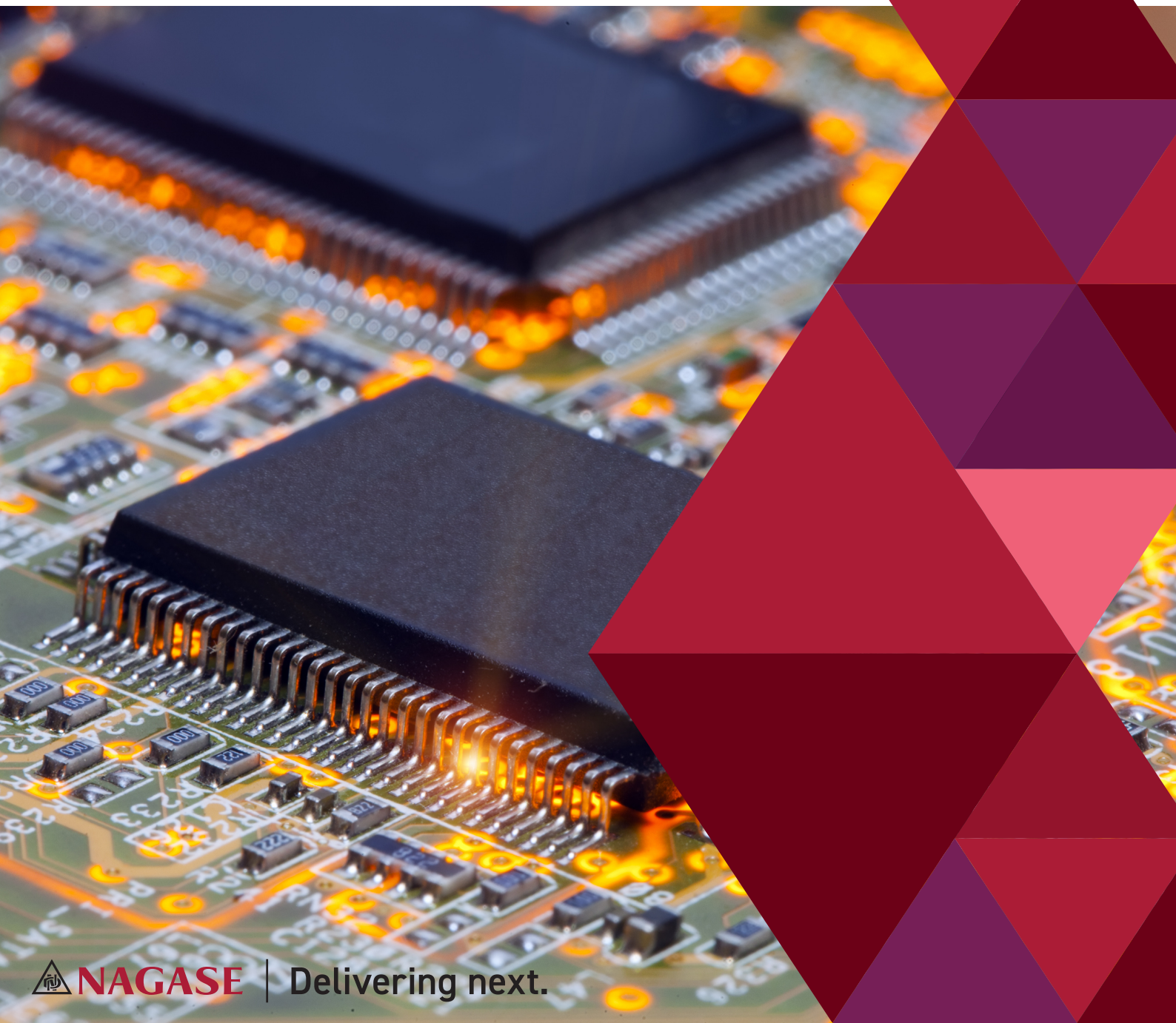




Material for Power Device and Electronic Components

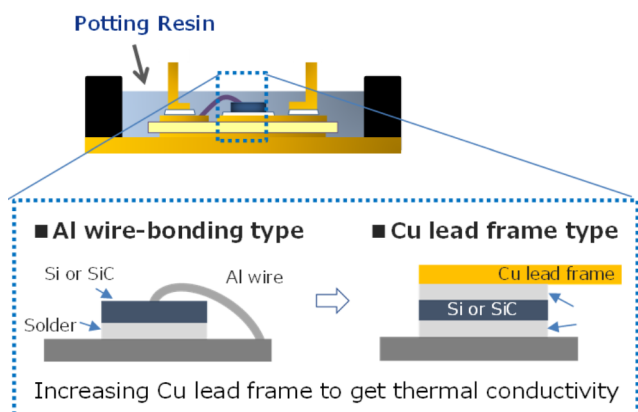
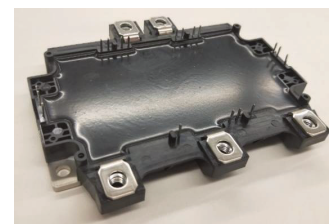
Epoxy Potting



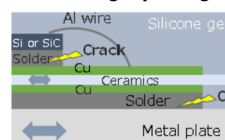
NAGASE | Delivering next.

Solder Protection under Tough Conditions

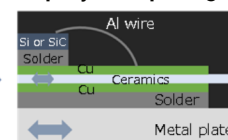
Direct Potting for Power Module



■ Silicone gel potting



■ Epoxy resin potting



Protect stiffly by epoxy resin to prevent cracks on solder

Product	Resin Hardener	XNR5014G XNH5014G	T-700/R-1989 T-700/H-1984	T-700/R-1981-1GS T-700/H-4900
Features		Mass production Low modulus Flame retardant SVHC free	Reliability test passed H/C (-40~125°C)/2,000 cycle P/C 100K times THB test (85°C 85%)/1,500h	Low modulus Good workability SVHC free
Mixing Ration (R/H)	wt %	100 / 95	100 / 105	100 / 125
Resin Viscosity (25 °C)	Pa.s	140	90	230
Hardener Viscosity (25 °C)	Pa.s	20	34	19
Mixture Viscosity (60 °C)	Pa.s	9	4	6
Curing Condition	-	125 °C / 3 h	90 °C / 1.5 h + 180 °C / 2 h	90 °C / 1 h + 180 °C / 2 h
Tg (DSC Method)	°C	141	202	182
CTE (<Tg)	x 10 ⁶ /°C	18	16	16
Flexural Modulus (25°C) DMA	GPa	11	10	12
Flame Retardance (6.4 mm)	-	1.6 mm V-0 (Not registered)	V-0 (Not registered)	V-0 (Tested by NAGASE ChemteX)

Achieve Higher Reliability for SiC

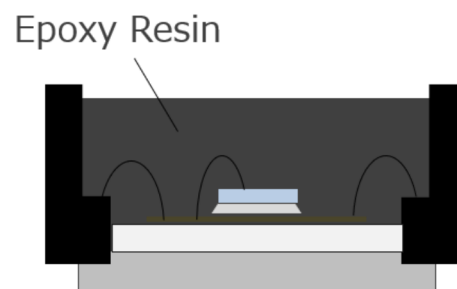
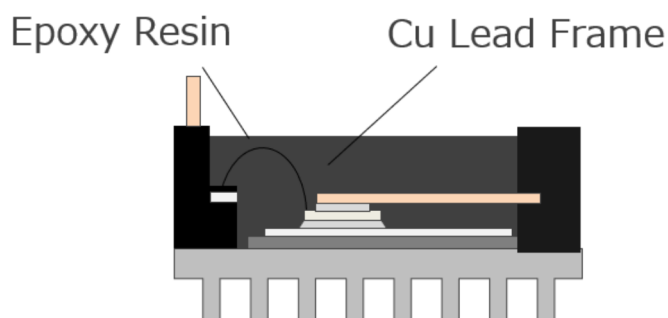
Direct Potting for SiC power module (Under Development)

Copper Lead Frame Si IGBT Power Module

Items	Features
High Thermal Resistance	Tg > 200 °C
Low Stress	Low modulus / Low CTE
High Adhesive Strength	> 20 N/mm ² for Copper
Flammability	6.4 mm V-0 tested by NAGASE ChemteX
Good Workability	Low Viscosity < 4 Pa.s @ 60 °C

Requirement of SiC IGBT Power Modules

Items	Features
High Thermal Resistance	Tg > 200 °C
Insulation	CTI > 600 V
High Adhesive Strength	> 10 N/mm ² for SiC
Thermal Conductivity etc.	-



Launch in 2023

