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Technical Data Sheet

MODEL NO：S190ANE4 **Package 1.6*0.8mm*0.6mm Chip LEDs**

Features：

●Package in 8mm tape on 7” diameter reel

●Compatible with automatic placement equipment

●Compatible with reflow solder process

Applications：

●Indicators

●Automotive：backlighting in dashboard and switch

●Backlight for LCD

Dice material	Emitted color	Lens Color
InGaN/GaN	Green	Water Clear

Electrical/Optical Characteristics(Ta=25℃)

Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ	Max	
Dominant wavelength	I_F=20mA	λ D		505		nm
Forward voltage	I_F=20mA	V_F	2.8		3.6	V
Luminous intensity	I_F=20mA	Iv	200	320	500	mcd
Viewing angle at 50% Iv	I_F=10mA	2θ 1/2		120		Deg
Reverse current	V_R=5V	I_R			10	μA

Absolute Maximum Ratings(Ta=25℃)

Parameter	Symbol	Value	Unit
Power dissipation	Pd	108	mW
Forward current	I_F	30	mA
Reverse voltage	V_R	5	V
Operating temperature range	Top	-40 ~+80	℃
Storage temperature range	Tstg	-40 ~+85	℃
Peak pulsing current (1/8 duty f=1kHz)	I_{FP}	125	mA

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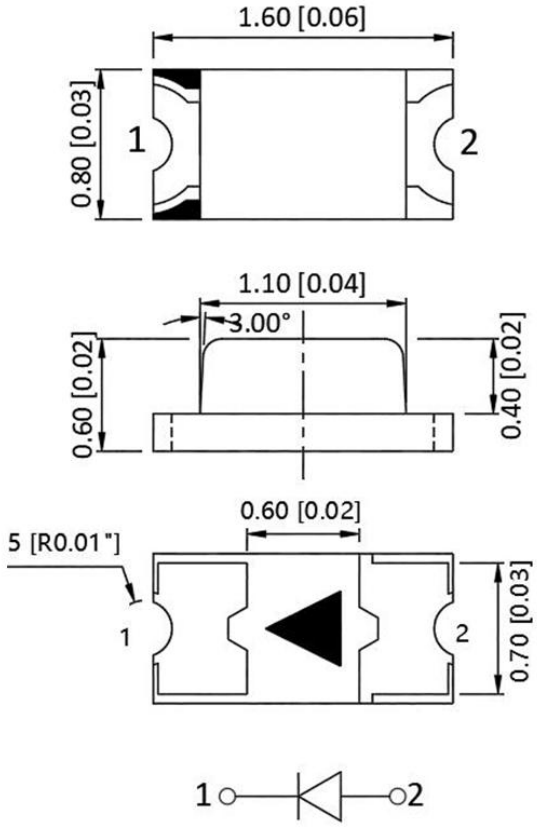
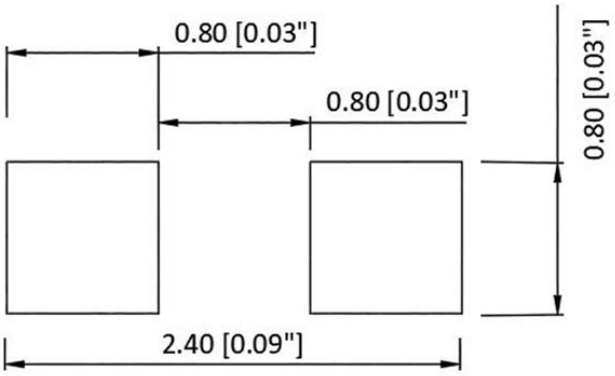
PACKAGING DIMENSIONS (mm):



Recommend Pad Layout



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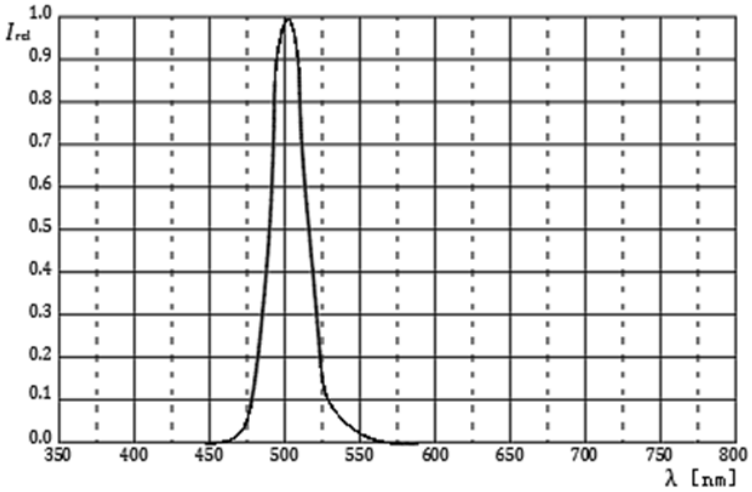
Typical Electrical/Optical Characteristics Curves

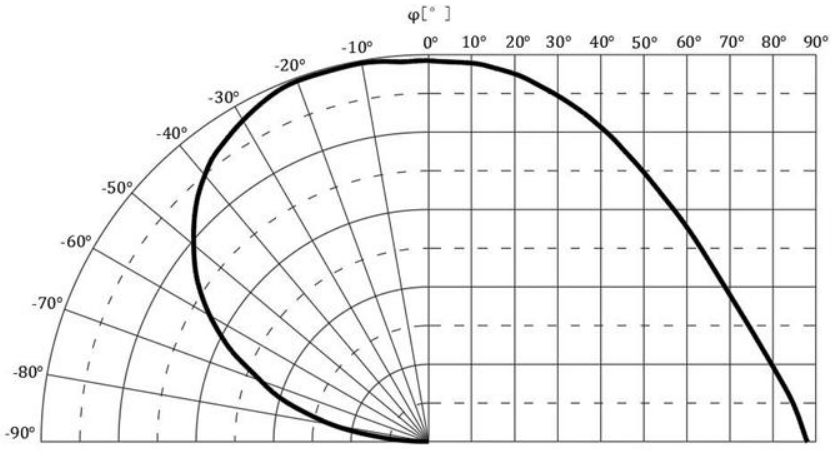
Relative Spectral Emission

IF=20mA,Ta=25℃



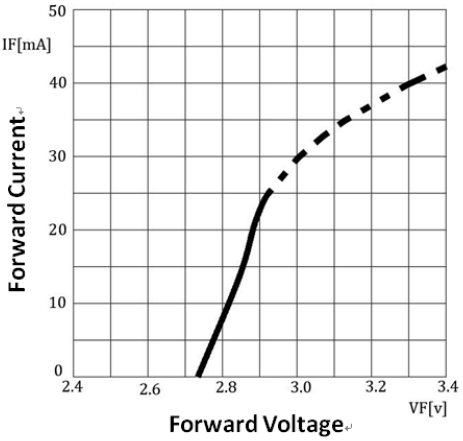
Radiation Characteristics

IF=10mA,Ta=25℃

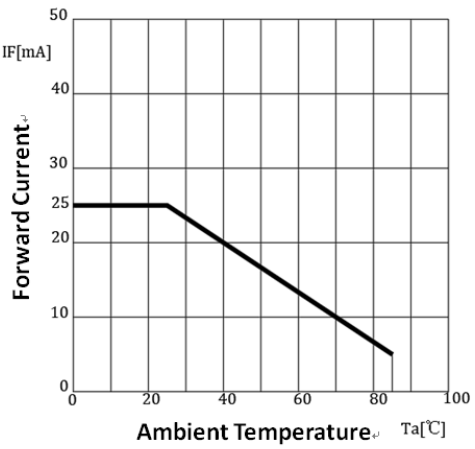


Forward Current vs Forward Voltage

Ta=25℃



Forward Current Derating Curve



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Label Explanation

Forward Voltage Rank Combination (IF=20mA)

Rank	Min.	Max.	Unit
H	2.8	2.9	V
I	2.9	3.0	
J	3.0	3.1	
K	3.1	3.2	
L	3.2	3.3	
M	3.3	3.4	
N	3.4	3.5	
O	3.5	3.6	

Luminous Intensity Rank Combination (IF=20mA)

Rank	Min.	Max.	Unit
M	200	250	mcd
N	250	320	
O	320	400	
P	400	500	

Dominant wavelength Rank Combination (IF=20mA)

Rank	Min.	Max.	Unit
Bq	494	496	nm
Br	496	498	
Bs	498	500	
Ga	500	502	
Gb	502	504	
Gc	504	506	
Gd	506	508	
Ge	508	510	
Gf	510	512	
Gg	512	514	

Group Name on Label (Example DATA: INGc20)

DATA: INGc 20	Vf(V)	Iv (mcd)	λd (nm)	Test Condition
I→N→Gc→20	2.9~3.0	250~320	504~506	IF=20mA

Notes:

1. The tolerance of luminous intensity (Iv)is ±15% .
2. The tolerance of dominant wavelength is ±1nm.
3. This specification is preliminary.
4. This specification is a standard specification of our factory, can make in accordance with customer's special requirement.

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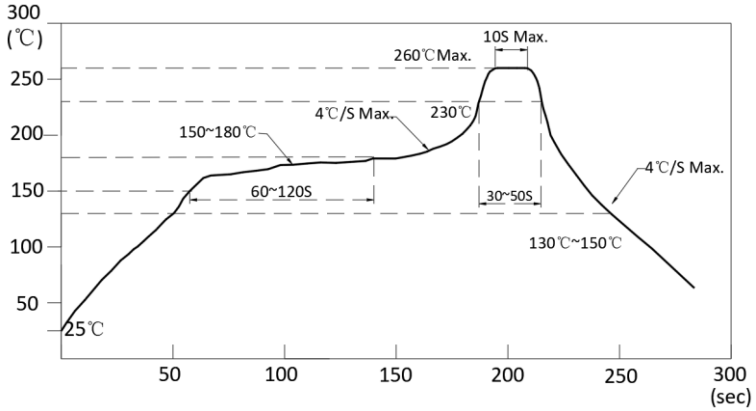
Reflow Profile

■ Reflow Temp/Time



Notes:

1.We recommend the reflow temperature 245℃ (±5℃).The maximum soldering temperature should be limited to 260℃.

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.

■Soldering iron

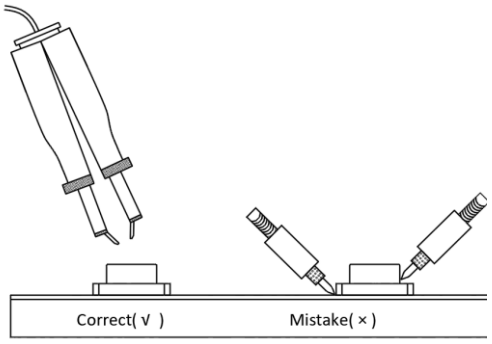
Basic spec is ≤ 5sec when 320℃ (±20℃). If temperature is higher, time should be shorter (+10℃→ -1sec).

Power dissipation of iron should be smaller than 20W, and temperatures should be controllable .Surface

temperature of the device should be under 350℃.

■Rework

1. Customer must finish rework within 5 sec under 340℃.
2. The head of iron cannot touch copper foil
3. Twin-head type is preferred.



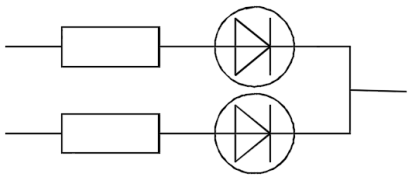
■ Avoid rubbing or scraping the resin by any object, during high temperature, for example reflow solder etc.

Handling precautions

1.Drive Method

A LED is a current-operated device. In order to ensure intensity uniformity on multiple LEDs connected in parallel in an application, it is recommended that a current limiting resistor be incorporated in the drive circuit, in series with each LED as shown in Circuit below.

RESISTOR LED



2. Storage

2.1 Do not open moisture proof bag before the products are ready to use.

2.2 Before opening the package: The LEDs should be kept at 30℃ or less and 60% RH or less.

2.3 After the package is opened, the products should be used within a week or they should be keeping to store at≦20 R.H. with zip-lock sealed.

3. Baking

It is recommended to baking before soldering when the pack is unsealed after 72hrs. The Conditions are as followings:

3.1 60±3℃ x(12~24hrs) and ＜5%RH, taped reel type

3.2 100±3℃ x (45min~1hr), bulk type

3.3 130±3℃ x (15~30min), bulk type