Technical Data Sheet

CF3350

October 2011

PRODUCT DESCRIPTION

CF3350 provides the following product characteristics:

Technology	Epoxy Film
Appearance	Gray Tan
Cure	Heat cure
Product Benefits	• High electrical conductivity • High thermal conductivity • Uniform bondline adhesion • Custom preforms available • Adhesion with flexibility • Void-free bondline • Clean, easy application with no waste • Even heat dissipation • Provides electrical continuity • Minimum thermal resistance to heat sink
Application	Assembly
Filler Type	Silver
Operating Temperature	-40 to 160 °C
Thickness	2 or 4 mils (±0.5 mils)
Carrier Type	Polyester
Typical Assembly Applications	Circuit board materials, Metal backplanes and Heatsinks
Substrates	Fluoropolymer circuits, Ceramic circuits, Copper, Brass, Kovar and Aluminum
pH	6.0

CF3350 film adhesive is formulated for electrical, thermal and mechanical assembly applications. The combination of adhesive properties ensures reliable RF ground plane performance.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Work Life @ 25°C, months	3
Shelf Life @ 5°C (from date of manufacture), months	9
Peak Exotherm Temperature, DSC, Ramp Rate=10ºC/	177.5ºC ± 5ºC
Flash Point - See MSDS	

TYPICAL CURING PERFORMANCE

Cure Schedule

30 minutes @ 150°C

Alternative Cure Schedule

10 minutes @ 175°C or
50 minutes @ 137°C or
120 minutes @ 125°C

Cure Pressure

5 to 60 psi

Cure pressure may vary depending on the materials being bonded and their size. All temperatures are measured at the adhesive and do not include ramp-up time. The above cure profiles are guideline recommendations. Cure conditions (time and temperature) may vary based on customers' experience and their application requirements, as well as customer curing equipment, oven loading and actual oven temperatures.

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Coefficient of Thermal Expansion TMA:		
Below Tg, 10^{-6}/ºC		65
Above Tg, 10^{-6}/ºC		150
Glass Transition Temperature, DMA, °C		90
Thermal Conductivity, W/mK		7
Thermal Resistance for 1sq cm area @ 10psi assembly pressure:		
50µm bondline, ºC/W		0.15
100µm bondline, ºC/W		0.23
Storage Modulus, DMA :		
@ -40 °C	N/mm² (psi)	4,000 (580,151)
@ 0 °C	N/mm² (psi)	3,000 (435,113)
@ 25 °C	N/mm² (psi)	2,400 (348,090)
@ 100 °C	N/mm² (psi)	680 (98,625)
@ 150 °C	N/mm² (psi)	60 (8,702)
Extractable Ionic Content, ppm:		
Chloride (Cl-)		50
Sodium (Na+)		30
Potassium (K+)		5

Electrical Properties:

Volume Resistivity, ohm/cm @ 25ºC	0.0002

TYPICAL PERFORMANCE OF CURED MATERIAL

Tensile Lap Shear Strength (psi):
4 mil thickness, @ 25ºC

Substrate	
Aluminum to aluminum	3,400
Gold to Gold	3,500

GENERAL INFORMATION

For safe handling information on this product, consult the Material Safety Data Sheet, (MSDS).

THAWING:

1. Allow container to reach room temperature before use.
2. DO NOT open the container before contents reach 22°C temperature. Any moisture that collects on the thawed container should be removed prior to opening the container.

DIRECTIONS FOR USE

1. While substrate cleaning is not mandatory, wiping with an organic solvent (e.g. isopropanol) is recommended to remove any oils that might interfere with the bonding process .
2. Pressure needs to be applied during cure to promote proper wetting of substrate surfaces. .
3. Common industry practices to apply pressure include the use of spring clamps, lamination presses, dead weights and vacuum bagging.
4. The technique to apply pressure will vary by application and customer preference.
5. For large surface area applications, a load distribution material is recommended between one of the pressure plates and the bonding part in order to equalize the applied pressure over the entire area.
6. After fixturing, the parts are then cured at an elevated temperature.
7. The specified temperatures and times refer to the bondline values. It should be noted that large mass assemblies will take longer time to achieve bondline temperatures.
8. This material becomes brittle at temperatures below -5ºC. If material goes below this temperature, it should be handled gently and the entire package should be warmed to room temperature before opening. This will minimize the possibility of fracturing in the brittle state or allowing condensation to collect on the product.

Not for product specifications

The technical data contained herein are intended as reference only. Please contact your local quality department for assistance and recommendations on specifications for this product.

Storage

Store in original, tightly covered containers in clean, dry areas. Storage information may be indicated on the product container labeling. Usable shelf life may vary depending on method of application and storage conditions

Optimal Storage: 5°C. Storage below 5°C or greater than minus 5°C can adversely affect product properties.

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Conversions

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Note

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Reference 0.2