Technical Data

High Performance Copper Alloy

C7025



1. Introduction

C7025 is a high-strength precipitation hardening copper alloy, Cu-Ni-Si-Mg, and is a type of so-called Corson Alloy being modified by adding Mg. Since the first market penetration in electronics industry, C7025 has established the sound base of de-facto standard in the interconnection industries such as lead frame and connector.

JX is ready to supply C7025 connector alloy with creating multi-sourced situation in cooperation with Olin group. This technical brochure provides the comprehensive data of high performance copper alloy C7025 for connector and should help understand the alloyøs features.

* The data included are nominal numbers.

2. Features

- (1) High strength high conductivity
- (2) High stress relaxation resistance
- (3) Good bend formability
- (4) Good solderability

3. Chemical compositions

| | wt% | | | |
|---------|------|-----|------|------|
| | Cu | Ni | | Mg |
| nominal | bal. | 3.0 | 0.65 | 0.15 |

4. Physical properties

Table 2 Physical properties of C7025

| electrical conductivity | 45 %ACS 20 |
|-------------------------|-------------------------|
| specific resistivity | 34.4 n m 20 |
| thermal conductivity | 180 W/ mK |
| CTE | 17.6 m/ mK 25 to 300 |
| Young modulus | 131 Gpa |
| density | 8.82 g/ cm ³ |

5. Mechanical properties

| Table 3 Mechanical properties of C7025 | | | | | | |
|--|---------------------------------------|--|-----------------|----|--|--|
| Temper | Tensile strength N/mm ² | 0.2%Yield strength N/ mm ² | Elongation % | Hv | | |
| TM02 | 725 | 1 | ,,, | | | |
| | 650 | | | | | |
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7. Bend formability

Fig.2 Bend formability variation (good way) of TM04 in case changing width of specimen

Stress Relaxation Resistance

Stress relaxation resistance is highly important for maintaining the contact force for long period of time or at elevated temperatures. Fig.4 exhibits the stress relaxation resistance of C7025 in comparison with phosphor bronzes. It is noted that C7025 maintains over 80% of the initial applied stress at 150 after 1000 hr.



Fig.4 Stress relaxation of connector alloys at 150

Reference

Reference 2 Stress-strain curve for C7025 TM03



Fig. 4 Transverse direction

Reference 3 Stress-

Further Information

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