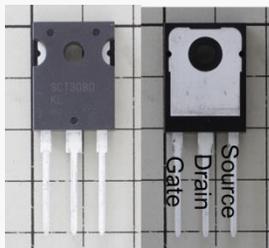
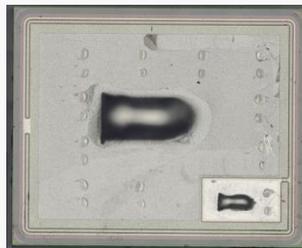


## **RHOM SCT3080KLHR AUTOMOTIVE CERTIFIED 1200V SiC MOSFET SHORT CIRCUIT ROBUSTNESS ANALYSIS REPORT**

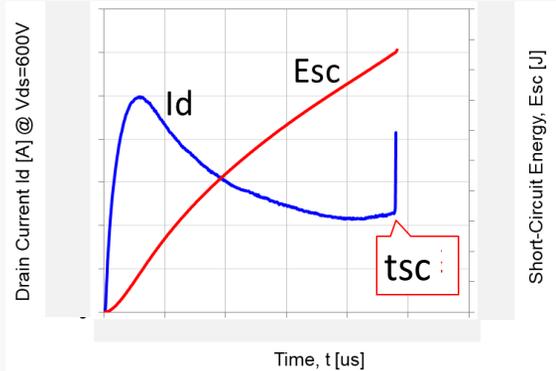
**February 2020.** The short-circuit (SC) capability of power transistors, especially SiC power MOSFETs, is one of the most critical reliability-related specifications. Compared to Si-based IGBTs, the size of the SiC transistor is smaller. This leads to significant reduction in SC endurance time (tsc).



Package



Die image



Drain current waveform and short-circuit energy (Esc)

This is the first published short-circuit robustness analysis report that examines the correlation between short circuit robustness and the physical structure of the SCT3080KLHR device. This device is compliant to the AEC Q101 automotive standard.

### **The report includes:**

- Identification of the mechanisms limiting short-circuit capability, measurement, physical analysis results, and extraction of the critical temperature ( $T_{j(crit)}$ ) at the onset of failure.
- Comparison of short-circuit robustness with other makers' 1200V SiC MOSFETs. Examination of the differences in semiconductor structure, process, and their effect on short circuit robustness.
- Comparison of the electrical characteristics (off-leakage current and temperature dependence) and identification of differences and limitations.

### **Use value of the evaluation results in this report**

- The minimum response time of the short-circuit protection circuit can be estimated.
- The internal device temperature can be estimated by performing electrothermal SPICE simulation using measured short-circuit drain current waveform and endurance time ( $t_{sc, f}$ ).

**Report price: \$6,500**

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