; duration 1000hrs
High humidity,	1Q/ 1/ 45/ 0	JESD-A101-B	Tamb: 85℃
high temperature			Humidity: 85% R.H., IF=5mA
bias			Duration: 1000hrs
High temperature	1Q/ 1/ 20	IN specs.	Tamb: 55℃
bias			IF=20mA
			Duration: 1000hrs
	1Q/ 1/ 40/ 0		Tamb25℃, If=20mA,, Ip=100mA, Duty
Pulse life test			cycle=0.125 (tp=125 $\mu$ s,T=1sec)
			Duration 500hrs)
	1Q/ 1/ 76/ 0	JESD-A104-A	A cycle: -40 degree C 15min; +85 degree C
Temperature		IEC 68-2-14, Nb	15min
cycle			Thermal steady within 5 min
Cycle			300 cycles
			2 chamber/ Air-to-air type
High humidity	1Q/ 1/ 40/ 0	CNS-6117	60+3℃
storage test			90+5/-10% R.H. for 500hrs
High temperature	1Q/ 1/ 40/ 0	CNS-554	100+10℃ for 500hrs
storage test			
Low temperature	1Q/ 1/ 40/ 0	CNS-6118	-40+5℃ for 500hrs
storage test			



## IN-S66TATRGB Top View SMD LED 0606 PCB Type

Changes since last revision	Page	Version No.	Revision Date
Initial Release		V1.0	05-12-2017

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- 2. A critical component in any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.