A535-S

UV-Snap cure adhesive

PRODUCT DESCRIPTION:

- Base chemistry: epoxy only, cationic polymerization
- Bond opaque and/or temperature sensitive substrates. The adhesive is activated with a short UV cure. The UV activated adhesive is liquid for some seconds. The substrates are mated and held in alignment. A second UV cure step sets the alignment, and a thermal cure step of 30 minutes at 80 °C (or 50 minutes at 70 °C or 120 minutes at 60 °C) cures all adhesive in shaded areas.

PRODUCT USE:

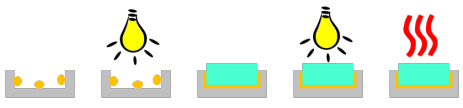
- Active alignment of components for optoelectronics and semiconductor packaging
- High precision bonding

FEATURES:

- High adhesion, high Tg, room temperature stable, not sensitive to oxygen in cure process, excellent reliability performances, robust for solder reflow process

INSTRUCTIONS FOR USE:

1) Dispense adhesive
2) Pre-cure: LED-365 nm or UV-A (315 to 400 nm) metal halide or mercury UV light source at low UV dose activates the adhesive.
3) Mating and alignment step: depending on the pre-cure dose, an OPEN TIME of seconds is available for mating and alignment of substrate 2
4) Fix cure: a second UV dose fixes the aligned substrates. This fix cure step is optional if active alignment is not necessary.
5) Thermal cure: a thermal cure at 60-80°C for 30-120 minutes ensures full curing of all adhesive in shaded areas.



CURING CONDITIONS:

LED-365 nm light source	Metal Halide or Mercury UV light source (UV-A: 315-400 nm)
1) Pre-cure vs. open time relation Pre-cure dose / Open time 2,000 mJ/ cm² / 60 sec 3,000 mJ/ cm² / 45 sec 4,000 mJ/ cm² / 35 sec 5,000 mJ/ cm² / 25 sec	1) Pre-cure vs. open time relation Pre-cure dose / Open time 350 mJ/ cm² / 60 sec 700 mJ/ cm² / 45 sec 1,400 mJ/ cm² / 20 sec
2) Second LED-365 nm cure at 5,000 to 10,000 mJ/ cm² to fix the aligned parts	2)Second UV cure at 2,000 to 3,000 mJ/ cm² to fix the aligned parts
Recommended LED-365 nm lamp intensity: 100 to 300 mW/ cm²	Recommended UV light intensity: 50 to 200 mW/ cm²

4) Thermal cure conditions:

60 °C for 90 to 120 minutes — 70 °C for 30-60 minutes — 80 °C for 30 to 45 minutes
90 °C for 15 to 30 minutes — 110 °C for 5-15 minutes — 120 °C for 5 to 15 minutes

Optimization of pre-cure UV dose is required for obtaining the desired bond strength. The components to be bonded must be mated immediately after pre-cure and within the open time period. If the components are not mated during the open time, the liquid adhesive will solidify and complete wetting of the bonded substrates will not be possible, leading to poor bonding force.

TYPICAL PROPERTIES

Uncured resin	
Viscosity at 25 °C, mPa.s or cps	2,700 to 3,200
Appearance of cured adhesive	light yellow to tan
Density (g/mL)	1.2
Cured film	
Outgas, weight % (per Telcordia GR-1221)	0.13
Outgas, weight % (per MIL-STD 883/5011)	0.19
Water permeability (g/m 24 hrs, 50 °C/95% RH, 75 μm film)	2.2×10^{-4}
Shrinkage (linear, %)	< 0.3
Hardness – Shore D	80-85
Glass transition temperature (DMA, °C)	155
Coefficient of thermal expansion (DMA)	
below Tg ($x10^{-6}$), $°C^{-1}$	40
above Tg ($x10^{-6}$), $°C^{-1}$	175
Physical properties tested at 25°C, 50% RH (ASTM D638)	
Tensile strength, MPa	170
Elongation (%)	5
Young's Modulus, MPa	2,000
Operating temperature, °C	-40 to 150

GENERAL USAGE INFORMATION:

Shipment: no restriction on shipment and no cold shipment is needed

Storage: After the adhesive is received in black syringes or amber HDPE bottles, room temperature storage (15-30°C) in the original container is required.

Shelf life (20 - 25°C): 6 months

Working life (20 - 25°C): 3 months

SAFETY AND HANDLING

The uncured adhesive can be cleaned from apparatus with isopropyl alcohol (IPA), methyl ethyl ketone (MEK), or commercial alcohol based cleaning solution. Avoid direct skin and eye contact. Use only in well ventilated areas. Use protective clothing, **gloves and safety goggles**. Read Material Safety Data Sheet before handling.

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