


MATERIAL DECLARATION & RoHS REPORT



Product Part Number	1202 Series Hardwired AC Hybrid Surge Protective Device			
Product Line	Surge Protective Device (SPD)			
MSL	1			
RoHS Compliant	Yes	Compliance Date	November-2019	

No	Construction Element (subpart)	Homogeneous Material	Material weight [g]	Homogeneous Material/Substances	CASRN if applicable	Material's Mass %	Material Mass % of total unit wt.	Subpart mass of total wt. (%)
1	Housing top	Noryl resin N190X	14.80000	Polyphenylene ether (PPE)	9041-80-9	50.00	2.220945	4.44189
				high impact polystyrene	9003-55-8	50.00	2.220945	
2	Housing bottom	Noryl resin N190X	41.00000	Polyphenylene ether (PPE)	9041-80-9	50.00	6.152617	12.30523
				high impact polystyrene	9003-55-8	50.00	6.152617	
3	PC board	FR4	7.50000	Glass fiber	65997-17-3	45.00	1.012931	2.25096
				Epoxy resin	26265-08-7	35.00	0.787835	
				Further additives	Trade secret	5.00	0.112548	
				Copper	7440-50-8	15.00	0.337644	
		Tin Plating	0.10000	Tin	7440-31-5	100.00	0.030013	0.03001
4	Green wire	Wire insulator	3.90000	Polyvinyl Chloride (PVC)	9002-86-2	88.60	1.037061	1.17050

				Kaolin	1332-58-7	6.40	0.074912	
				Calcium Carbonate	471-34-1	4.55	0.053258	
				Antimony trioxide	1309-64-4	0.45	0.005267	
		filler material	22.10000	Copper	7440-50-8	100.00	6.632821	6.63282
5	Black wire	Wire insulator	7.80000	Polyvinyl Chloride (PVC)	9002-86-2	88.60	2.074122	2.34100
				Kaolin	1332-58-7	6.40	0.149824	
				Calcium Carbonate	471-34-1	4.55	0.106515	
				Antimony trioxide	1309-64-4	0.45	0.010534	
		filler material	44.20000	Copper	7440-50-8	100.00	13.265642	13.26564
6	White wire	Wire insulator	3.90000	Polyvinyl Chloride (PVC)	9002-86-2	88.60	1.037061	1.17050
				Kaolin	1332-58-7	6.40	0.074912	
				Calcium Carbonate	471-34-1	4.55	0.053258	
				Antimony trioxide	1309-64-4	0.45	0.005267	
		filler material	22.10000	Copper	7440-50-8	100.00	6.632821	6.63282
7	MOV	coating	5.80800	Antimony trioxide	1309-64-4	3.00	0.052294	1.74314
				3 Benzophenone-3,3':4,4'-tetracarboxylic dianhydride	2421-28-5	7.00	0.122020	

				3 Phenol, 4,4'-(1-methylethylidene)bis-, polymer with 2,2'-((1-methylethylidene)bis(4,1-phenyleneoxymethylene))bis(oxirane)	25036-25-3	40.00	0.697257			
				Silica, vitreous	60676-86-0	40.00	0.697257			
				TBBA	79-94-7	10.00	0.174314			
		Metals	4.84200			Copper	7440-50-8	88.50	1.286098	1.45322
						Silver	7440-22-4	10.00	0.145322	
						Confidential	Trade secret	1.50	0.021798	
		Ceramic	24.22200			Antimony trioxide	1309-64-4	3.00	0.218091	7.26969
						Dibismuth-trioxide	1304-76-3	5.00	0.363485	
						Tricobalt-tetraoxide	1308-06-1	1.20	0.087236	
						Manganese-oxide	1344-43-0	0.40	0.029079	
						Zinc oxide	1314-13-2	89.20	6.484565	
						Chromium(III)oxide	1308-38-9	0.60	0.043618	
						Nickel oxide	11099-02-8	0.60	0.043618	
8	Lateral Electrodes	Tin plated Alloy 42	1.57650	Iron	7439-89-6	56.40	0.266857	0.47315		
				Nickel	7440-02-0	40.80	0.193046			
				Tin	7440-31-5	2.80	0.013248			

	Metallized Ceramic	Ceramic	0.96600	Aluminum oxide	1344-28-1	94.06	0.272702	0.28992
		Metallization		Silicon dioxide	7631-86-9	4.95	0.014351	
				Molybdenum	7439-98-7	0.65	0.001885	
				Nickel	7440-02-0	0.34	0.000986	
	Brazing material	Cusil™	0.07500	Silver	7440-22-4	72.00	0.016207	0.02251
				Copper	7440-50-8	28.00	0.006303	
	Filler material	Gas	0.00210	Argon	7440-37-1	100.00	0.000630	0.00063
	Marking	Blue Ink	0.00300	Ink (Proprietary mixture)	Trade secret	100.00	0.000900	0.00090
	Leads	Tin plated copper	0.45000	Copper	7440-50-8	97.00	0.131006	0.13506
				Tin	7440-31-5	3.00	0.004052	
9	Fuse wire	copper	0.12000	Copper	7440-50-8	100.00	0.036015	0.03602
10	LED	Chip	0.00010	Gallium arsenide	1303-00-0	100.00	0.000030	0.00003
		Die attach	0.00010	Silver	7440-22-4	87.00	0.000026	0.00003
				Formaldehyde polymer	29690-82-2	13.00	0.000004	
		Gold wire	0.00002	Gold	7440-57-5	100.00	0.000006	0.00001
		PCB	0.00865	Copper	7440-50-8	21.00	0.000545	0.00260
				Gold	7440-57-5	0.80	0.000021	
Glass fiber	65997-17-3			77000	0.001999			

11	Resistor			Epoxy	25068-38-6	0.80	0.000021	
				Barium sulfate	7727-43-7	0.40	0.000010	
		Epoxy	0.00513	Epoxy resin	25068-38-6	65.00	0.001001	0.00154
				Tetrahydrophthalic acid	85-43-8	35.00	0.000539	
		Ceramic substrate	0.06760	Aluminum oxide	1344-28-1	96.00	0.019477	0.02029
				Silicon dioxide	7631-86-9	4.00	0.000812	
		Conductor layer	0.00102	Silver	7440-22-4	96.00	0.000294	0.00031
				Bismuth	7440-69-9	1.00	0.000003	
				Barium	7440-39-3	1.00	0.000003	
				Silicon	7440-21-3	1.00	0.000003	
				Boron	7440-42-8	1.00	0.000003	
		Resistive element	0.00098	Ruthenium oxide	12036-10-1	30.00	0.000088	0.00029
				Silver	7440-22-4	50.00	0.000147	
				Palladium	7440-05-3	20.00	0.000059	
Over coating	0.00132	Epoxy	29690-82-2	100.00	0.000396	0.00040		
Marking	0.00008	Epoxy	25085-99-8	100.00	0.000024	0.00002		
End terminal	0.00002	Nickel	7440-02-0	80.00	0.000005	0.00001		
		Chromium	7440-47-3	20.00	0.000001			

		Ni Plating	0.00230	Nickel	7440-02-0	100.00	0.000690	0.00069
		Sn plating	0.00204	Tin	7440-31-5	100.00	0.000612	0.00061
12	Diode	Chip	0.00224	Silicon	7440-21-3	91.80	0.000617	0.00067
				Nickel	7440-02-0	0.10	0.000001	
				Gold	7440-57-5	0.10	0.000001	
				Silicon dioxide	7631-86-9	4.50	0.000030	
				Lead	7439-92-1	3.50	0.000024	
		Solder	0.00315	Lead	7439-92-1	93.00	0.000880	0.00095
				Tin	7440-31-5	5.00	0.000047	
				Silver	7440-22-4	2.00	0.000019	
		Lead Frame	0.04332	Copper	7440-50-8	98.00	0.012741	0.01300
				Iron	7439-89-6	2.00	0.000260	
		Plating On Lead Wire	0.00006	Tin	7440-31-5	100.00	0.000019	0.00002
		Epoxy Resin Shell	0.07883	Epoxy Resins	61788-97-4	15.00	0.003549	0.02366
Phenolic Resin	9003-35-4			10.00	0.002366			
Silica	14808-60-7			75.00	0.017743			
13	Sand	silicon dioxide	115.00000	Silicon dioxide	7631-86-9	100.00	34.514680	34.51468
14	Foam	300135 Polyurethane	1.10000	Polyurethane	9009-54-5	100.00	0.330140	0.33014

15	RTV sealant	Silicone elastomer	0.10000	Dimethyl siloxane	70131-67-8	70.00	0.021009	0.03001
				Trimethylated silica	68909-20-6	30.00	0.009004	
16	Epoxy	filler material	5.00000	Bisphenol A/Epichlorohydrin	25068-38-6	28.00	0.420179	1.50064
				2 N-butyl glycidyl	02426-08-6	10.00	0.150064	
				Aluminum trihydrate	21645-51-2	25.00	0.375160	
				Decabromodiphenyl oxide	1163-19-5	17.00	0.255109	
				Zinc borate	13332-07-6	4.00	0.060026	
				Antimony trioxide	1309-64-4	4.00	0.060026	
				Fumed silica	7631-86-9	4.00	0.060026	
				Amides	68443-08-3	8.00	0.120051	
17	Solder wire	SAC387	0.10000	Tin	7440-31-5	95.50	0.028662	0.03001
				Silver	7440-22-4	3.80	0.001140	
				Copper	7440-50-8	0.70	0.000210	
18	Solder paste	Solder paste 96.5 Sn, 3.5 Ag	0.05000	Tin	7440-31-5	96.50	0.014481	0.01501
				Silver	7440-22-4	3.50	0.000525	
19	Conduit	Zinc plated steel	5.30000	Iron	7439-89-6	99.00	1.574770	1.59068
				Carbon	7440-40-0	0.50	0.007953	
				Zinc	7440-66-6	0.50	0.007953	

20	Label	polycarbonate	0.86000	Polycarbonate	25037-45-0	100.00	0.258110	0.25811
		Total	333.196					

This Document was updated on November, 2019

Important remarks:

1. It is the responsibility of the user to verify they are accessing the latest version.