

MECHANICAL AND PHYSICAL PROPERTIES OF Alloy C70350

ALLOY
DATA

Olin Alloy C7035 is a High Performance Alloy developed jointly by Olin Brass and Wieland-Werke of Germany to meet the increasing material requirements of interconnect designers. The alloy combines good electrical and thermal conductivity with very high strength, excellent stress relaxation resistance, good solderability and plateability. This combination of properties lends the alloy to be used in a wide variety of applications including CPU Sockets, automotive and electrical connectors, semiconductor leadframes, and mass terminations. The alloy can often be substituted directly for some of the Be-Cu alloys. For more information contact Olin Market Development Engineering at 618-258-5255, OlinBrass.com or email us at info@olinbrass.com.

Table 1
Nominal Composition of C7035

Copper ¹	Remainder
Nickel	1.5%
Cobalt	1.1%
Silicon	0.6%

1. Copper plus named elements, 99.5%.

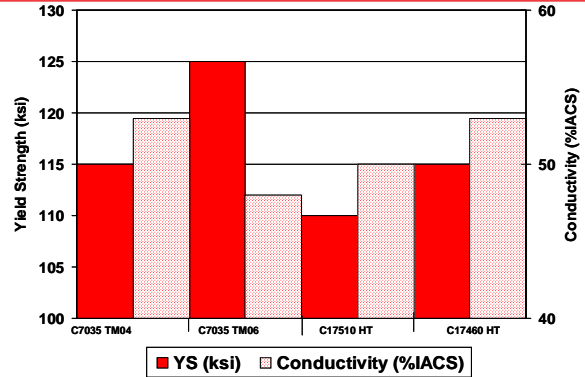


Figure 1: Alloy strength/conductivity comparison for high density connector materials

Table 2
Physical Properties of C7035

	English Units	Metric Units
Density	0.318 lb/in ³ @ 68°F	8.82 gm/cm ³ @ 20°C
Thermal Conductivity	115 Btu-ft/ft ² -hr-°F @ 68°F	200 W/m ² K
Electrical Resistivity	20.7 - 23 ohm circ mils/ft @ 68°F	3.4 - 3.8 microhm-cm @ 20°C
Electrical Conductivity	45% IACS † @ 68°F TM02, TM04	29 MS/m @ 20°C
	45% IACS † @ 68°F TM06	26 MS/m @ 20°C
Modulus of Elasticity	19,000,000 psi	131 kN/mm ²
Coefficient of Thermal Expansion	9.8 PPM/ °F	17.6 PPM/ °C

† International Annealed Copper Standard

Table 3
Expected Mechanical Properties of C7035

Temper	Tensile Strength		Yield Strength ¹ (0.2% Offset)		Min % Elong. in 2 Inch (51mm) ³	Typical 90° Bend Formability GW/BW ²	
	ksi	N/mm ²	ksi	N/mm ²		< .016"(.4mm)	< .006"(.15mm)
TM02 ⁴	103 – 120	710 – 830	100 – 116	690 – 800	5	1.0T / 1.5T	0.8T / 1.0T
TM04	112 – 130	770 – 900	109 – 123	750 – 850	4	2.0T / 2.0T	1.5T / 1.5T
TM06	122 – 140	840 – 970	118 – 133	810 – 920	1	2.5T / 2.5T	2.0T / 2.0T

1. C7035 is manufactured to a yield strength range. Tensile strength and elongation are for reference only.

2. R/T = Bend Radius / Material Thickness. Higher formability may be realized at lighter gauges and in production tooling.

3. Elongation is very sensitive to gage. 4. TM02 preliminary and gage limited to > 0.005" (0.13mm).

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