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Technical Data Sheet

JC 711-13

One Component Epoxy

Product Description

JC711-13 is one-component epoxy that is designed for chipbonding. This product has medium viscosity and high thixotropy. This product is used to cure at low temperature. This product is usable for screen printing and dispensing. This product has good strong curing shapes without stringing and slumping at super high speed dispensing and very small dots. The hardening surface will not exhibit a surface oiliness. The cured product exhibits good adhesive strength, electrical insulation properties, excellent chemical resistance and solvent resistance. Stable adhesive strength can be obtained with a variety of SMT. This product is well suited for electronic devices encapsulation and chipbonding.

Features

1. This product is solvent-free, non-volatile, system.
2. This product offers excellent retention of electrical insulation properties under high humidity conditions.
3. This product has low stress, shrinkage and water absorption.
4. This product exhibits medium viscosity and excellent thixotropy. This product can be also controlled flow and have sag resistance.
5. This product is able to reduce the working time and increase the efficiency at the same time.
6. This product complies to the 2011/65/EU RoHS regulations.
7. This product complies to chlorine < 900ppm, bromine < 900ppm, chlorine + bromine < 1500ppm.

Typical Uncured Properties

Appearance	Liquid
Color	Red
Viscosity 25°C, S14 10rpm,cps	80,000~150,000
Thixotropic Index	≧6

Typical Curing Properties

Pot Life 25°C, day	7
Through Cure Time 120°C by hot plate, sec	180
Through Cure Time 150°C by hot plate, sec	120
Through Cure Time 180°C by hot plate, sec	90

Direction of Use

1. Before using this product, please stand it at room temperature for 1 to 2 hours. Do not loosen container cover before temperature equilibration.
2. This resin should be applied to a clean surface which is free of dirt, grease or mold release. In many cases, a simple solvent wipe is sufficient.
3. Cure time on the really part will depend upon fators such as part geometry, materials to be bonded, bondline thickness and efficiency of the oven. Cure schedule should be confirmed with actual production parts and equipment.
4. For large scale application, this product is suggested to be precured at lower temperature, then full curing at high temperature to avoid extremely heat release.
5. After heat curing stage, cool down the part gradually can minimize the thermal stress.

Typical Cured Properties*[1]

Glass Transition Temp.,(TMA), °C	125
CTE*[3] (< Tg), μm/m/ °C	64
CTE*[3] (> Tg), μm/m/ °C	215
Specific Heat 0°C, J/g°C	4.43
Specific Heat 25°C, J/g°C	4.56
Specific Heat 50°C, J/g°C	4.80
Specific Heat 75°C, J/g°C	5.04
Specific Heat100°C, J/g°C	5.20
Durometer Hardness, Shore D	86
Specific Gravity	1.35
Water Absorption Ratio (25°C /24hr), %	0.23
Water Absorption Ratio (80°C /24hr), %	1.50
Water Absorption Ratio (97°C /1.5hr), %	0.60
Shear Strength*[2] Copper vs. Al, kg/cm^2	316
Chip Thrust Test, 0603+FR4, 25°C ,kg	2.9
Chip Thrust Test, Diode+FR4, 25°C ,kg	2.4
Chip Thrust Test, IC +FR4, 25°C ,kg	7.8
Chip Thrust Test, MLCC +FR4, 25°C ,kg	3.7
Chip Hot Thrust Test, 0805, 25°C ,kg	3.4
Chip Hot Thrust Test, 0805, 80°C ,kg	3.8
Chip Hot Thrust Test, 0805, 120°C ,kg	3.3
Chip Hot Thrust Test, 0805, 180°C ,kg	1.7
Chip Hot Thrust Test, 0805, 240°C ,kg	1.1
Chip Hot Thrust Test, 0805, 280°C ,kg	0.9
Degradation Temp. (TGA 10°C /min), °C	337
Weight Loss Ratio@100°C, %	0.65
Weight Loss Ratio@150°C, %	0.79
Weight Loss Ratio@200°C, %	2.27
Weight Loss Ratio@250°C, %	2.71
Weight Loss Ratio@300°C, %	3.53
Weight Loss Ratio@350°C, %	5.92
Thermal Conductivity W/mK	0.3
Thermal Resistance, m^2K/W	0.01
Surface Resistivity, ohm	$4.5*10^{14}$
Volume Resistivity, Original, ohm-cm	$4.5*10^{15}$
Volume Resistivity, ohm-cm, 100°C*Boiling*2hr	$3.3*10^{15}$
Volume Resistivity, Original, ohm-cm	$3.2*10^{14}$
Volume Resistivity, ohm-cm, 40°C*95%RH*100V*96hr	$2.2*10^{14}$
Volume Resistivity, Original, ohm-cm	$3.8*10^{14}$
Volume Resistivity, ohm-cm, 85°C*85%RH*50V*1,000hr	$2.4*10^{14}$
Dielectric Constant, 100KHz	4.1
Dielectric Constant, 1MHz	3.9
Dielectric Constant, 10MHz	3.8
Dielectric Constant, 100MHz	3.7
Dielectric Strength, KV/mm	22

*[1] Specimen Cure Condition：120°C / 10 min

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*2 CTE：Coefficient of Thermal Expansion
*3 Specimen Cross-sectional Area：Thickness 3mm x Diameter 25mm
*4 When using this product, the surface resistivity and volume resistivity will not less than 10^{12}.
*5 The orders of magnitude of surface resistivity and volume resistivity will be raised if the thickness of specimen, curing time and reaction are increased.

Storage and Shelf Life

This resin should be kept without any possibility of moisture and heat exposure. Shelf life of this product is 6 months when stored at 2°C ~13°C before opening the containers. Before using, it should place this product at 14~34°C for 1 to 2 hours. The properties will be changed when replace this product at room temperature for long time.

Caution

Some findings indicate a lack of potential for carcinogenicity with the compositions of this product by long term recurrent application to the skin. However, contact with skin is likely to produce mild transient reddening. It is important to remove adhesive from skin with soap and water thoroughly. DO NOT use solvents for cleaning hands. This product is of moderate acute toxicity by swallowing. If swallowed, call a physician. Avoid contact with eyes. In case of contact, flush with water for at least 15 minutes and get medical attention immediately. For specific information on this product, consult the Material Safety Data Sheet.

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