Approval Sheet

SMD type UV Sensor

GUVA-S12SD

Date : 2010. 4

PREPARED BY : Genicom Co. Ltd.

R&D	P. M.	Q.A.	Sales

APPROVED BY :

SPECIFICATIONS

SMD Type UV Sensor

GUVA-S12SD

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1. Features

- GaN-based Schottky Photodiode
- Photovoltaic Mode Operation
- Good Visible Blindness
- 3.5 ×2.8 ×1.9 (L×W×H) Small Size Surface Mount Type

2. Applications

- UVA Lamp Monitoring
- UV Index Monitoring

3. Outline Diagrams and Dimensions

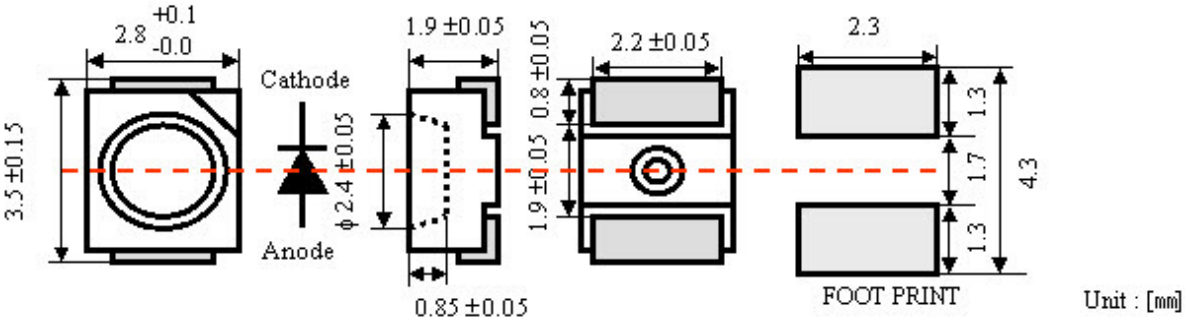
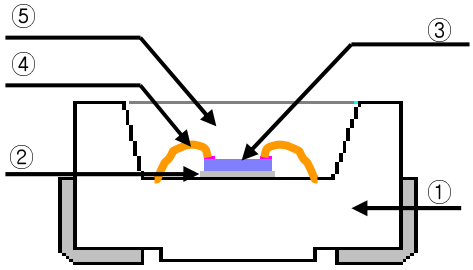


Fig. 1. Outline Diagrams and Dimensions



No.	Items	Material
①	Plastic PKG	PPA
②	Paste	Ag
③	UV Sensor Chip	GaN/Al_2O_3
④	Wire	Au
⑤	Window	Si-Encapsulant

Fig. 2. Component and Its Material

4. Electro-Optical Characteristics

1) Absolute Maximum Ratings

Item	Symbol	Min.	Max.	Unit	Test Conditions
Reverse Voltage	V_R		5	V	
Operation Temperature	Top	-30	85	℃	
Storage Temperature	Ts	-40	90	℃	
Soldering Temperature	Tsol		260	℃	< 10 sec

2) Electro-Optical Characteristics (at 25 ℃)

Item	Symbol	Min.	Typ.	Max.	Unit	Test Conditions
Dark Current	Id			1	nA	Vr = 0.1 V
Photo Current	Iph	111		136	nA	UVA Power : 1 ㎽/㎠
Peak Responsivity	Rp		0.15		A/W	λ_p= 350 ㎚, Vr = 0 V
Cutoff Wavelength	λ_{cutoff}		370		㎚	10 %of Rp
Spectral Detection Range	λ	240		370	㎚	Monochromator Scan
Sensitivity Area	A	0.076			㎟	

3) Responsivity Curve (at 25 ℃)

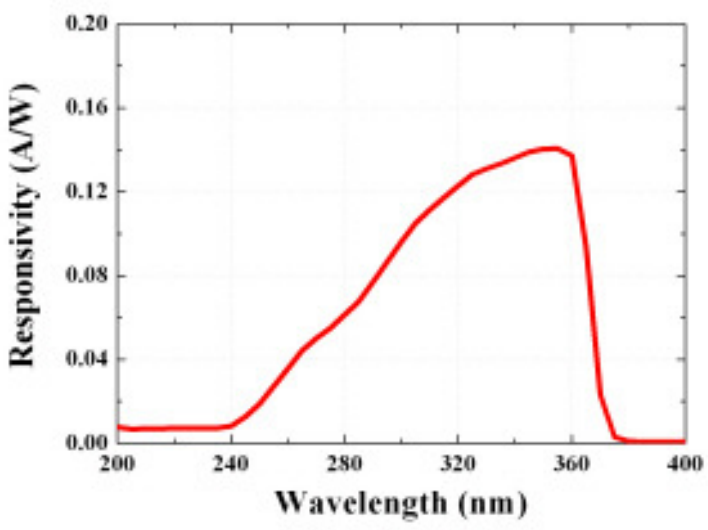


Fig. 3. Typical Spectral Responsivity

5. Reliability

1) Criterion for Judging

Item	Symbol	Min	Max	Unit	Test Conditions
Dark Current	Id	-	1	nA	Vr = 0.1V
Photo Current	Iph	90	110	%	Vr = 0 V

2) Test Results

Classification / Item	Test Conditions	Fail / Pass	Reference standard
High Temperature Storage	90 ℃, 1000 hrs	0 / 100	JIS-C-7021:B-10
Low Temperature Storage	-40 ℃, 1000 hrs	0 / 100	JIS-C-7021:B-12
High Temperature & High Humidity Storage	60 ℃, 95 % RH, 240 hrs	0 / 100	MIL-STD-202:103B
Thermal Shock	-40 ℃ / 90 ℃ (15 cycles) Transfer Time < 10 s	0 / 100	MIL-STD-750:1056
Temperature Cycling	-40 ℃ / 90 ℃ (10 cycles) Transfer Time < 1 min Holding Time = 10 min	0 / 100	MIL-STD-750:1051
Pressure Cooker Test (PCT)	120 ℃, 100 % RH, 2 atm (4 hrs)	0 / 100	JESD22-A102-C
Soldering Resistance	T.sol = 260±5 ℃ Dwell time = 10±1 s	0 / 100	MIL-STD-750:2031
ESD (HBM)	Class 1A : 300 V	0 / 100	JESD22-A114-B
UV Exposure	100 UVI, 500 hrs (UVB Lamp)	0 / 100	

6. Soldering

1) Soldering Pattern

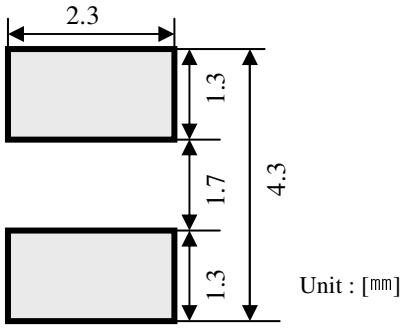


Fig. 4. Recommended Soldering Pattern

2) Reflow Soldering Profile

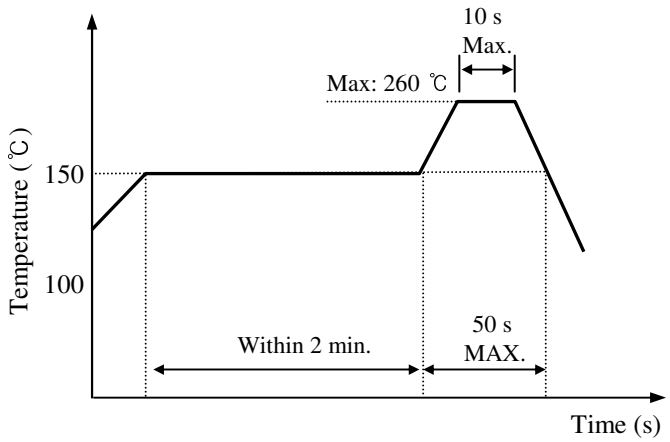


Fig. 5. Recommended Reflow Soldering Profile

3) Manual Soldering Conditions

- Temperature : Max. 260 ℃
- Time : Max. 10 s
- Caution : You must put to earth and shield the package from ESD damage.
  (ex.: wrist strap or anti-electrostatic gloves)

7. Taping

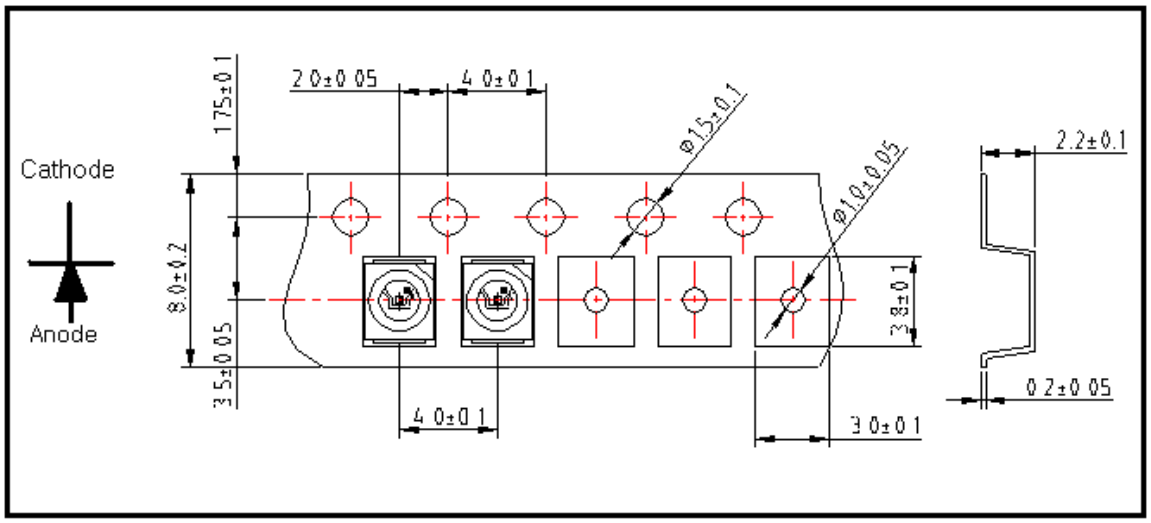


Fig. 6. Standardization of Carrier Tape

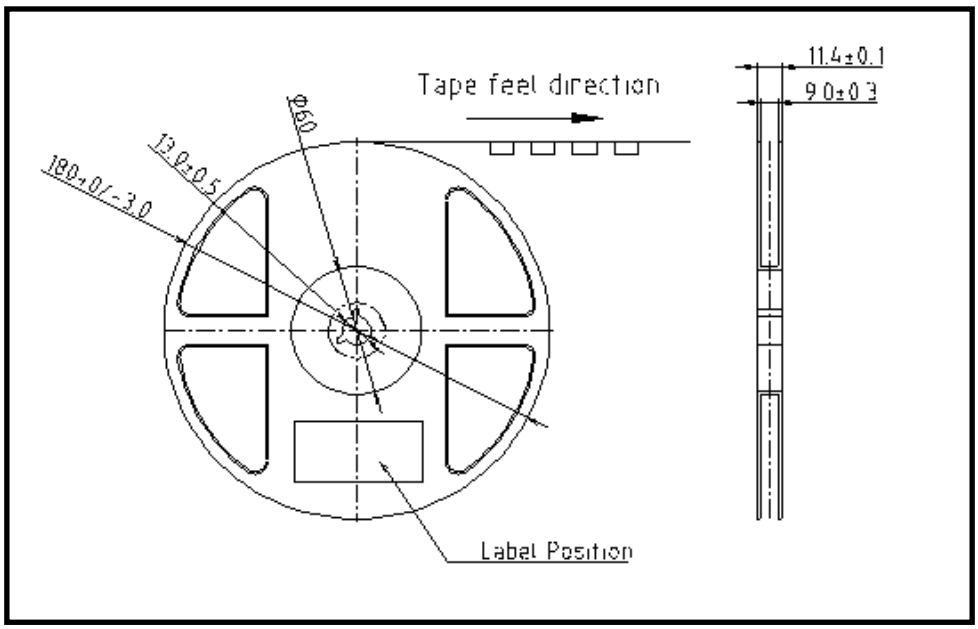
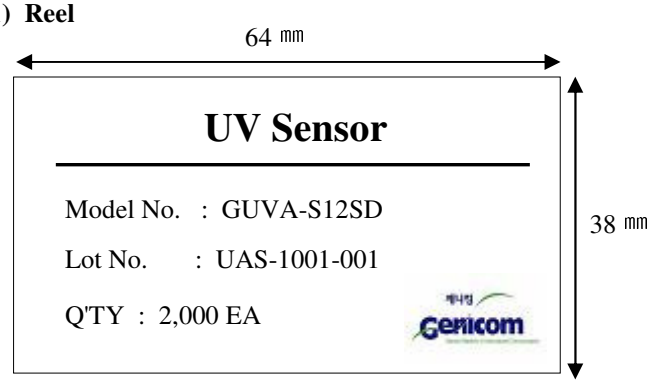


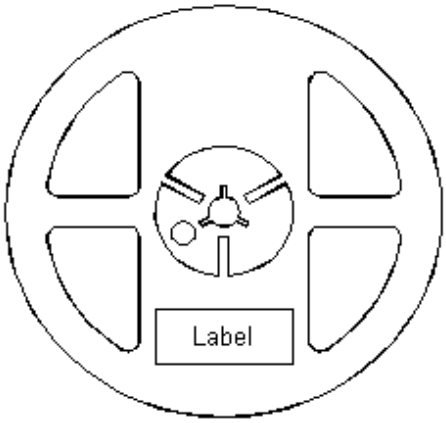
Fig. 7. Diagram and Standardization of Reel

- Quantity : Max. 2000EA/reel
- Label : Model Name, Lot Number, Quantity
- The packing materials such as reel, carrier tape, cover tape and shielding bag are antistatic.

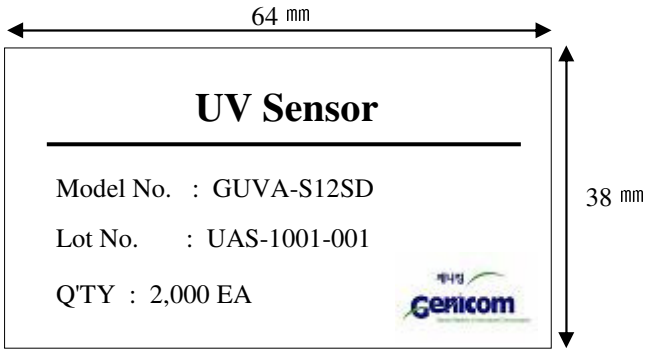
8. Packing

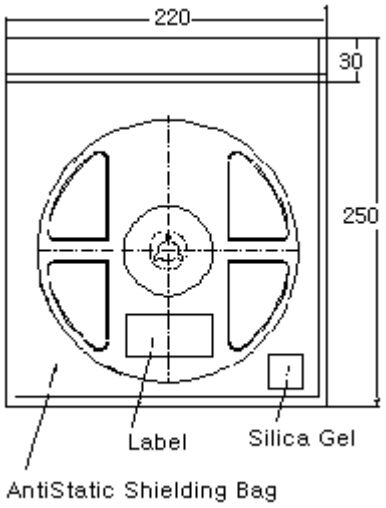
1) Reel



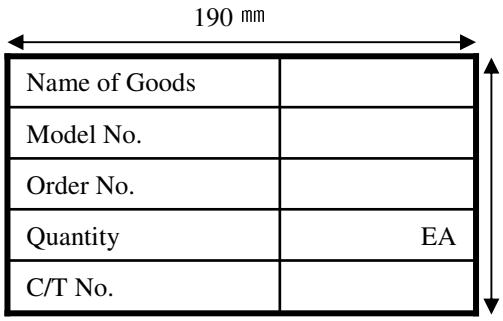


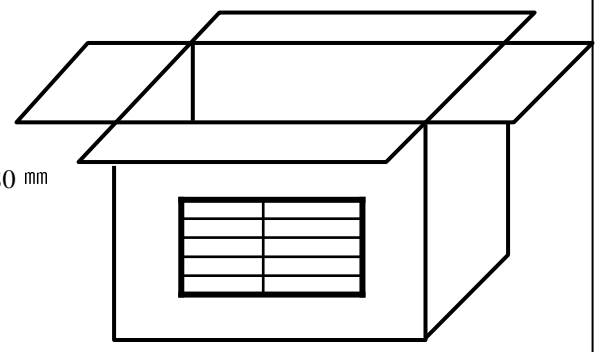
2) Al Shielding Bag





3) Outer Box





Size : 280 x 300 x 250 ㎣

4) Definition of Lot No.

【EX.】: UAS - 1001 – 001

UAS : Product Model (UVA Sensor with Si-Encapsulant)

1001 : Product Year and Month

001 : Consecutive Number

9. Cautions For Use UV Detector

-. In case of cleaning, use only IPA.

-. To be kept under clean environment.
For more than 3months storage, put in sealed containers

-. It should be soldered within 7days after opening a seal.

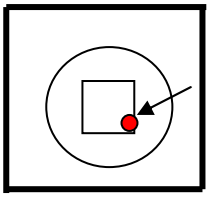
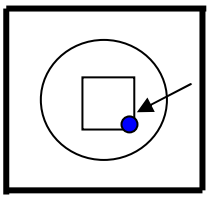
-. Use a wrist strap or anti-electrostatic gloves for handling, to protect from a static electricity and surge

-. If you operate it over the absolute maximum ratings, that may cause a permanent damage.

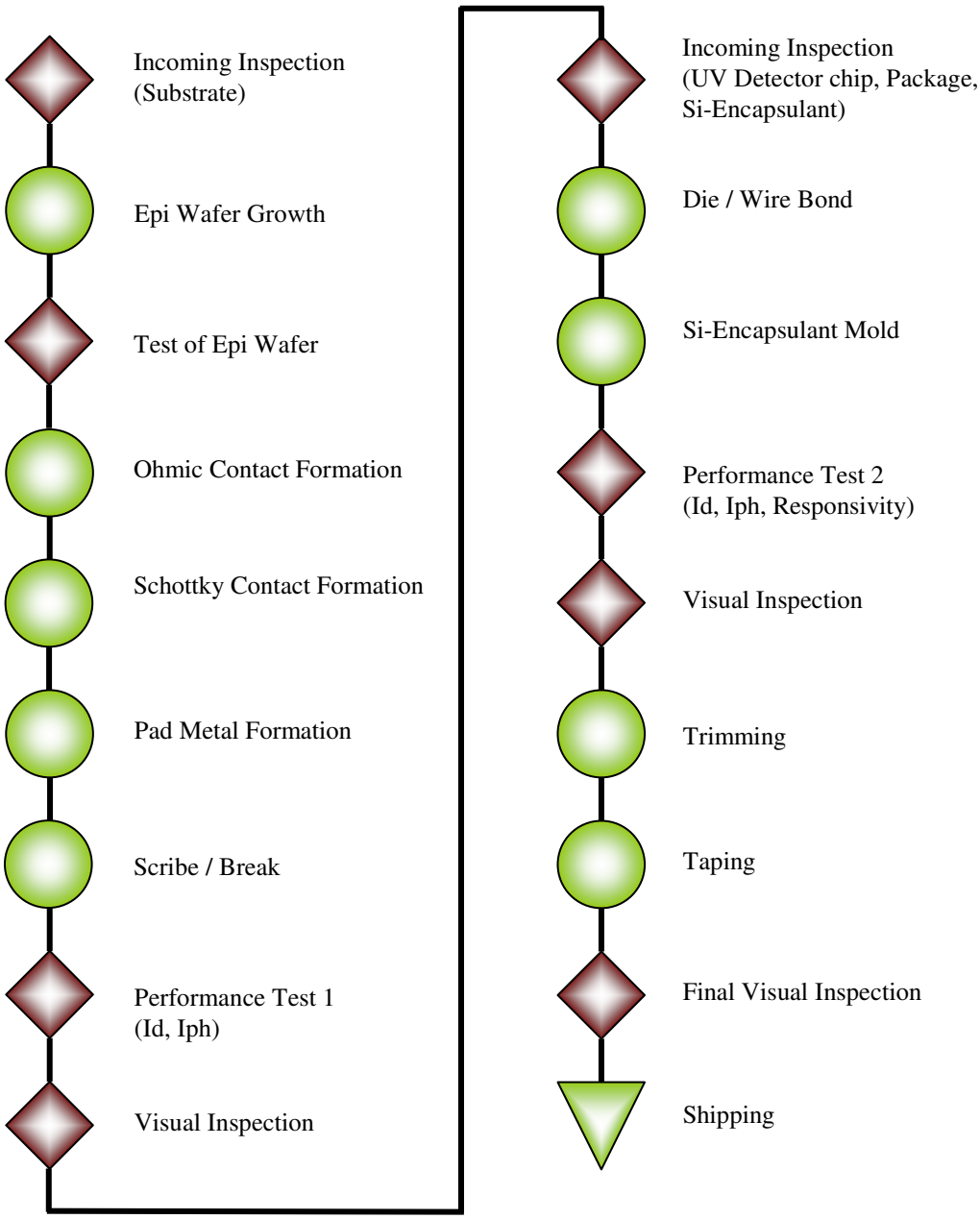
-. It can be damaged by working environment which is not shielded from a static electricity.

-. Damaged products show unusual characteristics such as large leakage current, or do not work.

■ Appendix 1. Visual Inspection of Microscope (Defect limited sample)

No.	Item	Image	Criterion of Judging
1	Foreign Object (To apply same Criterion inside and outside Package)		< Top View > Fixed Foreign Object : < 0.3 ㎜ •Not to be Foreign Objects on the Chip and Si-Encapsulant directly above Chip
2	Air Bubble		•Not to be Air Bubble in PKG

■ Appendix 2. QC Flowchart



■ Appendix 3. UV sensor measurement method & caution

1) Equipment for measurement

- Jig for SMD3528 measure
- Picoammeter (Low current measuring instrument) (Ex. Keithley 6485)
- UV Lamp (Ex. Sankyo Denki UVA lamp, F4T5BLB)
- Standard sample (Genicom can offer about 10 samples)

2) Measurement method

- Turn on the UV Lamp and hold down about 10 minutes.
- Fixed regular distance between UV Lamp and Jig.
- Confirm the Photocurrent of standard sample.
  Photocurrent of standard sample vary according optical power of UV lamp (distance from UV Lamp). For example, photocurrent is 200 ㎁.
- UV sensor (you should measure) put up the jig and read the photocurrent.

3) Precaution when measuring

- Distance between UV Lamp and UV sensor must be constant.
- When changing UV sensor, jig do not move.
- If there have vibration or movement, photocurrent may measure differently.
- We recommend you wear antistatic glove or wrist strip in order to protect UV sensor from static electricity.

4) Precaution when use the UV Lamp

- Limit coming and going to place UV Lamp is used & set up warning sign at entrance.
- Wearing a sunglass & glove . (UV cut off ratio : 99 ~ 100 %)
- Be careful that your body are not exposure to UV directly & limit time to exposure to UV.
- Do not watch the UV lamp without any protective outfit.
- If you do not use UV lamp, set up shutter can suspend UV and then attend to not exposure to outside.