



## Metal Oxide Varistors

CT0603L25HSG

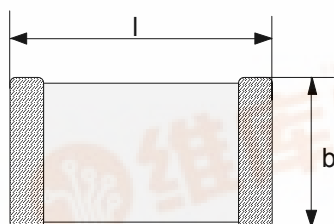
SMD multilayer varistor with Ni-barrier termination

B72500T8250L060

## Designation system

- CT = Chip with three-layer- termination (Ag/Ni/Sn)  
 0603 = Dimensions of the device **06 x 03** (length x width in 1/100 inch)  
 L = Tolerance of the varistor voltage ( $\pm 15\%$ )  
 25 = Maximum operating voltage (RMS voltage)  
 HS = Designed for protection of high speed data lines  
 G = Taped version (cardboard tape, 7" reel, 4000 pieces/reel)

## Figure

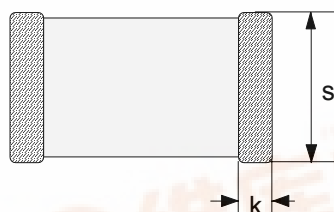


$$l = 1.6 \pm 0.15$$

$$b = 0.8 \pm 0.10$$

$$s = 0.9 \text{ max.}$$

$$k = 0.1 - 0.4$$

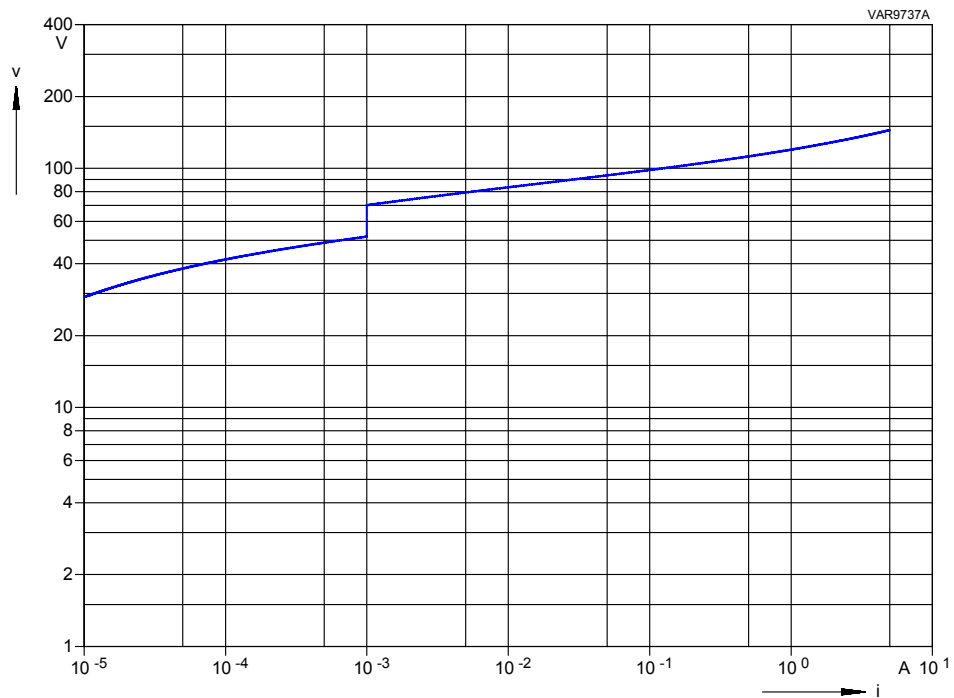


(all dimensions in mm)

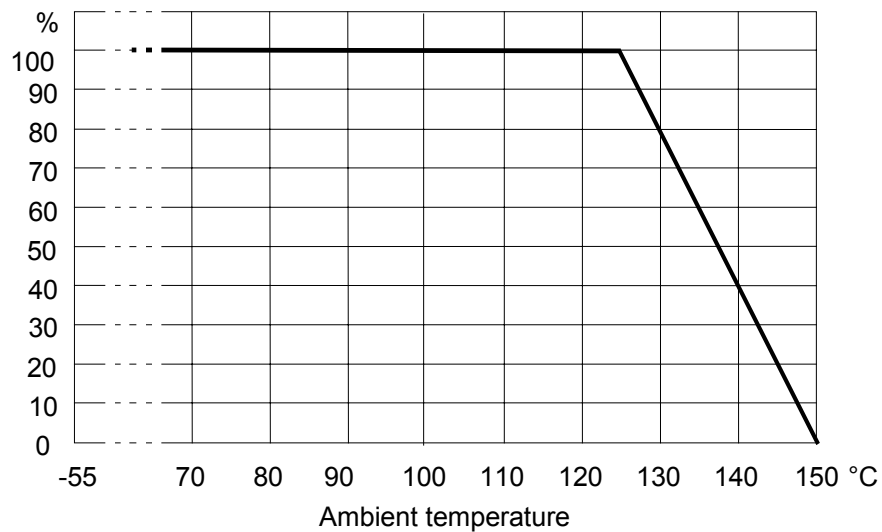
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## V-I-characteristic



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



**Metal Oxide Varistors****CT0603L25HSG****SMD multilayer varistor with Ni-barrier termination****B72500T8250L060****Electrical data**

Maximum operating voltage

RMS voltage

 **$V_{\text{RMS}} = 25 \text{ V}$** 

DC voltage

 **$V_{\text{DC}} = 32 \text{ V}$** 

Varistor voltage (@ 1 mA)

 **$V_V = 51.9 \text{ up to } 70.1 \text{ V}$** 

Maximum clamping voltage (@ 1 A)

 **$V_C = 120 \text{ V}$** Maximum surge current (8/20  $\mu\text{s}$ ) **$I_{\text{max}} = 1 \times 5 \text{ A}$** 

Maximum energy absorption (ESD)

 **$E_{\text{max}} = 50 \text{ mJ}$** (@ ESD according to ISO TR10605, 25 kV air discharge, 150 pF, 2 k $\Omega$ )

Capacitance (@ 1 MHz, 1 V, 25 °C, typ.)

 **$C = 10 \text{ pF}$** 

Response time

 **$< 0.5 \text{ ns}$** 

Operating temperature

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

Storage temperature (mounted parts)

 **$-40 \dots +150 \text{ }^\circ\text{C}$** 

Termination material

**Ag/Ni/Sn**

(thickness not specified, adjusted to fulfil wettability specification according to

**IEC 60068-2-58)****Complies with following ESD standards:**

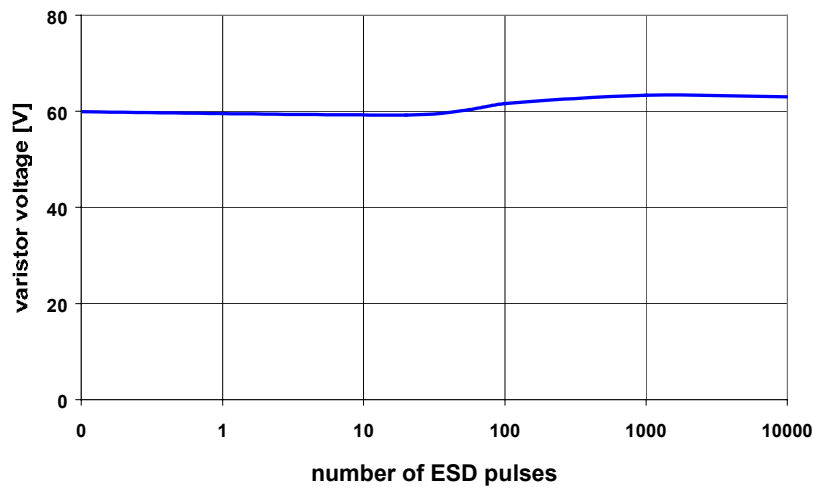
IEC 61000-4-2 level 4 (8 kV contact, 15 kV air discharge)

ISO TR10605 level 4 (25 kV air discharge)

AEC Q200 002 level 6 (25 kV air discharge)

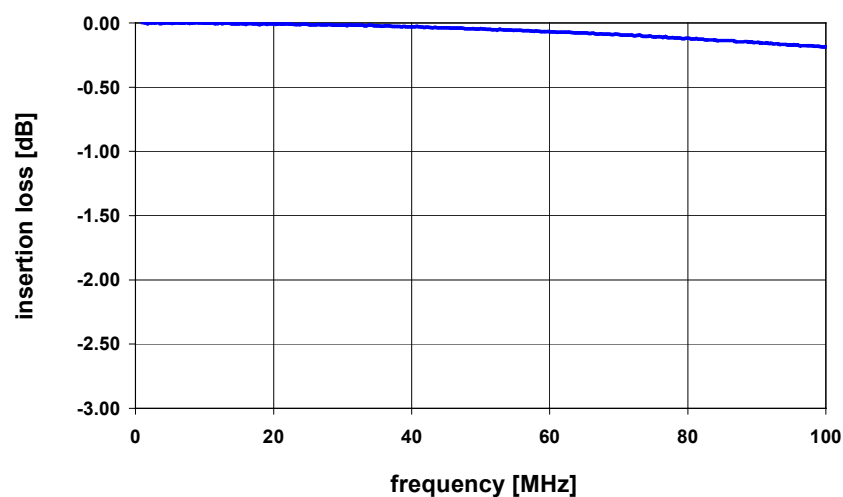


## Stability to multiple ESD pulses<sup>1)</sup>



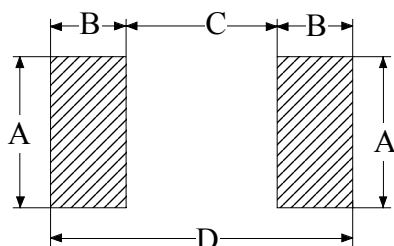
<sup>1)</sup> 15 kV air discharge, 150 pF, 330  $\Omega$ , according to IEC 61000-4-2

## Signal insertion loss<sup>2)</sup>



<sup>2)</sup> typical values, measured with network analyzer HP8753 E/S containing S-parameter test set

## Recommended geometry of solder pad



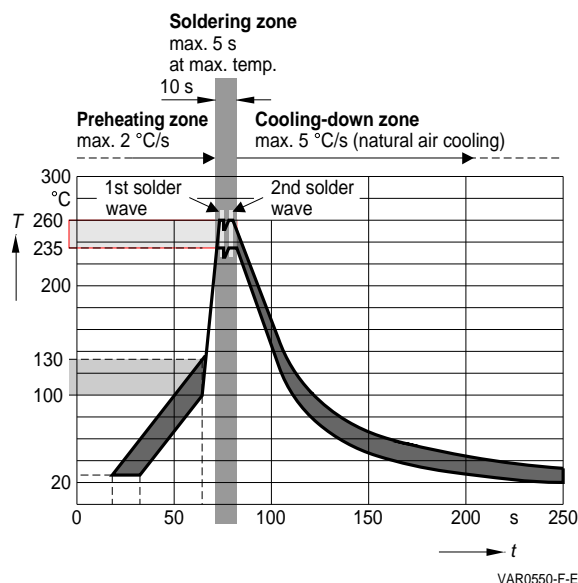
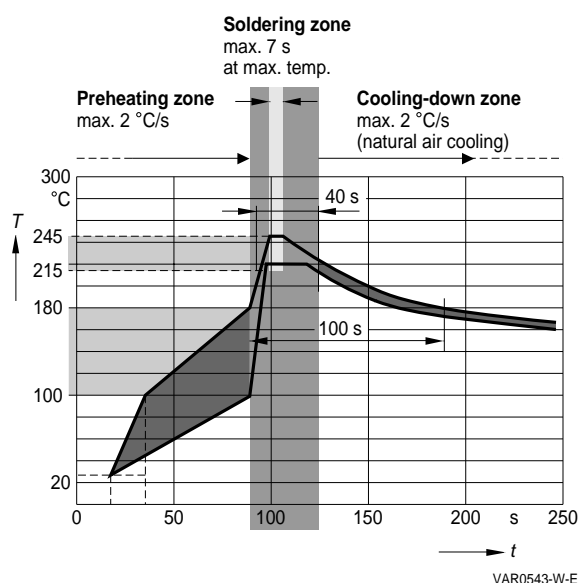
A = 1.0 mm

B = 1.0 mm

C = 1.0 mm

E = 3.0 mm

## Recommended soldering temperature profile



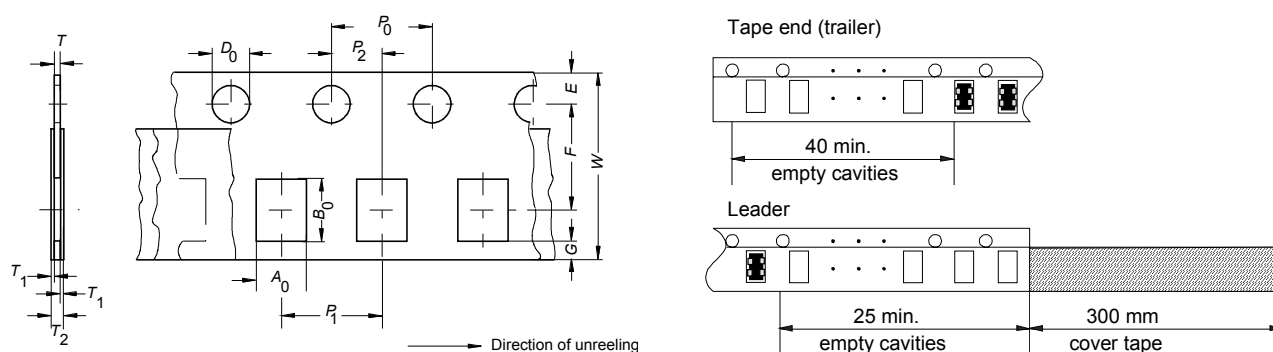
This component should be soldered within 12 months after delivery from EPCOS. They should be left in their original packings to avoid soldering problems due to oxidized terminals.  
Storage temperature: -25 to 45 °C  
Relative humidity: < 75% annual average, < 95% on maximum 30 days in a year.

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.

## Taping according to IEC 60286-3

**Tape material:** cardboard



### Dimensions and tolerances:

Definition	Symbol	Dimension [mm]	Tolerance [mm]
Compartment width	$A_0$	0.95	$\pm 0.2$
Compartment length	$B_0$	1.8	$\pm 0.2$
Sprocket hole diameter	$D_0$	1.5	$\pm 0.1$
Sprocket hole pitch	$P_0$	4.0	$\pm 0.1$ <sup>1)</sup>
Distance center hole to center compartment	$P_2$	2.0	$\pm 0.05$
Pitch of the component compartments	$P_1$	4.0	$\pm 0.1$
Tape width	$W$	8.0	$\pm 0.3$
Distance edge to center of hole	$E$	1.75	$\pm 0.1$
Distance center hole to center compartment	$F$	3.5	$\pm 0.05$
Distance compartment to edge	$G$	0.75	min.
Thickness of cardboard tape	$T$	0.9	max.
Overall thickness	$T_2$	1.1	max.

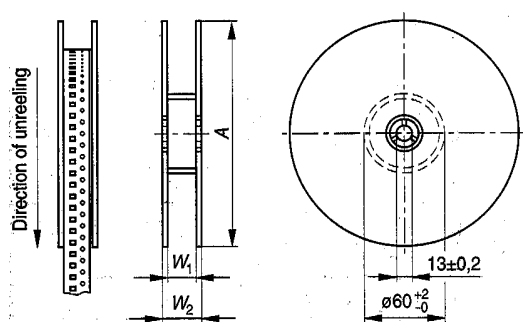
<sup>1)</sup>  $\leq \pm 0.2$  mm over any 10 pitches

## Packing

**Reel material:** plastic

**Packing unit:** 4000 pcs./reel

**Reel dimensions:**



Definition	Symbol	Dimension [mm]	Tolerance [mm]
Reel diameter	A	180	+0/ -3
Reel width (inside)	$W_1$	8.4	+1.5/ -0
Reel width (outside)	$W_2$	14.4	max.

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