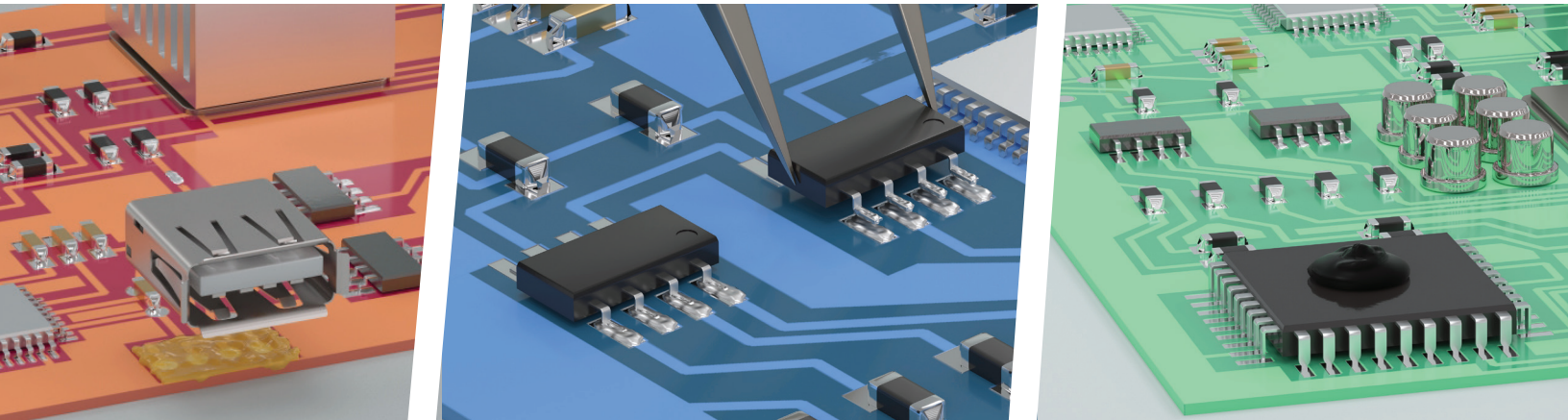


# One-Part Epoxy Adhesives



**Low cure temperature • Up to 24 months RT shelf life**

## Features and Benefits:

- Easy to dispense; no mixing is required
- Unlimited working time
- Low to moderate cure temperature
- Extended shelf life at room temperature
- Excellent adhesion to common electronics
- Substrate and components

## Applications:

Repairs, maintenance and manufacturing of:

- Consumer electronics
- Telecommunications equipment
- Medical devices
- Automotive components

## Three types of one-part epoxy adhesives are available:

### General Purpose (9300 and 9310)

Designed for use in electronic assembly operations, especially bonding SMD's to PCB's.

- Electrically insulating
- Excellent adhesion to a variety of substrates
- Superior tensile and compressive strength
- Shelf life up to 24 months at room temperature
- Strong environmental and chemical resistance
- Available in Low T<sub>g</sub> (9300) and High T<sub>g</sub> (9310)

### Electrically Conductive (9400 and 9410)

Designed for creating electrically conductive paths in a variety of applications such as semi-conductor flip chip packaging as well as die attach for small chips, LEDs and diodes.

- Excellent electrical conductivity
- Excellent adhesion to a variety of substrates
- Shelf life up to 12 months
- Provide excellent EMI/RFI shielding
- Strong environmental and chemical resistance Available in Low T<sub>g</sub> (9400) and High T<sub>g</sub> (9410)

### Thermally conductive (9460) – *Coming Soon*

Designed for bonding heat-generating electronic components and cooling devices.

- High thermal conductivity
- Excellent adhesion to a variety of substrates
- Superior tensile and compressive strength
- Shelf life up to 12 months
- Strong environmental and chemical resistance available

# One-Part Adhesive Comparison Chart

	Electrical		General	
	9400	9410	9310	9300
<b>UNCURED PROPERTIES</b>				
Working life	Unlimited	Unlimited	Unlimited	Unlimited
Viscosity	Thixotropic	Thixotropic	86 500 cP [86.5 Pa·s]	1 200 000 cP [1 200 Pa·s]
Density	3.14 g/mL	2.34 g/mL	1.15 g/mL	1.17 g/mL
Minimum full cure	2 h @70 °C [158 °F]	1 h @90 °C [194 °F]	30 min @100 °C [212 °F]	1 h @70 °C [158 °F]
Optimal full cure	30 min @80 °C [176 °F]	1 h @90 °C [194 °F]	10 min @120 °C [248 °F]	25 min @90 °C [194 °F]
<b>CURED PROPERTIES</b>				
<b>Physical Properties</b>				
Color	Silver grey	Silver grey	Amber	Amber
Hardness	74D	70D	84D	80D
<b>Mechanical Properties</b>				
Tensile strength	2.9 N/mm <sup>2</sup> [430 lb/in <sup>2</sup> ]	TBD	9.4 N/mm <sup>2</sup> [1 360 lb/in <sup>2</sup> ]	4.7 N/mm <sup>2</sup> [680 lb/in <sup>2</sup> ]
Compressive strength	18 N/mm <sup>2</sup> [2 600 lb/in <sup>2</sup> ]	TBD	103 N/mm <sup>2</sup> [15 000 lb/in <sup>2</sup> ]	91 N/mm <sup>2</sup> [13 200 lb/in <sup>2</sup> ]
Lap shear strength (aluminum)	3.2 N/mm <sup>2</sup> [460 lb/in <sup>2</sup> ]	2.8 N/mm <sup>2</sup> [400 lb/in <sup>2</sup> ]	6.2 N/mm <sup>2</sup> [890 lb/in <sup>2</sup> ]	6.2 N/mm <sup>2</sup> [900 lb/in <sup>2</sup> ]
Lap shear strength (stainless steel)	2.9 N/mm <sup>2</sup> [430 lb/in <sup>2</sup> ]	2.6 N/mm <sup>2</sup> [380 lb/in <sup>2</sup> ]	8.5 N/mm <sup>2</sup> [1 200 lb/in <sup>2</sup> ]	7.9 N/mm <sup>2</sup> [1 100 lb/in <sup>2</sup> ]
<b>Electrical Properties</b>				
Volume resistivity	3.1 x 10 <sup>-4</sup> Ω·cm	1.8 x 10 <sup>-3</sup> Ω·cm	9.3 x 10 <sup>12</sup> Ω·cm	3.4 x 10 <sup>12</sup> Ω·cm
Surface resistivity	0.018 Ω/sq	0.16 Ω/sq	N/A	N/A
Breakdown voltage @3.175 mm [1/8"]	N/A	N/A	34 000 V [34 kV]	45 000 V [45 kV]
Dielectric strength @3.175 mm [1/8"]	N/A	N/A	270 V/mil [10 kV/mm]	357 V/mil [14 kV/mm]
<b>Thermal Properties</b>				
Glass transition temperature (T <sub>g</sub> )	36 °C [97 °F]	96 °C [206 °F]	113 °C [235 °F]	22 °C [72 °F]
CTE prior T <sub>g</sub>	76 ppm/°C [169 ppm/°F]	42 ppm/°C [108 ppm/°F]	56 ppm/°C [133 ppm/°F]	49 ppm/°C [120 ppm/°F]
CTE after T <sub>g</sub>	100 ppm/°C [212 ppm/°F]	150 ppm/°C [303 ppm/°F]	185 ppm/°C [365 ppm/°F]	197 ppm/°C [387 ppm/°F]
Thermal conductivity @25 °C	4.7 W/(m·K)	1.1 W/(m·K)	0.24 W/(m·K)	N/A
Thermal diffusivity @25 °C	2.2 mm <sup>2</sup> /s	0.7 mm <sup>2</sup> /s	0.2 mm <sup>2</sup> /s	N/A
Specific heat capacity @25 °C	0.7 J/(g·K)	0.8 J/(g·K)	1.4 J/(g·K)	N/A

Refer to TDS for more information.

## Available Packaging

3 mL Syringe

9400-3ML

9410-3ML



30 mL Syringe

9400-30ML

9410-30ML



10 mL Syringe

9300-10ML

9310-10ML



300 mL Cartridge

9300-300ML

9310-300ML

