

MECHANICAL AND PHYSICAL PROPERTIES OF Alloy C7025

ALLOY
DATA

Olin Alloy C7025 is a High Performance Alloy developed by Olin Brass to meet the increasing material requirements of interconnect designers. The alloy combines good electrical and thermal conductivity with 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 automotive and electrical connectors, semiconductor leadframes, sockets, and mass terminations. The alloy can often be substituted directly for some of the Be-Cu alloys. For more information contact Olin Brass at 618-258-5255, OlinBrass.com or email us at info@olinbrass.com.

**Table 1
Composition Limits of C7025**

Copper¹	Remainder
Nickel	2.2-4.2%
Silicon	0.25-1.2%
Magnesium	0.05-0.30%
Iron	0.20%Max.
Lead	0.05%Max.
Zinc	1.0%Max.

1. Copper plus Named Elements, 99.5%

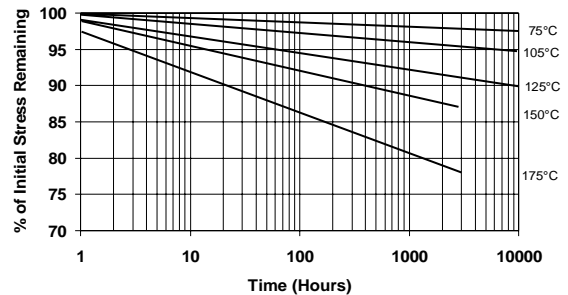


Figure 1: Stress relaxation performance of TM02 temper C7025 at elevated temperatures

**Table 2
Physical Properties of C7025**

	English Units	Metric Units
Density	0.318 lb/in ³ @ 68°F	8.82 gm/cm ³ @ 20°C
Thermal Conductivity	100 Btu-ft/ft ² -hr-°F @ 68°F	0.41 cal-cm/cm ² -sec-°C @ 20°C
Electrical Resistivity	25.9 ohm circ mils/ft @ 68°F	4.3 microhm-cm @ 20°C
Electrical Conductivity	40% I.A.C.S. † @ 68°F	0.23 Megmho/cm @ 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
	9.6 PPM/°F	17.4 PPM/°C
	9.3 PPM/°F	16.7 PPM/°C

† International Annealed Copper Standard

**Table 3
Mechanical Properties of C7025***

Temper	Tensile Strength		Yield Strength (0.02% Offset)		% Elongation in 2 Inch (51mm)	90° Bend Formability GW/BW ^{**}
	ksi	N/mm ²	ksi	N/mm ²		
TM00	90-110	620-760	65-90	450-620	10% Min.	1.0/0.5
TM02	95-120	655-830	85-110	590-760	7% Min.	1.5/0.5
TM03	100-125	690-860	95-120	655-830	5% Min.	1.5/1.0
TM03 HDC ^{***}	103-125	710-860	100-120	690-830	3% Min.	
TR02 ^{****}	88 Min.	605 Min.	80 Min.	550 Min.	6% Min.	

* C7025 is certified to a yield strength range. Tensile strength and elongation are for reference only.

** MBR/T = Minimum Bend Radius / Material Thickness @ < 0.020" thick, 11/16 inch wide.

*** HDC - High Density Connector. Developed specifically for socket contacts demanding very narrow tight bend performance.

**** TR02 Temper is used predominately for semiconductor leadframe applications.

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