



Data and signal line chokes

Common-mode chokes, ring core, EIA 1812
0.011 ... 0.47 mH, 200 ... 300 mA, 60 °C

Series/Type: B82799C0/S0

Date: October 2008

SMD

Rated voltage 42 V AC/80 V DC
Rated inductance 0.011 mH to 0.47 mH
Rated current 200 mA to 300 mA


Construction

- Current-compensated ring core double choke
- Ferrite core
- LCP case (UL 94 V-0)
- Silicone potting
- Bifilar winding (B82799C0)
- Sector winding (B82799S0)

Features

- 150 °C version
- Qualified to AEC-Q200
- Suitable for reflow soldering
- Suitable for conductive adhesion due gold-plated terminals
- RoHS-compatible

Function

- B82799C0:
Suppression of asymmetrical interference coupled in on lines, whereas data signals up to some MHz can pass unaffectedly.
- B82799S0:
Suppression of asymmetrical and symmetrical interference (by L_{stray}) coupled in on lines. The high-frequency portions of the symmetrical data signal are decreased so far that EMC problems can be significantly reduced.

Applications

- Automotive applications, e.g. CAN bus

Terminals

- Base material CuSn6
- Layer composition Ni, Ag, Au
- Electro-plated

Marking

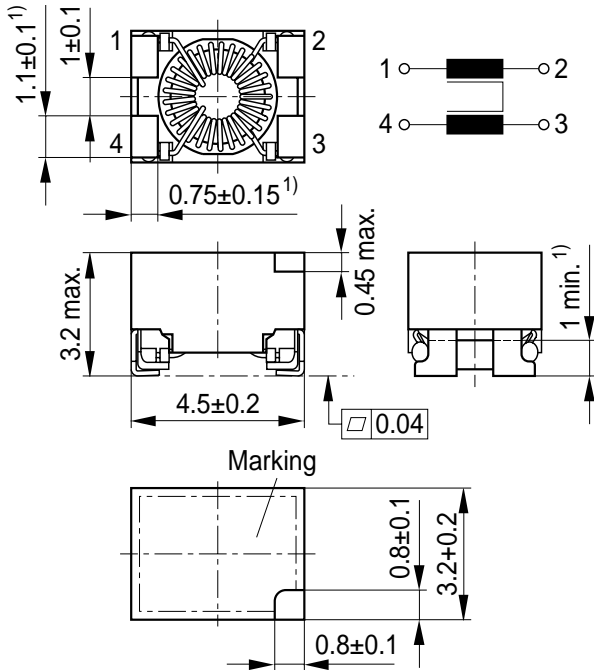
- Marking on component: Manufacturer, bifilar or sector winding (coded), L value (nH, coded), date of manufacture (YWWDD)
- Minimum data on reel: Manufacturer, ordering code, L value and tolerance, quantity, date of packing

Delivery mode and packing unit

- 12-mm blister tape, wound on 330-mm \varnothing reel
- Packing unit: 2500 pcs./reel

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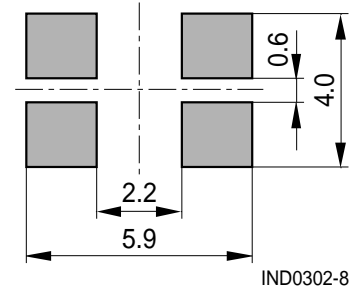
Dimensional drawing and pin configuration



1) Soldering area

IND0301-6-E

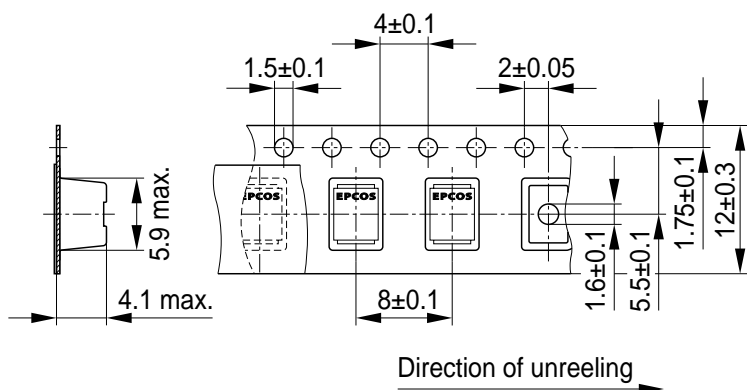
Layout recommendation



Dimensions in mm

Taping and packing

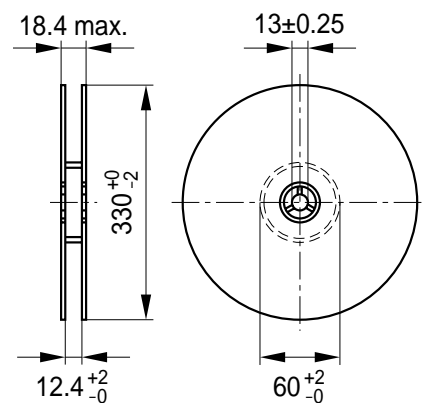
Blister tape



IND0416-9-E

Dimensions in mm

Reel



IND0421-C

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Technical data and measuring conditions

Rated voltage V_R	42 V AC (50/60 Hz) / 80 V DC
Rated temperature T_R	60 °C
Rated current I_R	Referred to 50 Hz and rated temperature
Applicable current I_R for high temperature applications	$0.5 \times I_R$, referred to 50 Hz and 150 °C ambient temperature
Rated inductance L_R	Measured with Agilent 4284A at 100 kHz, 0.1 mA, 20 °C Inductance is specified per winding.
Inductance tolerance	$\pm 30\%$ at 20 °C
Inductance decrease $\Delta L/L$	< 10% at DC magnetic bias with I_R , 20 °C
Stray inductance $L_{\text{stray,typ}}$	Measured with Agilent 4284A, 5 mA, 20 °C, typical values Measuring frequency: $L_R \leq 11 \mu\text{H} = 1 \text{ MHz}$ $L_R > 11 \mu\text{H} = 100 \text{ kHz}$
DC resistance R_{typ}	Measured at 20 °C, typical values, specified per winding
Solderability	SnPb: (215 \pm 3) °C, (3 \pm 0.3) s Sn96.5Ag3.0Cu0.5: (245 \pm 5) °C, (3 \pm 0.3) s Wetting of soldering area $\geq 95\%$ (to IEC 60068-2-58)
Resistance to soldering heat	(260 \pm 5) °C, (10 \pm 1) s (to IEC 60068-2-58)
Climatic category	55/150/56 (to IEC 60068-1)
Storage conditions (packaged)	-25 °C ... +40 °C, $\leq 75\%$ RH
Weight	Approx. 0.09 g

Characteristics and ordering codes

L_R mH	$L_{\text{stray,typ}}$ nH	I_R mA	R_{typ} m Ω	V_{test} V DC, 2 s	Ordering code
0.011	40	300	120	250	B82799C0113N001
0.022	60	250	170	250	B82799C0223N001
0.022	1200	250	170	250	B82799S0223N001
0.033	70	200	200	250	B82799C0333N001
0.033	1500	200	200	250	B82799S0333N001
0.051	90	200	250	250	B82799C0513N001
0.051	2300	200	250	250	B82799S0513N001
0.10	50	300	150	750	B82799C0104N001
0.22	60	200	200	750	B82799C0224N001
0.33	70	200	250	750	B82799C0334N001
0.47	100	200	320	750	B82799C0474N001

Sample kit available. Ordering code: B82799X001
For more information refer to chapter "Sample kits".

Common-mode chokes, ring core, EIA 1812

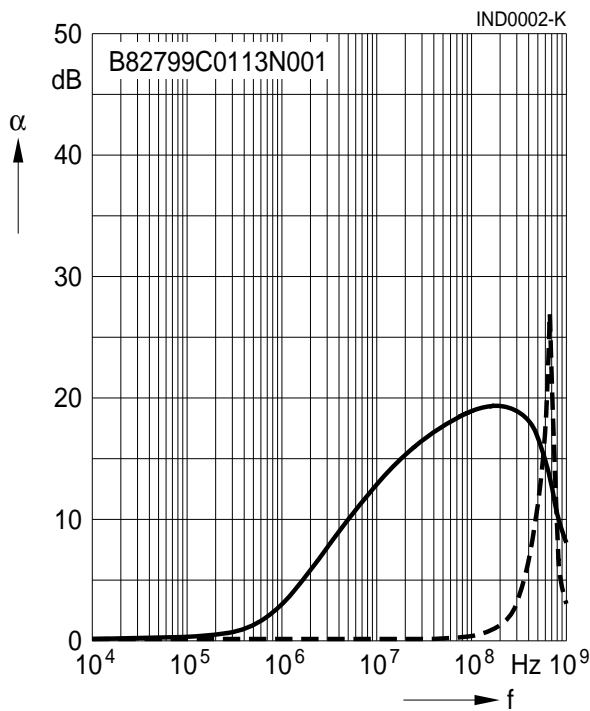
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Insertion loss α (typical values at $|Z| = 50 \Omega$, 20°C)

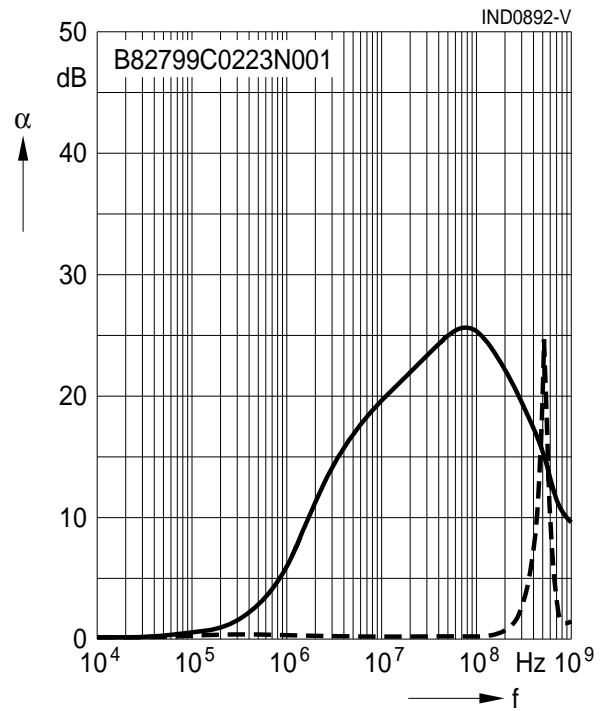
———— asymmetrical, all branches in parallel (common mode)

- - - - - symmetrical (differential mode)

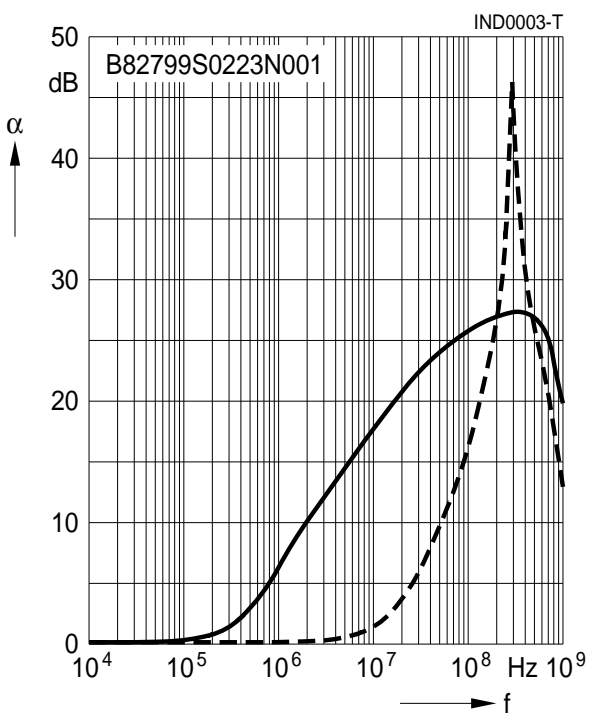
$L_R = 0.011 \text{ mH}$



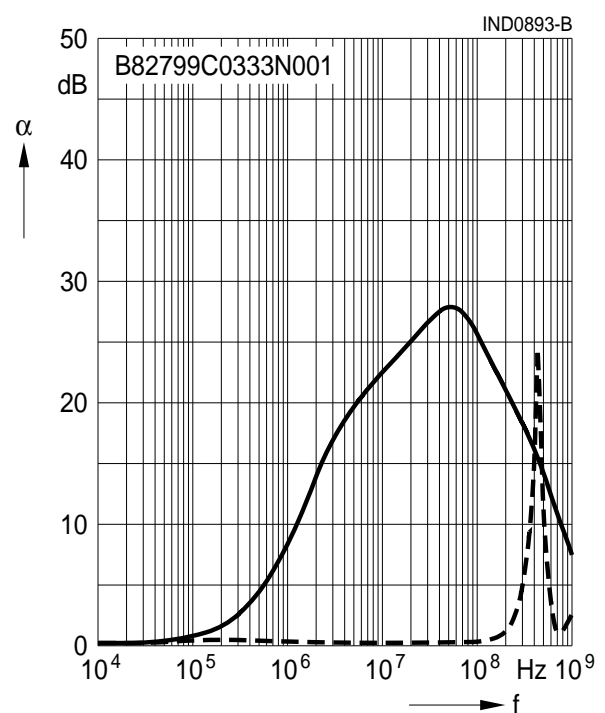
$L_R = 0.022 \text{ mH (low } L_{\text{stray}})$



$L_R = 0.022 \text{ mH (high } L_{\text{stray}})$



$L_R = 0.033 \text{ mH (low } L_{\text{stray}})$



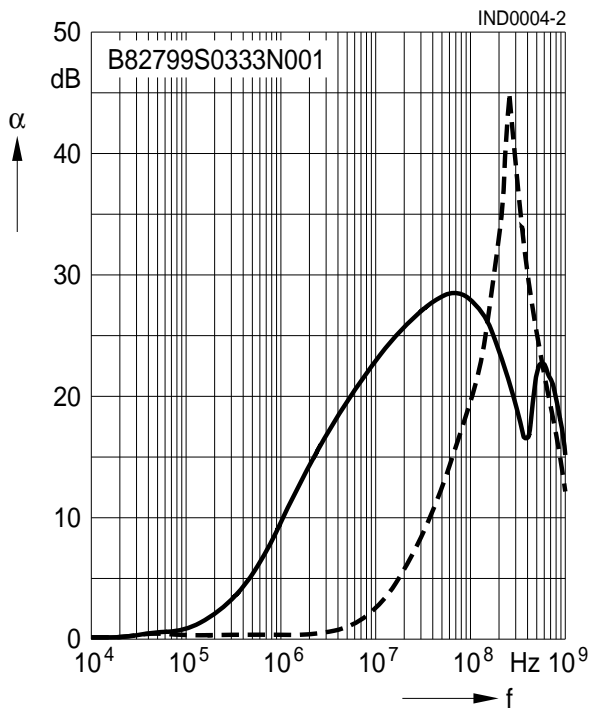
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Insertion loss α (typical values at $|Z| = 50 \Omega$, 20°C)

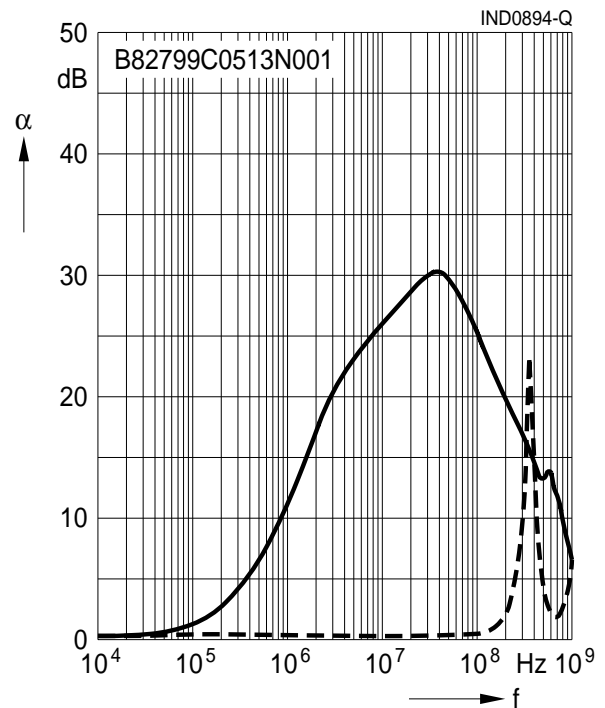
———— asymmetrical, all branches in parallel (common mode)

- - - - - symmetrical (differential mode)

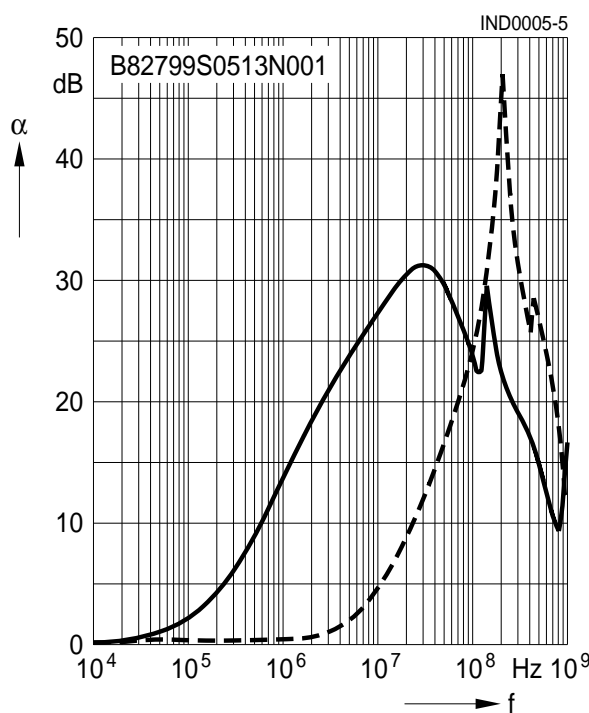
$L_R = 0.033 \text{ mH}$ (high L_{stray})



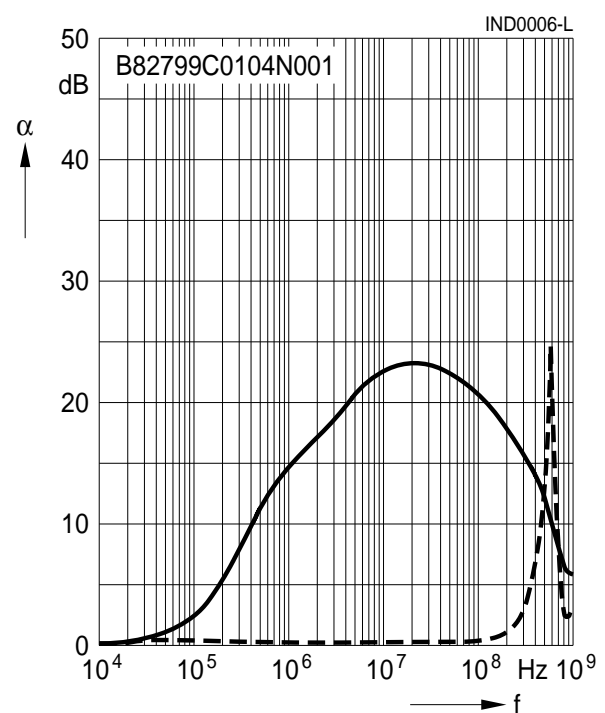
$L_R = 0.051 \text{ mH}$ (low L_{stray})



$L_R = 0.051 \text{ mH}$ (high L_{stray})



$L_R = 0.10 \text{ mH}$



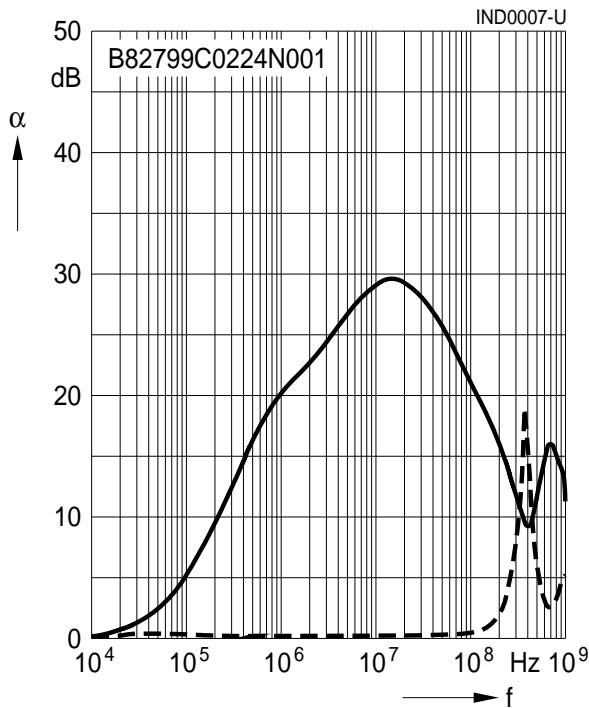
SMD

Insertion loss α (typical values at $|Z| = 50 \Omega$, 20°C)

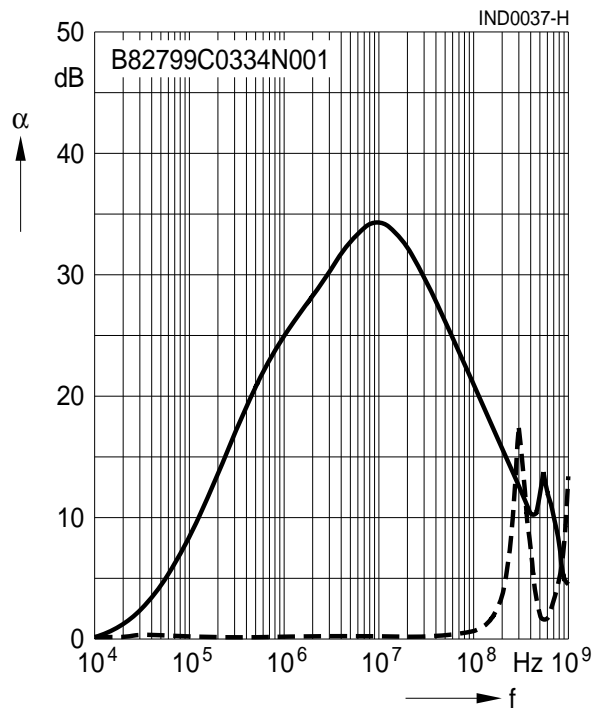
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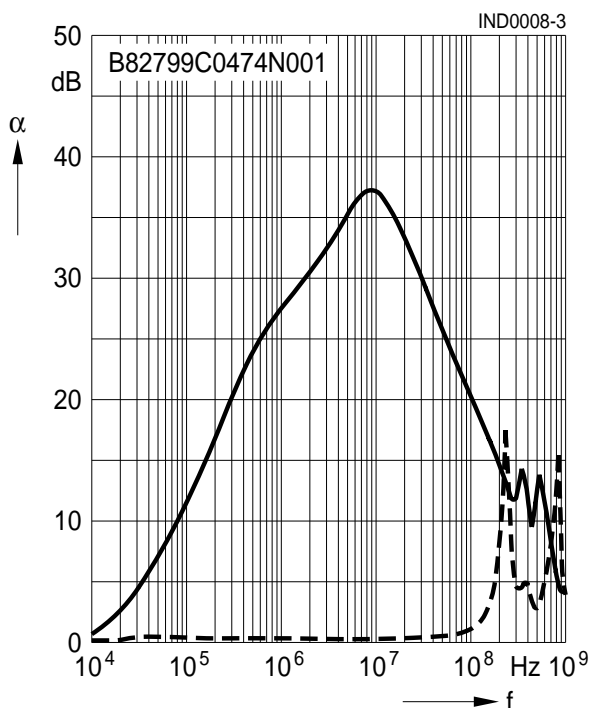
$L_R = 0.22 \text{ mH}$



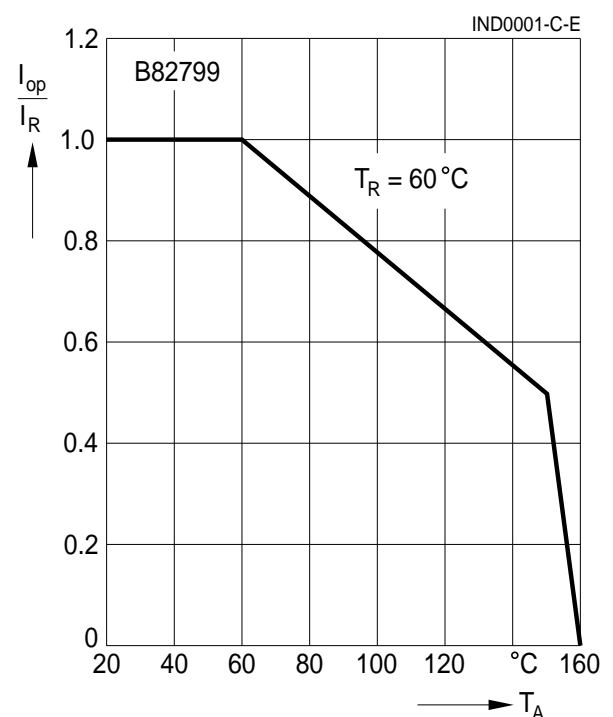
$L_R = 0.33 \text{ mH}$



$L_R = 0.47 \text{ mH}$



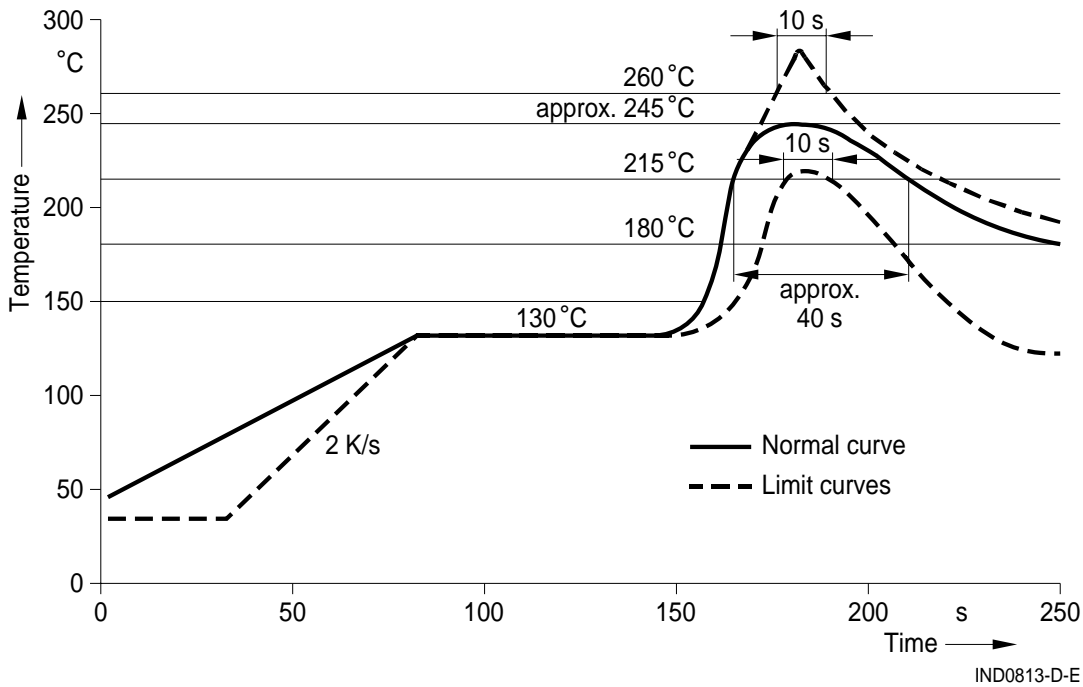
Current derating I_{op}/I_R versus ambient temperature



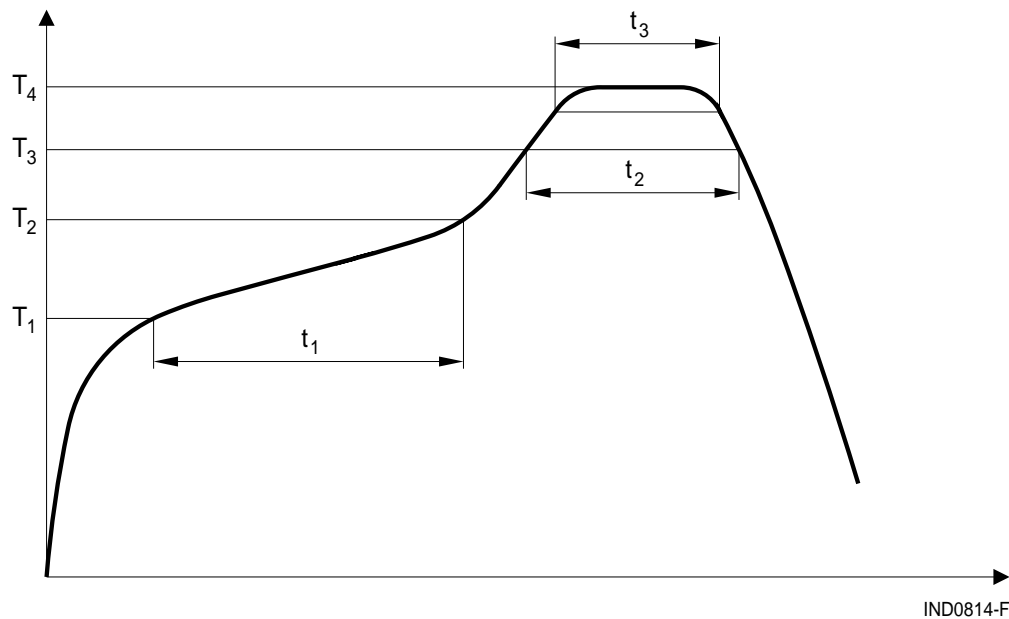
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Recommended reflow soldering curve

Pb containing solder material (based on CECC 00802 edition 2)



Pb-free solder material (based on JEDEC J-STD 020C)



T ₁ °C	T ₂ °C	T ₃ °C	T ₄ °C	t ₁ s	t ₂ s	t ₃ s
150	200	217	250	< 110	< 90	< 40 @ T ₄ -5 °C

Time from 25 °C to T₄: max 300 s

Maximal numbers of reflow cycles: 3

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.
 - 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.
- The following points must be observed if the components are potted in customer applications:
 - Many potting 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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