





Simon H. ANKE
South Westphalia University of Applied Sciences
Faculty of Electrical Engineering
Lübecker Ring 2
D-59 494 Soest
Germany
e-mail: anke.simon@fh-swf.de

Simon H. Anke is a research assistant with an academic degree at the South Westphalia University of Applied Sciences in Soest, Germany.


QIRT-2024-003




ABSTRACT



PRESENTATION



PAPER



Nils J. ZIEGELER

Hella GmbH & Co. KGaA, Thermal and Climate Management, Lippstadt, Germany

Peter W. NOLTE

Fraunhofer Institute for Microstructure of Materials and Systems (IMWS), Fraunhofer Application Center for Inorganic Phosphors, Soest, Germany

Stefan SCHWEIZER

Fraunhofer Institute for Microstructure of Materials and Systems (IMWS), Fraunhofer Application Center for Inorganic Phosphors, Soest, Germany

INCREASING THE EFFECTIVE SAMPLING RATE OF THERMOGRAPHIC IMAGING FOR THERMAL TRANSIENT ANALYSIS

Thermal transient analysis characterizes the heat path of an electronic component by analyzing its response to a power step. Commonly, the temperature dependence of certain electrical properties is measured, such as the forward voltage drop of diodes. Although this is a proven and reliable procedure, the necessary contact preparation and calibration measurements are time-consuming and difficult to realize for large or electronically complex samples. Although

thermography has a lower sampling rate compared to electrical measurements, it also shows promising results in this field because of its high sensitivity and imaging property. This study presents a sampling technique that significantly increases the temporal resolution, called super-frequency sampling. The principle is demonstrated using tests on a high-power LED. The results illustrate the increased sampling rate allows for more detailed thermal analysis.