

# Varistor

# Material Data Sheet

<b>Product Class</b>	<b>Block Varistor B7222xB*</b>
<b>Date</b>	<b>30.09.2019</b>
IMDS ID if available	
<b>Version</b>	<b>5.05</b>

Product Part (IMDS: semi component)	Material Class (IMDS: Material)	Material (Classification) VDA 231	Substance	TMPS** [wt%]	CAS if applicable	typical mass of material [wt-%]	Traces see 1)
<b>Active Part</b>	Ceramic	3B	ZnO	91	1314-13-2	36,45	
			Bi2O3	4,0	1304-76-3		
			Sb2O3	2,5	1309-64-4		
			Co3O4	1	1308-06-1		
			NiO	0,5	1313-99-1		
others*)	1						
<b>Termination</b>	Composite	4D	Cu or Ag	95	7440-50-8 7440-22-4	1,2	
			Glass frit (boro-silicate)	5			
<b>Solder</b>	Heavy Metal	1C8	Sn Ag Cu	96,5 3 0,5	7440-31-5 7440-22-4 7440-50-8	0,6	
	Heavy Metal	1C8	Sn Ag Cu	96,5 3 0,5	7440-31-5 7440-22-4 7440-50-8	0,4	
<b>Electrode</b>	Heavy Metal	1C12	Cu	100	7440-50-8	2,65	
	Heavy Metal	1C8	Sn	100	7440-31-5	0,1	
<b>Cable Wire</b>	Organic Polymer	2D Halogen-free coating	Ethylene-vinyl acetate copolymer	23,69	24937-78-8	7,05	
			polyethylene	15,79	9002-88-4		
			Aluminium hydroxide	59,22	21645-51-2		
			Pentaerythritol tetra-n-heptanoate	0,12	25811-35-2		
			Titanium dioxide	0,79	13463-67-7		
			3-Aminopropyltriethoxysilane	0,39	919-30-2		
	Heavy Metal	1C12	Cu	100	7440-50-8	2,70	
	Heavy Metal	1C8	Sn	100	7440-31-5	0,15	
<b>Encapsulation</b>	Duromer	2D Halogen-free coating	SiO2	46	60676-86-0	1,2	
			Epoxy	40	25036-25-3		
			Pyromellitic dianhydride	6,5	89-32-7		
			Phosphated epoxy	5			
			others*)	2,5			
		2D	polybutylene terephthalate	63,75	26062-94-2	35,0	
			antimony compound	9,31			
			Polybutylene	22,1	9017-09-8		
			others*)	4,84			
<b>Housing</b>	Thermoplastic	2A Halogen coating	PBT (Poly butylene terephthalate)	69,5	26062-94-2	12,5	
			Glass fibre	25	65997-17-3		
			Sb2O3	3	1309-64-4		
			Carbon black	0,5	1333-86-4		
			Brominated flame retardant	0,5			
			Additives	1,5			

**Sum in total:** 100

sizes [mm]	weight range [g]	material numbers	part number	sizes [mm]	weight range [g]	material numbers	Part number
31,0X 28,0	41,0-48,0	B72220B*	B20K130-K320*	37,5 X 31,7	60,0-65,0	B72225B*	B25*
34,0X 28,0	50,0-55,0	B72220B*	B20K350-K510*				
<b>Not part of a Product Class</b>							

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<b>Contact</b>	Mr. Christoph Ronner	<b>Important remarks:</b>  1) The declaration limit is 0.1% as defined by IEC 62474 (IEC PAS 61906). Traces are product parts, substances etc. that are below a percentage of 0.1 % by weight, if not otherwise regulated. 2) This Material Data Sheet contains typical values of the respective products set forth herein. We expressly point out that all values and statements contained herein are based on our best present knowledge and cannot be regarded as binding statements or binding product specifications, unless otherwise explicitly agreed in writing. TDK ELECTRONICS AG AND ITS AFFILIATES HEREBY EXPRESSLY DISCLAIM ANY REPRESENTATION OR WARRANTY, WHETHER EXPRESS, IMPLIED OR STATUTORY, WITH REGARD TO THE STATEMENTS AND VALUES CONTAINED HEREIN, INCLUDING BUT NOT LIMITED TO ANY REPRESENTATION OR WARRANTY OF MERCHANTABILITY OR SUITABILITY FOR ANY PURPOSE.
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*) others: (not declarable or prohibited substances acc. GADSL) **) typical mass percentage of substance		
<p><b>The products set forth herein are "RoHS-compatible".</b> RoHS-compatible means that products are compatible with the requirements according to Art. 4 (substance restrictions) of Directive 2011/65/EU of the European Parliament and of the Council of June 8<sup>th</sup>, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment.</p> <p><b>RoHS - Exemptions for the Product Class / Product according to Annex III:</b> ( <input checked="" type="checkbox"/> valid <input type="checkbox"/> not valid )</p> <p><input checked="" type="checkbox"/> <b>no exemptions;</b></p> <p><input type="checkbox"/> Exemption 6 (a): Lead as an alloying element in steel for machining purposes and in galvanized steel containing up to 0,35 % lead by weight;</p> <p><input type="checkbox"/> Exemption 6 (b): Lead as an alloying element in aluminium containing up to 0,4 % lead by weight;</p> <p><input type="checkbox"/> Exemption 6 (c): Copper alloy containing up to 4 % lead by weight;</p> <p><input type="checkbox"/> Exemption 7 (a): Lead in high melting temperature type solder (i.e. lead-based alloys containing 85 % by weight or more lead);</p> <p><input type="checkbox"/> Exemption 7 (c)-I: Electrical and electronic components containing lead in a glass or ceramic other than dielectric ceramic in capacitors, e.g. piezoelectronic devices, or in a glass or ceramic matrix compound;</p> <p><input type="checkbox"/> Exemption 7 (c)-II: Lead in dielectric ceramic in capacitors for a rated voltage of 125 V AC or 250 V DC or higher;</p> <p><input type="checkbox"/> Exemption 7 (c)-III: Lead in dielectric ceramic in capacitors for a rated voltage of less than 125 V AC or 250 V DC;</p> <p><input type="checkbox"/> Exemption 15: Lead in solders to complete a viable electrical connection between semiconductor die and carrier within integrated circuit Flip Chip packages;</p> <p><input type="checkbox"/> Other Exemption than above .....</p>		