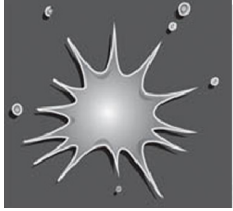


SOLDER CONNECTION

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Solder Alloy Technical Specification

Solder Alloy	Melting Point (°C) solidus / liquidus	Density, (g/cm ³)	Electrical Resistivity (μΩm)	Thermal Conductivity (W/m K)	Tensile Strength at Break, (kgf/cm ²)	Tensile Elongation at Break (%)	Brinell Hardness (HB)
Alloys of tin (Sn) with silver (Ag) and / or copper (Cu)							
Sn96.5Ag3.5	221 / 221	7.37	0.123	55	580	35	15
Sn95Ag05	221 / 240	7.4	0.137	-	565	30	14
Sn90Ag10	221 / 295	7.51	-	-	-	-	-
Sn99.3Cu0.7	227 / 227	7.31	0.126	66	300	21	9
Sn97Cu03	227 / 300	7.32	0.118	-	-	-	-
Sn99.2Ag0.1Cu0.7 (SAC0107)	217 / 228	7.32	-	-	-	-	-
Sn99Ag0.3Cu0.7 (SAC0307)	217 / 228	7.33	-	-	300	22	14
Sn98.5Ag0.8Cu0.7 (SAC0807)	216 / 225	7.33	0.14	-	310	21	16
Sn98.5Ag1.0Cu0.5 (SAC105)	215 / 227	7.32	0.133	60	400	13	13
Sn97.1Ag2.6Cu0.3 (SAC263)	217 / 224	7.36	0.132	-	-	-	-
Sn96.5Ag3.0Cu0.5 (SAC305)	217 / 220	7.38	0.132	58	500	19	15
Sn95.5Ag4.0Cu0.5 (SAC405)	217 / 220	7.44	0.132	62	530	17	15
Sn95.5Ag3.8Cu0.7 (SAC387)	217 / 220	7.44	0.132	60	600	16	15
Alloys of tin (Sn) and lead (Pb) with or without silver (Ag)							
Sn90Pb10	183 / 213	7.55	-	-	490	40	-
Sn63Pb37	183 / 183	8.4	0.145	50	525	37	17
Sn62.5Pb36.1Ag1.4	179 / 179	8.41	0.145	50	490	-	16
Sn60Pb40	183 / 191	8.5	0.153	49	535	40	16
Sn55Pb45	183 / 200	8.68	-	-	-	-	-
Sn50Pb50 or Pb50Sn50	183 / 212	8.87	0.158	48	420	35	14
Pb55Sn45 or Sn45Pb55	183 / 227	9.07	0.166	-	-	-	-
Pb60Sn40 or Sn40Pb60	183 / 238	9.28	0.171	44	380	25	12
Pb65Sn35 or Sn35Pb65	183 / 247	9.5	0.176	-	-	-	12
Pb70Sn30 or Sn30Pb70	183 / 257	9.72	0.185	41	350	18	12
Pb75Sn25 or Sn25Pb75	183 / 268	9.96	0.194	-	240	53	11
Pb80Sn20 or Sn20Pb80	183 / 280	10.21	0.198	37	340	20	11
Pb85Sn15 or Sn15Pb85	183 / 288	10.7	-	-	330	-	11
Pb88Sn10Ag02	267 / 290	10.75	0.203	27	230	42	-
Pb90Sn10 or Sn10Pb90	275 / 302	10.75	0.194	25	310	30	10
Pb92.5Sn05Ag2.5	287 / 296	11.02	0.2	-	295	-	-
Pb95Sn05 or Sn05Pb95	308 / 312	11.06	0.196	23	280	45	8
Pb97.5Ag1.5Sn01	309 / 309	11.28	0.287	23	310	23	9



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Alloys of bismuth (Bi) and / or cadmium (Ca) with tin (Sb) and / or lead (Pb)

Bi58Sn42	138 / 138	8.56	0.383	19	565	55	23
Sn60Bi40	138 / 170	8.12	0.345	30	525	35	24
Bi55.5Pb44.5	124 / 124	10.44	0.431	4	450	38	15
Sn43Pb43Bi14	144 / 163	9.02	-	-	450	41	-
Sn51.2Pb30.6Cd18.2	145 / 145	8.45	-	35	440	-	-

Alloys of indium (In) with lead (Pb) and / or tin (Sn) and / or silver (Ag)

In70Pb30	165 / 175	8.19	0.196	38	245	-	-
In60Pb40	173 / 181	8.52	0.246	29	290	-	-
In50Pb50 or Pb50In50	184 / 210	8.86	0.287	22	330	55	10
Pb60In40	197 / 231	9.3	0.332	19	350	-	-
Pb75In25	240 / 260	9.97	0.375	18	385	48	10
Pb81In19	260 / 275	10.27	0.383	17	390	-	-
Pb95In05	300 / 313	11.06	0.338	21	305	52	6
In52Sn48	118 / 118	7.3	0.147	34	120	83	5
In50Sn50 or Sn50In50	118 / 125	7.3	0.147	34	120	83	5
In97Ag03	143 / 143	7.38	0.075	73	55	-	2
In90Ag10	143 / 237	7.54	0.078	67	115	61	3
In80Pb15Ag05	149 / 154	7.85	0.133	43	180	58	5
Pb90In05Ag05	290 / 310	11	0.308	25	405	23	9
Pb92.5In05Ag2.5	300 / 310	11.02	0.313	25	320	-	-
Sn77.2In20Ag2.8	175 / 187	7.25	0.176	54	480	47	17
Sn37.5Pb37.5In25	134 / 181	8.42	0.221	23	370	101	10
Sn54Pb26In20	136 / 152	8.05	-	-	-	-	-
Sn70Pb18In12	154 / 167	7.79	0.141	45	375	136	12

Low temperature alloys

In51.0Bi32.5Sn16.5 (Field's alloy)	60 / 60	7.88	0.522	-	340	-	11
Bi50Pb26.7Sn13.3Cd10 (Wood's alloy)	70 / 70	9.58	0.431	18	420	120	15
Bi52Pb30Sn18 (Newton's alloy)	96 / 96	9.6	0.75	13	365	100	16
Bi50Pb28Sn22 (Rose's alloy)	100 / 100	9.44	-	-	-	-	-

Other alloys

Sn95Sb05	235 / 240	7.25	0.145	28	415	38	13
Sn91Zn09	199 / 199	7.27	0.115	61	560	33	22
Au80Sn20	280 / 280	14.51	-	57	2800	2	-
Au88Ge12	356 / 356	14.67	-	-	2150	1	-
Pb97.5Ag2.5	303 / 303	11.33	0.2	-	310	42	-
Pb94.5Ag5.5	304 / 365	11.35	0.287	23	310	-	-
Pb85Sb10Sn05	245 / 255	10.36	0.287	-	390	4	-