



# 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%

T<sub>g</sub>, 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  
C<sub>1</sub> 1pF (typical)  
V<sub>b</sub> ≥ 5 V @ 10 μa ..... 4.8 V @ 10 μa  
V<sub>f</sub> ≤ 0.4 V @ 1 ma ..... 0.32 V @ 1 ma

POTLIFE ..... 4 days

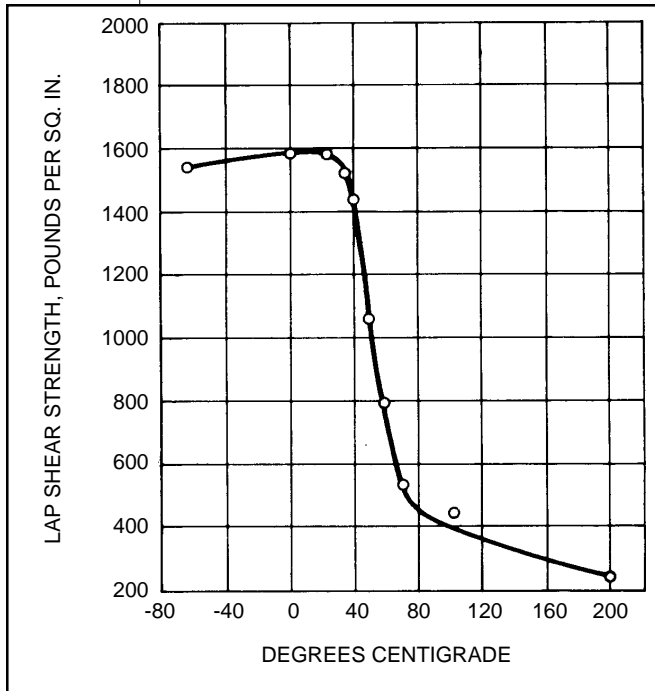
SHELF LIFE (at room temp.) ..... 1 year

REFRIGERATION NOT REQUIRED

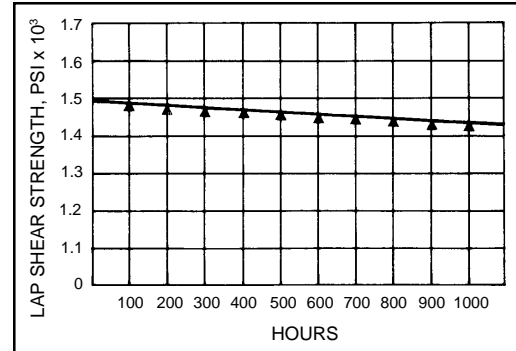


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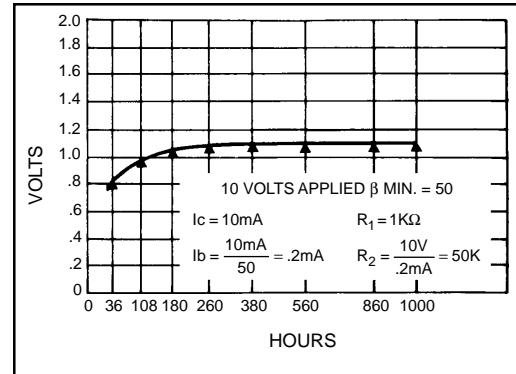
### PHYSICAL & ELECTRICAL CHARACTERISTICS



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<sub>SAT</sub> curve derived during a standardization bake at  
200°C for 1000 hours using #4898 for die attach.

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