


MATERIAL DECLARATION SHEET



Material Number	EN-L			
Product Line	Encoder			
Compliance Date	March 31, 2006			
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	Substrate X 2	Ceramic	2.5	Aluminum Oxide	1344-28-1	95	11.398	11.998
				Silicon Oxide	7631-86-9	2	0.24	
				Magnesium Oxide	1309-48-4	1	0.12	
				Calcium Oxide	1305-78-8	1	0.12	
				Other Oxides		1	0.12	
2	Conductive Ink 1	Ink	0.003	Silver	7440-22-4	75	0.11	0.014
				Palladium	7440-05-3	10	0.001	
				Dibismuth-trioxide	1304-76-3	10	0.001	
				Ruthenium(IV)oxide	12036-10-1	1	0.0001	
				Silicon Dioxide	7631-86-9	1	0.0001	
				Nickel-monoxide	1313-99-1	1	0.0001	
				Lead-monoxide	1317-36-8	1	0.0001	
				Proprietary Ingredients		1	0.0001	
3	Conductive Ink 2	Ink	0.003	Silver	7440-22-4	1.5	0.0002	0.014
				Dibismuth-trioxide	1304-76-3	1	0.0001	
				Gold	7440-57-5	96	0.014	
				Lead-monoxide	1317-36-8	0.5	0.00007	
				Silicon Dioxide	7631-86-9	0.25	0.00004	
				Proprietary Ingredients		0.75	0.0001	

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4	Resistive Ink 1	Ink	0.0015	Palladium	7440-05-3	29.42	0.002	0.007
				Silver	7440-22-4	23.42	0.002	
				Ruthenium	7440-18-8	5.14	0.0004	
				Lead-monoxide	1317-36-8	4.14	0.0003	
				Orange-lead	1314-41-6	5.14	0.0004	
				Diboron-trioxide	1303-86-2	2.14	0.0002	
				Dibismuth-trioxide	1304-76-3	5.14	0.0004	
				Calcium Oxide	1305-78-8	2.14	0.0002	
				Digadolinium-trioxide	12064-62-9	6.14	0.0004	
				Magnesium Oxide	1309-48-4	2.14	0.0002	
				Silicon Dioxide	7631-86-9	7.64	0.0005	
				Proprietary Ingredients		7.4	0.0005	
				5	Resistive Ink 2	Ink	0.0015	
Diboron-trioxide	1303-86-2	0.79	0.00006					
Aluminum Oxide	1344-28-1	5.79	0.0004					
Lead-monoxide	1317-36-8	53.93	0.004					
Silicon Dioxide	731-86-9	23.35	0.002					
Proprietary Ingredients		5.35	0.0004					
6	Terminal Receptacle	Phosphor Bronze	0.025	Copper	7440-50-8	94.8	0.114	0.12
				Tin	7440-31-5	5	0.006	
				Phosphorus	7723-14-0	0.2	0.0002	
		Plating	0.0022	Tin	7440-31-5	100	0.011	0.011
7	LED	Semi Conductor	0.00015	Arsenic	7440-38-2	52.5	0.0004	0.001
				Gallium	7440-55-3	44.5	0.0003	
				Aluminum	7429-90-5	1.7	0.00001	
				Gold	7440-57-5	1.3	0.00001	
				Titanium	7440-32-6	0.017	0.0000001	
				Beryllium	7740-41-7	0.003	0.00000002	
				Nickel	7440-02-0	0.002	0.00000001	
				Germanium	7440-56-4	0.0003	0.000000002	

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8	Shunt Volt Regulator	Semi Conductive Die	0.072	Silicon	7440-21-3	100	0.346	0.346
9	Solder	Solder	0.018	Tin	7440-31-5	86.9	0.075	0.086
				Silver	7440-22-4	2.7	0.002	
				M-Pyrrol	872-50-4	2.25	0.002	
				Modified Rosin	65997-06-0	4.5	0.004	
				Rosin	8050-09-7	3.65	0.003	
10	Wire X 6	Gold	0.006	Gold	7440-57-5	100	0.029	0.029
11	Conductive Epoxy	Epoxy Resin	0.0021	Silver	7440-22-4	75	0.007	0.009
				Epoxy Resin		25	0.002	
12	Epoxy	Epoxy	0.0046	Clear Silicone Adhesive		100	0.022	0.022
13	Terminal Strip	Nylon	0.22	Nylon	32131-17-2	100	1.056	1.056
		Brass	0.268	Copper	7440-50-8	61.5	0.79	1.286
				Lead	7439-92-1	3	0.039	
				Zinc	7440-66-6	35.5	0.467	
Plating	0.0004	Tin	7440-31-5	100	0.002	0.002		
14	ASIC	Die	1.35	Silicon	7440-21-3	100	6.314	6.314
15	Code Disk	Nickel	0.05	Nickel	25265-77-4	100	0.234	0.234
16	Rotor	Aluminum	0.4	Aluminum	7429-90-5	93.7	1.75	1.871
				Copper	7440-50-8	5.5	0.103	
				Bismuth	7440-69-9	0.4	0.007	
				Lead	7439-92-1	0.4	0.007	
17	Spacer	Aluminum	0.0705	Aluminum	7429-90-5	93.7	0.309	0.329
				Copper	7440-50-8	5.5	0.018	
				Bismuth	7440-69-9	0.4	0.001	
				Lead	7439-92-1	0.4	0.001	
18	Shaft	Stainless Steel	9.2	Nickel	7440-02-0	9	3.974	44.086

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				Chromium	7440-47-3	18	7.947	
				Iron	1309-37-1	69.7	30.774	
				Manganese	7439-96-5	2	0.883	
				Carbon	7440-44-0	0.15	0.066	
				Silicon	7440-21-3	1	0.442	
				Sulfur	7704-34-9	0.15	0.066	
19	Rotor Trimmer	PPS	0.1085	Benzene,1,4-dichloro- polymer with sodium sulfide	26125-40-6	28.4	0.147	0.521
				Carbon Black	1333-86-4	0.6	0.003	
				Glass Fiber		35	0.182	
				Additives		1	0.005	
				Mineral Powder		35	0.182	
20	Contact Spring	Strip	0.009	Nickel	7440-02-0	100	0.042	0.042
		Wire	0.0054	Copper	7440-50-8	55	0.014	0.025
				Nickel	7440-02-0	18	0.005	
				Zinc	7440-66-6	27	0.007	
		Strip Pre-punched	0.036	Copper	7440-50-8	70	0.121	0.173
				Zinc	7440-66-6	30	0.052	
21	Ball Bearing	Stainless Steel	0.55	Carbon	7440-44-0	0.69	0.018	2.639
				Manganese	7439-96-3	0.66	0.018	
				Phosphorus	7723-14-0	0.007	0.002	
				Sulfur	7704-34-9	0.005	0.001	
				Silica	7440-21-3	0.24	0.006	
				Chromium	7440-47-3	0.24	0.006	
				Iron	7439-89-6	98.158	2.591	
22	Body	PBT	1.45	Glass	65997-17-3	30	2.087	6.959
				PBT		67	4.662	
				Antimony Oxide	1309-64-4	3	0.209	
23	Rear Cover	PBT	1.45	Glass	65997-17-3	30	2.088	6.959

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				PBT		67	4.662	
				Antimony Oxide	1309-64-4	3	0.209	
24	Front Cover	PBT	2.1	Glass	65997-17-3	30	3.024	10.078
				PBT		67	6.752	
				Antimony Oxide	1309-64-4	3	0.302	
25	Bushing	Aluminum	1.25	Aluminum	7429-90-5	93.7	5.621	5.999
				Copper	7440-50-8	5.5	0.329	
				Bismuth	7440-69-9	0.4	0.024	
				Lead	7439-92-1	0.4	0.024	
26	Emitter Lens	Polycarbonate	0.059	Poly(bisphenol-A)-carbonate	111211-39-3	100	0.283	0.283
27	Phase Plate	Nickel	0.0182	Nickel	7440-02-0	100	0.087	0.087
28	Drive Pin X 4	Carbon Steel	0.8028	Carbon	7440-44-0	0.2	0.008	3.853
				Manganese	7435-96-5	0.9	0.035	
				Phosphorus	7723-14-0	0.03	0.001	
				Sulfur	7704-34-9	0.05	0.002	
				Silicon	7440-21-3	0.35	0.014	
				Aluminum	7429-90-5	0.067	0.003	
				Iron	7439-89-6	98.403	3.791	
	Plating	0.00018	Zinc	7440-66-6	100	0.0009	0.009	
29	O-Ring	Rubber	0.015	Nitrile		100	0.07	0.07
		Total weight	20.837					

This Document was updated on: May 10, 2006

Important remarks:

1. It is the responsibility of the user to verify they are accessing the latest version.
2. Per [Product Update Memo SC2436](#), this MDS is under revision. The updated version will be posted soon.