



## **PCEM Family ERU 51**

Power choke e-Mobility for DC/DC converter application

**Series/Type:**  
**Ordering code:**       **B78338\*A004**  
Date:                   2018-10-09  
Version:                07

### Construction

- MnZn ferrite core
- Helical Winding

### Features

- Number of turns: 3
- Maximum limited component temperature 150°C
- RoHS compatible
- Qualified with reference to AEC-Q200

### Application

- Output Choke for boardnet converters in hybrid or electrical vehicles

### Terminals

- Hole for M4 screw, bare copper

### Delivery mode

- Cardboard box with 16 chokes on two levels in a box

### Marking

- Product brand, ordering code, date code / production identification code

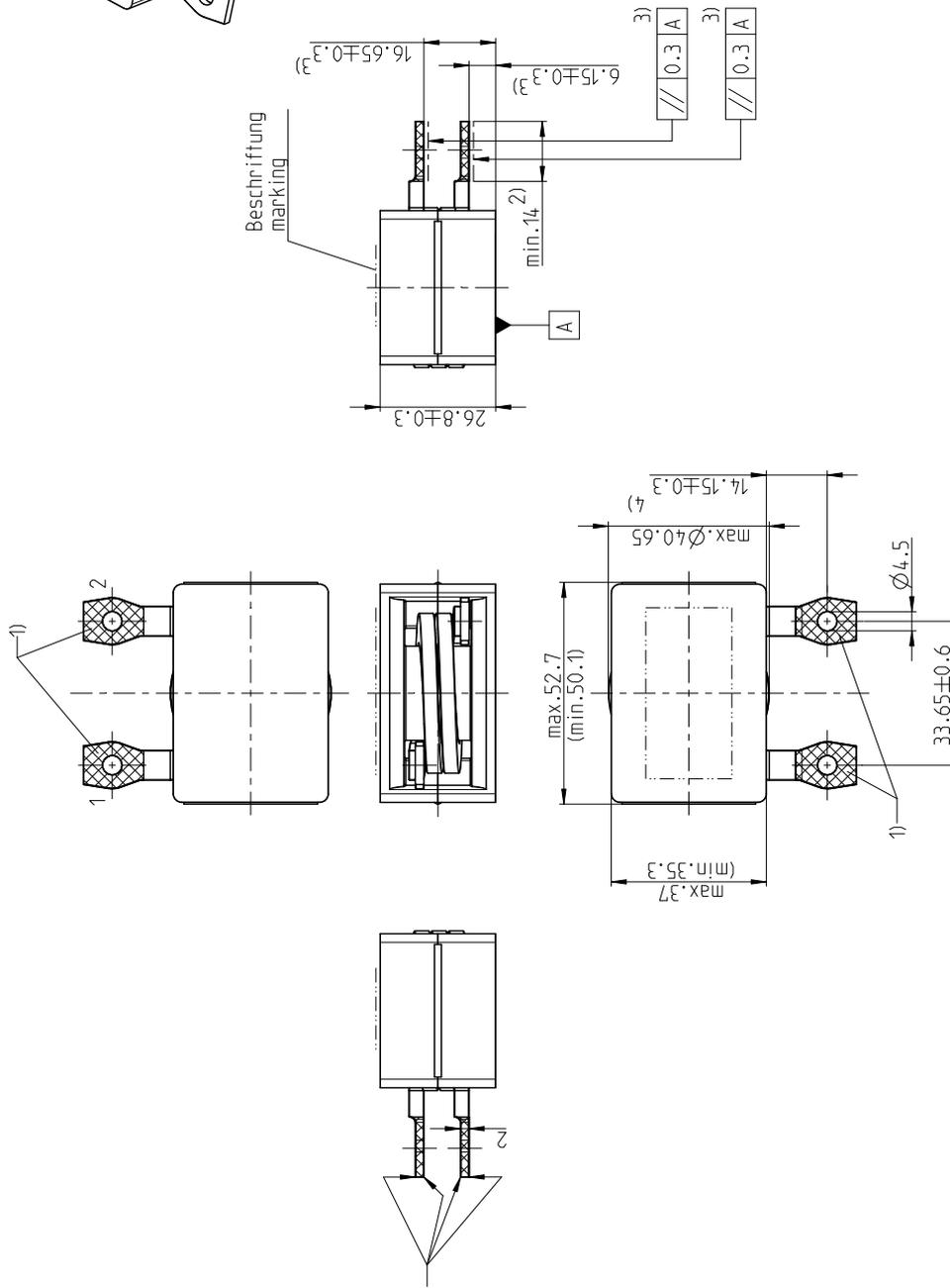
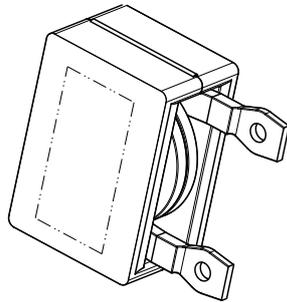
### Assembly

- Additional clamp to be considered by customer

### Circuit diagram



Dimensional drawing

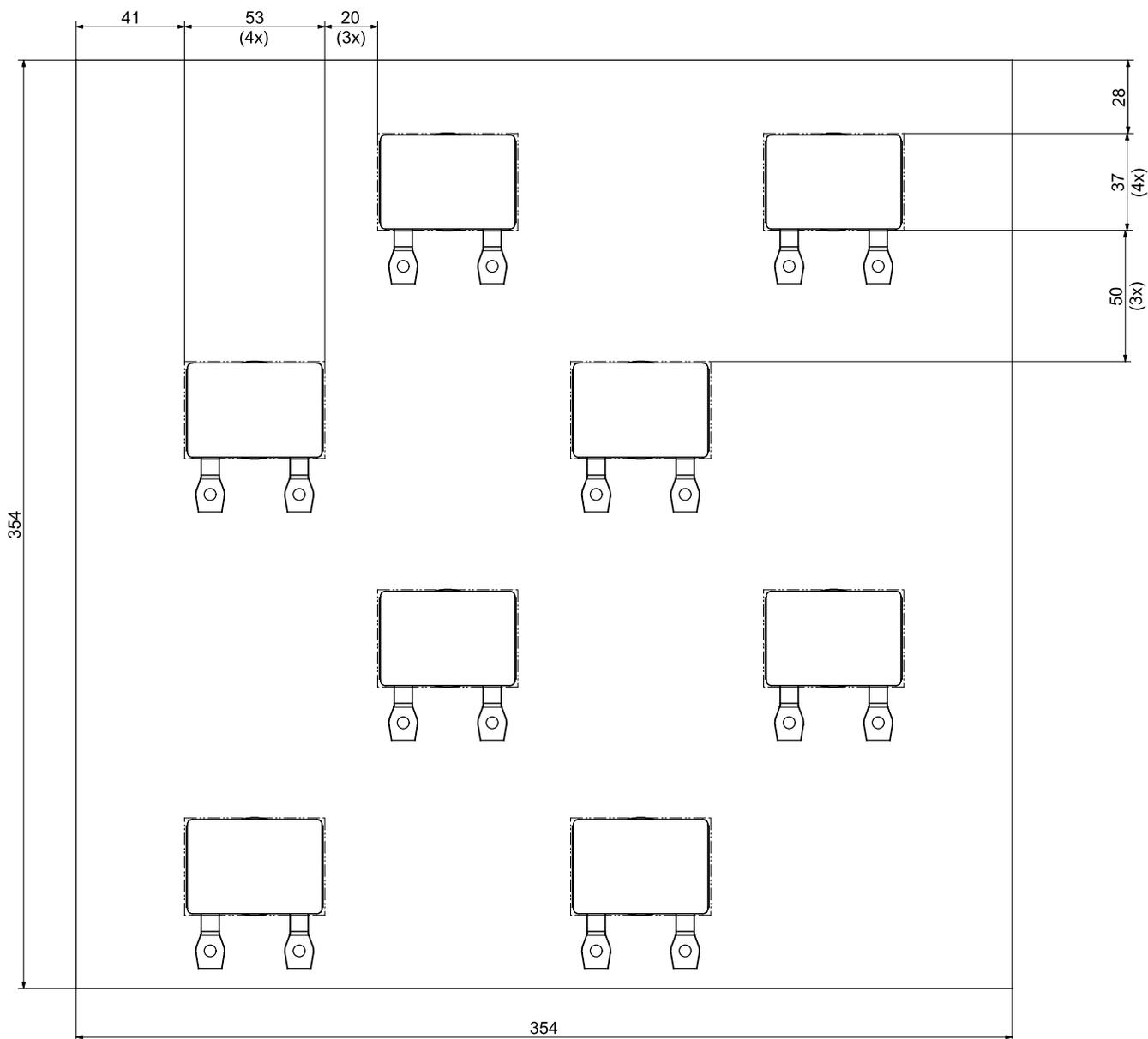


Alle Maßangaben in mm !  
All dimensions in mm !

Tolerance ISO 8015. Size ISO 14405 (E). ISO 2768-c

- 1) blank
- 2) Bereich für Parallelität  
area for parallelism
- 3) Maße im eingebauren Zustand  
dimensions in assembled state
- 4) gemessen am unteren Kern  
measured at the lower core
- 5) an Ober- und Unterseite kein Überstand zulässig  
on top and bottom side no projection permissible

Packaging



### Technical data and measuring conditions

Specified @ 25°C if not mentioned otherwise, all values without tolerance are typical values

Rated Inductance $L_R$	Measured at terminals [1, 2], measuring conditions 100 kHz, 1 V
Inductance tolerance	± 10%
Saturation current $I_{sat}$	Current that will result in approx. 20% drop in inductance values. Temperature response needs to be verified in specific applications. Test results on request.
DC resistance $R_{typ}$	Measured at terminals [1, 2]
High voltage: N1 - core	500 V <sub>dc</sub> , 1 s
Switching frequency	200 kHz
Operating temperature range	- 40 °C ... + 150 °C

### Characteristics and ordering codes

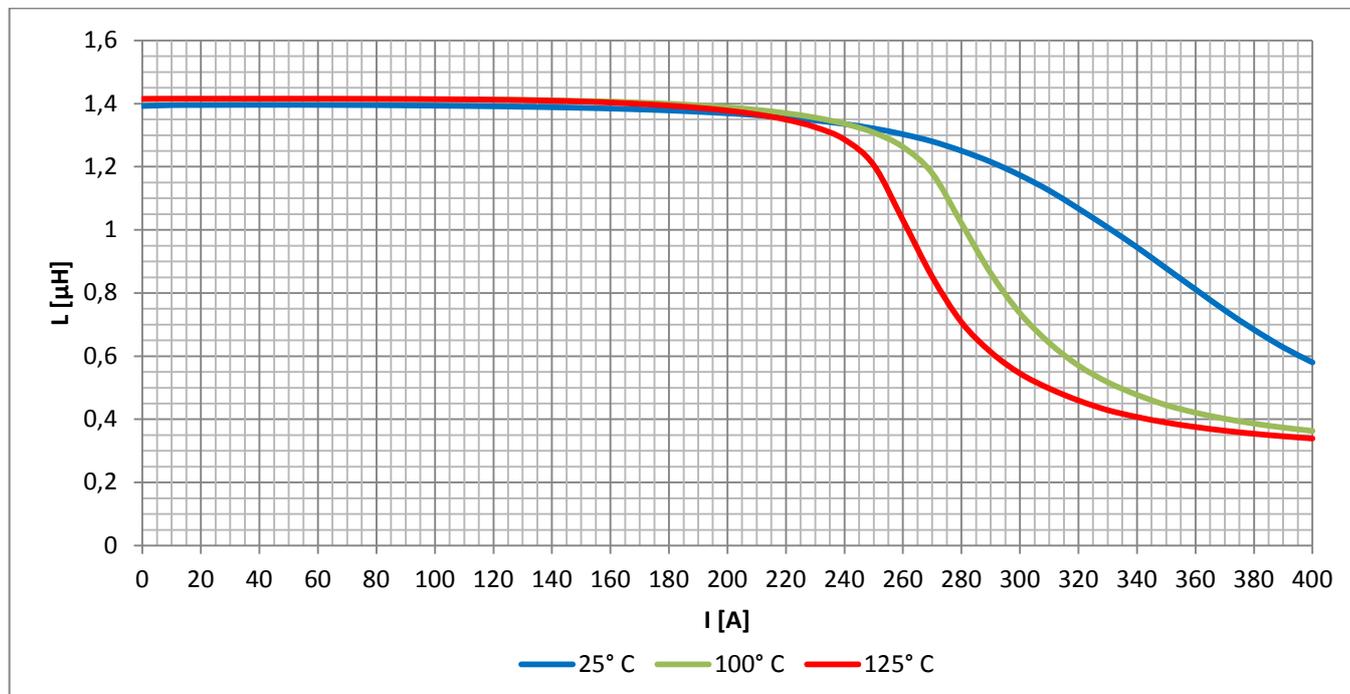
$L_R$	$I_{sat}$ 25°C	$I_{sat}$ 100°C	$I_{sat}$ 125°C	$R_{DC}$ (typ)	$R_{DC}$ (max)	Approx. Weight	Project Number	Ordering code
µH	A	A	A	mΩ	mΩ	g		
1.4	300	270	250	0.25	0.30	225	T8414	B78338P2320A004
2.1	205	185	170	0.25	0.30	225	T6823	B78338P2168A004
2.6	160	150	140	0.25	0.30	225	T8380	B78338P2315A004

Other inductance values are available, only on request

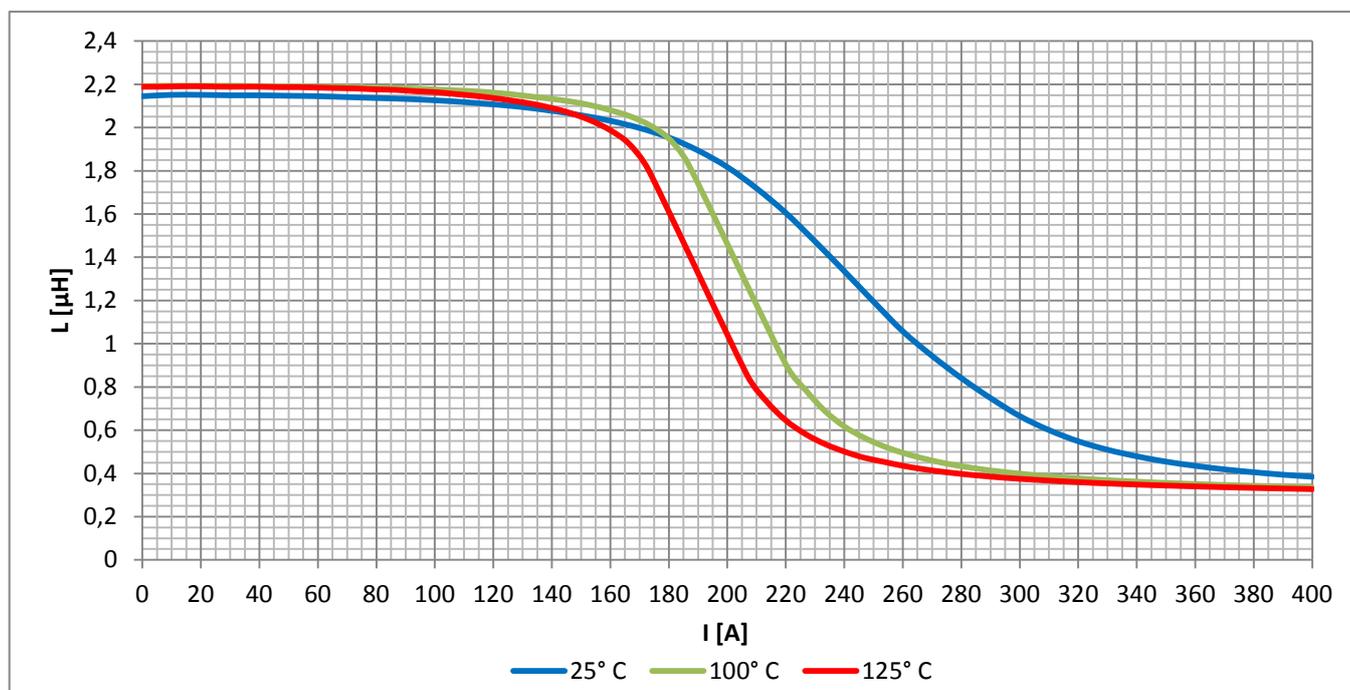
**L vs. DC bias current  $I_{DC}$**

Typical values, values calculated for 3 turns from measurement with 20 turns

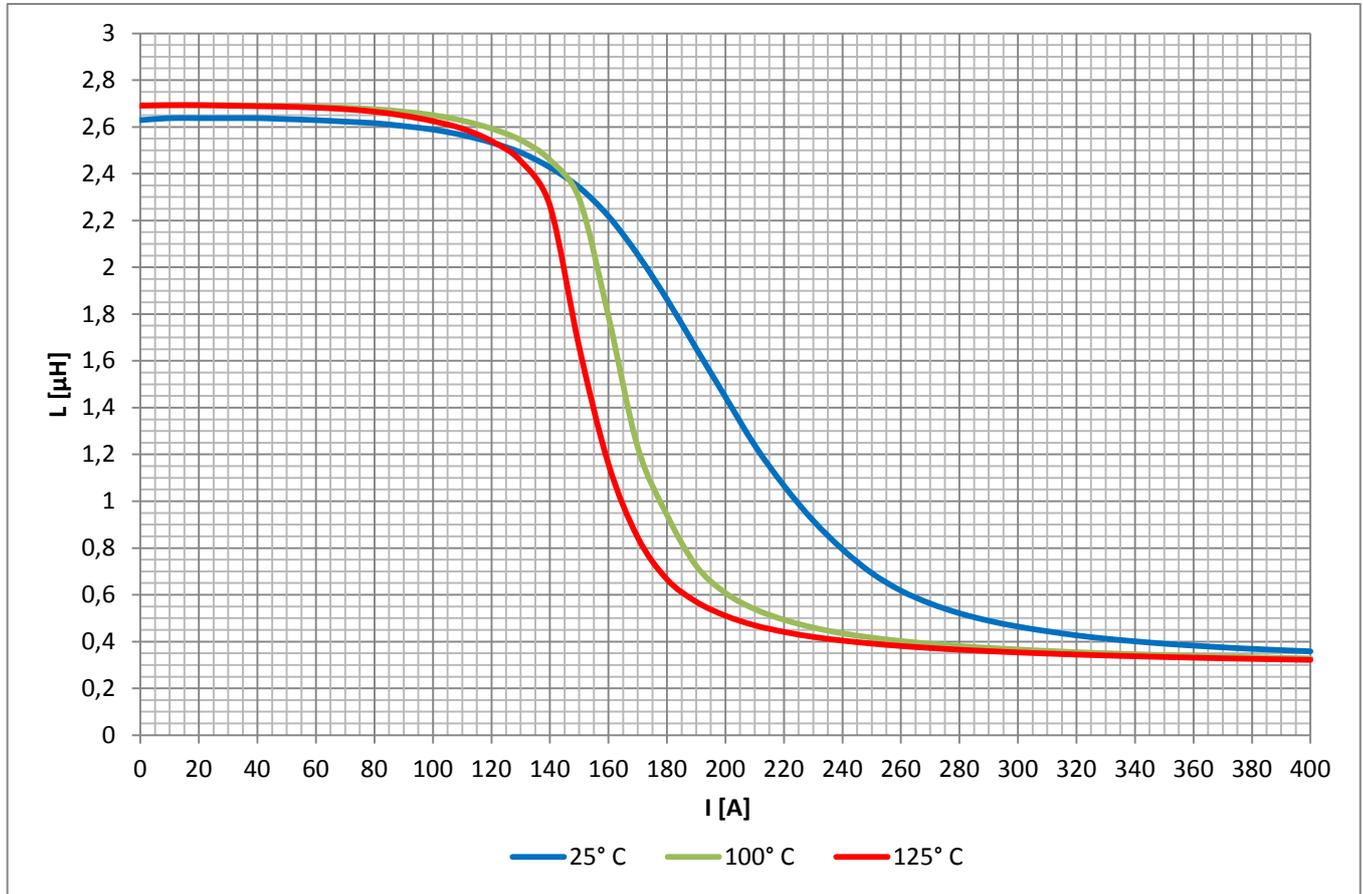
**B78338P2320A004 (T8414):**



**B78338P2168A004 (T6823):**



**B78338P2315A004 (T8380):**



## Cautions and warnings

- Additional information is contained in our data books, which are also available on the internet. Particular attention should be paid to the derating curves given there. The soldering conditions given there should also be observed. Temperatures quoted in relation to wave soldering refer to the pin, not to the housing.
- If the components are to be washed varnished, it is necessary to check whether any 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 components in the circuit can only be carried out by the customer.

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## Important notes

8. The trade names EPCOS, CeraCharge, CeraDiode, CeraLink, CeraPad, CeraPlas, CSMP, CTVS, DeltaCap, DigiSiMic, ExoCore, FilterCap, FormFit, LeaXield, MiniBlue, MiniCell, MKD, MKK, MotorCap, PCC, PhaseCap, PhaseCube, PhaseMod, PhiCap, PowerHap, PQSine, PQvar, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, SiMic, SIMID, SineFormer, SIOV, ThermoFuse, WindCap are **trademarks registered or pending** in Europe and in other countries. Further information will be found on the Internet at [www.tdk-electronics.tdk.com/trademarks](http://www.tdk-electronics.tdk.com/trademarks).

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