

Material Solutions for

**Power Conversion Units, UPS Systems,
Inverters, & Solid State Transformers
for Data Center Power Supply**





Momentive Data Center Solutions for SSTs, UPS systems, Inverters, and Power Conversion Units (PCUs) play an essential role in maintaining continuous operation of critical equipment and stabilizing power reliability. As these systems evolve, manufacturers are working to improve efficiency, manage heat effectively, and optimize overall system reliability. Materials used within these devices contribute directly to their performance and long-term dependability, which is why many manufacturers turn to Momentive for advanced electronic material solutions.



Solutions for Data Center Power Management Systems

Momentive provides a broad portfolio of materials designed to support the function and durability of SSTs, UPS systems, Inverters, and PCUs for Data Centers. These solutions help enable higher power density, stable thermal performance, and long-term device reliability across multiple power-conversion architectures, including AC-DC, DC-DC, and bidirectional conversion stages.

- ➔ Thermal Management Materials
- ➔ Coatings and Encapsulants for PCB protection
- ➔ Potting Compounds
- ➔ Adhesives for structural bonding.



Thermal Management Materials

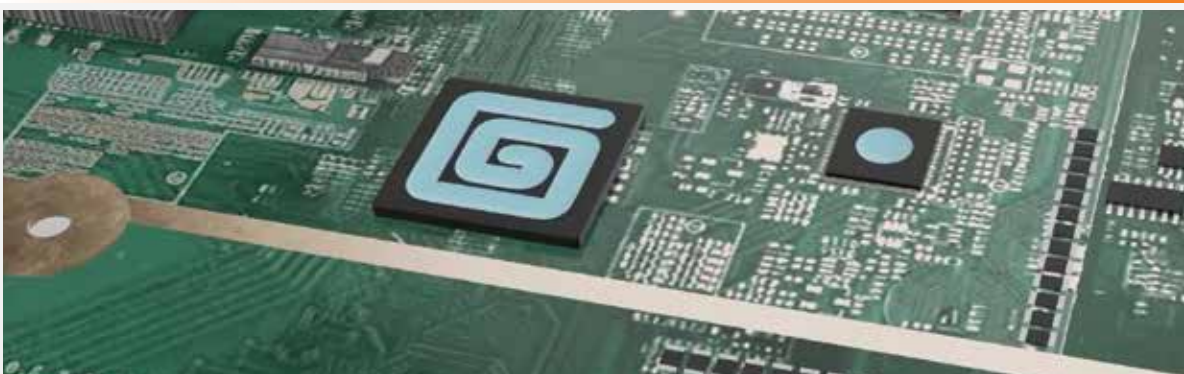
Momentive's SILCOOL thermal interface materials (TIMs) deliver a highly efficient pathway for removing heat from critical power-conversion components. By enhancing heat dissipation, these materials help extend component life and maintain consistent operating performance. The portfolio includes advanced gap fillers and grease compounds designed to support higher-power, high-density architectures used in modern UPS, inverter, and PCU platforms. These solutions enable more compact system layouts—an important factor for data-center and server environments.

Typical Applications:

- ➔ Power Devices (IGBT, MOSFET)
- ➔ Gate Driver heat spreaders
- ➔ Magnetic Components (magnetics chassis lids)
- ➔ Control Electronics (DSP, MCU) heat spreaders
- ➔ PCU rectifier and inverter stages
- ➔ Busbar interfaces and cold-plate thermal couplings

Dispensable Thermal Gap Fillers

Grade Name	Type	Thermal Conductivity (W/m.K)	Dielectric Strength (kV/mm)	BLT (μm)	Curing Condition
TIA251GF	2 Part, Curing Type	5.1	13	125	70C or RT
TIA266GF	2 Part, Curing Type	6.5	10	135	70C or RT
TIA282GF	2 Part, Curing Type	8.3	20	75	70C or RT
TIA2101GFH-C	2 Part, Curing Type	10.1	10	180	70C
TIA2120GF-BK	2 Part, Curing Type	12.0	10	250	80C or RT
TIA143GF	1 Part Gel	4.3	18	30	Pre-Cure
TIA1123GF	1 Part Gel	12.3	5.2	280	Pre-Cure



Printable Thermal Compounds

Grade Name	Characteristics	Thermal Conductivity (W/m.K)	Dielectric Strength (kV/mm)	BLT (μm)
TIG1500	General purpose	1.5	11	35
TIG2000	General Purpose	2.0	20	50
TIG3500H	Temp. resistant, low thermal resistance	3.5	18	25
TIG3560	Temp. resistant, low thermal resistance	3.6	10	25
TIG6050	High Bulk Thermal Conductivity and good dielectrics for high power	5.7	10	30

Coatings and Encapsulants for PCB protection

To help ensure dependability in Data Center UPS systems, Inverters, and PCUs, PCBs and electronic components require protection against demanding operating conditions. Momentive's SILTRUST™ and SNAPSIL™ coatings and encapsulants provide essential barriers against harsh environments and electrically stressful conditions. Conformal coatings shield sensitive circuitry from dust, moisture, and other contaminants, while encapsulants enable selective protection of critical components. These solutions are also solvent-free and low-VOC, supporting both environmental needs and improved safety for operators.

Typical Applications:

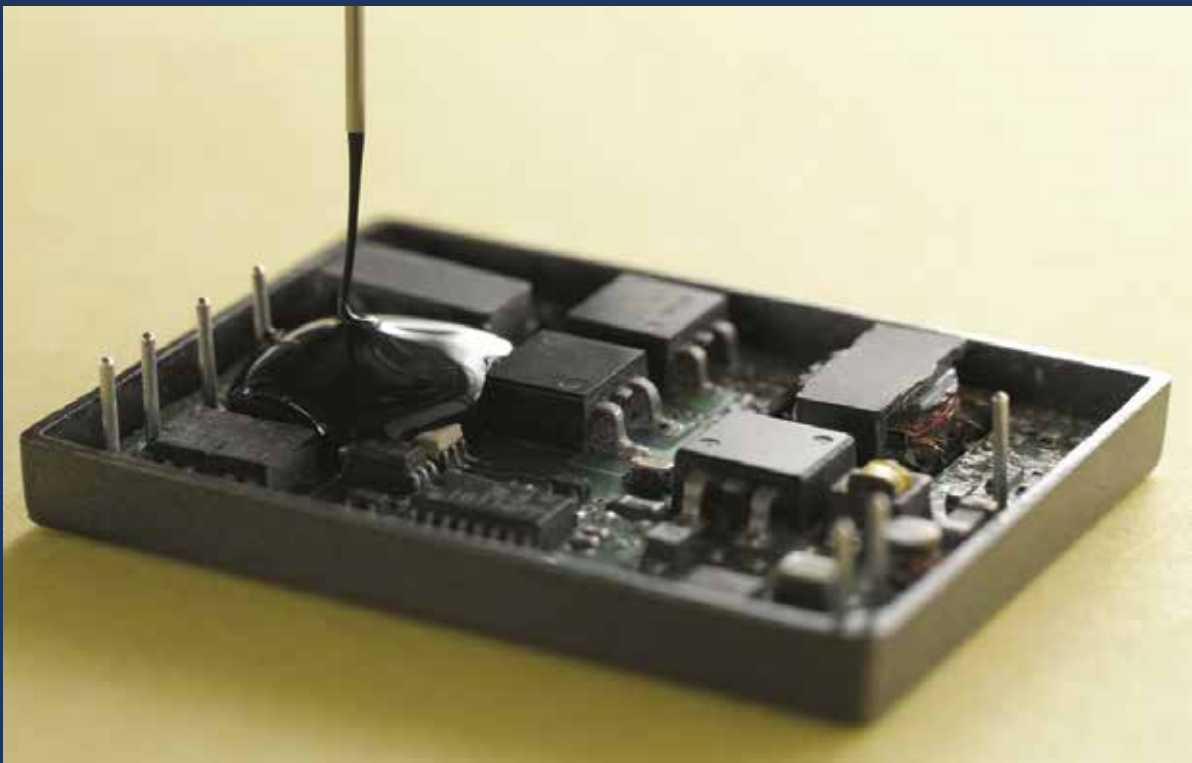
- ➔ PCB level isolation and protection
- ➔ Control Electronics, Gate Drivers
- ➔ Sensing and feedback circuits



Grade Name	Type	Viscosity (Pa.s)	Dielectric Strength (kV/mm)	Hardness (Type A)	Cure Method	Flame Retardancy
ECC3011	Low viscosity conformal coating; Formulated without solvents	0.11	20	35	RT	V-0
ECC3040H	High hardness conformal coating; Formulated without solvents	0.49	24	88 (Type A)	RT	-
ECC3051S	Conformal coating Formulated without solvents	0.55	20	22	RT	V-0
TN3705	Low viscosity encapsulant, Potting	1.5	26	13	RT	HB
TN3405	Low viscosity encapsulant	30	25	17	RT	-
TN3305	Thick section encapsulant	47	26	14	RT	HB

Potting Compounds

Data center power supplies operate under high thermal loads and must maintain reliability in dense, high-uptime environments. Momentive’s SILCOOL™ silicone potting materials help address these challenges by enhancing heat dissipation from power components, reducing thermal stress through their silicone rubber matrices, and improving long-term reliability by sealing components against moisture, dust, and other environmental contaminants.



Grade Name	Characteristics	Thermal Conductivity (W/m.K)	Viscosity (Pa.s)	Pot Life (h)	Hardness (Shore A)	Flammability Rating
TIA208RL	Low viscosity	0.6	1.2	0.5	40	V-0, 150 RTI
TIA219R	Good thermal conductivity; Primerless adhesion	1.9	11	0.5	25 (Type A)	-
TIA215G	Low stress, temp stability	1.9	7.5	0.5	27	V-0, 150 RTI
TIA227G	Low stress, fast cure, temp stability	2.7	10	1	23	V-0, 150 RTI
TIA231G	High thermal, temp stability	3.1	10	1	45	V-0, 150 RTI

Assembly Adhesives and Sealants

Momentive offers a range of 1-component adhesives and bonding materials used in assembling and protecting data center power enclosures and PCBs. **SNAPSIL™** adhesives support general box assembly, serving as alternatives to mechanical fasteners or as staking materials to reinforce high profile PCB components. **SILCOOL™** thermal adhesives are widely used to bond components and heat sinks, while also enhancing heat transfer.



Grade Name	Characteristics, Application	Adhesive Strength (Mpa)	Cure Profile	Thermal Conductivity (W/m.K)	Flammability Rating
TSE382	General adhesive for strong bonding or as a CIPG gasket	1.7	Room temp, TFT 10 min	-	HB
TN3085	Paste adhesive, fast tack, V-0 flammability	1.3	Room temp. TFT 7 min	0.7	V-0
TN3005	Paste adhesive, fast tack	1.2	Room temp. TFT 7 min	-	HB
TN8000	Paste adhesive, high strength bonding	1.8	Room temp. TFT 20 min	0.3	HB
TIA350R	Paste adhesive with high thermal conductivity	1.0	Heat cure 120C x 30 min	3.5	V-0
TIA200R-G	Paste adhesive, good thermal conductivity, High bond	3.0	Heat cure 120C x 30 min	2.0	V-0
TIA0260	Fast tack, High thermal conductivity. High bond strength	3.0	Room temp, TFT 10 min	2.6	V-0
XE11-B5320	Fast tack, moderate thermal conductivity	1.3	Room temp, TFT 5 min	1.3	HB

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