MATERIAL DECLARATION SHEET

BOURNS®

Product Part Number	**ZV50S2220452NIR1**
Product Line	**High Surge Varistors**

No.	Construction Element (subpart)	Homogeneous Material	Material weight [g]	Homogeneous material / substances	CAS No.	Material mass [%]	Material mass [%] of total unit wt.	Subpart mass of total wt. [%]
1	Ceramic body	Ceramic MLV	0.4419	Zinc oxide	1314-13-2	91.7	84.9891	92.65
				Dibismuth-trioxide	1304-76-3	3.0	2.7789	
				Antimonytrioxide	1309-64-4	3.0	2.7789	
				Tricobalt-tetraoxide	1308-06-1	1.3	1.2274	
				Trimanganese tetraoxide	1317-35-7	0.5	0.4632	
				Chromium(III)oxide	1308-38-9	0.3	0.3011	
				Silica, amorphous fumed	112945-52-5	0.1	0.0926	
				Aluminum trinitrate nonahydrate	7784-27-2	0.0	0.0232	
2	Internal electrodes	AgPd alloy	0.0098	Silver	7440-22-4	90	1.8501	2.06
				Palladium	7440-05-3	10	0.2056	
3	Glass layer	Glass	0.00002	*Glass matrix including compounds of:*				0.01
				Silicon	7440-21-3	59.80	0.0031	
				Boron	7440-42-8	10.90	0.0006	
				Calcium	7440-70-2	8.70	0.0004	
				Potassium	7440-09-7	6.50	0.0003	
				Titanium	7440-32-6	6.50	0.0003	
				Sodium	7440-23-5	3.10	0.0002	
				Aluminum	7429-90-5	2.90	0.0001	
				Magnesium	7439-95-4	0.80	0.0000	
				Lithium	7439-93-2	0.50	0.0000	
				Zinc	7440-66-6	0.30	0.0000	
4	Termination	Silver	0.0197	Silver	7440-22-4	100.00	4.1384	4.14
		Glass	0.0006	Glass frit (lead free)	65997-17-3	26.67	0.0332	0.12
				Lead	7439-92-1	73.33	0.0913	
5	Nickel plating	Nickel	0.0016	Nickel	7440-02-0	100	0.3407	0.34
6	Tin plating	Tin	0.0033	Tin	7440-31-5	100	0.6814	0.68
		TOTAL	0.4770					

This Document was updated: January, 2025

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Important remarks:

1. It is the responsibility of the user to verify they are accessing the latest version.
2. Presented data corresponds to part ZV50S2220452NIR1. Weight may change depending on varistor value and dimension.
3. This product contains lead in silver termination as a part of a glass matrix compound that exceeds the amount of 0.1% by weight. As such, it is conforming to the requirements of the European Union's Restrictions on use of Certain Hazardous Substances in Electrical and Electronic Equipment Directive 2011/65/EU (commonly called "RoHS2") and amendment of Annex II on March 31, 2015, 2015/863 ("RoHS3"):
   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.