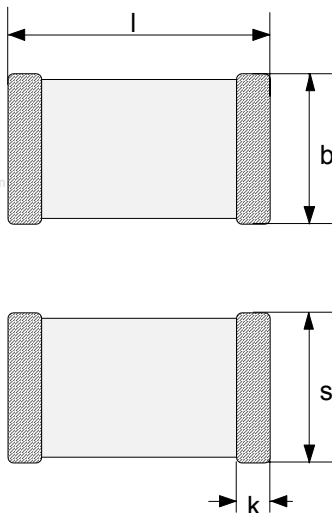


## Designation system

- CT = Chip with three-layer- termination (Ag/Ni/Sn)  
 0402 = Dimensions of the device **04 x 02** (length x width in 1/100 inch)  
 S...A = Special tolerance of the varistor voltage  
 14 = Maximum operating voltage  
 HS = Designed for protection of high speed data lines  
 G = Taped version (cardboard tape, 7" reel, 10000 pieces/reel)

## Figure



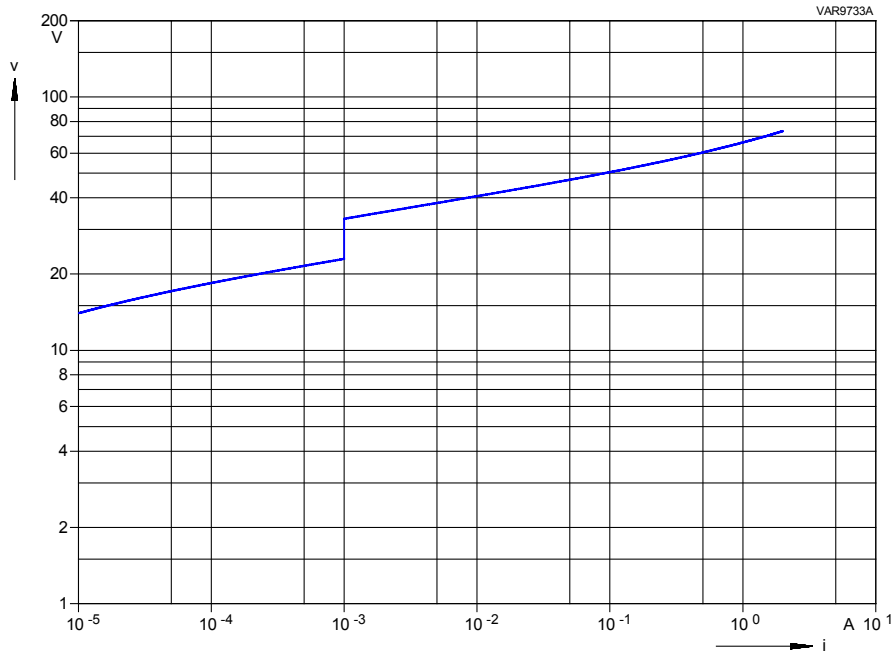
$$\begin{aligned}
 l &= 1.0 \pm 0.15 \\
 b &= 0.5 \pm 0.10 \\
 s &= 0.5 \pm 0.10 \\
 k &= 0.2 \pm 0.10
 \end{aligned}$$

(all dimensions in mm)

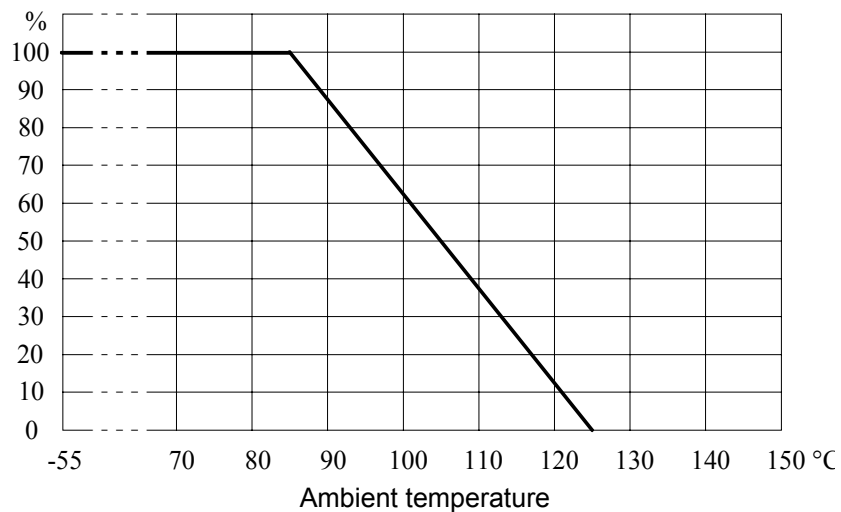
As far as patents or other rights of third parties are concerned, liability is only assumed for components per se, not for applications, processes and circuits implemented within components or assemblies. The information describes the type of component and shall not be considered as assured characteristics. Terms of delivery and rights to change design reserved.

ISSUE DATE	28.01.2005	ISSUE	e	PUBLISHER	KB VS PE	PAGE	1/7
------------	------------	-------	---	-----------	----------	------	-----

## V-I-characteristic



Max. current, energy and average power dissipation  
depending on ambient temperature



## Electrical data

Maximum operating voltage

RMS voltage

$V_{RMS} = 14 \text{ V}$

DC voltage

$V_{DC} = 16 \text{ V}$

Varistor voltage (@ 1 mA)

$V_V = 23 \text{ up to } 33 \text{ V}$

Maximum clamping voltage (@ 1 A)

$V_C = 66 \text{ V}$

Maximum average power dissipation

$P_{max} = 3 \text{ mW}$

Maximum surge current (8/20  $\mu$ s)

$I_{max} = 1 \times 2 \text{ A}$

Maximum energy absorption (ESD)

$E_{max} = 30 \text{ mJ}$

(@ ESD according to IEC 61000-4-2, 15 kV air discharge)

Capacitance (@ 1 MHz, 1V, 25 °C, typical value)

$C = 10 \text{ pF}$

Response time

$< 0.5 \text{ ns}$

Operating temperature

$-40 \dots +85 \text{ }^\circ\text{C}$

Storage temperature (mounted parts)

$-40 \dots +125 \text{ }^\circ\text{C}$

Termination material

**Ag/Ni/Sn**

Part weight

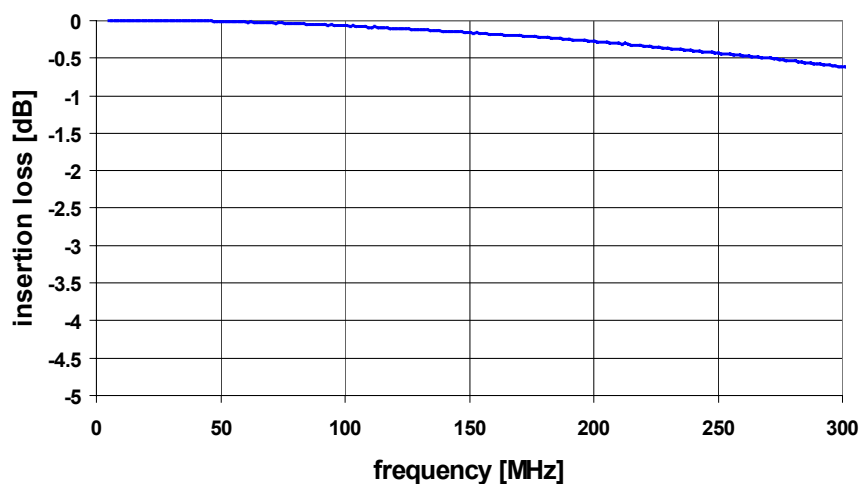
**0.002 g**

(thickness not specified, adjusted to fulfill wettability specification according to **IEC 60068-2-58**)

## Application note

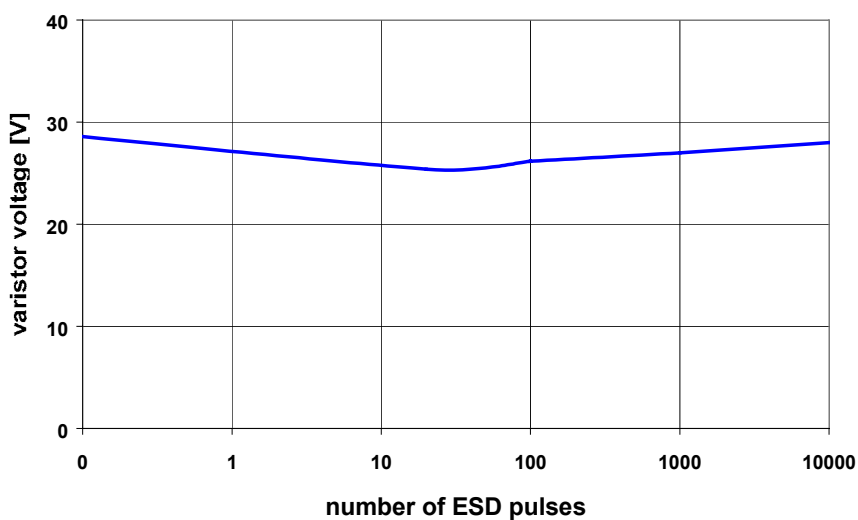
The described component is designed to meet ESD level 4 requirements according to IEC 61000-4-2 (8 kV contact discharge, 150 pF, 330  $\Omega$ )

## Signal insertion loss<sup>1)</sup>



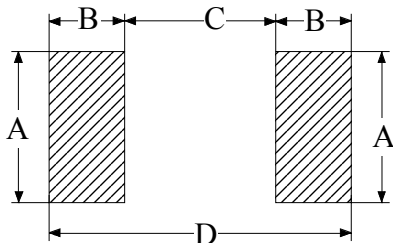
<sup>1)</sup> typical values, measured with network analyzer HP8753 E/S containing S-parameter test set.

## Stability to multiple ESD discharges<sup>2)</sup>



<sup>2)</sup> 8 kV contact discharge, 150 pF, 330  $\Omega$ , according to IEC 61000-4-2.

## Recommended geometry of solder pad



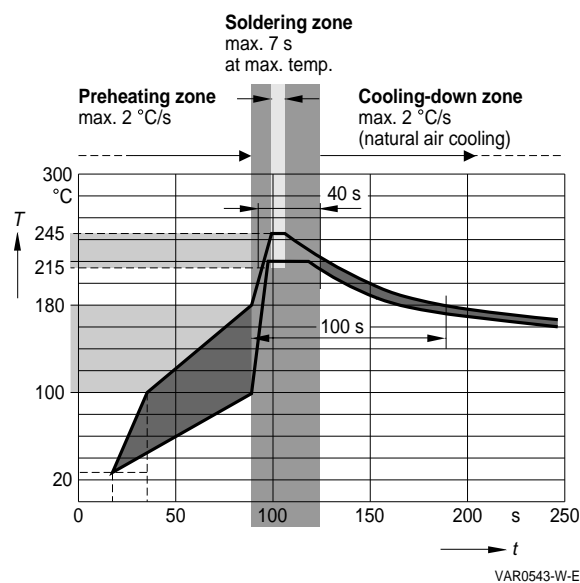
A = 0.6 mm

B = 0.6 mm

C = 0.5 mm

E = 1.7 mm

## Recommended soldering temperature profile



This component should be soldered within 12 months after delivery from EPCOS. They should be left in their original packings to avoid soldering problems due to oxidized terminals.

Storage temperature: -25 to 45 °C

Relative humidity: < 75% annual average, < 95% on maximum 30 days in a year.

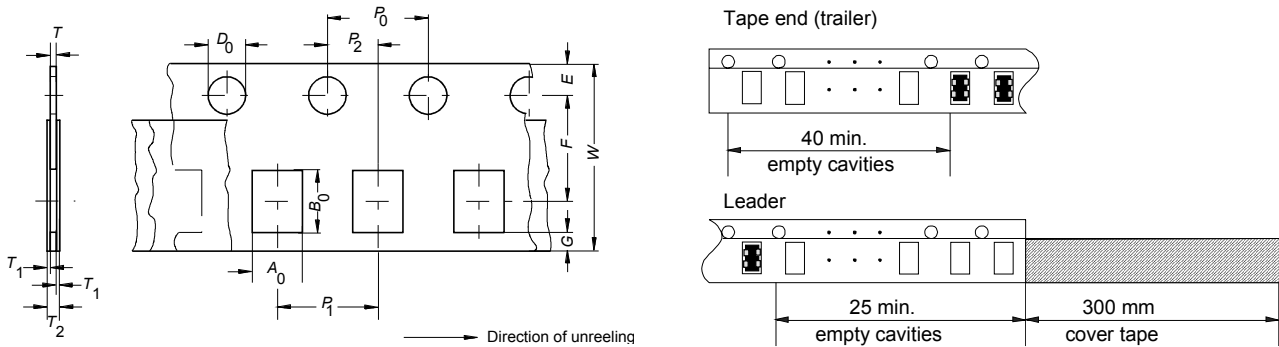
The usage of mild non-activated fluxes for soldering is recommended, as well as proper cleaning of the PCB.

The components are suited for Pb-free soldering.

ISSUE DATE	28.01.2005	ISSUE	e	PUBLISHER	KB VS PE	PAGE	5/7
------------	------------	-------	---	-----------	----------	------	-----

## Taping according to IEC 60286-3

**Tape material:** cardboard



### Dimensions and tolerances:

Definition	Symbol	Dimension [mm]	Tolerance [mm]
Compartment width	A <sub>0</sub>	0.6	± 0.2
Compartment length	B <sub>0</sub>	1.15	± 0.2
Sprocket hole diameter	D <sub>0</sub>	1.5	± 0.1
Sprocket hole pitch	P <sub>0</sub>	4.0	± 0.1 <sup>1)</sup>
Distance center hole to center compartment	P <sub>2</sub>	2.0	± 0.05
Pitch of the component compartments	P <sub>1</sub>	2.0	± 0.1
Tape width	W	8.0	± 0.3
Distance edge to center of hole	E	1.75	± 0.1
Distance center hole to center compartment	F	3.5	± 0.05
Distance compartment to edge	G	0.75	min
Thickness of cardboard tape	T	0.6	max.
Overall thickness	T <sub>2</sub>	0.7	max.

<sup>1)</sup> ≤ ± 0.2 mm over any 10 pitches

## Packing

Each reel in airtight plastic bag with desiccant bag.

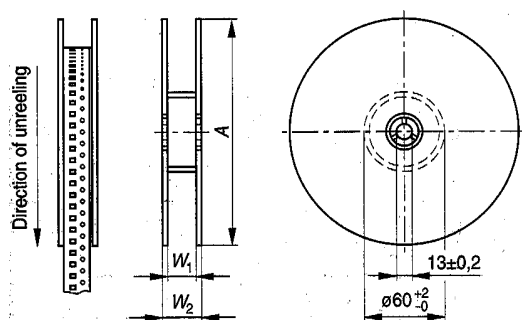
Dimensions approx. 220 x 220 mm. Weight approx. 170 g.

6 bags in cardboard box, dimensions approx. 250 x 220 x 130 mm. Weight approx. 1 kg.

**Reel material:** plastic

**Packing unit:** 10000 pcs./reel

**Reel dimensions:**



Definition	Symbol	Dimension [mm]	Tolerance [mm]
Reel diameter	A	180	+0/ -3
Reel width (inside)	W <sub>1</sub>	8.4	+1.5/ -0
Reel width (outside)	W <sub>2</sub>	14.4	max.

© EPCOS AG 2005. Reproduction, publication and dissemination of this data sheet, enclosures hereto and the information contained therein without EPCOS' prior express consent is prohibited.

Purchase orders are subject to the General Conditions for the Supply of Products and Services of the Electrical and Electronics Industry recommended by the ZVEI (German Electrical and Electronic Manufacturers' Association), unless otherwise agreed.

ISSUE DATE	28.01.2005	ISSUE	e	PUBLISHER	KB VS PE	PAGE	7/7
------------	------------	-------	---	-----------	----------	------	-----