

JEDEC PUBLICATION

GUIDELINES FOR COMBINING CIE 127:2007 / 225:2017 TOTAL FLUX MEASUREMENTS WITH THERMAL MEASUREMENTS OF LEDS WITH EXPOSED COOLING SURFACE

JESD51-52A

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Foreword

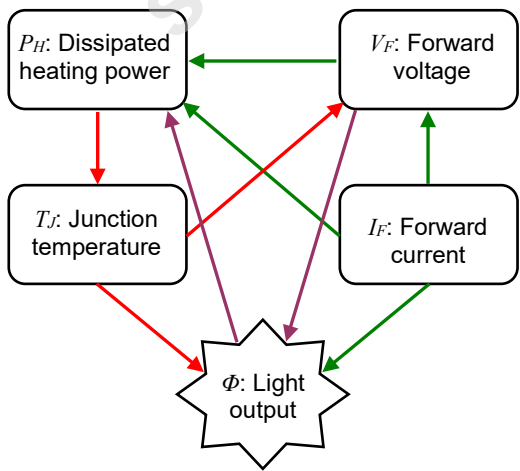
This document has been prepared by the JEDEC JC-15 Committee on Thermal Characterization. It provides guidelines on the implementation of the light output measurement of power LEDs when used in combination with thermal characterization.

Introduction

This document is intended to be used in conjunction with the JESD51-50 series of standards, especially with JESD51-51 (*Implementation of the Electrical Test Method for the Measurement of Real Thermal Resistance and Impedance of Light-emitting Diodes with Exposed Cooling Surface*) document. This present document focuses on the measurement of the *total radiant flux* of LEDs in combination with the measurement of LEDs' thermal characteristics: guidelines on the implementation of the recommendations of the CIE 127:2007 and CIE 225:2017 documents are provided.

Terms and definitions of the JESD51-53 (*Terms, Definitions and Units Glossary for LED Thermal Testing*) document are used here in a way consistent with the relevant definitions of CIE – the *International Committee of Illumination*, given in the CIE S 017/E:2020 standard (*International Lighting Vocabulary 2nd Edition*) and the CIE 127:2007, CIE 225:2017, CIE 84:1989 documents, and other standards used in the solid-state lighting industry, e.g., ANSI/IESNA RP-16-10.

The reason why these guidelines are provided is that the physics determining LEDs' light output characteristics is rather complex, which requires special care both in thermal characterization and during light output measurements. The need for measurement guidelines for LEDs has arisen when light-emitting diodes with high power and high energy conversion efficiency emerged.



NOTE Different (macroscopic) quantities characteristic to the LEDs' operating conditions are shown.

Figure 1 — The Mutual Dependence of LEDs' Light Output