


# MATERIAL DECLARATION SHEET



Material Number	81 L Cermet (Single Cup)			
Product Line	Panel Control			
Compliance Date	September 30, 2005			
RoHS Compliant	Yes	MSL	N/A	

No.	Construction Element (subpart)	Homogeneous Material	Material weight [g]	Homogeneous Material/ Substances	CASRN if applicable	Materials Mass %	Material Mass % of total unit wt.	Subpart mass of total wt. (%)
1	Rotor Driver	Zinc	0.968	Zinc	7440-66-6	72	5.1	7.09
				Aluminum	7429-90-5	25	1.77	
				Copper	7440-50-8	3	0.21	
2	Shaft	Brass	6.499	Copper	7440-50-8	61.5	29.27	47.6
				Zinc	7440-66-6	35.5	16.89	
		Plating	0.00593	Nickel	7440-02-0	100	0.04	0.043
3	Rivet X4	Aluminum	0.0677	Aluminum	7429-90-5	93.5	0.46	0.495
				Chromium	7440-47-3	1	0.004	
				Copper	7440-50-8	3	0.001	
				Iron	7439-89-6	0.7	0.003	
				Magnesium	7439-98-5	0.5	0.002	
				Manganese	7439-96-5	0.2	0.009	
				Silicon	7440-21-3	0.8	0.003	
				Zinc	7440-66-6	0.25	0.001	
4	Substrate	Ceramic	0.3	Aluminum Oxide	1344-28-1	95	2.08	2.197
				Silicon Oxide	7631-86-9	1	0.021	
				Magnesium Oxide	7309-48-4	2	0.04	
				Calcium Oxide	1305-78-8	2	0.043	

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5	Conductor Ink	Ink	0.003	Silver	7440-22-4	75	0.016	0.022
				Palladium	7440-05-3	10	0.002	
				Disbismuth-trioxide	1304-76-3	10	0.002	
				Ruthenium(IV)oxide	12036-10-1	1	0.0002	
				Silicon dioxide	7631-86-9	1	0.0002	
				Nickel-monoxide	1313-99-1	1	0.0002	
				Lead-monoxide	1317-36-8	1	0.0002	
6	Resistive Ink	Ink	0.003	Phenolic Resin		67	0.0736	0.022
				Diallyl Isophthalate Resin	1087-21-4	6	0.066	
				Carbon Black	1333-86-4	7	0.007	
				Barium Sulfate	7727-43-7	16	0.017	
				Graphite	7782-42-5	4	0.043	
7	Resistive Ink	Ink	0.0015	Ruthenium(IV)oxide	12036-10-1	12.11	0.0013	0.11
				silver	7440-22-4	10.11	0.0011	
				Palladium	7440-05-3	12.11	0.0013	
				Diboron-trioxide	1303-86-2	1.05	0.0001	
				Aluminium oxide	1344-28-1	3.05	0.0003	
				Lead-monoxide	1317-36-8	19.11	0.0020	
				Silicon dioxide	7631-86-9	14.11	0.0015	
				Calcium Oxide	1305-78-8	1.05	0.0001	
				Dibismuth-trioxide	1304-76-3	11.11	0.0012	
				Digadolinium-trioxide	12064-62-9	14.12	0.0015	
				Proprietary Ingredients		2.05	0.0002	

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8	Resistive Ink	Ink	0.0015	Ruthenium (IV) oxide	12036-10-1	14.12	0.0015	0.11
				silver	7440-22-4	4.06	0.0004	
				Palladium	7440-05-3	4.06	0.0004	
				Diboron-trioxide	1303-86-2	2.06	0.0002	
				Aluminium oxide	1344-28-1	4.06	0.0004	
				Lead-monoxide	1317-36-8	25.12	0.0027	
				Silicon dioxide	7631-86-9	15.05	0.0016	
				Dibismuth-trioxide	1304-76-3	12.12	0.0013	
				Digadolinium-trioxide	12064-62-9	13.12	0.0014	
				Proprietary Ingredients		6.18	0.0006	
9	Terminal Wire	Copper	0.03	Copper	7440-50-8	100	0.219	0.219
		Plating	0.0015	Tin	7440-31-5	100	0.011	0.011
10	Contact Spring	Strip Laminated	0.05	Copper	7440-50-8	70	0.256	0.366
				Zinc	7440-66-6	30	0.109	
		Spacer Strip	0.04	Nickel	7440-02-0	18	0.052	0.293
				Copper	7440-50-8	55	0.161	
		Solder Inlay	0.0015	Zinc	7440-66-6	27	0.079	0.011
				Tin	7440-31-5	94.5	0.013	
				Silver	7440-22-4	5.2	0.005	
		Wire	0.03	Bismuth	7440-69-9	0.30	0.0003	0.219
				Nickel	7440-02-0	18	0.039	
				Copper	7440-50-8	65	0.142	
11	Rotor	PBT	0.5293	Zinc	7440-66-6	17	0.037	3.877
				Glass	65997-17-3	25	0.969	
				Poly(butylene terephthalate)	30965-26-5	65	2.520	
				Antimony Compounds	7440-36-0	5	0.193	
				Antimony Oxide	1309-64-4	5	0.193	

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12	Body	PBT	0.577	Glass	65997-17-3	25	1.056	4.226
				Poly(butylene terephthalate)	30965-26-5	65	2.747	
				Antimony Compounds	7440-36-0	5	0.211	
				Antimony Oxide	1309-64-4	5	0.211	
13	Primary Body	PBT	1.9653	Glass	65997-17-3	25	3.598	14.395
				Poly(butylene terephthalate)	30965-26-5	65	9.357	
				Antimony Compounds	7440-36-0	5	0.719	
				Antimony Oxide	1309-64-4	5	0.719	
14	Lube (Shaft)	Grease	0.003	Siloxanes and Silicones, di-Me, di-Ph	68083-14-7	68.9	0.151	0.022
				Lithium Stearate	4485-12-5	25.3	0.055	
				Silane, dichlorodimethyl-reaction products with silica	68611-44-9	4.7	0.010	
				Diphenylamine	122-39-4	0.89	0.001	
15	Bushing	Aluminum	0.9	Silicon	7440-21-3	0.7	0.004	6.592
				Iron	7439-89-6	0.34	0.022	
				Copper	7440-50-8	0.34	0.022	
				Manganese	7439-96-3	0.09	0.005	
				Magnesium	7439-98-5	0.9	0.059	
				Chromium	7440-47-3	0.09	0.059	
				Zinc	7440-66-6	0.05	0.032	
				Titanium	7440-32-6	0.02	0.001	
	Aluminum	7429-90-5	97.4	6.425				
Plating	0.0008219	Nickel	7440-02-0	100	0.006	0.006		

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16	Rear Cover	Stainless Steel	0.92	Carbon	7440-44-0	0.01	0.0006	6.738
				Manganese	7435-96-5	1.84	0.123	
				Phosphorus	7723-14-0	0.03	0.0002	
				Sulfur	7704-34-9	0.002	0.0001	
				Silicon	7440-21-3	0.10	0.006	
				Chromium	7440-47-3	18.6	1.254	
				Nickel	7440-02-0	9.90	0.667	
				Molybdenum	7439-92-1	0.420	0.028	
				Copper	7440-50-8	0.37	0.024	
				Nitrogen	7727-37-9	0.05	0.003	
				Iron	7439-89-6	68.6	4.626	
16	Front Cover	Stainless Steel	0.716	Carbon	7440-44-0	0.15	0.007	5.244
				Manganese	7435-96-5	2	0.104	
				Silicon	7440-21-3	1	0.052	
				Chromium	7440-47-3	19	0.996	
				Nickel	7440-02-0	10	0.524	
				Iron	7439-89-6	67.8	3.558	

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17	Washer	PTFE	0.007	Polytetrafluoroethylene	9002-84-0	15	0.0007	0.051
				1-Dichloro-1-fluoroethane	1717-00-6	85	0.004	
18	Spring Washer	Copper	0.031	Copper	7440-50-8	98.1	0.222	0.227
				Silicon	7440-21-3	0.2	0.0004	
				Beryllium	7440-41-7	1.5	0.003	
				Aluminum	7429-90-5	0.2	0.0004	
19	Lube (Element)	Lube	0.003	Decanoic acid, mixed esters with heptanoic acid, octanoic acid	68130-53-0	54.4	0.011	0.022
				Lithium 12-hydroxystearate	7620-77-1	5.7	0.001	
				Isohexadecyl-isoctadecanoate	52006-45-8	33.7	0.007	
				Polyisobutylene	9003-27-4	6.2	0.001	
		Total weight	13.652					

**This Document was updated on:** May 14, 2007

**Important remarks:**

1. It is the responsibility of the user to verify they are accessing the latest version.
2. RoHS exemptions: lead in glass in electronic components (5); lead in copper alloys (6)
3. Per [Product Update Memo SC2436](#), this MDS is under revision. The updated version will be posted soon.