



Solder plus Support

# Epoxy 4089



## Surface Mount Epoxy

### Features:

- For Dispensing Applications
- Good for High Speed Placement Equipment
- Fast Curing
- One Part Epoxy
- Non-Stringing Formula
- High Shear Strength

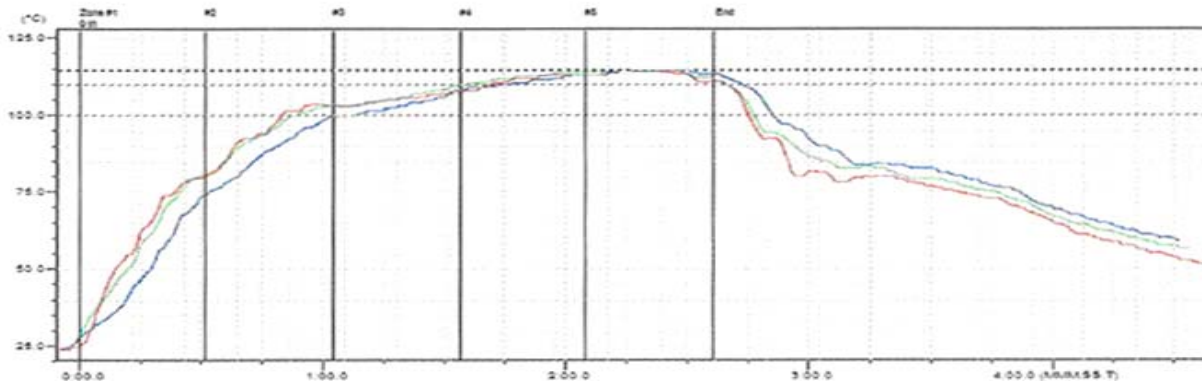
### Description:

Epoxy 4089 is a single component, epoxy adhesive used for bonding SMT components to a PWB for double sided reflow or wave solder assembly. Epoxy 4089 has a formulated tolerance to shear-thinning, a dot formation suitable for automated dispense equipment or positive displacement pump systems, and quick cure properties when exposed to heat. Viscosity and surface tension of Epoxy 4089 are adequate for use with high speed placement equipment.

### Application:

- Epoxy 4089 is delivered ready to use, and is available in syringes, cartridges, and jars.
- Epoxy 4089 may be applied with pressurized air, hand operated, or automated dispensing equipment, as well as positive displacement systems. Machine parameters should be optimized accordingly.
- For screening applications, clean screen or stencil and apply epoxy to screen in the same manner as solder paste.
- Adhesive dispense quality depends upon dispense pressure, time, nozzle size, and temperature.
- Bond strength will vary depending on component type, adhesive dot size, cure and type of solder mask or photo resist.

### Reflow Profile:



Time from Ambient to 75°C	Time from 75°C to 100°C	Time from 100°C to Peak: 120°C ± 5°C	Maximum Time at 120°C ± 5°C	Maximum Time Ambient to Peak
30 seconds ± 10	30 seconds ± 10	60 seconds ± 10	60 seconds	< 3 minutes

### Cleaning:

- Uncured adhesive may be removed from the PCB with IPA.
- Cured epoxy or removal of components bonded with Epoxy 4089 may be facilitated with the addition of heat from a heat gun or a hot air jet. A temperature of approximately 120°C is generally adequate.

### Handling and Storage:

- This material has an unrefrigerated shelf life of 6 months.
- Clean dispensing nozzles thoroughly after each use. Avoid leaving adhesive in nozzles for extended periods of time. Nozzles can be cleaned with butyldiglyme, benzyl alcohol, or xylene.
- Keep container sealed when not in use. Care should be taken not to allow product contamination or air entrapment when transferring to, or storing in, other containers.
- Do not mix new and used adhesive in the same container.

**Safety:**

- Use with adequate ventilation and proper personal protective equipment.
- Refer to the accompanying Material Safety Data Sheet for any specific emergency information.
- Do not dispose of any hazardous materials in non-approved containers.

**Physical Properties:**

Parameter	Value
Visual	Thick Liquid
Odor	Aromatic (slightly)
Color	Red
Viscosity	300-500 kcps (relative to production batch)
Specific Gravity	1.13 (water = 1)
Flash Point	N/A
Boiling Point	>260°C

**Mechanical Specifications (@25°C):**

Parameter	Value
Heat Deflection Temp	97°C
Tensile Strength	11,500 psi
Elongation %	4.6
Tensile Modulus	4.9 psi x 10 <sup>5</sup>

**Corrosion Testing:**

Parameter	Requirements	Results
Copper Mirror Test	Bellcore GR78 Core	Passed
Chloride Ion Test	Bellcore GR78 Core	Passed
Silver Chromate	Bellcore GR78 Core	Passed

**Surface Insulation Resistance:**

Test	Conditions	Specifications	Results
SIR 35/85, 4 Days	Pattern Up	8.9E09 Ohms Min.	1.4E10 Ohms Passed
SIR 35/85, 4 Days	Pattern Down	8.9E09 Ohms Min.	1.2E11 Ohms Passed

**Electromigration:**

Test	Conditions	Specifications	Results
85/85, 21 days	Taiyo PSR 4000 Mask	Rf/Ri > 0.1	1.19E10/ 3.9E10 3.28 Passed
85/85, 21 days	Ciba Geigy Probimer 52 Mask	Rf/Ri > 0.1	9.05E9/ 3.33E9 0.37 Passed

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