

# Material Declaration



Package Type	5 x 7
Package Size	5 x 7 mm
Terminal Finish	Gold
Finish Thickness	0.5 microns
Weight (mg)	164.000
MSL	1

Series	CHL
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Item	Material	Element	Content (mg)	Content (wt%)	CAS #	
Cover	Kovar	Nickel (Ni)	6.962	4.245%	7440-02-0	
		Cobalt (Co)	4.053	2.471%	7440-48-4	
		Iron (Fe)	13.018	7.938%	7439-89-6	
	Plating	Nickel (Ni)	0.996	0.607%	7440-02-0	
Base	Ceramic	Alumina (Al <sub>2</sub> O <sub>3</sub> )	79.015	48.180%	1344-28-1	
		Silicon Dioxide (SiO <sub>2</sub> )	3.136	1.912%	7631-86-9	
		Chromium Oxide (Cr <sub>2</sub> O <sub>3</sub> )	3.373	2.057%	1308-38-9	
		Titanium Oxide (TiO <sub>2</sub> )	0.872	0.531%	13463-67-7	
		Calcium Oxide (CaO)	0.294	0.179%	1305-79-9	
		Magnesium Oxide (MgO)	0.441	0.269%	1309-48-4	
		Molybdenum (Mo)	0.487	0.297%	7439-98-7	
		Metallization	Tungsten (W)	15.622	9.526%	7440-33-7
	Nickel Plating	Nickel (Ni)	2.015	1.229%	7440-02-0	
		Cobalt (Co)	0.509	0.311%	7440-48-4	
	Gold Plating	Gold (Au)	0.702	0.428%	7440-57-5	
	Seal Ring	Iron (Fe)	12.679	7.731%	7439-89-6	
		Nickel (Ni)	6.815	4.155%	7440-02-0	
	Silver Solder	Cobalt (Co)	3.996	2.437%	7440-48-4	
		Silver (Ag)	2.977	1.815%	7440-22-4	
	Copper (Cu)	0.521	0.318%	7440-50-8		
IC	IC	Aluminum (Al)	0.003	0.00195%	7429-90-5	
		Titanium (Ti)	0.001	0.001%	7440-32-6	
		Silicon (Si)	1.200	0.732%	7440-21-3	
	Gold Wire	Gold (Au)	0.325	0.198%	7440-57-5	
	Adhesive	Silver (Ag)	0.0002	0.00013%	7440-22-4	
Epoxy		0.0001	0.00004%			
Capacitor 1	Body	Nickel (Ni)	0.010	0.006%	7440-02-0	
		BaTiO <sub>3</sub>	0.830	0.506%	12047-27-7	
		Termination	Nickel (Ni)	0.013	0.008%	7440-02-0
		Tin (Sn)	0.019	0.012%	7440-31-5	
		Copper (Cu)	0.025	0.015%	7440-50-8	
Capacitor 2	Body	Nickel (Ni)	0.010	0.006%	7440-02-0	
		BaTiO <sub>3</sub>	0.830	0.506%	12047-27-7	
		Termination	Nickel (Ni)	0.013	0.008%	7440-02-0
		Tin (Sn)	0.019	0.012%	7440-31-5	
		Copper (Cu)	0.025	0.015%	7440-50-8	
Resistor	Body	Aluminum Oxide (Al <sub>2</sub> O <sub>3</sub> )	0.849	0.518%	1344-28-1	
		Silicon Oxide (SiO <sub>2</sub> )	0.043	0.026%	7631-86-9	
		Magnesium Oxide (MgO)	0.010	0.006%	1309-48-4	
		Calcium Oxide (CaO)	0.009	0.005%	1305-78-8	
		Silver (Ag)	0.061	0.037%	7440-22-4	
		Palladium (Pd)	0.002	0.001%	7440-05-3	
		Boron Trioxide (B <sub>2</sub> O <sub>3</sub> )	0.012	0.008%	1303-86-2	
		Lead Oxide (PbO)	0.010	0.006%	1317-36-8	
		Ruthenium Oxide (RuO <sub>2</sub> )	0.006	0.004%	12036-10-1	
		Copper Oxide (Cu <sub>2</sub> O)	0.001	0.001%	1317-38-0	
		Epoxy	0.037	0.022%	67762-95-2	
		Termination	Nickel (Ni)	0.032	0.020%	7440-02-0
			Tin (Sn)	0.058	0.036%	7440-31-5
	Crystal	Crystal	Quartz (SiO <sub>2</sub> )	1.041	0.635%	14808-60-7
		Electrode	Silver (Ag)	0.022	0.013%	7440-22-4
Nickel (Ni)			0.0002	0.0001%	7440-02-0	
Adhesive		Silver (Ag)	0.0004	0.0003%	7440-22-4	
	Silicon (Si)	0.0001	0.0001%	7440-21-3		
<b>Total</b>			<b>164.000</b>	<b>100.000%</b>		



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