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EPCOS

Metal Oxide Varistor **Disc type**

SIOV-S10K625G5S3 **Ordering code: B72210S0621K351**

Data sheet

Form: FBLE3K/b

File name: S10K625G5S3_a.doc

MODIFICATIONS: New Issue

REMARKS:

Prepared by	Tony Sun	**Release**	signed: PE / Collins-Hunt		signed: QS / Zödl		
			signed:		signed:		
ISSUE DATE	03.06.03	ISSUE	A	PUBLISHER	KH PE VAR	PAGE	0/8

EPCOS

Metal Oxide Varistor **Disc type**

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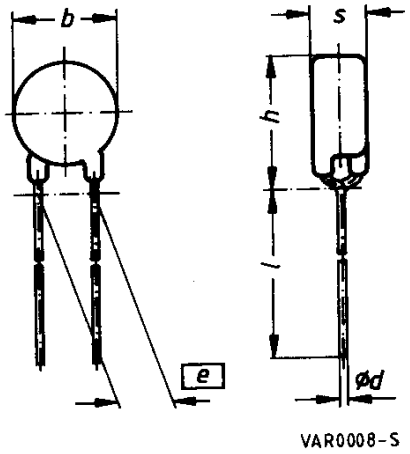
Data sheet

SIOV nomenclature:

S	=	Disk type
10	=	Rated disk diameter
K	=	Tolerance of varistor voltage at 1mA : ±10%
625	=	Max. operating voltage V_{rms}
G5	=	Taping Style G5
S3	=	Crimp style S3

Figure: Dimensions given in Millimeters (mm)



1)

b_{max}	=	12,0
h_{max}	=	17,5
s_{max}	=	7,5
e	=	7,5 ± 0,8 2)
∅d	=	0,8 ± 0,05
l_{min}	=	n.a.

1) seating plane in accordance with IEC 60717

2) measured above carrier tape

Electrical data:

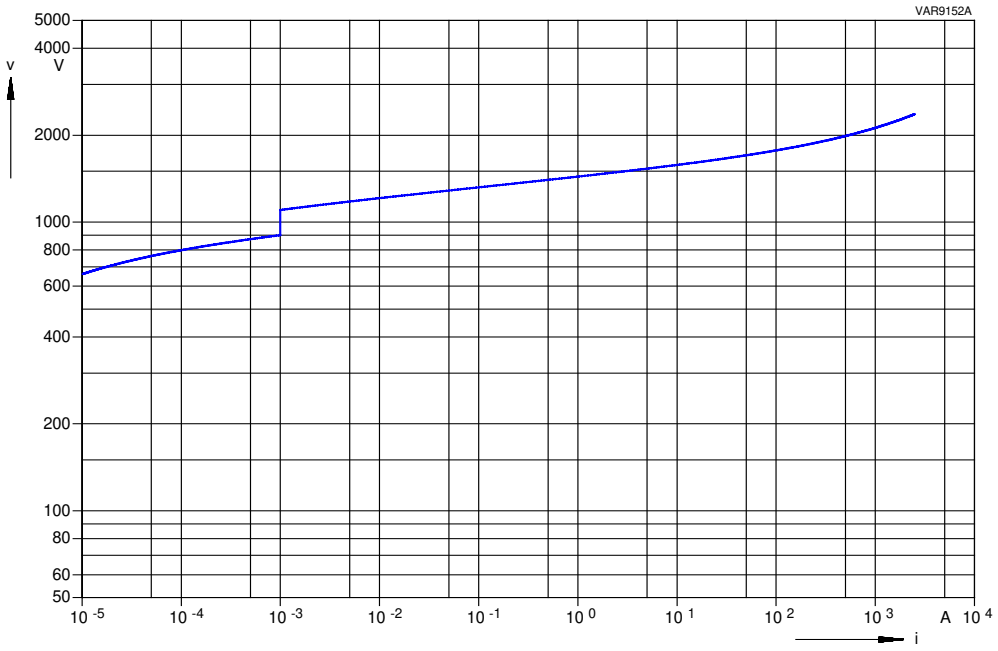
Maximum ratings (Ta=85°C)

Max. Operating AC voltage		V_{RMS}	=	625 V
Max. Operating DC voltage		V_{DC}	=	825 V
Surge current (8/20µs)	1 time	I_{max}	=	2500 A
Energy absorption (2ms)	1 time	W_{max}	=	68,0 J
Average power dissipation		P_{max}	=	0,4 W

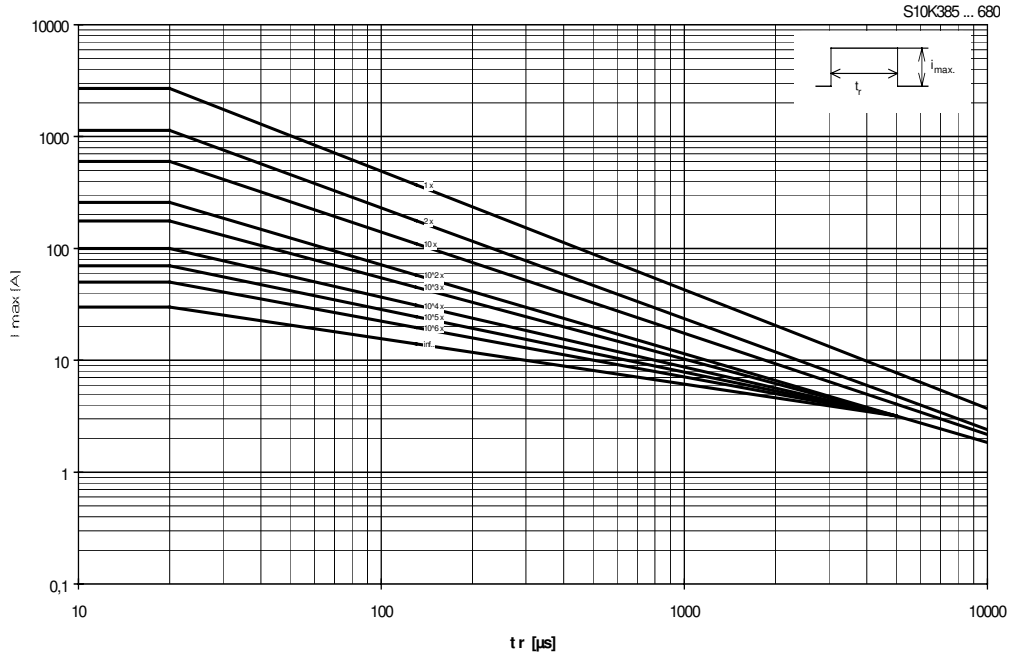
Characteristics (Ta=25°C)

Varistor voltage at 1mA	V_V	=	1000 V ± 10%
Clamping voltage at 25 A (8/20µs)	$V_{C,max}$	=	1650 V
Type. Capacitance at 1 kHz	C	=	90 pF

V/I Characteristic:

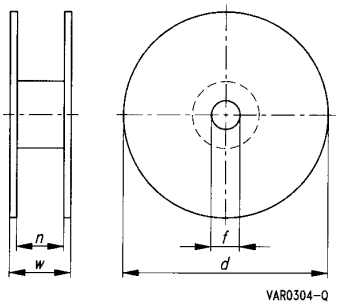


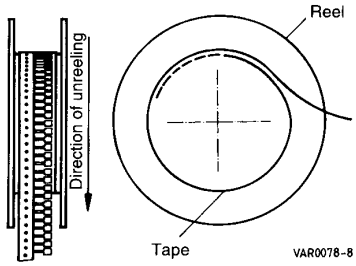
Derating:



Taping:

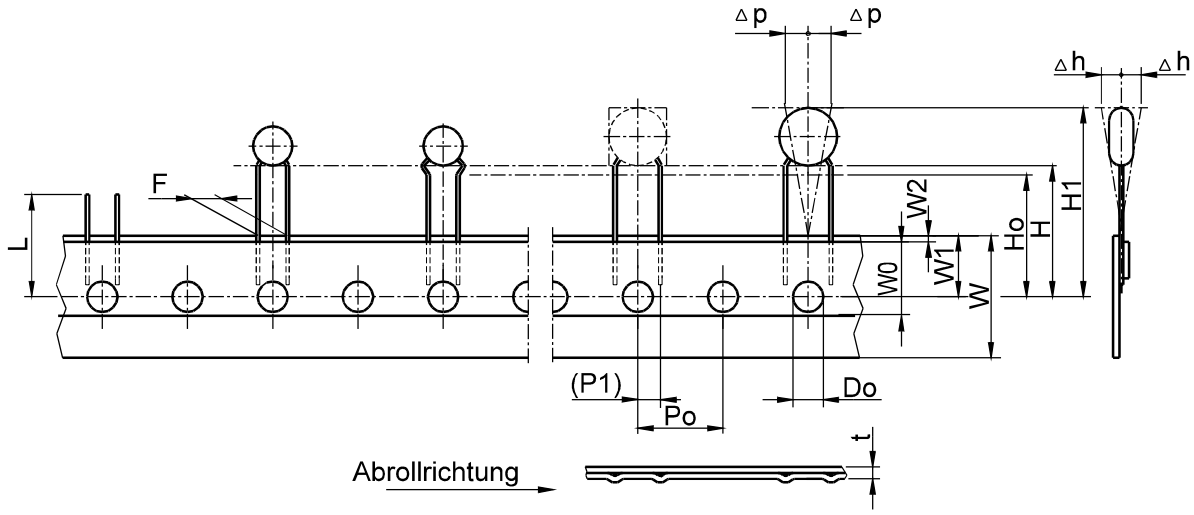
Package Unit: 500 pcs./reel





d_{max}	=	500mm
w_{max}	=	72mm
f	=	23 ± 1,0mm
n	=	59mm (typ.)

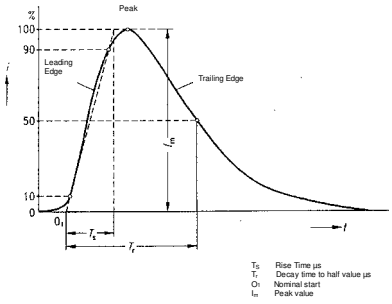
Lead spacing 7,5mm



Tape dimensions, in Millimeters (mm):

Definition	Symbol	Dimension	Tolerance	Remarks
Body diameter	b	12,0	max	
Body thickness	s	7,5	max	
Lead diameter	d	0,8	± 0,05	
Sprocket hole pitch	P_o	12,7	± 0,3	± 1mm/20 sprocket holes
Distance hole center to lead center	P_1	8,95	± 0,8	
Lead spacing	F	7,5	± 0,8	measured above carrier tape
Component deviation	Δh			depending on s
Component deviation	Δp	0	± 2,0	measured at top of component body
Carrier tape width	W	18,0	± 0,5	
Adhesive tape width	W_o	11,0	min	Peel-off force ≥5N
Sprocket hole position	W_1	9,0	+ 0,75/ -0,5	
Adhesive tape position	W_2	3,0	max	
Distance hole center to the top of the component	H_1	45,0	max	
Seating plane height	H_0	16	± 0,5	
Hole diameter	D_0	4,0	± 0,2	
Total tape thickness	t	0,9	max	
Cutting level	L	11,0	max	

Reliability Data:

	Characteristics	Test Methods/Description	Specifications
E L E C T R I C A L	Varistor Voltage	The voltage between two terminals with the specified measuring current applied is called V_v (1 mA_{DC} @ 0.2 - 2 s).	To meet the specified value.
	Clamping Voltage	The maximum voltage between two terminals with the specified standard impulse current (8/20µs) illustrated below applied. 	To meet the specified value.
	Surge current derating, 8/20 µs	100 surge currents (8/20 µs), unipolar, interval 30 s, amplitude corresponding to derating curve for 20 µs	$\lvert \Delta V/V \ (1\ mA) \rvert \leq 10\ \%$ (measured in direction of surge current) No visible damage
	Surge current derating, 2 ms	100 surge currents (2ms), unipolar, interval 120s, amplitude corresponding to derating curve for 2ms	$\lvert \Delta V/V \ (1\ mA) \rvert \leq 10\ \%$ (measured in direction of surge current) No visible damage

	Characteristics	Test Methods/Description	Specifications
M E C H A N I C A L	Tensile strength	After gradually applying the force specified below and keeping the unit fixed for 10 seconds, the terminal shall be visually examined for any damage. Terminal diameter — Force 0.5 mm — 5 N 0.6 mm — 10 N 0.8 mm — 10 N 1.0 mm — 20 N	| Δ V/V (1 mA) | ≤ 5 % No break of solder joint, no wire break
	Vibration	After repeatedly applying a single harmonic vibration according to the table below. Thereafter, the unit shall be visually examined. frequency range: 10 .... 55 Hz amplitude: 0.75 mm or 98 m/s² duration: 6 h (3 x 2 h) pulse: sine wave	| Δ V/V (1 mA) | ≤ 5 % No visible damage
	Solderability	After dipping the terminals to a depth of approximately 3 mm from the body in a soldering bath of 235°C for 5 seconds, the terminals shall be visually examined.	The inspection shall be carried out under adequate light with normal eyesight or with the assistance of a magnifier capable of giving a magnification of 4 times to 10 times. The dipped surface shall be covered with a smooth and bright solder coating with no more than small amounts of scattered imperfections such as pinholes or un-wetted or de-wetted areas. These imperfections shall not be concentrated in one area.

	Characteristics	Test Methods/Description	Specifications
MECHANICAL	Resistance to soldering heat	Each lead shall be dipped into a solder bath having a temperature of 260 ± 5°C to a point 2.0 to 2.5 mm from the body of the unit, be held there for 10 ± 1 s and then be stored at room temperature and normal humidity for 1 to 2 hours. The change of V_v and mechanical damages shall be examined.	| Δ V/V (1 mA) | ≤ 5 % No visible damage
	Electric strength	2500 V_{RMS}, 10 s The varistor is placed in a container holding 1.6 ± 0.2 mm diameter metal balls such that only the terminations of the varistor are protruding. The specified voltage shall be applied between both terminals of the specimen connected together and the electrode inserted between the metal balls.	No breakdown

	Characteristics	Test Methods/Description	Specifications
ENVIRONMENTAL	Max. AC operating voltage	After being continuously applied the maximum allowable voltage at 85 ± 2°C for 1000 hours, the specimen shall be stored at room temperature and normal humidity for 1 to 2 hours. Thereafter, the change of V_v shall be measured.	| Δ V/V (1 mA) | ≤ 10 %
	Damp heat, steady state	The specimen shall be subjected to 40 ± 2°C, 90 to 95 % r.H. for 56 days without load and then stored at room temperature and normal humidity for 1 to 2 hours. Thereafter, the change of V_v shall be measured.	| Δ V/V (1 mA) | ≤ 10 %
	Climatic sequence	The specimen shall be subjected to: a) dry heat at +85°C, 16 h b) damp heat, 1st cycle: 55°C, 93 % r.H., 24 h c) cold, -40°C, 2 h d) damp heat, additional 5 cycles: 55°C, 93 % r.H., 24 h/cycle Then the specimen shall be stored at room temperature and normal humidity for 1 to 2 hours. Thereafter, the change of V_v shall be measured.	| Δ V/V (1 mA) | ≤ 10 %
	Fast temperature cycling	The temperature cycle shown below shall be repeated 5 times. Then the specimen shall be stored at room temperature and normal humidity for 1 to 2 hours. The change of V_v and mechanical damage shall be examined. Step 1: -40 ± 3, 30 ± 3 Step 2: transition time, < 10 s Step 3: 85 ± 2, 30 ± 3	| Δ V/V (1 mA) | ≤ 5 % No visible damage

Note: More details can be found in the data book 'SIOV Metal Oxide Varistors', Ordering No. EPC: 62002-7600