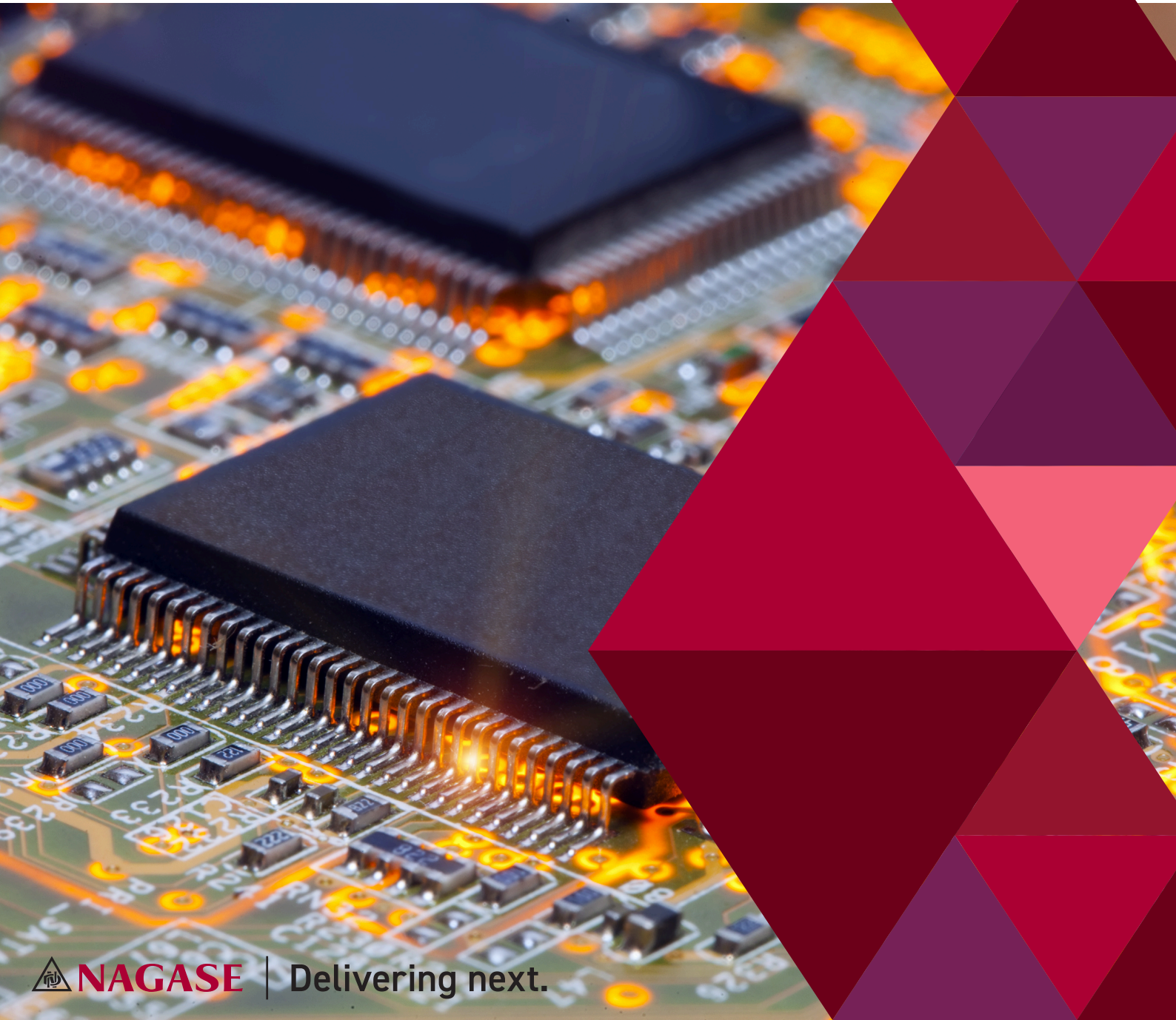




Materials for Power Devices and Electronic Components

Epoxy Potting



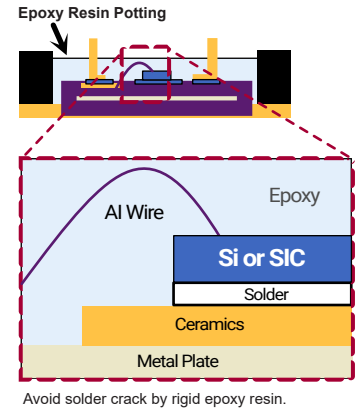
NAGASE | Delivering next.

Achieve Higher Reliability

Direct Potting for Power Module

Advantages of Epoxy Potting Resin (compared to Silicone Gel)

- » Longer lifetime and Higher reliability of components (TCT, PC and THB)
- » Preventing solder cracks by low stress
- » High water resistance (Si / SiC Chip)
- » High sulfur resistance (Solder / Sintering Paste)



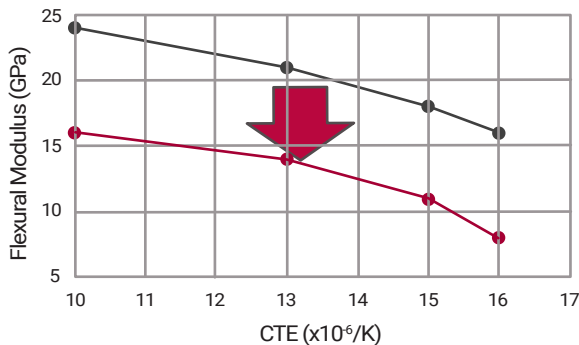
Resin Hardener	Condition	Unit	T-700 / R-1989-1 T-700 / H-1984-1	T-700 / R-6001-2 T-700 / H-6001	T-700 / R6104 T-700 / H6102
Feature			TCT: -40 °C <=> 125 °C / 2000 cyc PC: 650 V/100 k cyc THB: 80 °C / 85 % / 600 V/1000 h	High adhesion to Cu High heat resistance	High adhesion to Cu Low viscosity
Curing Condition	-	-	90 °C / 1.5 h + 180 °C / 2 h	90 °C / 1.5 h + 180 °C / 2 h	100 °C / 4 h + 180 °C / 6 h *to be adjusted
Mixture Viscosity	60 °C	Pa*s	4	5	13 (80 °C)
Tg	DSC	°C	200	212	200
CTE	TMA	x10 ⁻⁶ / K	16	17	17
Flexural Modulus	DMA	GPa	9	10	8

New Curing System

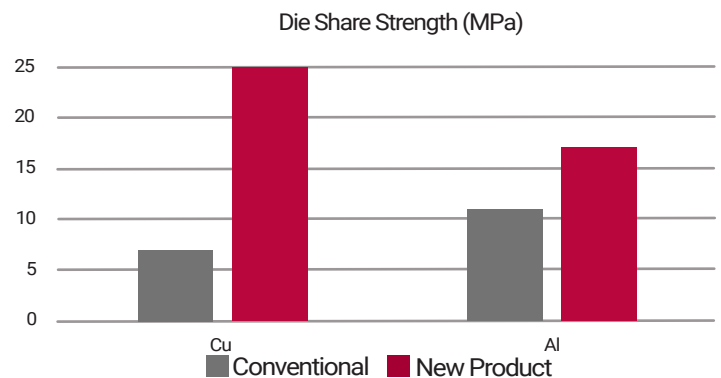
Direct Potting for SiC Power Module (Under Development)

Advantages

- » Acid anhydride free
- » Long-term heat resistance
- » High adhesive strength to substrate interface
- » High insulation performance: CTI ≥ 600
- » Flammability level: UL V-0 (Halogen & Antimony free)



Low modulus with low CTE



Improved adhesion to each material (Cu, Al)

