

Data and Signal Line Chokes

Common-mode Chokes, EIA 1210

Series/Type: **ACT1210D**

Date: September 2025

SMD

Rated voltage: 80 V DC
Rated inductance: 100 μ H
Rated current: 115 mA



Construction

- Current-compensated double choke
- Ferrite I core
- Winding: Enamel copper wire
- Winding welded to terminals

Features

- Operating temperature range: $-40 \dots +150 \text{ }^{\circ}\text{C}$
- Qualified to AEC-Q200
- Suitable for lead-free reflow soldering as referenced in JEDEC J-STD 020D
- RoHS-compatible

Function

- Suppression of asymmetrical interference coupled in on lines, whereas data signals up to some MHz can pass unaffectedly.

Applications

- Automotive CAN- / CAN-FD bus systems

Terminals

One-sided tinned terminals:

- Base material CuSn8
- Electro-plating Sn with Ni underlayer
- Lead-free tinned

Marking

Marking on component:

First line

- L value ("K" = 100 μ H)
- Production location "H" = Heidenheim (Germany), "M" = Szombathely (Hungary)
- Last two digits of production order

Second line

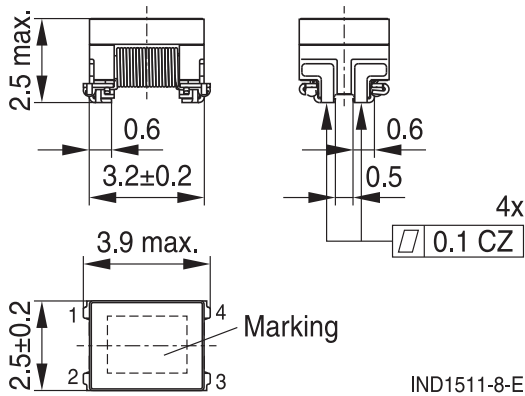
- Date of manufacture (YWWD)

Delivery mode and packing unit

- 12-mm blister tape, wound on 330-mm $\varnothing$ reel
- Packing unit: 6000 pcs./reel

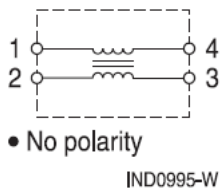
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Dimensional drawing and pin configuration

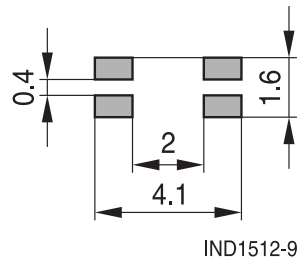


Dimensions in mm

Circuit diagram

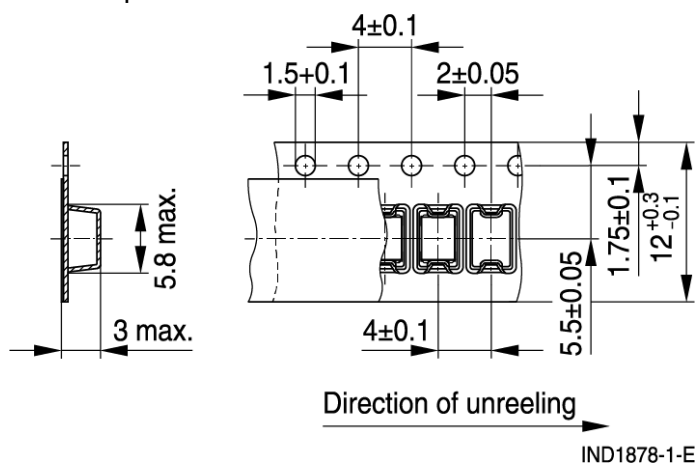


Layout recommendation



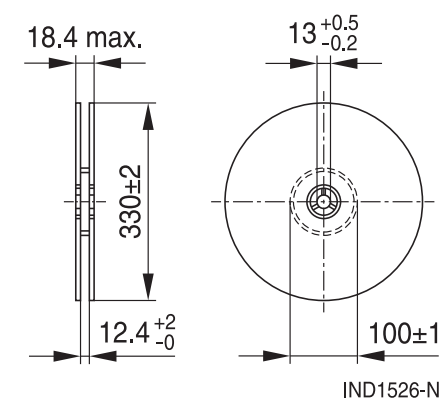
Taping and packing

Blister tape



Dimensions in mm

Reel



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Technical data and measuring conditions

Rated voltage V_R	80 V DC
Max. component temperature	+150 °C
Rated current I_R	Referred to 50 Hz and +20 °C
Rated inductance L_R	Measured with Keysight E4990A or equivalent at 100 kHz, 100 mV, +20 °C, inductance is specified in common-mode
Inductance tolerance	−30/+50% at +20 °C
DC resistance R_{max}	2.15 Ω measured at +20 °C, specified per winding
Insulation resistance $R_{iso,min}$	10 M Ω , measured at 80 V DC, +20 °C
Solderability	Dip and look method Sn96.5Ag3.0Cu0.5: +(245 ±5) °C, (3 ±0.3) s Wetting of soldering area ≥ 90% (based on IEC 60068-2-58)
Resistance to soldering heat	+260 °C, 40 s as referenced in JEDEC J-STD 020D
Climatic category	40/150/56 (to IEC 60068-1)
Storage conditions (packaged)	−25 °C ... +40 °C, ≤ 75% RH
Weight	Approx. 0.075 g

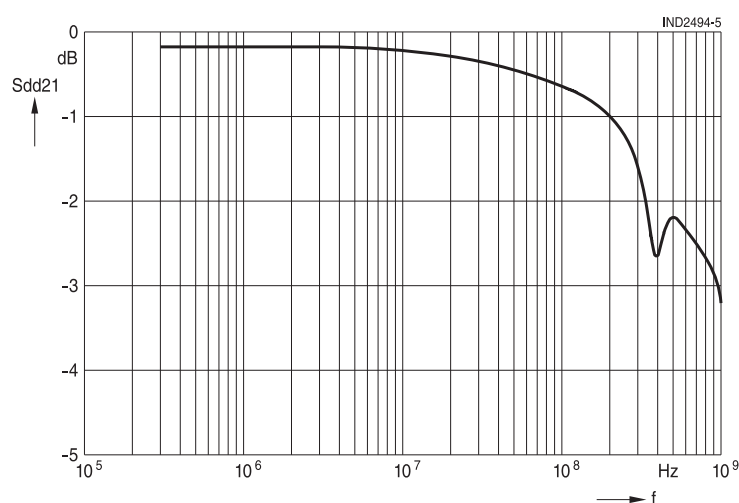
Characteristics and ordering codes

L_R μH	I_R mA	$R_{iso,min}$ M Ω	$R_{DC,max}$ at +125 °C Ω	Internal code	Ordering code
100	115	10	3.0	B82786D0104H002	ACT1210D-101-2P-TL00

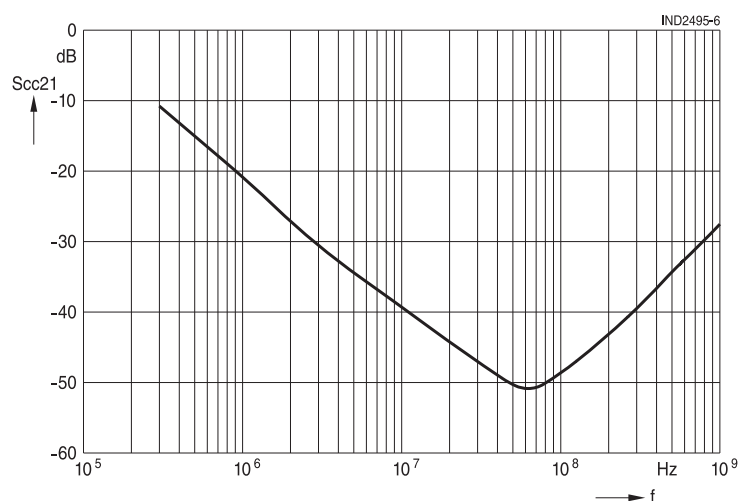
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S-Parameter characteristics acc. IEC 62228-3 (typical curves)

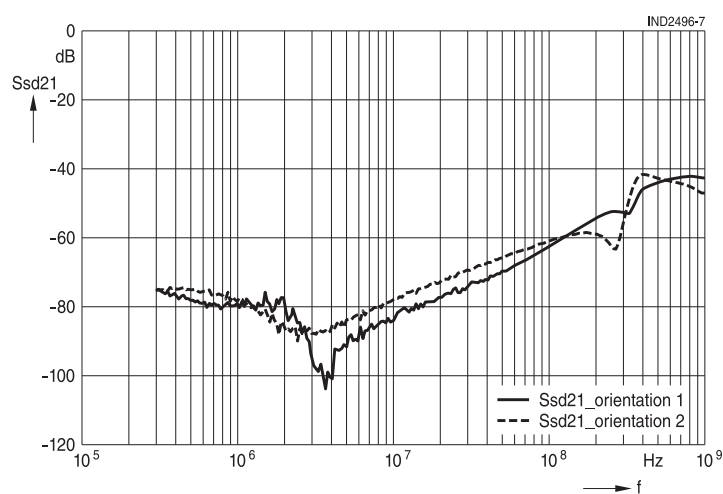
Insertion loss Sdd21



Common mode rejection Scc21



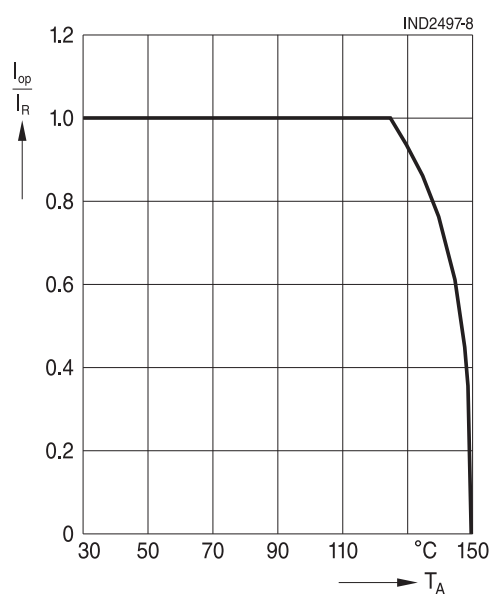
Differential to Common Mode Rejection (DCMR) Ssd21



Measurement equipment: Rhode&Schwarz, ZNB 8

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Current derating I_{op}/I_R versus ambient temperature



Derating curve refers to PCB design acc. IEC 62024-2 for current class A ($I \leq 1A$).

Temperature rise of the component depends on PCB structure and thermal coupling to the environment.

Cautions and Warnings

- Please note the recommendations in our Inductors data book (latest edition), online catalogs and in the data sheets.
 - Particular attention should be paid to the derating curves, if given. Derating applies in the case the ambient temperature in application exceeds the rated temperature of the component.
 - Ensure the operation temperature of the component in application not to exceed the maximum specified value or the upper climatic category temperature.
 - The soldering conditions should also be observed. Temperatures quoted in relation to wave soldering refer to the pins only. Temperatures specified in relation to reflow soldering can also refer to the pins or terminals for products with larger thermal mass, as in such cases, the temperature difference to the top of the component is too big (e.g., high proportion of core within the component).
- If the components are to be washed or varnished it is necessary to check whether the washing or varnish agent that is used has a negative effect on the wire insulation, any plastics that are used, or on glued joints. It is possible for washing or 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, sealed, or varnished in customer applications:
 - Many potting, sealing, or varnishing 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, sealing, or varnishing materials used attack or destroy the wire, wire insulation, plastics or glue.
 - The effect of the potting, sealing, or varnishing materials may change the high-frequency behavior of the components.
 - Many coating materials have a negative effect (chemically and mechanically) on the winding wires, insulation materials and connecting points. Customers are always obliged to determine whether and to what extent their coating materials influence the component. Customers are responsible and bear all risk for the use of the coating material. TDK Electronics does not assume any liability for failures of our components that are caused by the coating material.
- Magnetic core materials such as ferrites are sensitive to direct impact. This can cause the core material to flake or lead to breakage of the magnetic core material.
- Any type of tension or pressure on the product may result in damage and affect its functionality and reliability.
 - The products are only to be attached to fixings or mounting holes provided for this purpose in accordance with the data sheet.
 - If additional mechanical forces are applied to the component, e.g., application of gap pads, it is necessary to check whether they attack or destroy any part of the component.
 - It is not permitted for the product specified in the data sheet to assume a mechanical function in the final application.
- Inductance value can drop if external metallic or magnetic parts will be put close to the coil or into the air gap of the coil or core or magnetic material.

Cautions and Warnings

- Due to product design and applied manufacturing process, appearance, symmetry, and shape of not dimensioned details could vary within same lot, as well discoloration of housing is possible. TDK does not expect detrimental effects on product function or reliability. In case of conflicts, TDK reference standard shall prevail
- 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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The ordering code for one and the same product can be represented differently in data sheets, data books, other publications, on the company 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.tdk-electronics.tdk.com/orderingcodes.

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- 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.**
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Important Notes

- 8 The trade names EPCOS, CarXield, CeraCharge, CeraDiode, CeraLink, CeraPad, CeraPlas, CSMP, CTVS, DeltaCap, DigiSiMic, FilterCap, FormFit, InsuGate, LeaXield, MediPlas, MiniBlue, MiniCell, MKD, MKK, ModCap, MotorCap, PCC, PhaseCap, PhaseCube, PhaseMod, PhiCap, PiezoBrush, PlasmaBrush, PowerHap, PQSine, PQvar, SIFERRIT, SIFI, SIKOREL, SilverCap, SIMDAD, SiMic, SIMID, SineFormer, SIOV, SurfIND, ThermoFuse, WindCap, XieldCap 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.

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