Metal oxide varistor

SMD multilayer varistor with nickel barrier termination

Series/Type:	**CT0603S20ACCG**
Ordering code:	**B72500T5200S160**
Date:	2007-05-10
Version:	3

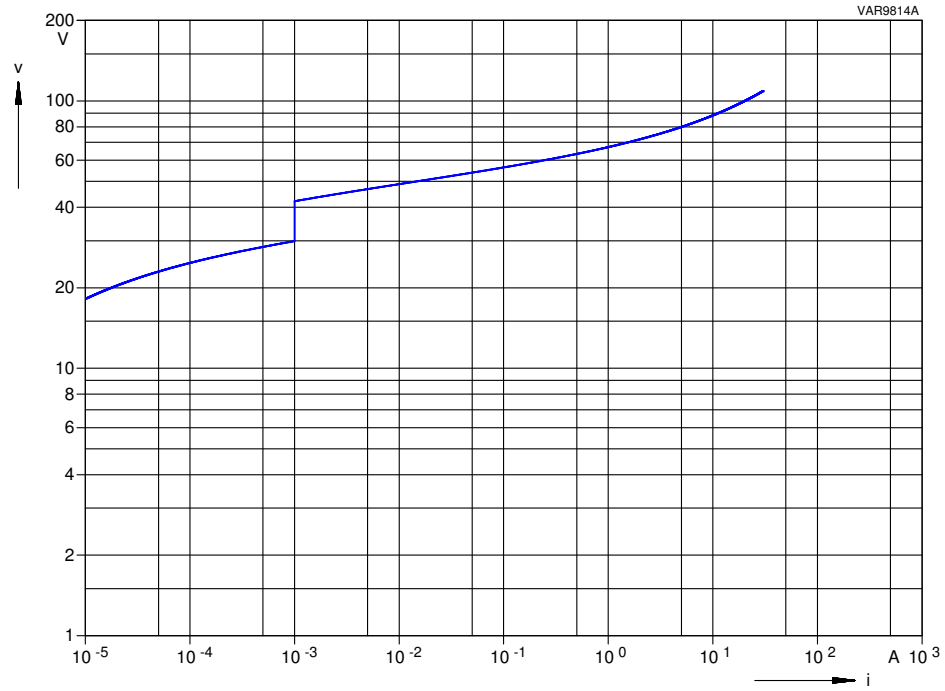
Designation system

CT = **c**hip with **t**hree-layer-termination
0603 = dimensions of the device **06** x **03** (length x width in 1/100 inch)
S...A = **s**pecial tolerance **A** of the varistor voltage
20 = max. operating voltage
CC = **c**ontrolled **c**apacitance
G = taped version, cardboard tape, 7" reel (4000 pcs. /reel)

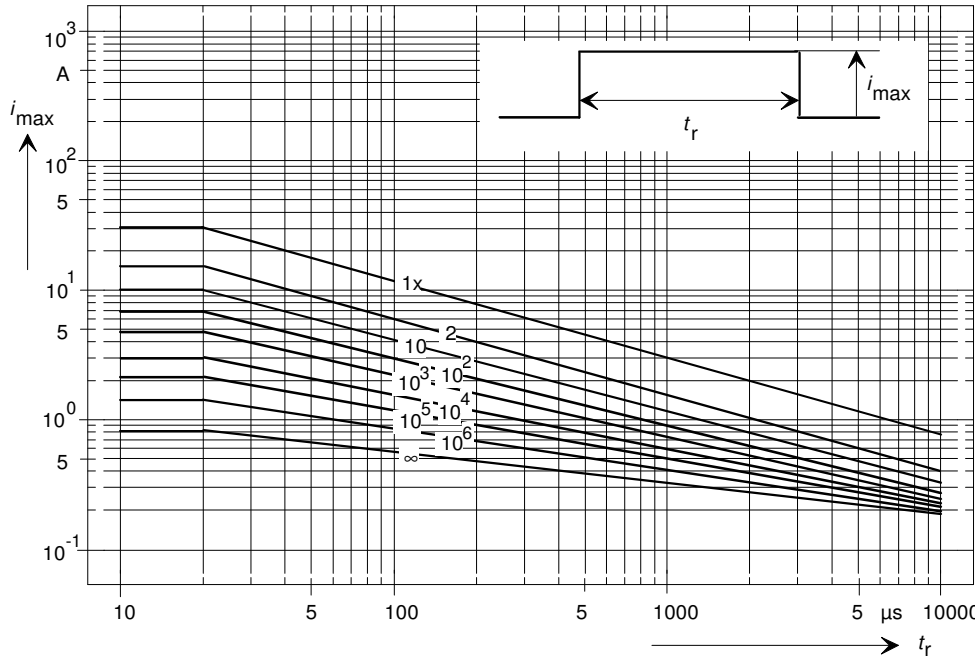
Electrical data

Max. operating voltage	
RMS voltage	**V_{RMS} = 20 V**
DC voltage	**V_{DC} = 26 V**
Varistor voltage (@ 1 mA, 25 °C)	**V_V = 30 ... 42 V**
Max. clamping voltage (@ 1 A)	**V_C = 67 V**
Max. average power dissipation	**P_{max} = 3 mW**
Max. surge current (8/20 µs)	**$\hat{I}_{max}$ = 1 x 30 A**
Max. energy absorption (2 ms)	**E_{max} = 1 x 0.3 J**
Capacitance (@ 1 MHz, 1 V, 25 °C)	**C = 80 ±20pF**
Response time	**< 0.5 ns**
Operating temperature range	**–55 ... +125 °C**
Storage temperature (mounted parts)	**–55 ... +150 °C**

v/i characteristic

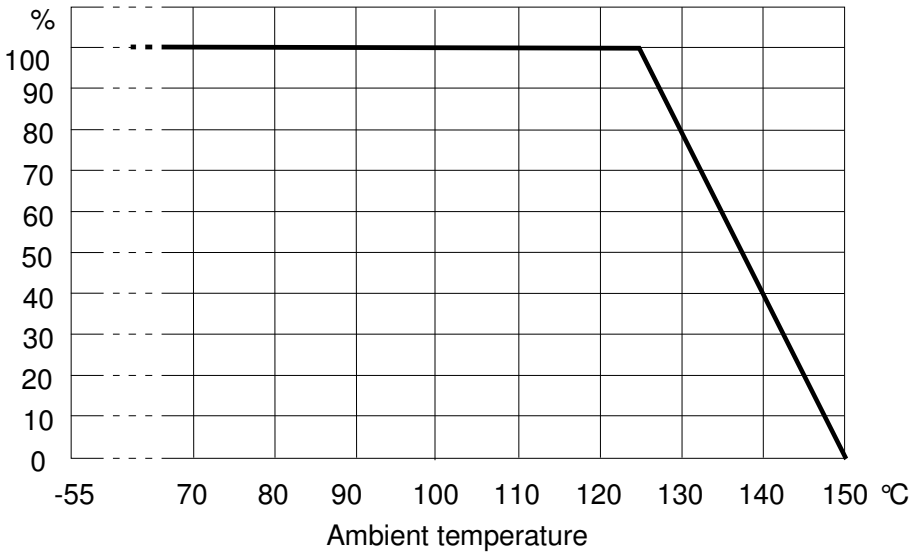


Derating field

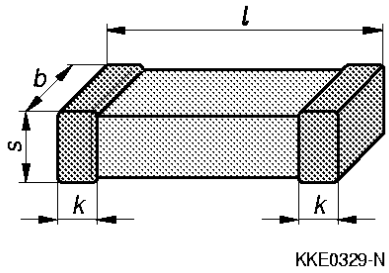


Temperature derating

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

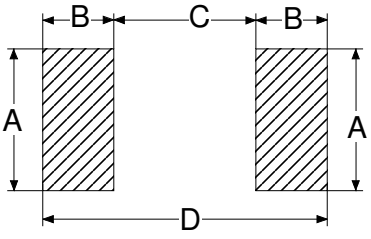


Dimensional drawing in mm



l = 1.6 ±0.15
b = 0.8 ±0.1
s = 0.9 max
k = 0.1 … 0.4

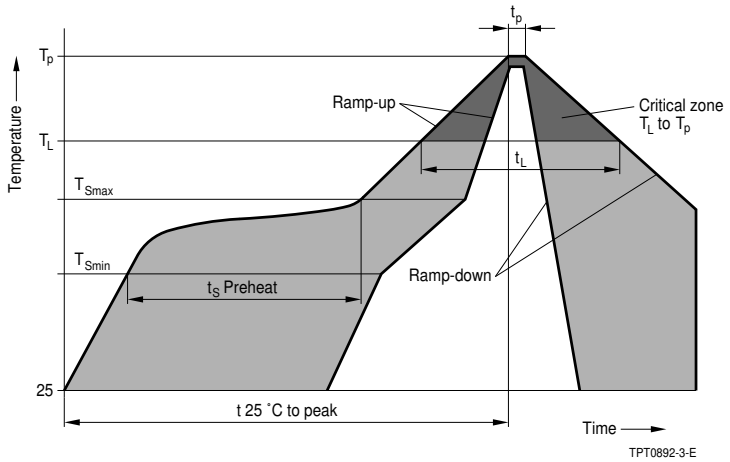
Recommended solder pad layout



A = 1.0 mm
B = 1.0 mm
C = 1.0 mm
D = 3.0 mm

Recommended soldering temperature profiles

Reflow soldering temperature profile

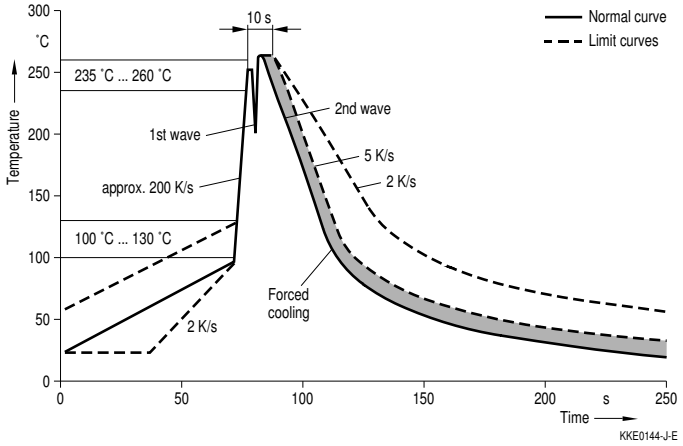


Profile feature	Sn-Pb eutectic assembly	Pb-free assembly
Average ramp-up rate (T_{Smax} to T_p)	3 °C/ second max.	3 °C/ second max.
Preheat - Temperature min (T_{Smin}) - Temperature max (T_{Smax}) - Time (t_{Smin} to t_{Smax})	 100 °C 150 °C 60 … 120 seconds	 150 °C 200 °C 60 … 180 seconds
Time maintained above - Temperature min (T_L) - Time (t_L)	 183 °C 60 … 150 seconds	 217 °C 60 … 150 seconds
Peak classification temperature (T_p)	220 °C … 240 °C	240 °C … 260 °C
Time within 5 °C of actual peak temperature (t_p)	10 … 30 seconds	20 … 40 seconds
Ramp-down rate	6 °C/ second max.	6 °C/ second max.
Time 25 °C to peak temperature	6 minutes max.	8 minutes max.

Notes: All temperatures refer to topside of the package, measured on the package body surface.
Max. number of reflow cycles: 3

Wave soldering temperature profile

Temperature characteristic at component terminal with dual-wave soldering



Soldering guidelines

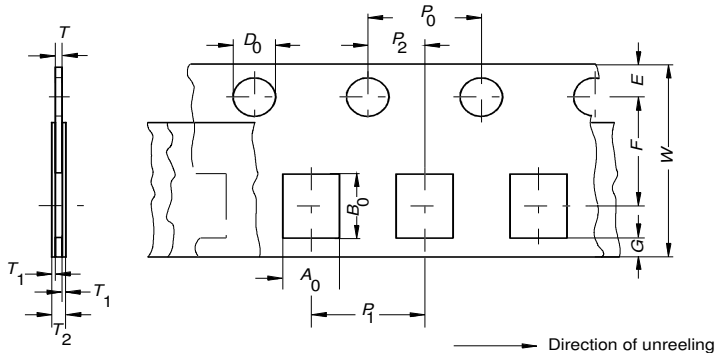
The usage of mild, non-activated fluxes for soldering is recommended, as well as proper cleaning of the PCB.
The components are suitable for reflow soldering to JEDEC J-STD-020C.

Storage condition

- As far as possible, the components should be employed within 12 months after delivery from EPCOS.
- They should be left in their original packings to avoid soldering problems due to oxidized contacts.
- Storage temperature: – 25 up to + 45°C.
- Relative humidity: < 75 % annual average, < 95 % on max. 30 days in a year.

Taping and packaging

Tape and reel packing according to IEC 60286-3
Tape material: Cardboard



Dimensions and tolerances

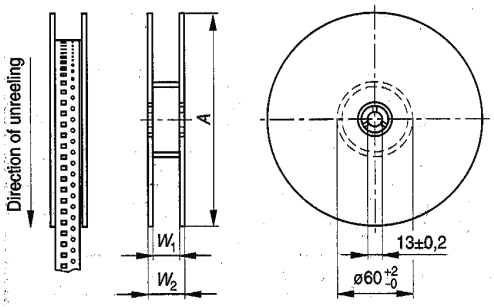
Definition	Symbol	Dimension [mm]	Tolerance [mm]
Compartment width	A_0	0.95	±0.2
Compartment length	B_0	1.8	±0.2
Sprocket hole diameter	D_0	1.5	+0.1 /-0
Sprocket hole pitch	P_0	4.0	±0.1 [1)]
Distance center hole to center compartment	P_2	2.0	±0.05
Pitch of the component compartments	P_1	4.0	±0.1
Tape 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.
Overall thickness	T_2	1.1	max.
Thickness tape	T	0.9	max.

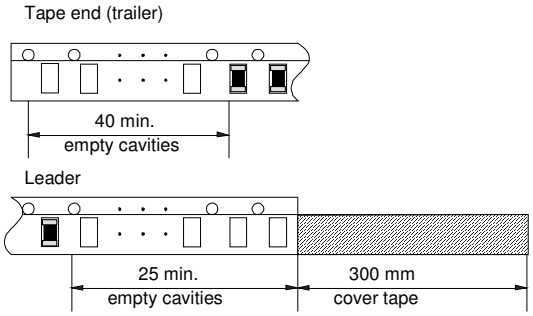
[1)] ≤ ± 0.2 mm over any 10 pitches
Package: 8-mm tape

Packing

Packing material: Plastic

Reel dimensions





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

Packing unit: 4000 pcs. /reel

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