

1. Record Nr.	UNINA9910645887203321
Titolo	Theory and Practice of Thermal Transient Testing of Electronic Components [[electronic resource] /] / edited by Marta Rencz, Gábor Farkas, András Poppe
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2022
ISBN	3-030-86174-0
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (389 pages)
Disciplina	621.381
Soggetti	Electronics Electric power production Electronic circuits Materials Electronics and Microelectronics, Instrumentation Electrical Power Engineering Electronic Circuits and Systems Materials Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Introduction: the Importance and Motivation -- Theoretical Background: History, the Network Identification by Deconvolution (NID) Method, Structure Functions, the Thermal Signature -- The Use of Thermal Transient Testing -- General Practical Questions and the Flow of Thermal Transient Measurements -- On the Accuracy and Repeatability of Thermal Measurements.
Sommario/riassunto	This book discusses the major aspects of thermal transient testing, the most important method of thermal characterization of electronics available today. The book begins by presenting the theoretical background of creating structure functions from the measured results with mathematical details. It then moves on to show how the method can be used for thermal qualification, structure integrity testing, determining material parameters, and the calibration of simulation models. General practical questions about measurements are discussed

to help beginners carry out thermal transient testing. The special problems and tricks of measuring with various electronic components, such as Si diodes, bipolar transistors, MOS transistors, IGBT devices, resistors, capacitors, wide band gap materials, and LEDs are covered in detail with the help of various use cases. This hands-on book will enable readers to accomplish thermal transient testing on any new type of electronics and provides the theoretical details needed to understand the opportunities and limitations offered by the methodology. The book will be an invaluable reference for practicing engineers, students, and researchers. The first book dedicated solely to thermal transient testing; Enables readers to accomplish thermal transient testing on any type of electronics; Provides valuable use cases and highlights the specialties of characterizing different devices.

---