Filters for shielded rooms

250/440 V, 63 ... 250 A

Series/Type: B84299*1*B/E001 / B84299*1*B/E003
Date: September 2017
Filters for shielded rooms

250/440 V, 63 ... 250 A

| B84299*1*B/E001 / B84299*1*B/E003 |
---|---|

- 2- and 4-line filters 63 to 250 A
- Multi-stage
- Stopband attenuation:
  - B84299*1*B/E001: 150 kHz to 40 GHz
  - B84299*1*B/E003: 14 kHz to 40 GHz

**Features**

- General-purpose use through design with separate lines without intercoupling
- Use of single chokes. Thus the insertion loss values are not reduced under all operating current conditions and not when operated with artificial mains networks (AMN) or other equipment with high leakage currents
- Insertion loss to EN 55017

**Design**

The electrical components are incorporated in an RF-tight case of stainless steel. The cables enter through glands. The RF-tight termination of the openings is produced by specially shaped lids. The conductors and equipment grounding conductor are connected by threaded bolts. The surface around the fixing holes is left as bare metal (unpainted) to ensure good RF contact with metal surfaces (chassis, ground).

**Protective measures (grounding)**

The high capacitances between the lines and ground require special protective measures. If there are no product-specific requirements, protection with a secondary ground wire (cross section min. 10 mm²) in accordance with EN 50178 is necessary. For this purpose the filter case have connecting bolts at each end.

Resistors are incorporated in the filter to discharge capacitors after turn-off.

**Scope of supply**

Filters are supplied complete with all parts required for RF-tight installation (fixing screws, flanges, RF gaskets, cable glands) and installation instructions.

**Installation**

No welding is needed on the shielding wall, so any subsequent installation is quite simple.

**Accessories and special versions**

RF-tight flexible connector fittings are available for installation spaced away from the shielding wall. Filters with an EMP protection add-on for surge currents up to 100 kA per line are available on request. To match requirements, filters can be supplied with different kinds of EMC or shielding cable glands.

**Tests**

All filters are 100% tested and the results are archived under a filter's serial number. If required, a test report can be generated for the serial number.

Please read Cautions and warnings and Important notes at the end of this document.
### Technical data and measuring conditions

<table>
<thead>
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<th>Parameter</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Rated voltage [L–PE / L–L]</td>
<td>$V_R$ 250 V</td>
</tr>
<tr>
<td>Rated voltage [L–PE / L–L]</td>
<td>$V_R$ 250/440 V</td>
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<tr>
<td>Rated frequency</td>
<td>$f_R$ 50/60 Hz</td>
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<tr>
<td>Rated current</td>
<td>$I_R$ See characteristics</td>
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<tr>
<td>Power dissipation</td>
<td>$P_D$ See characteristics</td>
</tr>
<tr>
<td>Test voltage line to line</td>
<td>$V_{test}$ 1200 V DC / 2 sec.</td>
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<td>Test voltage line to case</td>
<td>$V_{test}$ 1200 V DC / 2 sec.</td>
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<td>Rated temperature</td>
<td>$T_R$ 40 °C</td>
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<td>Overload capability (thermal)</td>
<td>$I_{over}$</td>
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<tr>
<td></td>
<td>$75 \times I_R$ for 50 ms</td>
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<td></td>
<td>$10 \times I_R$ for 1 s</td>
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<td>$2 \times I_R$ for 1 min</td>
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<td>$1.4 \times I_R$ for 15 min</td>
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<td>Leakage current (IEC 60939?1: 2010, Annex A)</td>
<td>$I_{LK}$ See characteristics</td>
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<tr>
<td>Capacitive reactive current/line</td>
<td>$I_{reactive}$ See characteristics</td>
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<tr>
<td>Max. permissible harmonic distortion (THD)</td>
<td>$THD_{max}$ 8% acc. EN 50160</td>
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<td>Climatic category (IEC 60068-1: 1992)</td>
<td>$25/085/56$</td>
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<td>Permissible ambient temperature</td>
<td>$-25 \ldots +40 , ^\circ C$</td>
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<td>Degree of protection (IEC 60529: 2013)</td>
<td>IP 20</td>
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<tr>
<td>Max. DC resistance</td>
<td>$R_{DC}$ See characteristics</td>
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### Characteristics and ordering codes

<table>
<thead>
<tr>
<th>IR</th>
<th>Mech. version(^1)</th>
<th>Attenuation diagram</th>
<th>R(_{DC})</th>
<th>P(_D)</th>
<th>I(_{reactive})</th>
<th>LK</th>
<th>Dimensions diagram</th>
<th>Appr. weight</th>
<th>Ordering code</th>
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</tbody>
</table>

\(^1\) Connection to the shielding
C = at front side
D = at bottom side
Filters for shielded rooms
250/440 V, 63 ... 250 A
B84299*1*B/E001 / B84299*1*B/E003

Typical circuit diagrams

Circuit diagram 1: 2-line filters 63 A/100 A with 100 dB from 150 kHz

Circuit diagram 2: 4-line filters 63 A/100 A with 100 dB from 150 kHz

Please read Cautions and warnings and Important notes at the end of this document.
Filters for shielded rooms

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Circuit diagram 3: 2-line filters 63 A with 100 dB from 14 kHz

Circuit diagram 4: 4-line filter 63 A with 100 dB from 14 kHz and filters 150 A with 100 dB at 150 kHz

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Filters for shielded rooms

250/440 V, 63 ... 250 A

B84299*1*B/E001 / B84299*1*B/E003

Circuit diagram 5: 2-line filters 100 A with 100 dB from 14 kHz

Circuit diagram 6: 4-line filters 100 A and 150 A with 100 dB from 14 kHz

Please read Cautions and warnings and Important notes at the end of this document.
Filters for shielded rooms

250/440 V, 63 ... 250 A

Circuit diagram 7: 4-line filters 250 A with 100 dB from 150 kHz

Circuit diagram 8: 4-line filters 250 A with 100 dB from 110 kHz

Please read Cautions and warnings and Important notes at the end of this document.
Attenuation diagram 1: Filters with 100 dB from 150 kHz up to 40 GHz
Insertion loss $a_e$ as a function of frequency $f$ (typical values at $Z = 50$ Ohm)

\[ a_e = 20 \log_{10} \frac{V_0}{2V_1} \] [dB]

Attenuation diagram 2: Filters with 100 dB from 110 kHz up to 40 GHz
Insertion loss $a_e$ as a function of frequency $f$ (typical values at $Z = 50$ Ohm)

\[ a_e = 20 \log_{10} \frac{V_0}{2V_1} \] [dB]
Filters for shielded rooms

250/440 V, 63 ... 250 A

B84299*1*B/E001 / B84299*1*B/E003

Attenuation diagram 3: Filters with 100dB from 14 kHz up to 40 GHz
Insertion loss $a_e$ as a function of frequency $f$ (typical values at $Z = 50 \text{ Ohm}$)

Test setup

$$a_e = 20 \log \frac{V_o}{V_2} [\text{dB}]$$

1) According to MIL-STD 285
Filters for shielded rooms

250/440 V, 63 ... 250 A

B84299*1*B/E001 / B84299*1*B/E003

Dimensional drawings

Drawing 1 – B84299C1630B001 (2 × 63 A), B84299C1101B001 (2 × 100 A)

1) Cable glands PG 29* with indented sealing ring, for cable diameters [mm]: 17 ... 19 / 20 ... 22 / 23 ... 25 / 26 ... 28

* Included in delivery

SSB268-D-E
Filters for shielded rooms
250/440 V, 63 ... 250 A

B84299*1*B/E001 / B84299*1*B/E003

Drawing 2 – B84299D1630B001 (2 × 63 A), B84299D1101B001 (2 × 100 A)

Shielded partition

1) Cable glands PG 29 with indented sealing ring,
for cable diameters [mm]: 17 ... 19 / 20 ... 22 / 23 ... 25 / 26 ... 28

* Included in delivery

Please read Cautions and warnings and Important notes at the end of this document.
Filters for shielded rooms

250/440 V, 63 ... 250 A

B84299*1*B/E001 / B84299*1*B/E003

Drawing 3 – B84299C1630B003 (2 × 63 A)

Shielded partition

1) Cable glands PG 29* with indented sealing ring,
for cable diameters [mm]: 17 ... 19 / 20 ... 22 / 23 ... 25 / 26 ... 28

* Included in delivery

SSB2862-J-E
Filters for shielded rooms
250/440 V, 63 ... 250 A
B84299*1*B/E001 / B84299*1*B/E003

Drawing 4 – B84299D1630B003 (2 × 63 A)

1) Shielded partition

288

M6

M8

146.5

6.1

1070

1076

380±0.5

380±0.5

160±1

180±1

(170)

ø37

ø10 (8x)

1) Cable glands PG 29* with indented sealing ring,
for cable diameters [mm]: 17 ... 19 / 20 ... 22 / 23 ... 25 / 26 ... 28

* Included in delivery

SSB2863-3-E

Please read Cautions and warnings and Important notes at the end of this document.
Please read Cautions and warnings and Important notes at the end of this document.

Filters for shielded rooms

250/440 V, 63 ... 250 A

B84299*1*B/E001 / B84299*1*B/E003

Drawing 5 – B84299C1101B003 (2 × 100 A)

1) Cable glands PG 42 with indented sealing ring, for cable diameters [mm]: 29 ... 31 / 32 ... 34 / 35 ... 37 / 38 ... 40

* Included in delivery
Filters for shielded rooms
250/440 V, 63 ... 250 A
B84299*1*B/E001 / B84299*1*B/E003

Drawing 6 – B84299D1101B003 (2 × 100 A)

Shielded partition

1) Cable glands PG 42* with indented sealing ring,
   for cable diameters [mm]: 29 ... 31 / 32 ... 34 / 35 ... 37 / 38 ... 40

* Included in delivery

Please read Cautions and warnings and Important notes at the end of this document.
Filters for shielded rooms

250/440 V, 63 ... 250 A

B84299*1*B/E001 / B84299*1*B/E003

Drawing 7 – B84299C1630E001 (4 × 63 A), B84299C1101E001 (4 × 100 A)

1) Cable glands PG 42* with indented sealing ring, for cable diameters [mm]: 29 ... 31 / 32 ... 34 / 35 ... 37 / 38 ... 40

* Included in delivery

Please read Cautions and warnings and Important notes at the end of this document.
Filters for shielded rooms

250/440 V, 63 ... 250 A

B84299*1*B/E001 / B84299*1*B/E003

Drawing 8 – B84299D1630E001 (4 × 63 A), B84299D1101E001 (4 × 100 A)

Shielded partition

1) Cable glands PG 42* with indented sealing ring, for cable diameters [mm]: 29 ... 31 / 32 ... 34 / 35 ... 37 / 38 ... 40

* Included in delivery

SSB2867-1-E
Filters for shielded rooms

250/440 V, 63 ... 250 A

B84299*1*B/E001 / B84299*1*B/E003

Drawing 9 – B84299C1630E003 (4 × 63 A)

Shielded partition

1) Cable glands PG 29* with indented sealing ring,
for cable diameters [mm]: 17 ... 19 / 20 ... 22 / 23 ... 25 / 26 ... 28

* Included in delivery

SSB2868-9-E

Please read Cautions and warnings and Important notes at the end of this document.
 Filters for shielded rooms

250/440 V, 63 ... 250 A

B84299*1*B/E001 / B84299*1*B/E003

Drawing 10 – B84299D1630E003 (4 × 63 A)

1) Cable glands PG 29* with indented sealing ring,
for cable diameters [mm]: 17 ... 19 / 20 ... 22 / 23 ... 25 / 26 ... 28

* Included in delivery

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Please read Cautions and warnings and Important notes at the end of this document.
Filters for shielded rooms

250/440 V, 63 ... 250 A

B84299*1*B/E001 / B84299*1*B/E003

Drawing 11 – B84299C1101E003 (4 x 100 A)

1) Cable glands PG 42* with indented sealing ring, for cable diameters [mm]: 29 ... 31 / 32 ... 34 / 35 ... 37 / 38 ... 40

* Included in delivery

Please read Cautions and warnings and Important notes at the end of this document.
Filters for shielded rooms
250/440 V, 63 … 250 A  
B84299*1*B/E001 / B84299*1*B/E003

Drawing 12 – B84299D1101E003 (4 × 100 A)

1) Cable glands PG 42* with indented sealing ring,
for cable diameters [mm]: 29 … 31 / 32 … 34 / 35 … 37 / 38 … 40

* Included in delivery

Please read Cautions and warnings and Important notes at the end of this document.
Filters for shielded rooms

250/440 V, 63 ... 250 A

B84299*1*B/E001 / B84299*1*B/E003

Drawing 13 – B84299C1151E001 (4 × 150 A)

1) Cable glands PG 42* with indented sealing ring, for cable diameters [mm]: 29 ... 31 / 32 ... 34 / 35 ... 37 / 38 ... 40

* Included in delivery

Please read Cautions and warnings and Important notes at the end of this document.
Filters for shielded rooms

250/440 V, 63 ... 250 A

B84299*1*B/E001 / B84299*1*B/E003

Drawing 14 – B84299D1151E001 (4 × 150 A)

Shielded partition

1) Cable glands PG 42* with indented sealing ring,
   for cable diameters [mm]: 29 ... 31 / 32 ... 34 / 35 ... 37 / 38 ... 40

* Included in delivery

Please read Cautions and warnings and Important notes at the end of this document.
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Filters for shielded rooms
250/440 V, 63 ... 250 A
B84299*1*B/E001 / B84299*1*B/E003

Drawing 17 – B84299C1251E001 (4 × 250 A)

1) Cable glands PG 48* with indented sealing ring,
   for cable diameters [mm]: 38 ... 41 / 42 ... 44 / 45 ... 47 / 48 ... 51

* Included in delivery

Please read Cautions and warnings and
Important notes at the end of this document.
Filters for shielded rooms
250/440 V, 63 … 250 A
B84299*1*B/E001 / B84299*1*B/E003

Drawing 18 – B84299D1251E001 (4 × 250 A)

1) Cable glands PG 42* with indented sealing ring,
   for cable diameters [mm]: 29 … 31 / 32 … 34 / 35 … 37 / 38 … 40
2) Cable glands PG 48* with indented sealing ring,
   for cable diameters [mm]: 38 … 41 / 42 … 44 / 45 … 47 / 48 … 51

* Included in delivery

Please read Cautions and warnings and Important notes at the end of this document.
Drawing 19 – B84299C1251E003 (4 × 250 A)

1) Cable glands PG 48* with indented sealing ring, for cable diameters [mm]: 38 ... 41 / 42 ... 44 / 45 ... 47 / 48 ... 51

* Included in delivery
Filters for shielded rooms

250/440 V, 63 ... 250 A

B84299*1*B/E001 / B84299*1*B/E003

Drawing 20 – B84299D1251E003 (4 × 250 A)

1) Cable glands PG 42* with indented sealing ring,
   for cable diameters [mm]: 29 ... 31 / 32 ... 34 / 35 ... 37 / 38 ... 40
2) Cable glands PG 48* with indented sealing ring,
   for cable diameters [mm]: 38 ... 41 / 42 ... 44 / 45 ... 47 / 48 ... 51

* Included in delivery
Filters for shielded rooms

250/440 V, 63 ... 250 A

B84299*1*B/E001 / B84299*1*B/E003

RF-tight connection of types B84299C... with connection hole 37 mm

Flexible conduit B84298A0042L... (diameter 25 mm, length 10 ... 980 cm), please order separate (detailed data see data sheet)

Shielded wall with hole ø37+1 mm (ø55 mm metallic bare)

Note: The bending radius of the flexible conduit depends on the used type of cable

RF-tight connection of types B84299C... with connection hole 54 mm

Flexible conduit B84298A0044L... (diameter 40 mm), please order separate data see data sheet!

Hole in the shielded wall: ø54+1 mm (ø70 mm metallic bare)

Shielded wall

Note: The bending radius of the flexible conduit depends on the used type of cable

RF-tight connection of types B84299D... with connection hole 37 mm

Washer¹)

RF-gasket¹)

Cable gland¹)

Hole in the shielded wall: ø37+1 mm (ø55 mm metallic bare)

Shielded wall

Self locking nut M8 (4x)

Self locking screw M8 x 20¹) (4x) (hole in the shielded wall: ø9 ... 9.5 mm)

¹) included in delivery

Please read Cautions and warnings and Important notes at the end of this document.
RF-tight connection of types B84299D… with connection hole 54 mm

Shielded wall
RF-gasket\(^1\)

Cable gland\(^1\)
Hole in the shielded wall:
\(\varnothing 54 \pm 1 \text{ mm} (\varnothing 70 \text{ mm metallic bare})\)

Self locking nut
\(M8 \ (8x)\)
(holes in the shielded wall: \(\varnothing 9 \ldots 9.5 \text{ mm}\))

\(^1\) Included in delivery
Please read all safety and warning notes carefully before installing the filter and putting it into operation. The same applies to the warning signs on the filter. Please ensure that the signs are not removed nor their legibility impaired by external influences.

Death, serious bodily injury and substantial material damage to equipment may occur if the appropriate safety measures are not carried out or the warnings in the text are not observed.

Using according to the terms
The filters may be used only for their intended application within the specified values in low voltage networks in compliance with the instructions given in the data sheets and the data book. The conditions at the place of application must comply with all specifications for the filter used.

Warning
- It shall be ensured that only qualified persons (electricity specialists) are engaged on work such as planning, assembly, installation, operation, repair and maintenance. They must be provided with the corresponding documentation.
- Danger of electric shock. Filters contain components that store an electric charge. Dangerous voltages can continue to exist at the filter terminals for longer than five minutes even after the power has been switched off.
- The protective earth connections shall be the first to be made when the filter is installed and the last to be disconnected. Depending on the magnitude of the leakage currents, the particular specifications for making the protective earth connection must be observed.
- Impermissible overloading of the filter or filters, such as with circuits able to cause resonances, impermissible voltages at higher frequencies etc. can lead to bodily injury and death as well as cause substantial material damages (e.g. destruction of the filter housing).
- Filters must be protected in the application against impermissible exceeding of the rated currents by overcurrent protective devices.
- In case of leakage currents >3.5 mA you shall mount the PE conductor stationary with the required cross section before beginning of operation and save it against disconnecting. For leakage currents $I_L^{1)} \leq 10$ mA the PE conductor must have a KU value $^{2)}$ of 4.5 $^{3)}$; for leakage currents $I_L > 10$ mA the PE conductor must have a KU value of 6 $^{4)}$.
- Because the product can become very hot during operation, there is the risk of burns if touched. The product can remain hot for some time after the power is switched off!

Display of ordering codes for EPCOS products
The ordering code for one and the same EPCOS product can be represented differently in data sheets, data books, other publications, on the EPCOS website, or in order-related documents such as shipping notes, order confirmations and product labels. The varying representations of the ordering codes are due to different processes employed and do not affect the specifications of the respective products. Detailed information can be found on the Internet under www.epcos.com/orderingcodes

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1) $I_L =$ leakage current let-go
2) The KU value (symbol KU) is a classification parameter of safety-referred failure types designed to ensure protection against hazardous body currents and excessive heating.
3) $I_L =$ A value of KU = 4.5 with respect to interruptions is attained with: a) permanently connected protective earth connection $\geq 1.5$ mm$^2$ and b) a protective earth connection $\geq 2.5$ mm$^2$ via connectors for industrial equipment (IEC 6030902)
4) KU = 6 with respect to interruptions is achieved for fixed-connection lines $\geq 10$ mm$^2$ where the type of connection and installation correspond to the requirements for PEN conductors as specified in relevant standards.

Please read Cautions and warnings and Important notes at the end of this document.
<table>
<thead>
<tr>
<th>Symbol</th>
<th>English</th>
<th>German</th>
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<tbody>
<tr>
<td>$dv/dt$</td>
<td>Rate of voltage rise</td>
<td>Spannungsanstiegsgeschwindigkeit</td>
</tr>
<tr>
<td>$f_R$</td>
<td>Rated frequency</td>
<td>Bemessungsfrequenz</td>
</tr>
<tr>
<td>$f_{Pass}$</td>
<td>Passband</td>
<td></td>
</tr>
<tr>
<td>$I_{LK}$</td>
<td>Filter leakage current</td>
<td>Filter-Ableitstrom</td>
</tr>
<tr>
<td>$I_{\text{reactive}}$</td>
<td>Capacitive reactive current</td>
<td>Kapazitiver Blindstrom</td>
</tr>
<tr>
<td>$I_N$</td>
<td>Nominal current</td>
<td>Nennstrom</td>
</tr>
<tr>
<td>$I_R$</td>
<td>Rated current</td>
<td>Bemessungsstrom</td>
</tr>
<tr>
<td>$I_{\text{over}}$</td>
<td>Overcurrent</td>
<td>Überstrom</td>
</tr>
<tr>
<td>$P_D$</td>
<td>Power dissipation</td>
<td>Verlustleistung</td>
</tr>
<tr>
<td>$R_I$</td>
<td>Internal resistance</td>
<td>Innenwiderstand</td>
</tr>
<tr>
<td>$R_{\text{DC}}$</td>
<td>Maximum DC resistance</td>
<td>Max. Gleichstromwiderstand (Gleichspannung)</td>
</tr>
<tr>
<td>$T_A$</td>
<td>Ambient temperature</td>
<td>Umgebungstemperatur</td>
</tr>
<tr>
<td>$T_D$</td>
<td>Transverse delay time</td>
<td></td>
</tr>
<tr>
<td>$T_R$</td>
<td>Rated temperature</td>
<td>Bemessungstemperatur</td>
</tr>
<tr>
<td>$THD_{\text{max}}$</td>
<td>Max. permissible harmonic distortion</td>
<td></td>
</tr>
<tr>
<td>$V_{\text{br}}$</td>
<td>Breakdown voltage</td>
<td></td>
</tr>
<tr>
<td>$V_{\text{cl}}$</td>
<td>Max. clamping voltage</td>
<td></td>
</tr>
<tr>
<td>$V_N$</td>
<td>Nominal network voltage</td>
<td>Netzspannung</td>
</tr>
<tr>
<td>$V_{\text{test}}$</td>
<td>Test voltage</td>
<td>Prüfspannung</td>
</tr>
<tr>
<td>$V_R$</td>
<td>Rated voltage</td>
<td>Bemessungsspannung</td>
</tr>
<tr>
<td>$Z$</td>
<td>Impedance</td>
<td>Scheinwiderstand</td>
</tr>
<tr>
<td>$Z_L$</td>
<td>Line impedance</td>
<td>Leitungsimpedanz</td>
</tr>
<tr>
<td>$\alpha_e$</td>
<td>Insertion loss</td>
<td>Einfügungsdämpfung</td>
</tr>
<tr>
<td>$\Delta V$</td>
<td>Voltage drop</td>
<td>Spannungsabfall</td>
</tr>
</tbody>
</table>
Important notes

The following applies to all products named in this publication:

1. Some parts of this publication contain statements about the suitability of our products for certain areas of application. These statements are based on our knowledge of typical requirements that are often placed on our products in the areas of application concerned. We nevertheless expressly point out that such statements cannot be regarded as binding statements about the suitability of our products for a particular customer application. As a rule we are either unfamiliar with individual customer applications or less familiar with them than the customers themselves. For these reasons, it is always ultimately incumbent on the customer to check and decide whether a product with the properties described in the product specification is suitable for use in a particular customer application.

2. We also point out that in individual cases, a malfunction of electronic components or failure before the end of their usual service life cannot be completely ruled out in the current state of the art, even if they are operated as specified. In customer applications requiring a very high level of operational safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health (e.g. in accident prevention or life-saving systems), it must therefore be ensured by means of suitable design of the customer application or other action taken by the customer (e.g. installation of protective circuitry or redundancy) that no injury or damage is sustained by third parties in the event of malfunction or failure of an electronic component.

3. The warnings, cautions and product-specific notes must be observed.

4. In order to satisfy certain technical requirements, some of the products described in this publication may contain substances subject to restrictions in certain jurisdictions (e.g. because they are classed as hazardous). Useful information on this will be found in our Material Data Sheets on the Internet (www.tdk-electronics.tdk.com/material). Should you have any more detailed questions, please contact our sales offices.

5. We constantly strive to improve our products. Consequently, the products described in this publication may change from time to time. The same is true of the corresponding product specifications. Please check therefore to what extent product descriptions and specifications contained in this publication are still applicable before or when you place an order.

   We also reserve the right to discontinue production and delivery of products. Consequently, we cannot guarantee that all products named in this publication will always be available. The aforementioned does not apply in the case of individual agreements deviating from the foregoing for customer-specific products.

6. Unless otherwise agreed in individual contracts, all orders are subject to our General Terms and Conditions of Supply.

7. Our manufacturing sites serving the automotive business apply the IATF 16949 standard. The IATF certifications confirm our compliance with requirements regarding the quality management system in the automotive industry. Referring to customer requirements and customer specific requirements (“CSR”) TDK always has and will continue to have the policy of respecting individual agreements. Even if IATF 16949 may appear to support the acceptance of unilateral requirements, we hereby like to emphasize that only requirements mutually agreed upon can and will be implemented in our Quality Management System. For clarification purposes we like to point out that obligations from IATF 16949 shall only become legally binding if individually agreed upon.

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Release 2018-10