

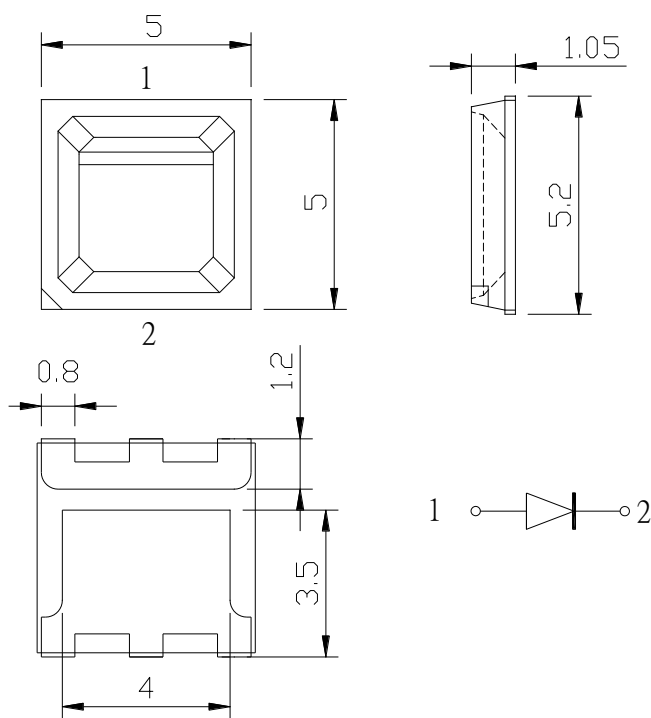
BRIGHTTEK OPTOELECTRONICS

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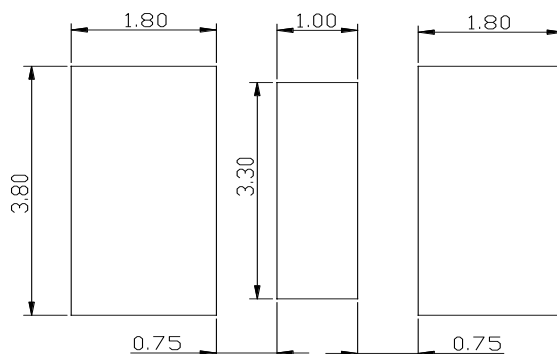
High Performance SMD Top LEDs

Part Number: N0P47S72

Package outlines



RECOMMEND PAD LAYOUT



ITEM	MATERIALS
Resin	Silicon
Lens color	Water transparent
Dice	Silicon

NOTES:

1. All dimensions are in millimeters (inches);
2. Tolerances are $\pm 0.2\text{mm}$ (0.008inch) unless otherwise noted.
3. Please add heat sink during usage;

Rev :	Date	Drawn by :	Checked by :	Approved by :
B	2019/07/01	胡林芝	唐云	李用基

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Part Number: N0P47S72

Absolute maximum ratings

($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
Operating temperature range	Top	-40 ~+80	$^{\circ}\text{C}$
Storage temperature range	Tstg	-40 ~+85	$^{\circ}\text{C}$
Reverse voltage	Vr	35	V
Power dissipation at (or below) 25°C free air temperature	Pd	150	mW

Electro-optical characteristics

($T_A=25^{\circ}\text{C}$)

Parameter	Test Condition	Symbol	Value			Unit
			Min	Typ	Max	
Forward Voltage	IF=10mA, H=0	V _F	0.5	--	1.3	V
Reverse Breakdown Voltage	IR=100 μ A, H=0	V _{BR}	35	--	--	V
Reverse Dark Current	VR=10V, H=0	I _D	--	--	10	nA
Light Current	VR=5 V, H as 1mw/cm2 @940nm	I _L	--	135	--	μ A
Spectral range of sensitivity		λ_p	400	--	1000	nm
Wavelength of max sensitivity		$\lambda_{p\text{ max}}$	--	--	940	nm
Junction Capacitance	VR=3 V, H=0, F=1 MHz	C _J	--	4.6	--	pF

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Electro-optical characteristics

($T_A=25^\circ\text{C}$)

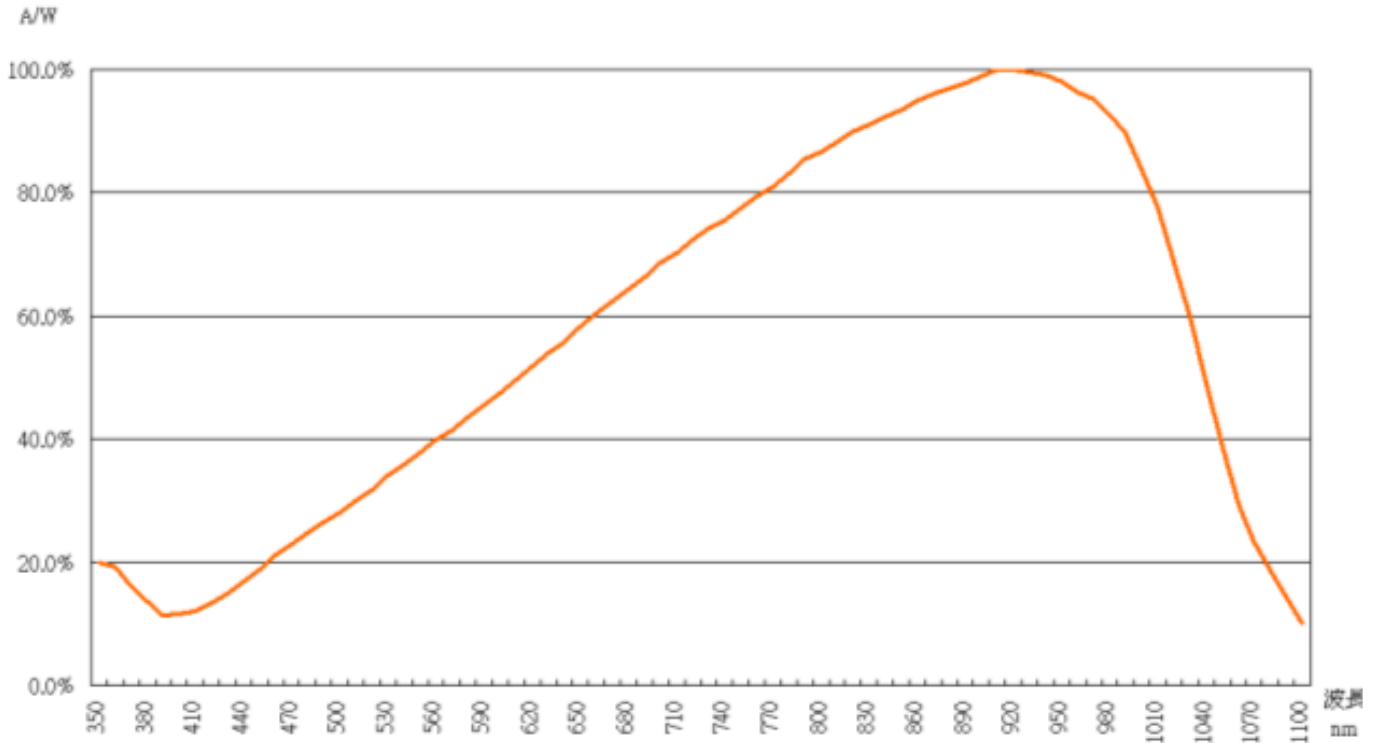
Parameter	Symbol	Value	Unit
Radiant sensitive area	A	5.23	mm ²
Dimensions of radiant sensitive area	$L \times W$	2.28 X 2.28	mm x mm
Half angle	ϕ	± 60	deg.
VR = 10 V Dark current	I_R	10 (≤ 30)	nA
Rise and fall time of the photocurrent RL = 50 VR = 5 V; L = 850 nm; Ip = 800 μ A	t_r, t_f	20	ns
Temperature coefficient of V_O	TC_V	-2.6	mV/K
Temperature coefficient of I_{SC}	TC_I	0.18	%/K
Noise equivalent power VR = 10 V	NEP	4.3×10^{-14}	$\frac{W}{\sqrt{Hz}}$
VR = 10 V Detection limit	D^*	6.2×10^{12}	$\frac{cm \times \sqrt{Hz}}{W}$

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Part Number: N0P47S72

Relative Spectral Responsivity

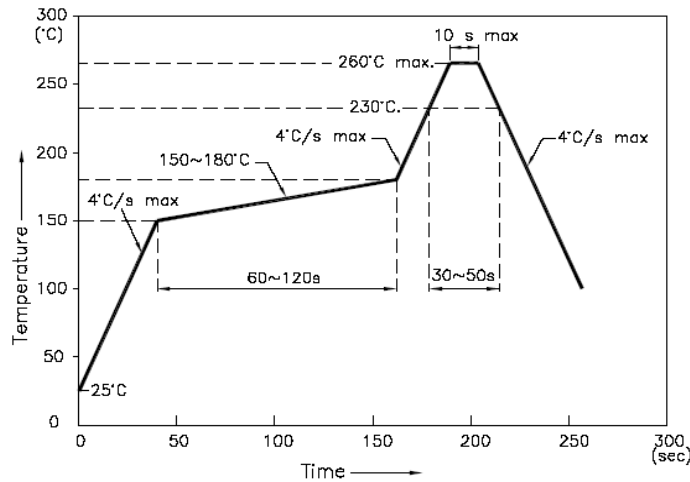


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Reflow Profile

■ Reflow Temp/Time



NOTES:

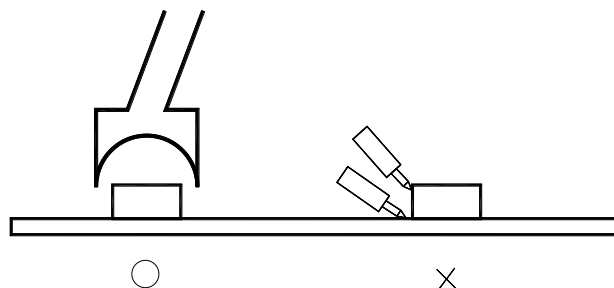
1. We recommend the reflow temperature 245°C ($\pm 5^\circ\text{C}$). the maximum soldering temperature should be limited to 260°C.
2. dont cause stress to the epoxy resin while it is exposed to high temperature.
3. Number of reflow process shall be 2 times or less.

■ Soldering iron

Basic spec is $\leq 5\text{sec}$ when 260°C. If temperature is higher, time should be shorter (+10°C \rightarrow -1sec). Power dissipation of iron should be smaller than 20W, and temperatures should be controllable. Surface temperature of the device should be under 230°C.

■ Rework

1. Customer must finish rework within 5 sec under 260°C.
2. The head of iron can not 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.

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Test circuit and handling precautions

■ Handling precautions

1. Over-current-proof

Customer must apply resistors for protection; otherwise slight voltage shift will cause big current change (Burn out will happen).

2. Shelf life in sealed bag: 12 month at 5°C~30°C and < 60% R.H;

3. After the package is Opened:

3.1. It is recommended to baking before the first use:

Baking condition:

a. 60±3°C x (36~48hrs) and < 5%RH, taped reel type ;

b. 110±3°C x (8~16hr), bulk type ;

3.2 The products should be used within a week or they should be keeping to stored at ≤20 R.H.

with zip-lock sealed:

a. It is recommended to baking before soldering when the pack is unsealed after 72hrs ;

b. Baking condition as 3.1 baking condition.

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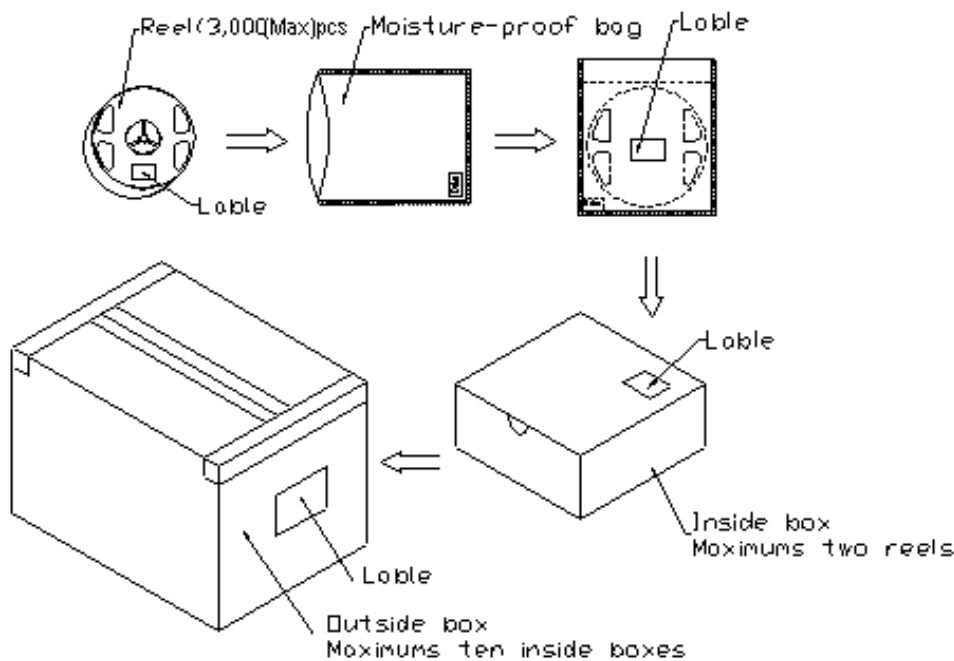
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Test items and results of reliability


Type	Test Item	Test Conditions	Note	Number of Damaged
Environmental Sequence	Temperature Cycle	-20°C 30min ↑ ↓ 80°C 30min	100 cycle	0/22
	Thermal Shock	-20°C 15min ↑ ↓ 80°C 15min	100 cycle	0/22
	High Humidity Heat Cycle	30°C ↔ 65°C 90%RH 24hrs/1cycle	10 cycle	0/22
	High Temperature Storage	T _a =80°C	1000 hrs	0/22
	Humidity Heat Storage	T _a =60°C RH=90%	1000 hrs	0/22
	Low Temperature Storage	T _a =-30°C	1000 hrs	0/22
Operation Sequence	Life Test	T _a =25°C I _F =20mA	1000 hrs	0/22
	High Humidity Heat Life Test	60°C RH=90% I _F =10mA	500 hrs	0/22
	Low Temperature Life Test	T _a =-20°C I _F =20mA	1000 hrs	0/22

Packaging Specifications

- Packaging specifications



Label

 GRAND HALO ELECTRONIC LTD.	
PART NO.	
LOT NO.	
QUANTITY	
DATE	
DATA	

NOTES:

Reeled products [numbers of products are 3,000(Max)pcs] packed in a seal off moisture-proof bag along with a desiccant one by one and with a Humidity-Sensor one by one, Two moisture-proof bag of maximums [total maximum number of products are 6,000(Max)pcs] packed in an inside box(size: about 380mm x about 380mm x about 52 mm) and ten inside boxes of maximums are put in the outside box(size: about 398mm x about 398mm x about 541mm) Together with buffer material, and it is packed. (Part No., Lot No., quantity should appear on the label on the moisture-proof bag, part No. And quantity should appear on the label on the cardboard box.) The number of the loading steps of outside box (cardboard box) has it to three steps.