

| | Page |
|--|----------|
| Index of types | 6 |
| Further components for EMC applications from EPCOS | 8 |
| General technical information | 9 |
| 1 Inductive components for electronic equipment | 9 |
| 1.1 HF circuits | 9 |
| 1.2 Filter circuits | 9 |
| 1.3 Switch-mode power supplies, DC/DC converters | 10 |
| 1.4 EMC applications | 10 |
| 1.4.1 Propagation of interference | 10 |
| 1.4.2 Characteristics of interferences | 11 |
| 2 Electromagnetic compatibility (EMC) | 12 |
| 2.1 Introduction | 12 |
| 2.2 Interference sources and disturbed equipment | 14 |
| 2.3 Propagation of electromagnetic interference and EMC measurement techniques | 15 |
| 2.4 EMC regulations und legislation | 16 |
| 2.5 Propagation of conducted interference | 18 |
| 2.6 Filter circuits and line impedance | 19 |
| 3 Selection criteria for EMC components | 20 |
| 4 Arrangement of EMC components | 20 |
| 5 Approvals | 21 |
| 6 Safety regulations | 21 |
| 7 Electrical characteristics | 22 |
| 7.1 Rated voltage V_R | 22 |
| 7.2 Test voltage V_T | 22 |
| 7.3 Rated current I_R | 22 |
| 7.4 Overcurrent | 22 |
| 7.5 Pulse handling capability | 22 |
| 7.6 Current derating I_{op}/I_R | 22 |
| 7.7 Rated inductance L_R | 22 |
| 7.8 Stray inductance L_S | 23 |
| 7.9 Inductance decrease $\Delta L/L_0$ | 23 |
| 7.10 DC resistance $R_{typ}, R_{min}, R_{max}$ | 23 |
| 7.11 Winding capacitance, parasitic capacitance C_p | 23 |
| 7.12 Quality factor Q | 23 |
| 7.13 Measuring frequencies f_Q, f_L | 23 |
| 7.14 Insertion loss | 24 |
| 8 Mechanical properties | 25 |
| 8.1 Potting (economy potting, complete potting) | 25 |
| 8.2 Types of winding | 25 |
| 8.3 RF characteristics of various types of winding | 27 |
| 9 Climatic characteristics | 28 |
| 9.1 Upper and lower category temperature T_{max} and T_{min} | 28 |

Chokes and Inductors

Contents

| | Page | |
|-----------------------------|---|-----------|
| 9.2 | Rated temperature T_R | 28 |
| 9.3 | Reference temperature for measurements | 28 |
| 9.4 | IEC climatic category | 29 |
| 10 | Sizes | 29 |
| 11 | Dangerous substances in components | 30 |
| 12 | Disposal | 30 |
| EMC services | | 31 |
| 1 | Services | 31 |
| 2 | EMC laboratory | 31 |
| 2.1 | Qualification | 31 |
| 2.2 | Services offered | 32 |
| 2.3 | Equipment | 33 |
| 2.4 | Partnerships with other EMC testing laboratories | 36 |
| Quality assurance | | 37 |
| 1 | General | 37 |
| 1.1 | Total Quality Management and Zero Defect Concept | 38 |
| 1.2 | Quality assurance system | 39 |
| 2 | Quality assurance procedure | 40 |
| 2.1 | Material procurement | 40 |
| 2.2 | Product quality assurance | 40 |
| 2.3 | Final inspection | 40 |
| 2.4 | Product audit | 40 |
| 2.5 | Manufacturing and quality assurance procedures for chokes and inductors | 41 |
| 3 | Delivery quality | 46 |
| 3.1 | Random sampling | 46 |
| 3.2 | Classification of defects | 46 |
| 3.3 | AQL figures | 46 |
| 3.4 | Incoming goods inspection | 46 |
| 4 | Service life | 47 |
| 4.1 | Failure criteria | 47 |
| 4.2 | Operating conditions | 47 |
| 5 | Reliability | 47 |
| 5.1 | Failure rate (long-term failure rate) | 48 |
| 5.2 | Failure rate values | 49 |
| 6 | Supplementary information | 49 |
| 7 | Handling of claims and complaints | 49 |
| SMT Inductors | | 51 |
| SMT Inductors, SIMID Series | | 60 |
| SMT Power Inductors | | 141 |

Chokes and Inductors

Contents

| | Page |
|---|---------------------|
| RF chokes | 157 |
| VHF chokes | 191 |
| SMT ferrite beads | 209 |
| Chokes for data and signal lines | 235 |
| Chokes for power lines | 305 |
| I core chokes | 307 |
| Ring core chokes with iron powder core | 313 |
| Sine-wave chokes | 326 |
| Current-compensated chokes | 332 |
| D core chokes | 369 |
| Subject index | 375 |
| Symbols and terms | 378 |
| Addresses | 379 |