

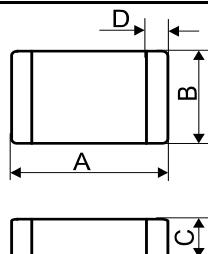
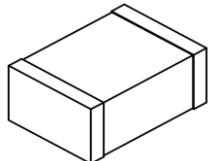
# Specification for Release

Customer : \_\_\_\_\_  
 Order Code: **82531040**  
 Description : SMD Varistor Power WE-VS



DATE : 2016-05-10

## A Dimensions:

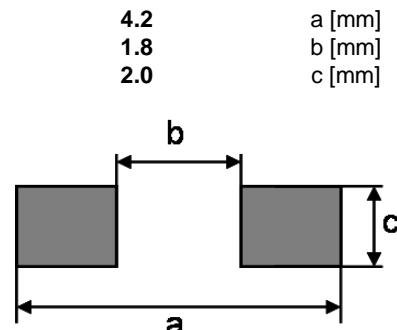


Size: 1206		
A	<b>3.2 ± 0.2</b>	mm
B	<b>1.6 ± 0.2</b>	mm
C	<b>1.7 max</b>	mm
D	<b>0.5 ± 0.3</b>	mm

## B Electrical Properties:

Properties	Test Conditions		Value	Unit	Tol.
max. AC Operating Voltage		V <sub>RMS</sub>	<b>4</b>	V	max
max. DC Operating Voltage		V <sub>DC</sub>	<b>5.5</b>	V	max
Withstanding Surge Current	<b>8/20μs</b>	i <sub>max</sub>	<b>150</b>	A	max
max. Energy Dissipation	<b>10/1000μs</b>	W <sub>max</sub>	<b>0.4</b>	J	max
max. Power Dissipation	<b>Continuous</b>	P <sub>max</sub>	<b>0.008</b>	W	max
Varistor Voltage	<b>1mA</b>	V <sub>Var</sub>	<b>8</b>	V	±20%
max. Clamping Voltage	<b>1A @ 8/20μs</b>	V <sub>C</sub>	<b>19</b>	V	max
Capacitance	<b>1 MHz</b>	C <sub>P</sub>	<b>3600</b>	pF	typ

## C Layout Recommendation:



## D Test Equipment:

Keithley 2410 for Varistor Voltage  
 EMC Partner MIG0603CLV2 for Clamping Voltage  
 Agilent E4980A LCR Meter for Capacitance

## E Test Conditions:

Humidity: 33%  
 Temperature: +20°C

## F Material & Approvals:

Base material: ZnO with Electrodes  
 Termination: Silver / Nickel / Tin

## G General Specifications:

Storage temperature: -20°C ... 60°C  
 Max. operating temperature: -40°C ... 85°C  
 Max. response time: 1ns

Customer			
General Release:			
Date	Signature		
	<b>Würth Elektronik</b>		
Checked	Approved	Name	Modification
		Date	

## Würth Elektronik eiSos GmbH & Co. KG

D-74638 Waldenburg · Max-Eyth-Strasse 1 · Germany · Phone (+49) (0) 7942 - 945 - 0 · Fax (+49) (0) 7942 - 945 - 400  
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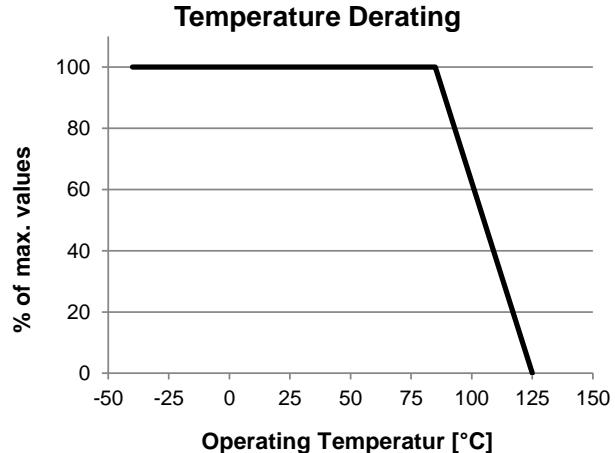


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## H Temperatur Derating:

The usage of varistors above the specified operating temperature is not recommended. However, if there is a need for this, you have to derate according to right figure

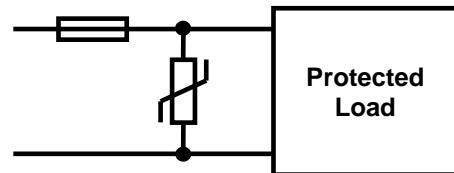
- operating voltage
- peak current-
- energy absorption
- permissible energy



## I Design Note:

Varistors do not have an endless lifetime. Also a well dimensioned varistor may fail due to enormous overload. This will result in heating, smoke emission and / or explosion of varistor itself. Therefore we recommend to place varistors separate within a box on PCB.

Furthermore a fuse should be in the varistor's current path to avoid secondary current in case the varistor fails. This fuse can protect against secondary currents and therewith caused damages.



General Release:	Customer				
Date	Signature	Würth Elektronik	RoD	Version 6	2016-05-10
Checked	Approved		JB	Version 5	2010-05-27
			JPP	High Temperature Load	2006-07-31
			JPP	New P/N	2006-06-02
			JPP	Operating Temp. Range	2005-11-30
			JPP	Lead Free Soldering	2005-11-04
			Name	Modification	Date

This electronic component has been designed and developed for usage in general electronic equipment. Before incorporating this component into any equipment where higher safety and reliability is especially required or if there is the possibility of direct damage or injury to human body, for example in the range of aerospace, aviation, nuclear control, submarine, transportation, (automotive control, train control, ship control), transportation signal, disaster prevention, medical, public information network etc, Würth Elektronik eiSos GmbH must be informed before the design-in stage. In addition, sufficient reliability evaluation checks for safety must be performed on every electronic component which is used in electrical circuits that require high safety and reliability functions or performance.

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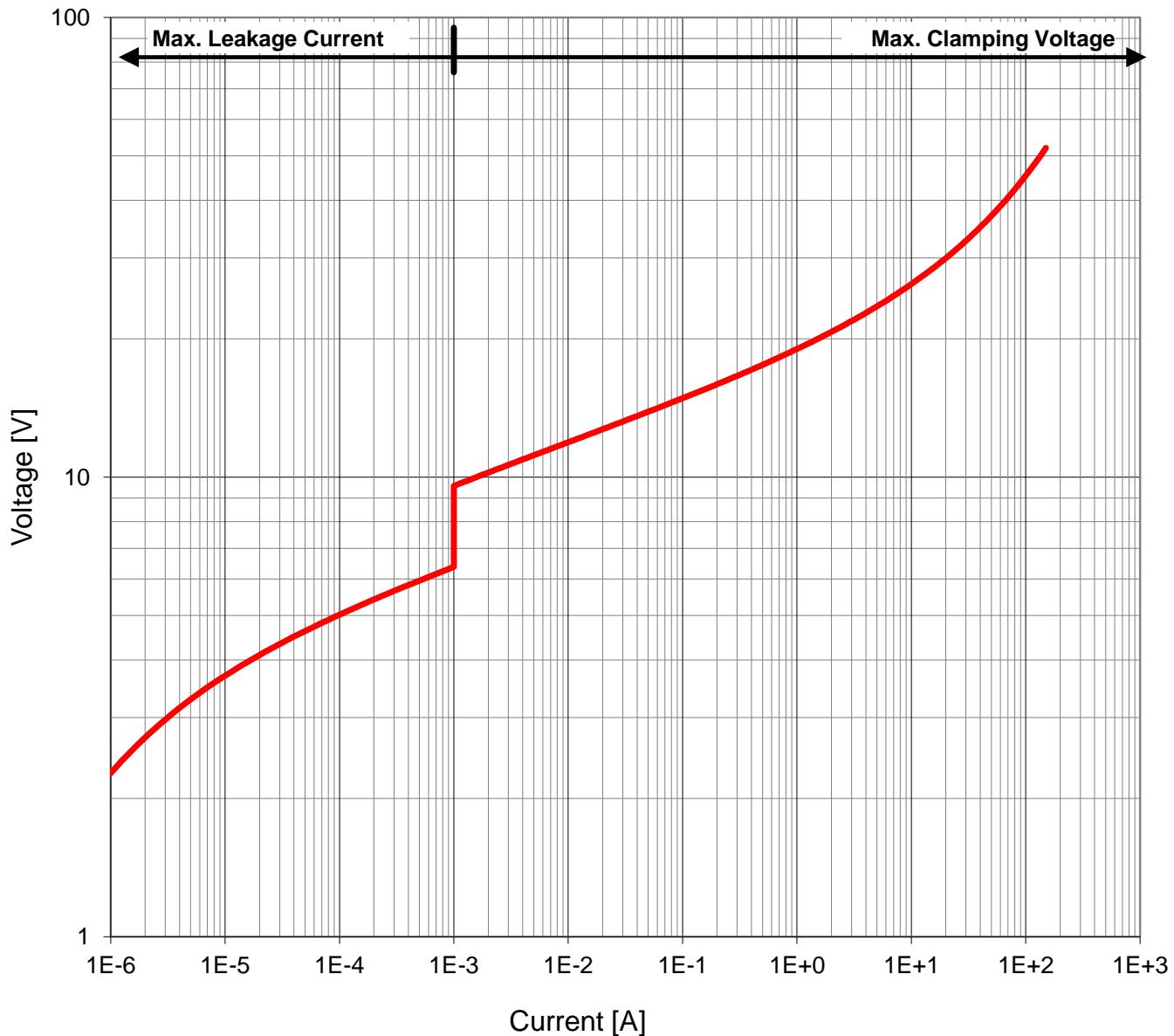
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## J I/V characteristic:



General Release:		Customer			
		RoD	Version 6	2016-05-10	
		JB	Version 5	2010-05-27	
Date	Signature	JPP	High Temperature Load	2006-07-31	
		JPP	New P/N	2006-06-02	
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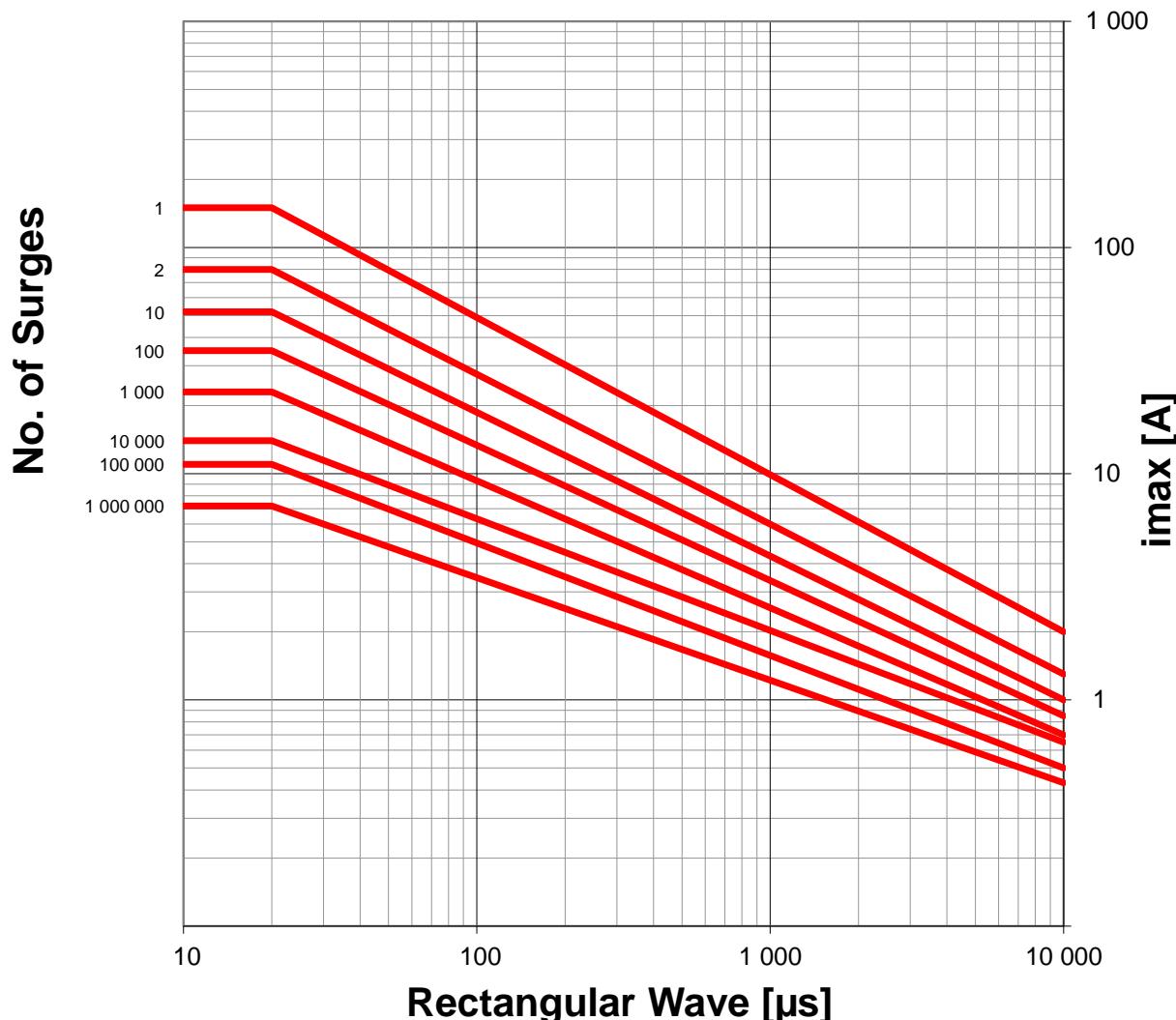
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## K Derating curve:



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		JB	Version 5	2010-05-27	
Date	Signature	JPP	High Temperature Load	2006-07-31	
	Würth Elektronik	JPP	New P/N	2006-06-02	
		JPP	Operating Temp. Range	2005-11-30	
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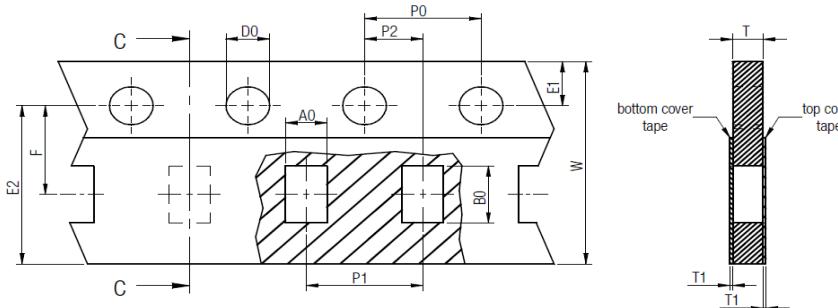
## Specification for Release

Customer : **82531040**  
Order Code: **SMD Varistor Power WE-VS**  
Description :



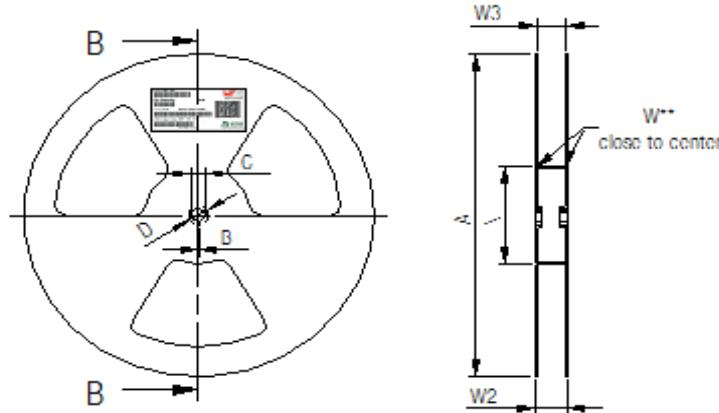
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## **J Rollenspezifikation / tape and reel specification:**



### Gurtspezifikation / Tape specification:

A0	<b>1.90 typ</b>	mm
B0	<b>3.5 typ</b>	mm
W	<b>8.0 <math>\pm</math> 0.1</b>	mm
P1	<b>4.0 <math>\pm</math> 0.1</b>	mm
T	<b>0.95 typ</b>	mm
T1	<b>0.1 max</b>	mm
D0	<b>1.5 <math>\pm</math> 0.1</b>	mm
E1	<b>1.75 <math>\pm</math> 0.1</b>	mm
E2	<b>6.25 min</b>	mm
F	<b>3.5 <math>\pm</math> 0.05</b>	mm
P0	<b>4.0 <math>\pm</math> 0.1</b>	mm
P2	<b>2.0 <math>\pm</math> 0.05</b>	mm



Rollenspezifikation / Reel specification:		
A	<b>178.00 ± 2.0</b>	mm
B	<b>1.5 min</b>	mm
C	<b>13 ± 0.8</b>	mm
D	<b>20.2 min</b>	mm
N	<b>50 min</b>	mm
W1	<b>8.4 +1.5</b>	mm
W2	<b>14.4 max</b>	mm
W3	<b>7.9 min</b>	mm
W3	<b>10.9 max</b>	mm

### L Quantity per Reel:

Size	Quantity
1206	4000

General Release:	Customer			
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Order Code:



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## L Cautions & Warnings

The following conditions apply to all goods within the product series of WE-VS of Würth Elektronik eiSos GmbH & Co. KG:

### General:

All recommendations according to the general technical specifications of the data-sheet have to be complied with. Further the varistor is not designed for voltage stabilization with continuous power dissipation.

The disposal and operation of the product within ambient conditions which probably alloy or harm the component surface has to be avoided.

The exposure of steam, saline spray, atmosphere with reduced oxygen content, corrosive gases, rain or condensation and direct sunlight shall be prohibited.

If the product is potted in customer applications, the potting material might shrink and react chemically during and after hardening. According to this the product is exposed to the pressure and material of the potting material with the effect that the ceramic body and termination is possibly damaged by this pressure or the chemically reaction and so the electrical as well as the mechanical characteristics and the life time are in danger to be affected. After the potting material is cured, the ceramic body and termination of the product have to be checked if any reduced electrical or mechanical functions or destructions have occurred.

The responsibility for the applicability of customer specific products and use in a particular customer design is always within the authority of the customer. All technical specifications for standard products do also apply for customer specific products.

Cleaning agents that are used to clean the application might damage or change the characteristics of the component, body, pins or termination and might reduce the life time.

Direct mechanical impact to the product shall be prevented as the ceramic material of the ceramic body could flake or in the worst case it could break.

Signals operated continuously with a high ratio of direct-current voltage might have an influence on the product life time.

### Product specific:

Follow all instructions mentioned in the datasheet, especially:

- The solder profile has to be complied with according to the technical reflow soldering specification, otherwise no warranty will be sustained.
- Wave soldering is only allowed after evaluation and approval.
- The compatibility of the SMT adhesive with the passivation layer of the component must be ensured
- All products shall be used before the end of the period of 12 months based on the product date-code, if not a 100% solderability can't be warranted.
- Violation of the technical product specifications such as exceeding the nominal rated voltage will result in the loss of warranty.

The general and product specific cautions comply with the state of the scientific and technical knowledge and are believed to be accurate and reliable; however, no responsibility is assumed for inaccuracies or incompleteness.

General Release:		Customer	
Date	Signature	RoD	Version 6
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		JPP	High Temperature Load
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