

## Features

- Low Profile, Stable Color
- 4 Leads
- Water Clear Lens
- InGaN/ AlInGaP Technology
- Solid State Reliability
- Special Packaging Available Upon Request

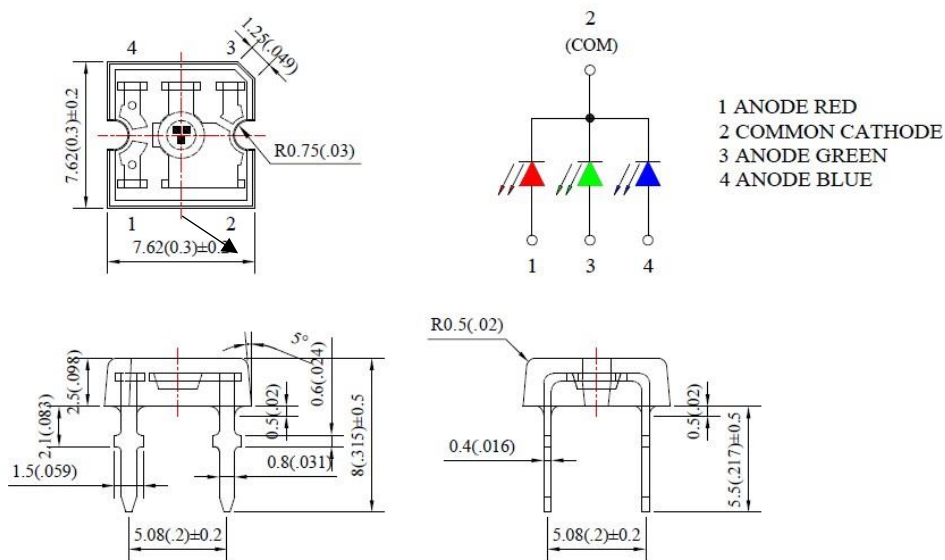
## Description

The INP-5A4RGB120 is a high brightness Piranha LED. It is 4 leads through-hole type LED which can be used in various applications.

## Applications

- Consumer Electronics
- Variable Message Signs (VMS)
- Automobile After Market
- Industrial Equipment
- Advertising Signs

## Package Dimensions in mm



**Figure 1. INP-5A4RGB120 Package Dimensions**

## Notes

1. All dimensions are in millimeters (inches).
2. Tolerance is  $\pm 0.25$  mm (.010") unless otherwise noted.
3. Protruded resin under flange is 1.00 mm (.039") max.
4. Specifications are subject to change without notice.

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

Product	Emission Color	P <sub>d</sub> (mW)	I <sub>F</sub> (mA)	I <sub>FP</sub> * (mA)	V <sub>R</sub> (V)	T <sub>OP</sub> (°C)	T <sub>ST</sub> (°C)
INP-5A4RGB120	Red	60	25	100	5	-40°C to +80°C	-40°C to +85°C
	Green	90					
	Blue	60					

### Notes

1. Derate linearly as shown in derating curve.
2. Duty Factor = 10%, Frequency = 1 kHz.

### Electrical Characteristics *T<sub>A</sub> = 25°C (Note)*

Product	Emission Color	I <sub>F</sub> (mA)	V <sub>F</sub> (V)		λ(nm)			Viewing Angle	I <sub>V</sub> (mcd)	
			min	max	λ <sub>D</sub>	λ <sub>P</sub>	Δλ	2θ1/2	min	typ.
INP-5A4RGB120	Red	20	1.6	2.4	624	632	-	120	100	2700
	Green	20	2.8	3.6	525	520	-	120	300	550
	Blue	20	2.8	3.6	465	470	-	120	70	120

### Notes

1. Performance guaranteed only under conditions listed in above tables.
2. Luminous intensity is measured with a light sensor and filter combination that approximates the CIE eye-response curve.
3. 2θ1/2 is the o-axis angle where the luminous intensity is 1/2 the peak intensity.
4. The dominant wavelength (λ<sub>D</sub>) is derived from the CIE chromaticity diagram and represents the single wavelength which defines the color of the device.

### ESD Precaution

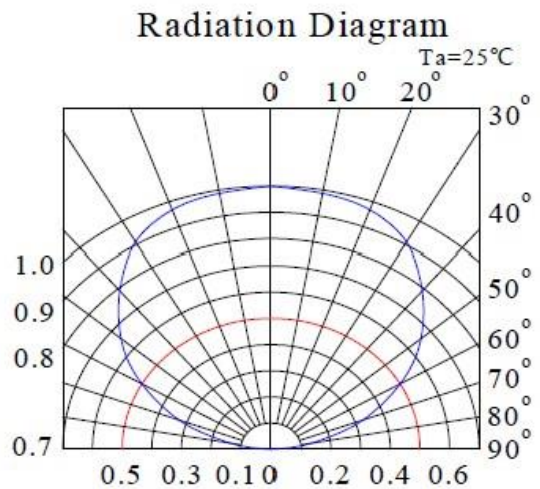
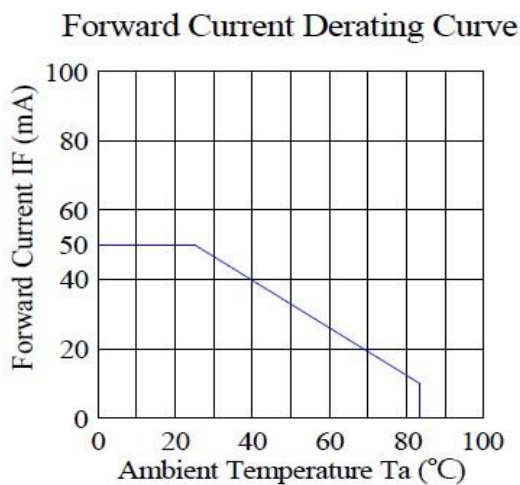
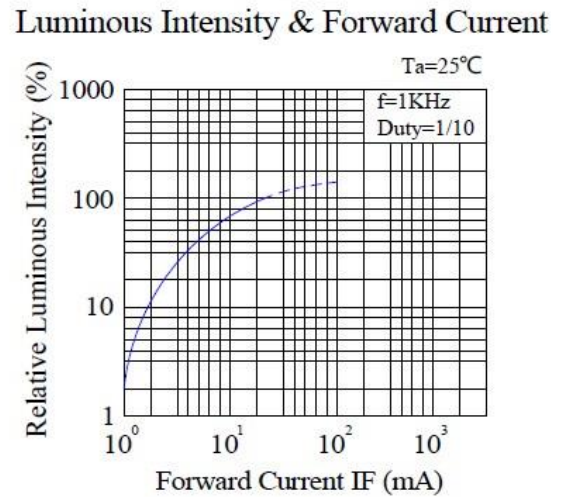
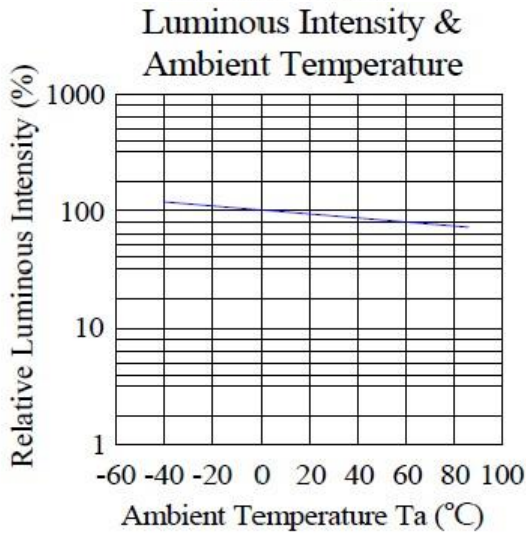
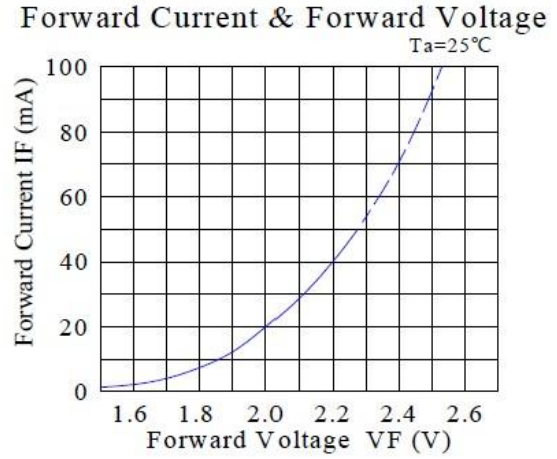
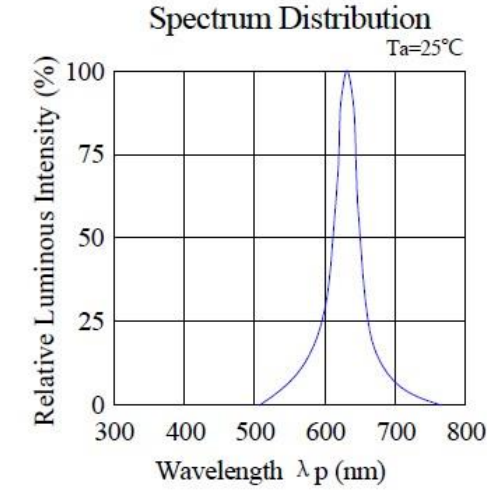
ATTENTION: Electrostatic Discharge (ESD) protection

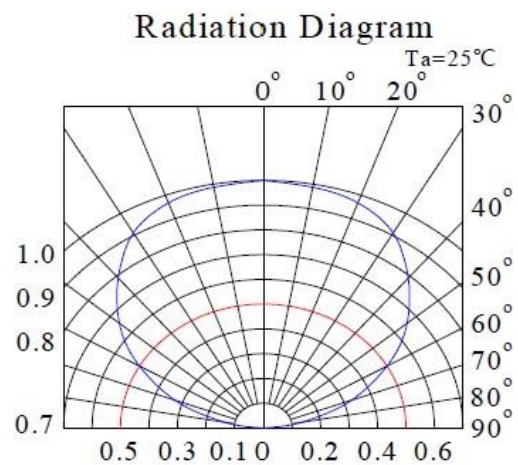
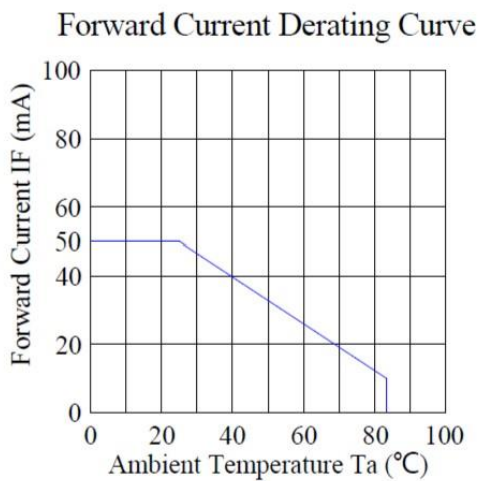
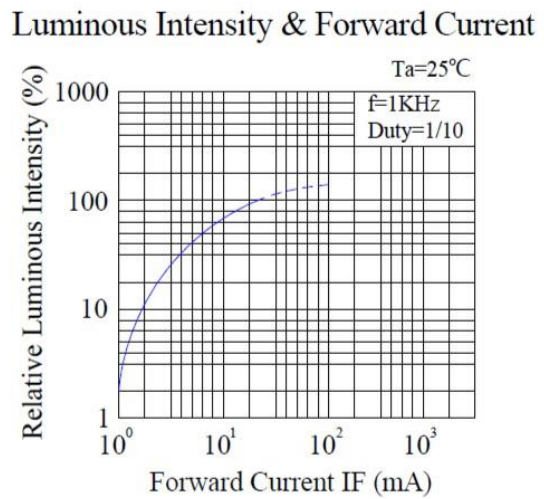
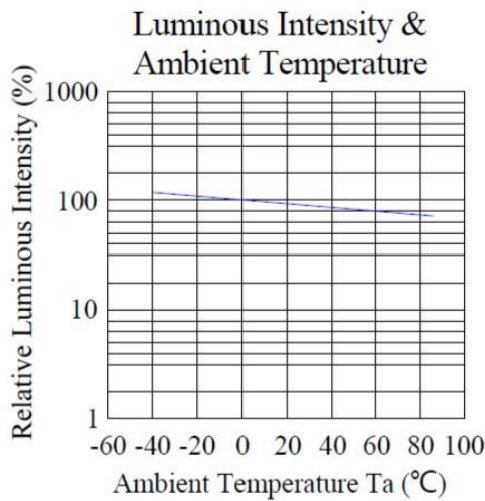
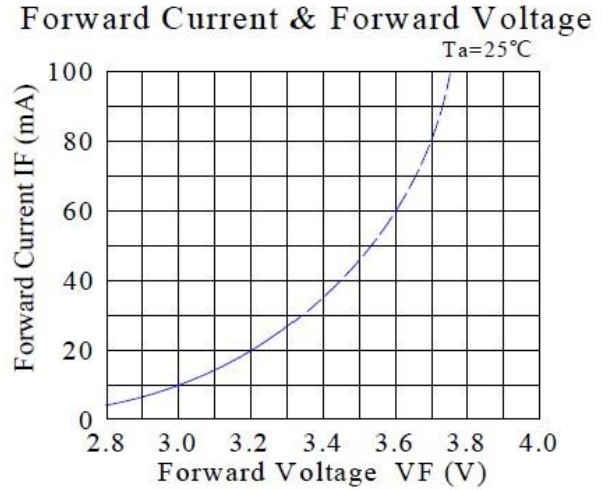
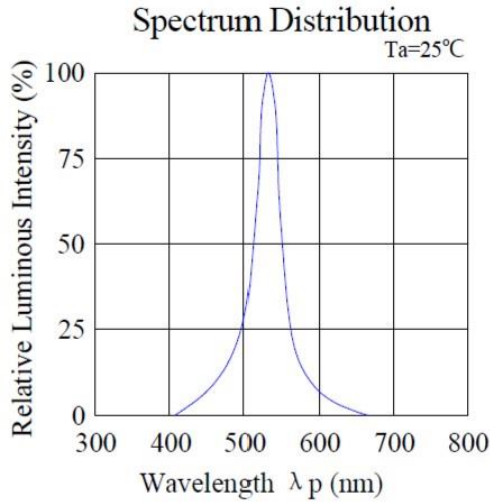


The symbol above denotes that ESD precaution is needed. ESD protection for GaP and AlGaAs based chips is necessary even though they are relatively safe in the presence of low static-electric discharge. Parts built with AlInGaP, GaN, or/and InGaN based chips are STATIC SENSITIVE devices. ESD precaution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

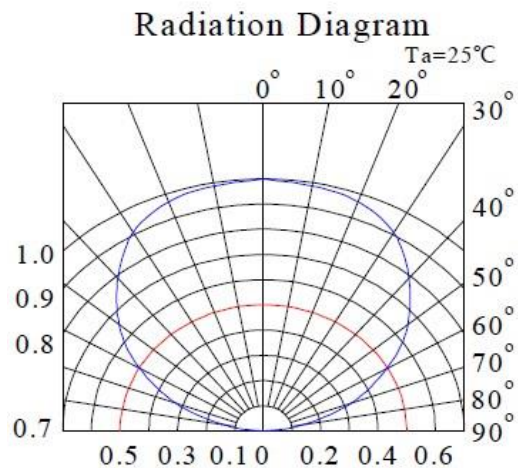
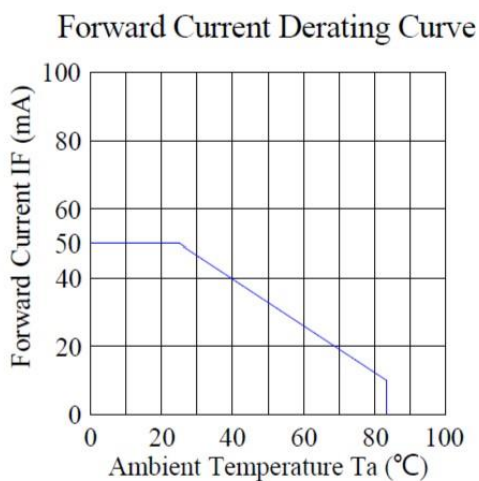
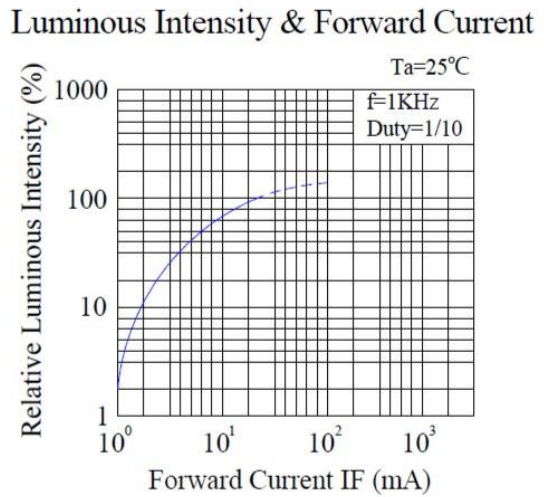
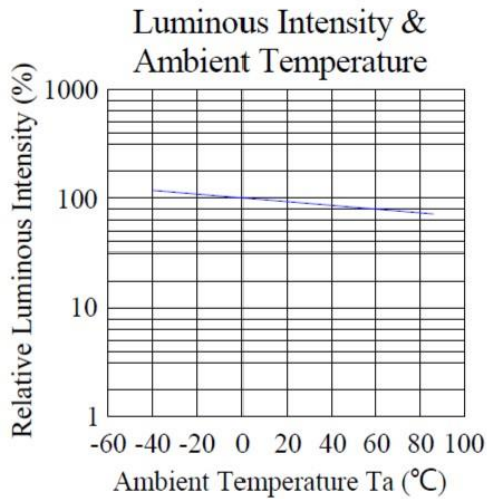
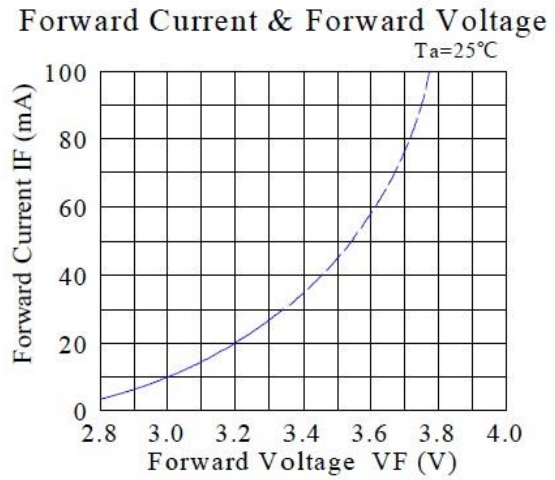
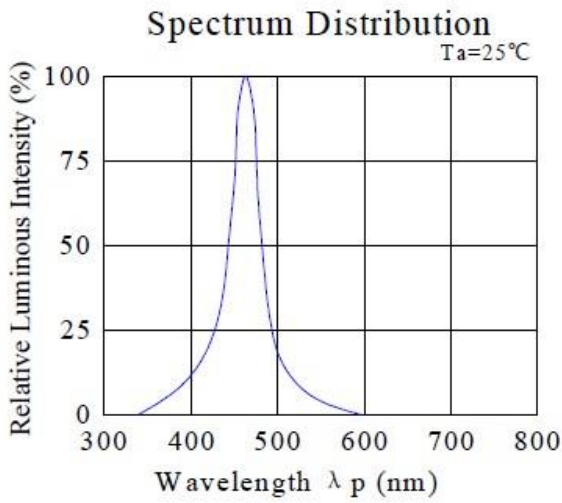
If manual work or processing is needed, please ensure the device is adequately protected from ESD during the process.

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)

**Typical Characteristic Curves – Red**


**Typical Characteristic Curves – Green**




**Typical Characteristic Curves – Blue**




**Inolux P/N:**

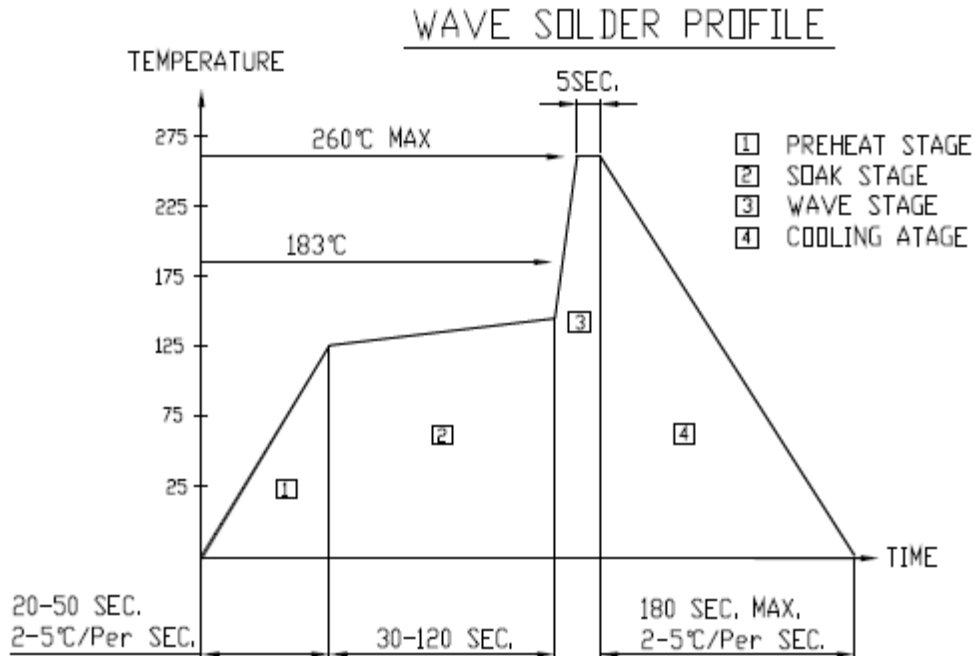
I	N	P	-	5	A	4	X	1	2	0	-	X	X	X	X
Inolux Through Hole Piranha				Package	Lead Number	Color	View Angle				Customized Stamp-off				
				5 = 5mm dome  5A = Standard Variation	4 = 4 leads	R: 624 nm G: 525 nm B: 465 nm	120 = 120 deg.								

**Lot No.:**

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

## Soldering

Recommended soldering conditions:



## Soldering Iron

Basic Spec is Max 3 sec. @ 300°C. Lamps without stopper must leave a min. of 3mm clearance from base of the lens to the soldering point.

## Rework

Caution is advised when rework is performed. Rework should be completed within 4 second under 245°C using a double-headed soldering iron.



**Reliability**

Item	Frequency/ lots/ samples/ failures	Standards Reference	Conditions
Precondition	For all reliability monitoring tests according to JEDEC Level 2	J-STD-020	1.) Baking at 85°C for 24hrs 2.) Moisture storage at 85°C/ 60% R.H. for 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: A: 215°C/ 3+1s or B: 260°C/ 10+1s
Resistance to soldering heat		CNS-5067	Dipping soldering terminal only Soldering bath temperature A: 260+/-5°C; 10+/-1s B: 350+/-10°C; 3+/-0.5s
Operating life test	1Q/ 1/ 40/ 0	CNS-11829	1.) Precondition: 85°C baking 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 Duration: 1000hrs
Pulse life test	1Q/ 1/ 40/ 0		Tamb25°C, If=20mA,, Ip=100mA, Duty cycle=0.125 (tp=125 μs, T=1sec) Duration 500hrs)
Temperature cycle	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-6117	60+3°C 90+5/-10% R.H. for 500hrs
High temperature storage test	1Q/ 1/ 40/ 0	CNS-554	100+10°C for 500hrs
Low temperature storage test	1Q/ 1/ 40/ 0	CNS-6118	-40+5°C for 500hrs

## Revision History

Changes since last revision	Page	Version No.	Revision Date
Initial Release		1.0	06-18-2020

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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.