

Preface

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Preface

INTRODUCTION

Philips Semiconductors is one of the world's leading suppliers of discretes. Our range stretches from small-signal diodes and transistors, through FET power-devices and power rectifiers and triacs, to RF and microwave devices and modules. Such a diverse range of devices requires an equally diverse range of package designs. These packages must not only protect the enclosed circuit and connect it to the outside world, but must also ensure the device operates at its optimum performance in a wide variety of applications.

The discrete semiconductor package, which for many years was only an afterthought in the design and manufacture of electronic systems, increasingly is being recognized as a critical factor in both cost and performance. Indeed, in many applications, the package is often as important as the circuit it encapsulates. And as the functional density of devices and systems increases, the role of the discrete semiconductor package and its interconnections becomes ever more important.

With this in mind, this publication consolidates all relevant data for Philips Semiconductors discrete packages in one book – from dimensional outline drawings and soldering information, to thermal design considerations, packing data, and chemical content tables. It should be viewed as a logical extension to our Discrete Semiconductor Data Handbook series and, as such, is intended to serve as a practical data reference to all those involved in production and engineering design, as well as a guide to package selection and availability.

An innovative partner

The development of discrete semiconductor packages is a dynamic technology as new and improved circuit processes become available. Applications that until only a few years ago were unattainable, are today common place. From mobile telecommunications and satellite broadcasting to aerospace and automotive applications, each imposes its own individual demands on the electronic package.

To meet these, and future demands, it is essential that the component manufacturer has an intimate knowledge of the multidisciplinary technologies involved to bring the circuit and package together in an optimum design.

Here at Philips, we have been involved in discrete semiconductor package design and development since the early 1950's, during which time we have built up a wealth of experience and know-how in advanced process technologies and assembly procedures. By fully exploiting this expertise, and establishing close working partnerships with our customers, we have developed many market-driven and innovative package designs.

How this book is organized

We organized this databook into the following chapters:

Chapter 1 gives an overview of our discrete semiconductor packages along with a 3-dimensional illustration of each type. Packages are listed in ascending order of Philips outline code and followed by cross-reference lists from the JEDEC and EIAJ numbers to the equivalent Philips SOD/SOT number, where applicable.

Chapter 2 contains outline dimensional drawings for most of our discrete packages.

Chapter 3 reviews discrete package handling precautions with emphasis on ESD awareness at the assembly workstation.

Chapter 4 covers through-hole and SMD soldering and mounting techniques, and includes recommended footprint designs for many SMD packages.

Chapter 5 is divided into three parts covering: essential thermal properties of discrete semiconductors, worked examples of junction temperatures, and component heat dissipation and heatsink design.

Chapter 6 contains a survey of some of the packing methods most frequently used and includes the dimensions and shapes of the packing boxes and reels as well as their packing quantities.

Chapter 7 provides comprehensive data on the chemical composition of our discrete devices with information on their disposal and safety.

For information about IC packages, refer to Philips Semiconductors' Data Handbook IC26 *Integrated Circuit Packages*, order number 9398 652 90011.

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微波光电部专业代理经销高频、微波、光纤、光电元器件、组件、部件、模块、整机；电磁兼容元器件、材料、设备；微波 CAD、EDA 软件、开发测试仿真工具；微波、光纤仪器仪表。欢迎国外高科技微波、光纤厂商将优秀产品介绍到中国、共同开拓市场。长期大量现货专业批发高频、微波、卫星、光纤、电视、CATV 器件：晶振、VCO、连接器、PIN 开关、变容二极管、开关二极管、低噪晶体管、功率电阻及电容、放大器、功率管、MMIC、混频器、耦合器、功分器、振荡器、合成器、衰减器、滤波器、隔离器、环行器、移相器、调制解调器；光电子元件和组件：红外发射管、红外接收管、光电开关、光敏管、发光二极管和发光二极管组件、半导体激光二极管和激光器组件、光电探测器和光接收组件、光发射接收模块、光纤激光器和光放大器、光调制器、光开关、DWDM 用光发射和接收器件、用户接入系统光收发器件与模块、光纤连接器、光纤跳线/尾纤、光衰减器、光纤适配器、光隔离器、光耦合器、光环行器、光复用器/转换器；无线收发芯片和模组、蓝牙芯片和模组。

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