

Contents

Part I Basic Physics

- 1 Introduction to LED Thermal Management and Reliability** 3
Michael Pecht, Diganta Das and Moon-Hwan Chang
- 2 Solid-State Physics Fundamentals of LED Thermal Behavior** 15
Jinmin Li, Junxi Wang, Zhe Liu and András Poppe
- 3 Basics of Thermal Design for LEDs** 53
Cathy Biber

Part II Testing and Standardization

- 4 Thermal Testing of LEDs** 73
Gábor Farkas and András Poppe
- 5 Laboratory Measurement of Optical Properties of LEDs** 167
János Schanda, Péter Csuti and Ferenc Szabó
- 6 Standardization of LED Thermal Characterization** 197
András Poppe and Clemens J. M. Lasance

Part III Advances in Cooling Technologies

- 7 Air Cooling for LED Lighting** 267
Raghav Mahalingam
- 8 Advances in Thermal Interface Materials for Power LED Applications** 299
David L. Saums
- 9 Heat Sink Basics from an Industrial Point of View** 347
Clemens J. M. Lasance

Part IV Applications

10 Considerations for an Optimal Choice of Heat Sinks for LED Applications 391
Norbert P. Engelberts

11 Testing Issues in LED Manufacturing 419
Richard Young

12 Thermal Management of Sophisticated LED Solutions 449
Theo Treurniet

13 Thermal Challenges in LED-Driven Display Technologies: The Early Days 465
Kazuaki Yazawa

14 Thermal Challenges in LED-Driven Display Technologies: State-of-the-Art 477
G. A. Luiten

15 LEDs in Harsh Environments 499
Ross Wilcoxon and Jim Petroski

16 Future Directions in LED Applications 519
Robert F. Karlicek

Index 543



<http://www.springer.com/978-1-4614-5090-0>

Thermal Management for LED Applications

Lasance, C.J.M.; Poppe, A. (Eds.)

2014, X, 551 p. 215 illus., 173 illus. in color., Hardcover

ISBN: 978-1-4614-5090-0