

# Material Declaration



Package Type	Half
Package Size	13.2 x 13.2 mm
Terminal Finish	Matte Tin
Finish Thickness	8 microns
Weight (mg)	2160.000
MSL	1

Series	CH11
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Item	Material	Element	Content (mg)	Content (wt%)	CAS #	
Cover	Stainless Steel	Nickel (Ni)	33.432	1.548%	7440-02-0	
		Chromium (Cr)	74.547	3.451%	7740-47-3	
		Iron (Fe)	294.239	13.622%	7439-89-6	
		Manganese (Mn)	4.256	0.197%	7439-96-5	
		Silicon (Si)	1.962	0.091%	7440-21-3	
		Carbon (C)	0.180	0.008%	7440-44-0	
		Sulphur (S)	0.004	0.0002%	7704-34-9	
		Phosphorus (P)	0.086	0.004%	7723-14-0	
Header	Iron Alloy	Iron (Fe)	1122.690	51.976%	7439-89-6	
		Carbon (C)	0.562	0.026%	7440-44-0	
		Silicon (Si)	0.112	0.005%	7440-21-3	
		Manganese (Mn)	2.590	0.120%	7439-96-5	
		Phosphorus (P)	0.157	0.007%	7723-14-0	
		Sulphur (S)	0.056	0.003%	7704-34-9	
		PTH Glass	Glass Frit	6.846	0.317%	65997-18-4
		Standoff Glass	Glass Frit	23.909	1.107%	65997-18-4
	Kovar	Iron (Fe)	12.900	0.597%	7439-89-6	
		Nickel (Ni)	7.127	0.330%	7440-02-0	
		Cobalt (Co)	4.189	0.194%	7440-48-4	
	Solder Dip	Tin (Sn)	2.465	0.114%	7440-31-5	
		Silver (Ag)	0.077	0.004%	7440-22-4	
		Copper (Cu)	0.013	0.001%	7440-50-8	
	H/I C	IC Die	Aluminum (Al)	0.0016	0.000072%	7429-90-5
			Molybdenum (Mo)	0.0002	0.000009%	7439-98-7
Silicon (Si)			0.817	0.038%	7440-21-3	
Titanium (Ti)			0.0004	0.00002%	7440-32-6	
Arsenic (As)			0.0000079	0.0000037%	7440-38-2	
Chromium (Cr)			0.0000072	0.0000033%	7440-47-3	
Mold			Epoxy Resin	4.553	0.211%	129915-35-1
			Organic Phosphorus	0.405	0.019%	
		Metal Hydroxide	1.771	0.082%		
		Silica (SiO2)	40.167	1.860%	60676-86-0	
		Carbon Black	0.153	0.007%	1333-86-4	
		Phenol	3.570	0.165%	9003-35-4	
Gold		Gold (Au)	0.136	0.006%	7440-57-5	
Adhesive		Silver (Ag)	0.037	0.002%	7440-22-4	
		Epoxy Resin	0.012	0.0006%	129915-35-1	
Leadframe		Copper (Cu)	18.022	0.834%	7440-50-8	
		Silver (Ag)	0.462	0.021%	7440-22-4	
Leadframe Plating		Tin (Sn)	0.658	0.030%	7440-31-5	
		Silver (Ag)	0.016	0.0008%	7440-22-4	
Ceramic Substrate		Alumina (Al2O3)	369.151	17.090%	1344-28-1	
		Silicon Oxide (SiO)	9.238	0.428%	11126-22-0	
		Titanium Oxide (TiO2)	0.039	0.002%	13463-67-7	
		Iron Oxide (Fe2O3)	0.233	0.011%	1309-37-1	
		Calcium Oxide (CaO)	1.401	0.065%	1305-78-9	
		Sodium Oxide (Na2O)	0.932	0.043%	1313-59-3	
		Magnesium Oxide (MgO)	3.648	0.169%	1309-48-4	
		Potassium Oxide (K2O)	3.105	0.144%	12136-45-7	
		Conductor	Silver (Ag)	5.789	0.268%	7440-22-4
			Glycol Ethyl Ether	0.341	0.016%	109-87-5
Terpineol			0.341	0.016%	8000-41-7	
Di(2-ethylhexyl) Phthalate			0.068	0.003%	117-81-7	
Resin, Hydrogenated, methyl ester			0.350	0.016%	8050-15-5	
Glass Frit			9.106	0.422%	65997-18-4	
Conductor Overglaze		Glycol Ethyl Ether	0.584	0.027%	109-87-5	
		Terpineol	1.051	0.049%	8000-41-7	
		Di(2-ethylhexyl) Phthalate	0.467	0.022%	117-81-7	
		Nickel (Ni)	0.117	0.005%	7440-02-0	
		Barium Titanate (BaTiO3)	1.167	0.054%	12047-27-7	
		Nickel (Ni)	0.0023	0.00011%	7440-02-0	
Chip Cap		Copper (Cu)	0.0001	0.0000045%	7440-50-8	
		Nickel (Ni) (Plating)	0.0001	0.0000045%	7440-02-0	
		Tin (Sn) (Plating)	0.0001	0.0000045%	7440-31-5	
		SMD Solder	Tin (Sn)	15.021	0.695%	7440-31-5
		Silver (Ag)	0.545	0.025%	7440-22-4	
		Substrate attach solder	Tin (Sn)	18.776	0.869%	7440-31-5
Silver (Ag)		0.584	0.027%	7440-22-4		
Copper (Cu)		0.097	0.005%	7440-50-8		
Crystal		Crystal	Silicon Dioxide (SiO2)	38.914	1.802%	14808-60-7
		Electrode	Silver (Ag)	5.837	0.270%	7440-22-4
		Blank Adhesive	Silver (Ag)	7.939	0.368%	7440-22-4
		Silicon (Si)	1.985	0.092%	7440-21-3	
<b>TOTAL</b>				2160.000	100.000%	



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