New Release

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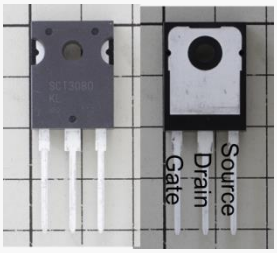
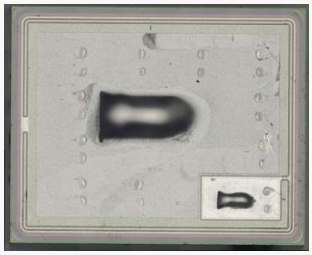
RHOM SCT3080KLHR AUTOMOTIVE CERTIFIED 1200V SiC MOSFET SHORT CIRCUIT ROBUSTNESS ANALYSIS REPORT

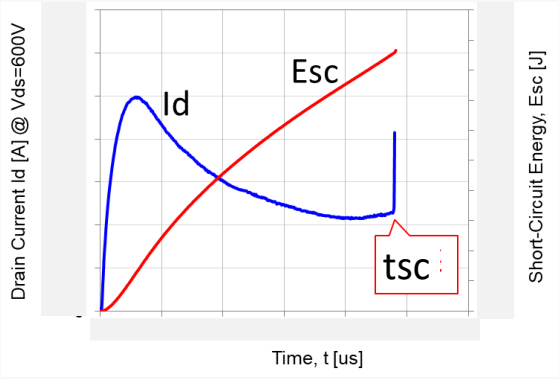
February 2020. The short-circuit (SC) capability of power transistors, especially SiC power MOSFETs, is one of the most critical reliability-related specifications. Compared to Si-based IGBTs, the size of the SiC transistor is smaller. This leads to significant reduction in SC endurance time (tsc).



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 (Tj(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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