Silver Epoxy #4898

Electrically conductive silver-filled epoxy for connections which cannot be soldered

#4898 is a two-component silver-filled epoxy designed specifically for microelectronic applications. A soft, smooth, thixotropic paste, its excellent handling characteristics and extremely long pot life at room temperatures are obtained without the use of solvents. In addition to high electrical conductivity, short curing cycles, and high and proven reliability of using a pure silver powder (no alloys), #4898 is extremely simple to use. The pure silver powder is dispersed in both the resin and hardener, and the system can be used in a convenient and noncritical 1:1 mixing ratio.

#4898 is especially recommended for use where very fast cures are desirable. #4898 is designed to be used in the 300°C to 400°C range for wire bonding operations.

SPECIFICATIONS

MIXING RATIO ..................................................... 1:1
Mix contents of Part “A” container (epoxy resin and silver powder) and contents of Part “B” container (hardener and silver powder) thoroughly before mixing the two together.

CURING SCHEDULE (min. bond line temperature)
175°C .................................................. 45 seconds
150°C ................................................... 5 minutes
120°C ................................................... 15 minutes
80°C ..................................................... 90 minutes
50°C ........................................................ 12 hours

PHYSICAL PROPERTIES
Specific Gravity ................................................ 2.6
Color .................................................. Silver-Bright
Consistency .......... Soft, smooth, thixotropic paste
Lap Shear Strength .............................................. 1500 psi

THERMAL RESISTANCE ................. 6.7 to 7.0°C/watt

ELECTRICAL PROPERTIES
Volume Resistivity ................................................ (rigid specification) ........ 0.0001 - 0.0004 ohm-cm

OUTGASSING PROFILE
(mixed 1:1 and cured at 100°C for 2 hours):
Total weight loss ........................................... 1.18%
Volatile Condensable Materials by weight . 0.01%

Tg, GLASS TRANSITION TEMP ............... 50°C-60°C
(When mixed 1:1 by weight and cured within 48 hours at 150°C for 10 minutes)

SCHOTTKY DIODE
INITIAL .................................... 2 WEEKS @ 200°C
Cj 1pF (typical)

Vj ≥ 5 V @ 10 µA ......................... 4.8 V @ 10 µA
Vj ≤ 0.4 V @ 1 ma ......................... 0.32 V @ 1 ma

POTLIFE ..................................................... 4 days
SHELF LIFE (at room temp.) ................. 1 year

REFRIGERATION NOT REQUIRED
PHYSICAL & ELECTRICAL CHARACTERISTICS

Lap Shear Strength as a function of temperature. 
#4898 cured at 150°C for 15 minutes.

#4898 subjected to 200°C for 1000 hours.
Lap Shear Strength was determined to be between .375" x .750" x .020" Alumina and .375" x .750" x .007" Nickel A.

V_{SVT} curve derived during a standardization bake at 200°C for 1000 hours using #4898 for die attach.

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