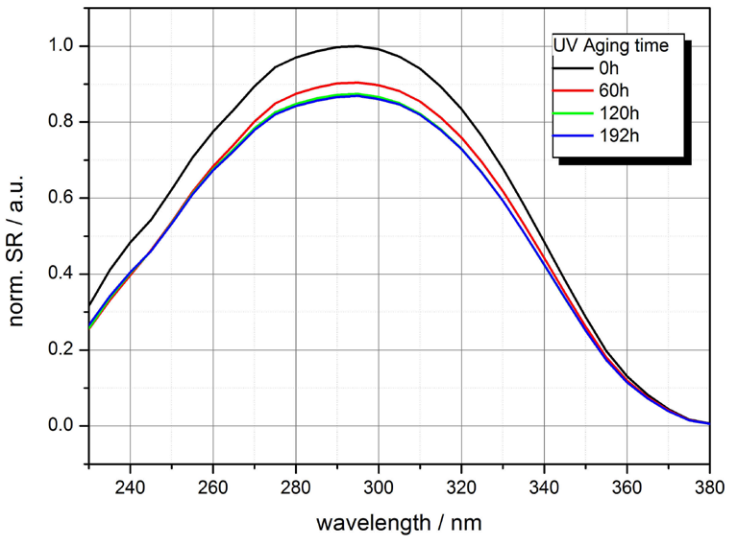
350°C SiC UV-Photodiode

High temperature SiC UV-Photodiodes now available, August 2019

NEW HIGH TEMPERATURE PHOTODIODE SERIES

sglux announces that a new high temperature stable SiC UV Photodiode is now available.
The photodiode can be permanently operated at a temperature of 350°C.

The standard sglux SiC UV photodiodes can be operated at temperatures up to 170°C. This limit is high enough for most industrial applications. However, a few uses like UV curing control, or applications when the sensor needs to be positioned very close to the light source or a flame can exceed the operating temperature limit of 170°C of the standard product. Above 170°C a decrease of the photodiode's output current may be observed. The reason for this phenomena is not the SiC detector chip itself but is due to decomposition of the die organic attachment material. The new 350°C enabled series uses a mineral sintering process for chip attachment to avoid organic adhesive decomposition under extreme conditions of use. This makes the new photodiode a 100 % non organic product. We tested the new photodiodes for 192 hours at 130mW/cm² (medium pressure UVC source) and a temperature of 350°C. The below graph shows the results. As reported earlier[1], within the first hours of illumination a decrease in sensitivity is observed. Recent results show that this decrease is caused by a UV irradiation caused change of the reflection properties of the Nickel coated interior surface of the photodiode's cap. All sglux photodiodes pass an appropriate burn-in process before use to guarantee no further aging while operated. This experiment is ongoing until 4000 hours of irradiation is reached. This report will be updated accordingly.



[1] Prasai, D. et al: Highly reliable silicon carbide photodiodes for visible-blind ultraviolet detector applications. J. Mater. Res, Vol. 28, Issue 1, pp 33-37