Power line chokes

Mushroom Core Choke
3.1 µH, 25 A / +140 °C

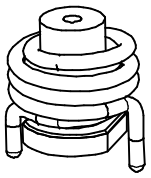
Ordering code:	**B82116S1221L026**
Date:	2016–05–11
Version:	5

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Mushroom Core Choke

Rated current 25 A / +140 °C
Rated inductance 3.1 µH



Construction

- Mushroom Core Choke
- Ferrite core
- Double layer winding
- Core and winding glued

Features

- Enameled wire in accordance to EN 60317–13 (class 200, grade 2, UL listed)
- Suitable for wave soldering
- Qualified according AEC–Q200
- RoHS compatible

Applications

- EMC choke

Terminals

- Ends of winding wire
- Pins hot dip tinned Sn99Cu
- Cut surface tinned with tin tip or globular

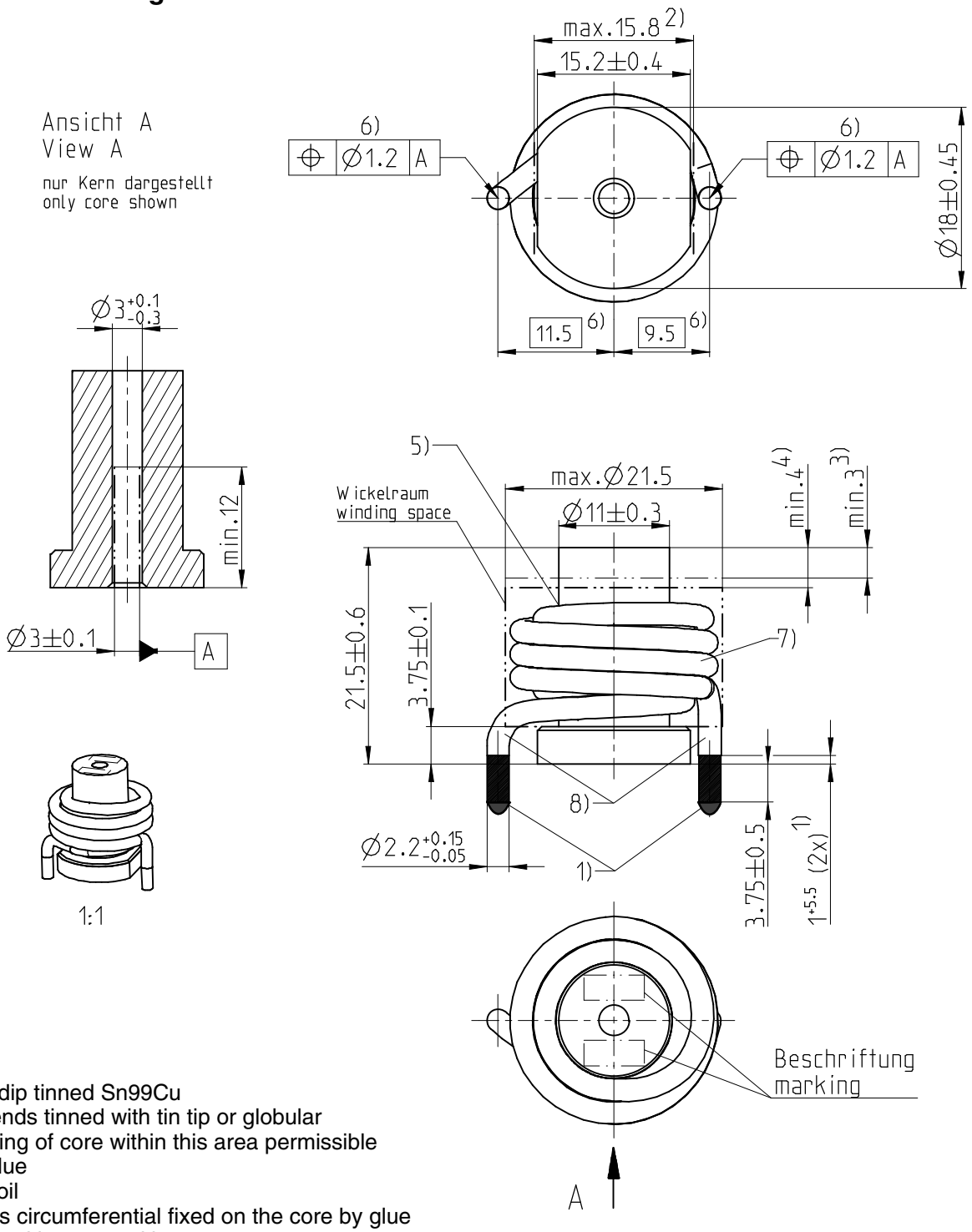
Marking

- product brand
- part of ordering code
- date of manufacture (YYWWD)
- internal ID code (optional)

Delivery mode

- Blister tray in cardboard box

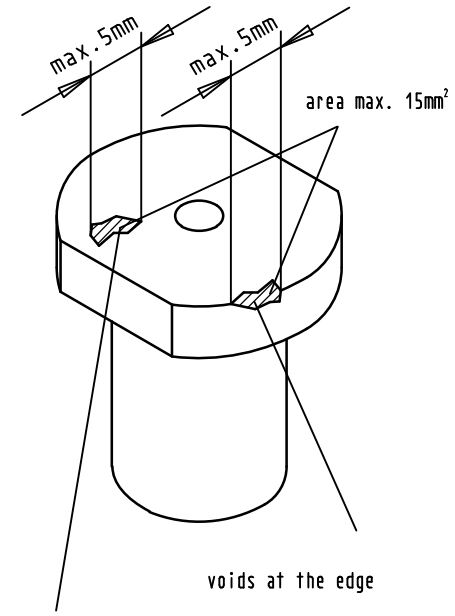
Dimensional drawing

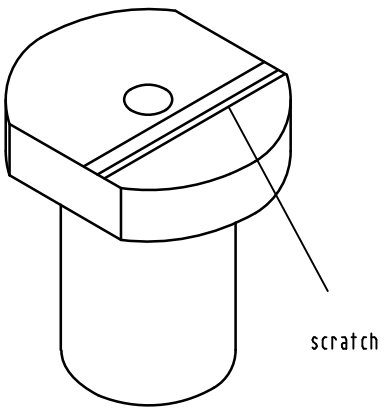


1) hot dip tinned Sn99Cu
pin ends tinned with tin tip or globular
2) twisting of core within this area permissible
3) no glue
4) no coil
5) coil is circumferential fixed on the core by glue
6) pin positions tested by gauge
7) nominal diameter of wire: 2,24mm
8) above the tinned area of both pins bare copper wire is permissible within the tolerance of dimension $1^{+5,5}$

Part tolerances to ISO 2768–cL / ISO 8015
Size ISO 14405 E
All dimensions in mm

only core shown





Voids at all edges:

Voids at the edge can be created by the pressing, sintering or the following handling.

Allowed is a length of max. 5mm, and a area of max. 15mm².

Maximum allowable are 3 voids per core between 10mm² an 15mm²

The voids don't have any influence on the properties of the inductor.

Voids on all surfaces:

Allowed is a length of max. 5mm, and a area of max. 15mm².

Maximum allowable are 3 voids per core between 10mm² an 15mm²

The voids don't have any influence on the properties of the inductor.

Cracks:

Small cracks in the ferrite are caused by production and permissible, as long as there is no risk of chips (ferrite particles)

The cracks don't have any influence on the properties of the inductor.

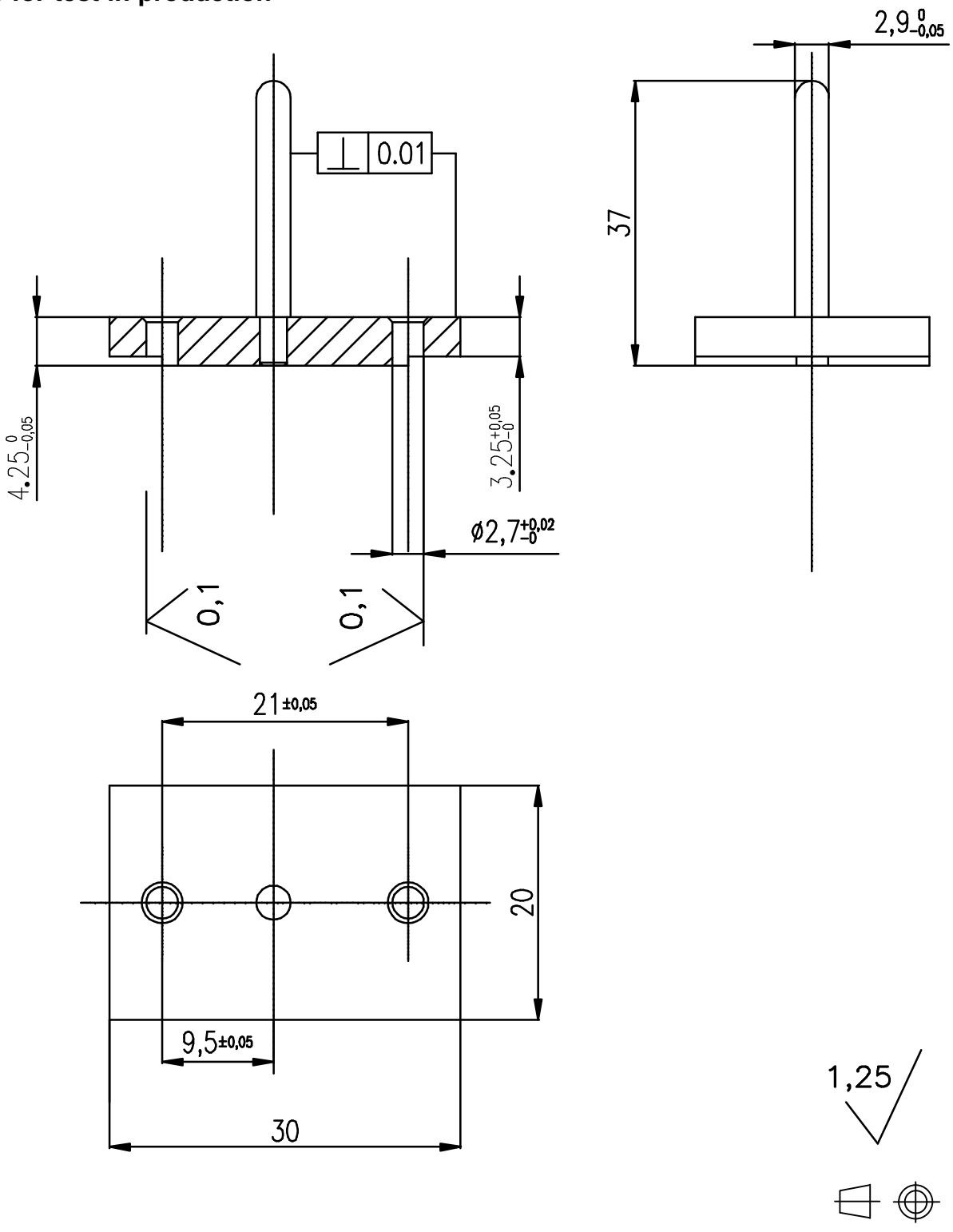
Scratches:

Scratches are caused by production. They are created by moving the pressed core (soft) on a fireproof panel on which they will be sintered later on.

There may be several scratches on a core.

The scratches don't have any influence on the properties of the inductor.

Gauge for test in production



Technical data and measuring conditions

Rated temperature T_R	+ 140 °C
Rated current I_R	25 A Referred to rated temperature T_R, for current derating see next page
Operating temperature range	–40 °C ... +180 °C
Rated inductance L_R	3,1 µH Measured with Agilent 4284A and Celvin cables at 1 mA, 10 kHz, +20 °C 2.8 µH *) Measured with Agilent 4284A and measurement fixture Agilent 16047E at 1 mA, 10 kHz, +20 °C
Insulation voltage	Insulation between core and winding can not be garanteed due to allowed leaks in winding wire accordance EN 60317 ff
Inductance tolerance	± 20% at +20 °C
Inductance decrease $\Delta L/L_0$	< 7% at DC magnetic bias with 50 A, +20 °C
DC resistance R_{typ}	1.8 mΩ typ. value, measured at +20 °C
Weight	Approx. 25 g
Ferrite core	Three core suppliers are released for EPCOS Mushroom core chokes. Mushroom core choke family representatives with cores from all suppliers are qualified according AEC–Q200.

*) inductance versus length of pins

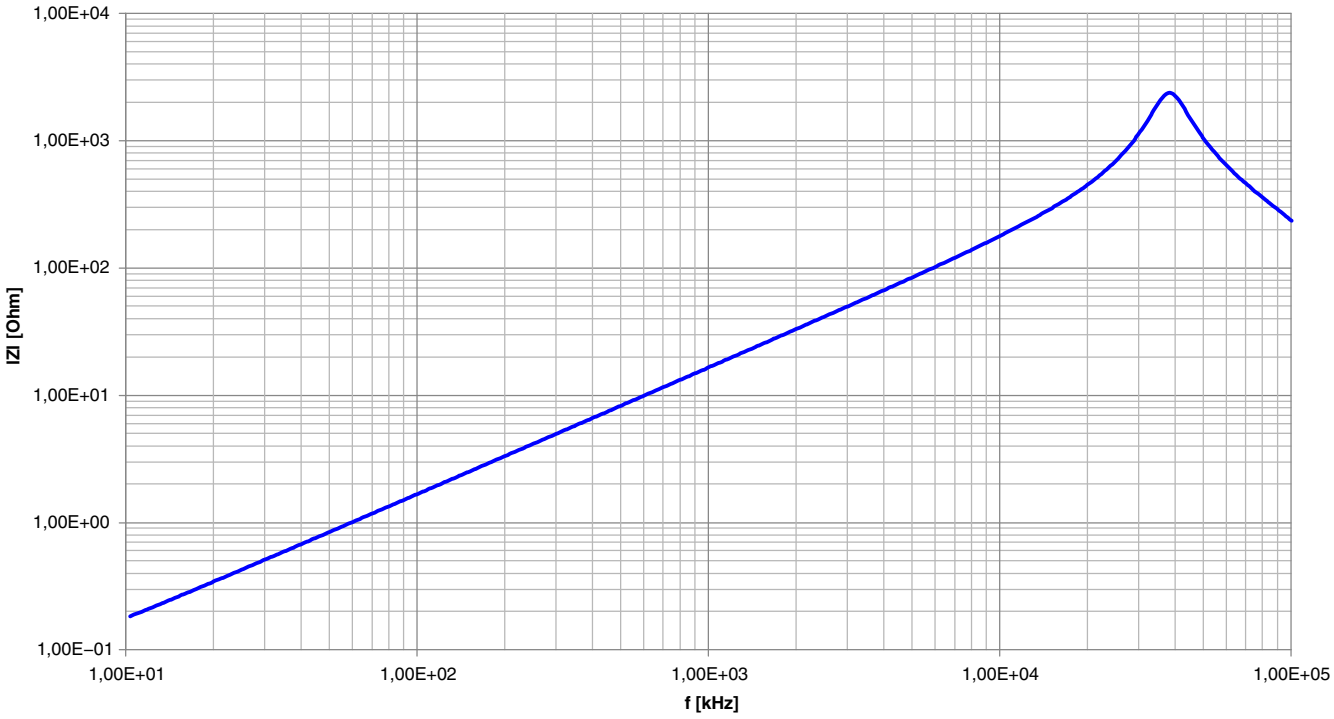




3,05µH 2,81µH

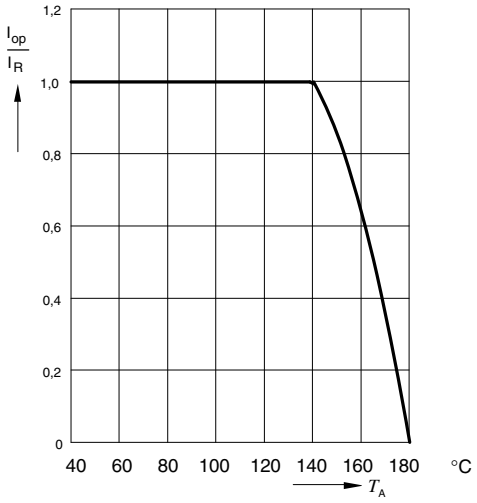
The small distance between ferrite core and metal parts of measurment adapter causes a decrease of the measured inductance from 3.1µH to 2,8µH.

Impedance |Z| (typical values at +20°C)

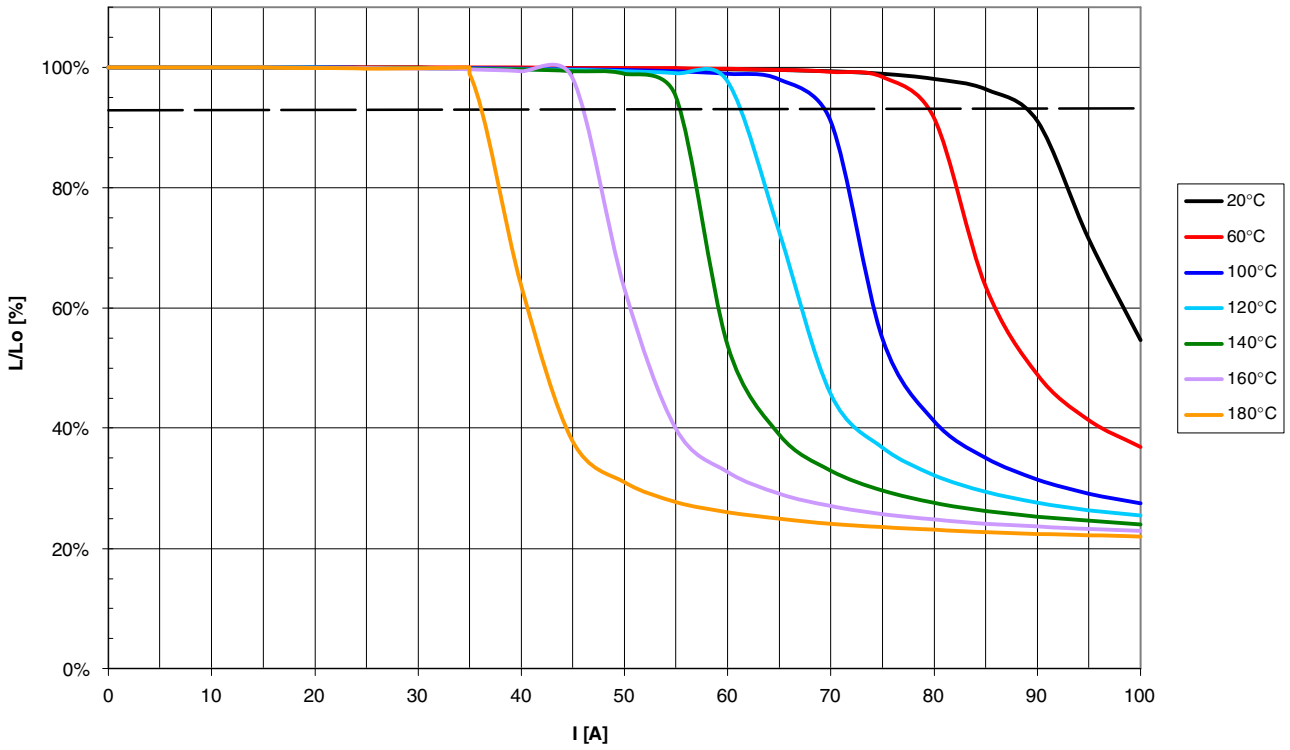


Current derating I_{op}/I_R versus temperature T_A

rated temperature = + 140 °C



Inductance versus I bias versus temperature (typical values)



Cautions and warnings

- Please note the recommendations in our Inductors data book (latest edition) and in the data sheets.
  - Particular attention should be paid to the derating curves given there. Derating must be applied in the case the ambient temperature in application exceeds the rated temperature of the component.
  - Ensure the operation temperature of the component in application, which is the sum of the ambient temperature and the temperature rise owing to losses (”self–heating”), not to exceed the maximum value specified in the climatic category.
  - The soldering conditions should also be observed. Temperatures quoted in relation to wave soldering refer to the pin, not the housing.
- If the components are to be washed varnished it is necessary to check whether the washing varnish agent that is used has a negative effect on the wire insulation, any plastics that are used, or on glued joints. In particular, it is possible for washing varnish agent residues to have a negative effect in the long–term on wire insulation.
  Washing processes may damage the product due to the possible static or cyclic mechanical loads (e.g. ultrasonic cleaning). They may cause cracks to develop on the product and its parts, which might lead to reduced reliability or lifetime.
- The following points must be observed if the components are potted in customer applications:
  - Many potted materials shrink as they harden. They therefore exert a pressure on the plastic housing or core. This pressure can have a deleterious effect on electrical properties, and in extreme cases can damage the core or plastic housing mechanically.
  - It is necessary to check whether the potting material used attacks or destroys the wire insulation, plastics or glue.
  - The effect of the potting material can change the high–frequency behaviour of the components.
- Ferrites are sensitive to direct impact. This can cause the core material to flake, or lead to breakage of the core.
- Even for customer–specific products, conclusive validation of the component in the circuit can only be carried out by the customer.

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(10/13)

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