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GUVA-S12SD



UV Index or UV Lamp Monitoring

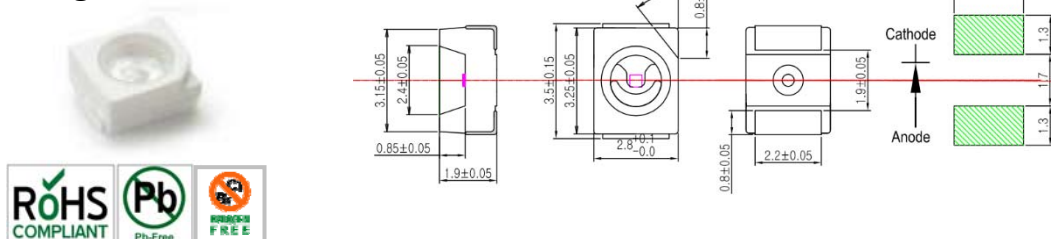
➤ Features

- Gallium Nitride Based Material
- Schottky Type Photodiode
- Photovoltaic Mode Operation
- Good Visible Blindness
- High Responsivity & Low Dark Current
- Chip Size : 0.4mm × 0.4mm (Active Area : 0.076mm²)
- SMD Type (Si Encapsulant)

➤ Applications

- UV Index Monitoring on Portable Device (Mobile Phone..)
- UV-A Lamp Monitoring
- UV LED Monitoring (< 360nm)
- UV Curing

➤ Package Dimension



➤ Absolute Maximum Rating

Parameter	Symbol	Min.	Max.	Unit	Remark
Storage Temperature	T _{st}	-40	90	°C	
Operating Temperature	T _{op}	-30	85	°C	
Reverse Voltage	V _{r, max.}		5	V	I _r =1 μA
Forward Current	I _{f, max.}		1	mA	
Soldering Temperature	T _{sol}		260	°C	within 10 sec.

➤ Electro-Optical Characteristics (at 25°C, RT)

Parameter	Min.	Typ.	Max.	Unit
Dark Current (V _r =1V)			1	nA
Photo Current (1 mW/cm ² of UVA lamp)	101	113	125	nA
Photo Current (1 UVI, offset 83nA)		21		nA
Peak Responsivity (352nm)		0.14		A/W
Spectral Detection Range	240		370	nm
Viewing Angle		100		°
Temperature Coefficient		0.08		%/°C
Bias Capacitance (@V _r = 0V)		~ 100		pF
Shunt resistance		~ Middle x 10 ¹⁰		Ω
Series resistance		~ Low x 10 ²		Ω

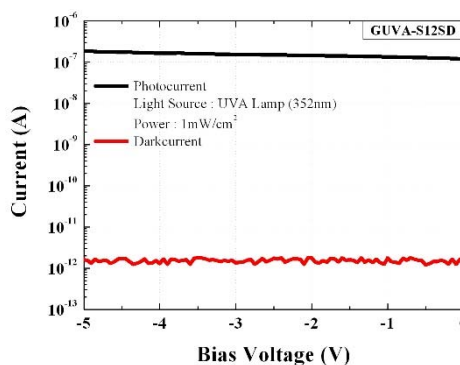
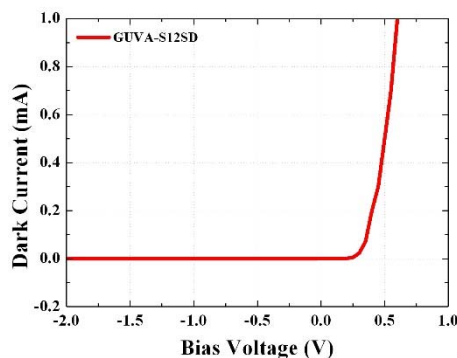
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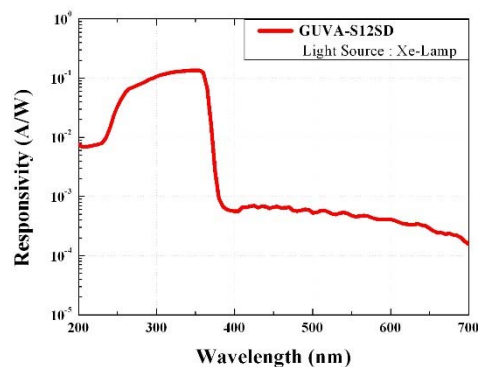
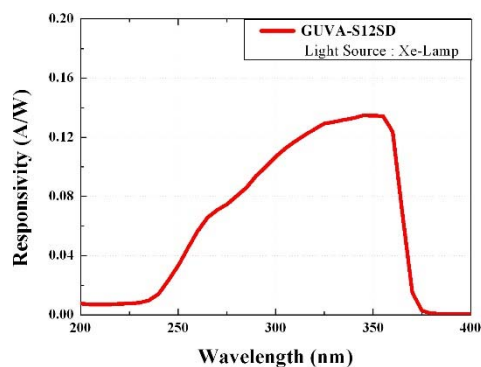
UV Index or UV Lamp Monitoring

➤ Characteristic Curve

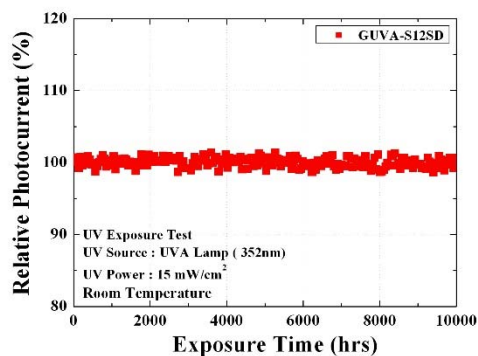
▪ I-V Curve



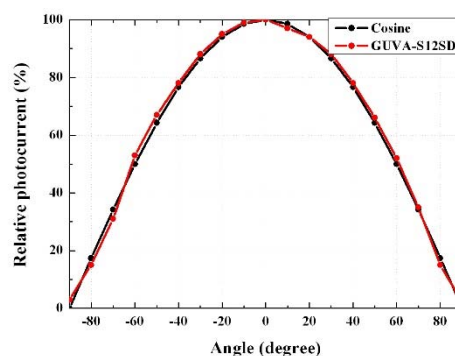
▪ Responsivity Curve



▪ Reliability due to UV Exposure



▪ Angular Response



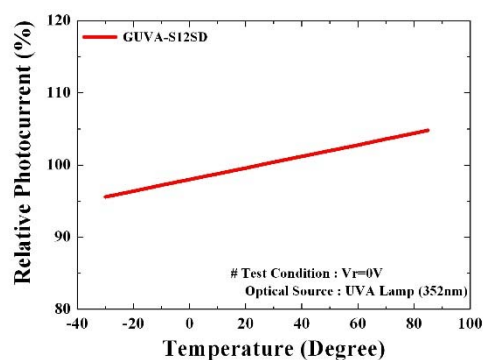
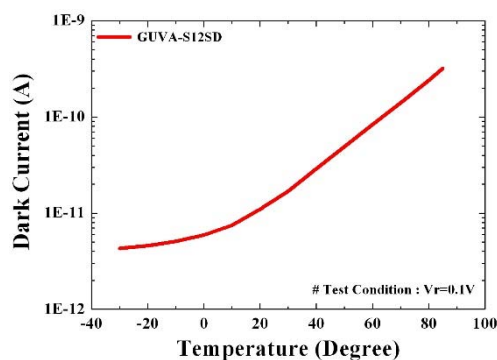
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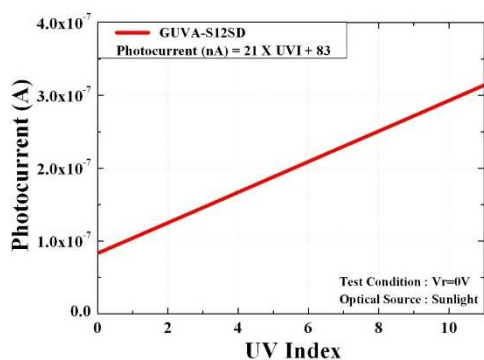
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➤ Characteristic Curve

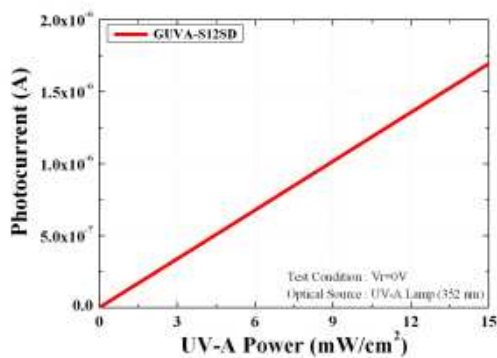
- Temperature Dependence (Dark Current & Photo Current)



- Photocurrent along UV Index



- Photocurrent along UVA Power



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➤ Application Circuit

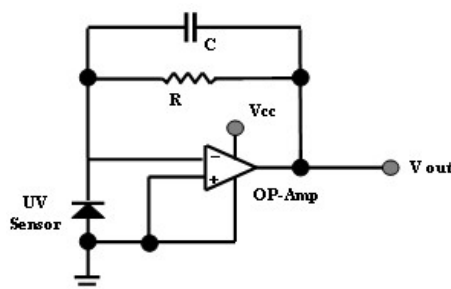
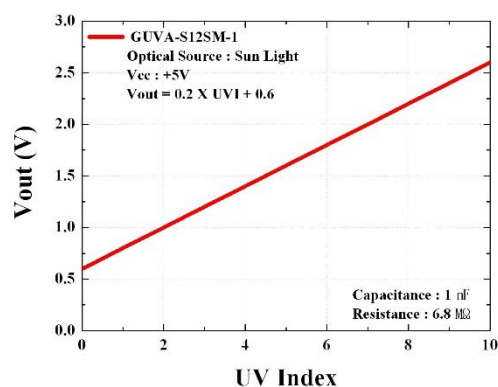
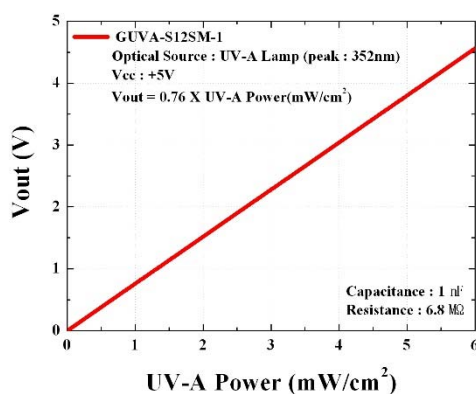


Fig. 1. Application Circuit (Basic)

Name	Part No.	Function	Model or Value	Remark
OP-Amp	OP-Amp	Amplification	MCP6241 (Microchip Technology)	Vcc : 1.8 ~ 5.5V
Capacitor	C	Decreasing the Input Noise	1 nF	Capacitor Controls Response Time
Resistor	R	Gain Control	6.8 MΩ	Gain : R

* Output Voltage = Gain × Photo Current



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