

Olin Brass Alloy C18080 is Cu Cr Ag Fe Ti Si system developed jointly by Olin Brass and Wieland-Werke. This alloy provides engineers a unique combination of properties. It incorporates very high electrical and thermal conductivity, excellent formability, good plateability and extremely high resistance to stress relaxation up to 200° C. These unique properties have been validated in applications from under-hood automotive connectors to smart grid power distribution components.

Chemical Composition	
<b>Copper<sup>1</sup></b>	<b>Remainder</b>
<b>Chromium</b>	<b>0.20-0.70%</b>
<b>Silver</b>	<b>0.01-0.30%</b>
<b>Iron</b>	<b>0.02-0.20%</b>
<b>Titanium</b>	<b>0.01-0.15%</b>
<b>Silicon</b>	<b>0.01-0.10%</b>

1. Cu plus Named Elements, 99.8%

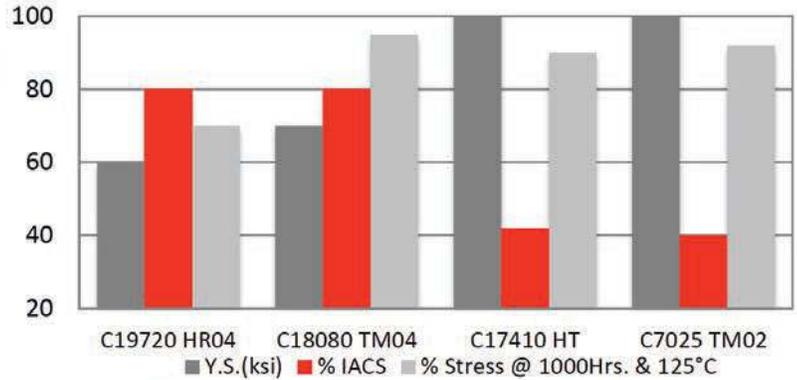


Figure 1: Comparison of typical alloys used in power electronic and automotive applications.

## Physical Properties

	English Units	Metric Units
Density	0.320 lb/in <sup>3</sup> @ 68°F	8.90 g/cm <sup>3</sup>
Thermal Conductivity	185 BTU-ft/ft <sup>2</sup> -hr-°F	320 W/m <sup>2</sup> K
Electrical Resistivity	12.96 ohm circ mils/ft	2.155 microhm-cm
Electrical Conductivity (annealed)	80% IACS*	0.46 megamho/cm
Modulus of Elasticity	TM04 20,300,000 psi TM08 18,500,000 psi	140 kN/mm <sup>2</sup> 127 kN/mm <sup>2</sup>
Thermal Capacity(Specific Heat)	0.090 Btu/lb/F° @ 68°F	377.1 J/kg · °K at 293 K
Coeff. Of Thermal Expansion		
68-212°F (20-100°C)	8.90 PPM/°F	16.0 PPM/°C
68-392°F (20-200°C)	9.20 PPM/°F	16.6 PPM/°C
68-572°F (20-300°C)	9.80 PPM/°F	17.6 PPM/°C

Magnetic Permeability

\*International Annealed Copper Standard

## Mechanical Properties

Temper <sup>1</sup>	Tensile Strength		Minimum Yield Strength <sup>2</sup>		% Elongation	Typical 90° Bend Formability GW/BW <sup>3</sup>	
	ksi	N/mm <sup>2</sup>	ksi	N/mm <sup>2</sup>			
TM04	70-81	480-560	65	450	8	0.8	0.5
TM08	78-91	540-600	75	520	4	1.4	1.2
TR08 <sup>4</sup>	75-91	520-620	72	500	4	2.5	3.0

<sup>1</sup> Mechanical properties subject to change. Tensile strength and elongation are for reference only.

<sup>2</sup> C18080 is manufactured to a yield strength.

<sup>3</sup> DATA FOR REFERENCE ONLY. R/T = Bend Radius/Material Thickness <0.016" (0.4mm) thick, 11/16 (17.5mm) wide.

<sup>4</sup> TR08 available above 0.018" (0.4mm). TM08 is limited in thickness.