

Modern Ferrite Technology

For the past seventy years, ferrites (magnetic ceramics) have been prized for a range of properties that has no equivalent in the existing metal magnetic materials. They have contributed to many important advances in electronics and new high-performance products are appearing all the time. Ferrite technology has produced greater progress in the past 15 years since the first edition was published. Many of the semiconductor and IC technology responsible for the computer and Internet explosion would not have been possible without the magnetic materials technology needed for powering and otherwise exploiting those developments.

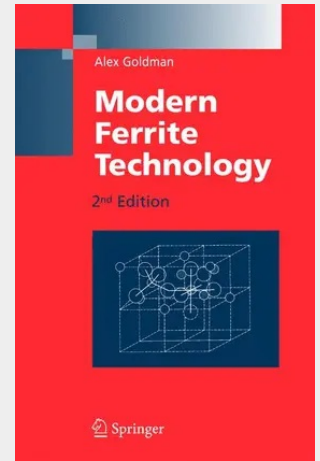
Modern Ferrite Technology, 2nd ed, offers the readers an expert overview of the latest ferrite advances as well as their applications in electronic components. This volume develops the interplay among material properties, component specification and device requirements using ferrites. Throughout, emphasis is placed on practical technological concerns as opposed to mathematical and physical aspects of the subject.

The book traces the origin of the magnetic effect in ferrites from the level of the simplest particle and the increases the scope to the larger and larger hierarchies. From the desired magnetic properties the author deduces the physical and chemical material parameters, taking into consideration major chemistry, impurity levels, ceramic microstructures and grain boundary effects. He then discusses the processing conditions and associated conditions required for implementation. In addition to conventional ceramic techniques, he describes non-conventional methods such as coprecipitation, co-spray roasting and single crystal growth.

The second section of this book deals with a complete listing of the many important applications in the field including ferrites for permanent magnet, telecommunications, power supplies, memory systems magnetic recording and microwave applications.

The function of ferrites in each of these applications is described. The requirements of the electronic circuit and device are broken down into the individual component specifications with regard to size and configuration. Design criteria for power level, degree of stability and cost are then considered.

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246,09 €

229,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9780387281513

Medium: Buch

ISBN: 978-0-387-28151-3

Verlag: Springer

Erscheinungstermin: 30.11.2005

Sprache(n): Englisch

Auflage: 2. Auflage 2006

Produktform: Gebunden

Gewicht: 846 g

Seiten: 438

Format (B x H): 160 x 241 mm

