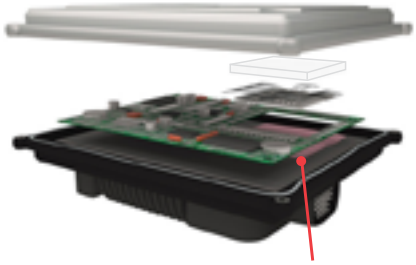
Selection Guide

Advanced Solutions for Today's Thermal Management Challenges

DOWSIL™ TC-2030 Adhesive, DOWSIL™ TC-2035 Adhesive

Dow's versatile portfolio of thermally conductive silicone adhesives offers solutions for a broad range of automotive PCB modules, from standard and advanced assemblies to next-generation applications that demand ever-greater integration and higher power densities.

Two products exemplify this versatility: DOWSIL™ TC-2030 Adhesive, the company's most advanced solution for traditional automotive PCB module applications, and DOWSIL™ TC-2035 Adhesive, a high-performance thermal interface material for high-heat automotive applications, such as next-generation power conversion.



DOWSIL™ TC-2030 Adhesive

DOWSIL TC-2030 Adhesive is the company's most advanced thermal management solution for standard automotive PCB modules. Formulated with field-proven thermally conductive fillers, it reduces thermal resistivity with a high thermal conductivity of 2.7 W/mK. A two-part, heat-cured silicone technology, DOWSIL TC-2030 Adhesive delivers a significant improvement in elongation performance for a material of such high thermal conductivity. Thus, it enables thermal interfaces that deliver full and effective contact to ensure stable performance over a module's expected lifetime. Delivering bond line thickness (BLT) of 130 µm, this advanced technology is a suitable thermal interface material for underhood PCB system applications, such as power steering, anti-lock braking and PCB system control modules.

DOWSIL™ TC-2035 Adhesive

New DOWSIL TC-2035 Adhesive dramatically raises the bar on managing heat in next-generation automotive applications, including high-power PCB system modules for electric and hybrid electric vehicles. This cutting-edge material drastically reduces thermal resistivity by delivering excellent 3.3 W/mK thermal conductivity and BLT as low as 50 µm. A two-part, heat-cured silicone, DOWSIL TC-2035 Adhesive bonds reliably to a variety of thermal substrate types, including direct bonding copper, high-density interconnect, low-temperature co-fired ceramic and printed circuit board. Further, the material sustains reliable performance at temperatures reaching 200°C.

Imagine

Material Properties

Property	DOWSIL™ TC-2030 Adhesive	DOWSIL™ TC-2035 Adhesive
Product description	Silicone adhesive delivering superior thermal management for standard and advanced automotive PCB system modules	Silicone adhesive delivering advanced thermal management suitable for next-generation automotive PCB system applications
Form	Two-part, heat cure	Two-part, heat cure
Color after mix	Gray	Reddish brown
Mix ratio	1:1	1:1
Viscosity, Part A	250 Pa-s	130 Pa-s
Viscosity, Part B	200 Pa-s	130 Pa-s
Viscosity, mixed	220 Pa-s	130 Pa-s
Density (cured)	2.90 g/cm^3	3.0 g/cm^3
Viscosity after 4 hours of working time @ 25°C	230 Pa-s	116 Pa-s
Tensile strength	4.7 MPa	3.6 MPa
Heat cure time	60 minutes at 130°C	30 minutes at 125°C; 10 minutes at 150°C
Elongation	50%	43%
Durometer, Shore A (JIS)	92	95
Unprimed adhesion (lap shear strength Al/Al)	2.7 MPa	3.1 MPa
Thermal conductivity	2.7 W/mK	3.3 W/mK
Minimum BLT	130 µm	50 µm

Material Properties (continued)

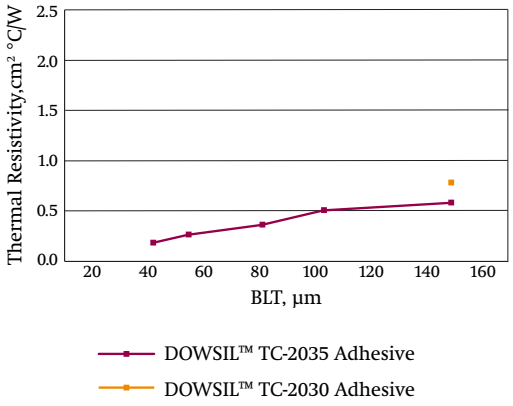
Property	DOWSIL™ TC-2030 Adhesive	DOWSIL™ TC-2035 Adhesive
Thermal resistivity at minimum BLT	0.8°C/W	0.25°C/W
Thermal resistivity at 150 µm BLT	0.8°C/W	0.59°C/W
Volume resistivity	4.3 E+15 ohm*cm	1.3 E+16 ohm*cm
Dielectric strength	21 kV/mm	21 kV/mm

Recommended Processing

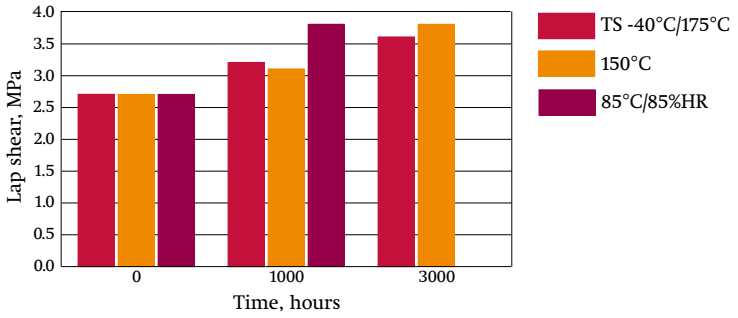
	DOWSIL™ TC-2030 Adhesive	DOWSIL™ TC-2035 Adhesive
Static mixer	MS 8-19	
Maximum speed	0.2 ml/sec for 1 ml	0.2 ml/sec for 2 ml
Interfacial contact optimization	Vacuum bonding	
Packaging	20 l pail, 6 oz cartridges	

Performance Data

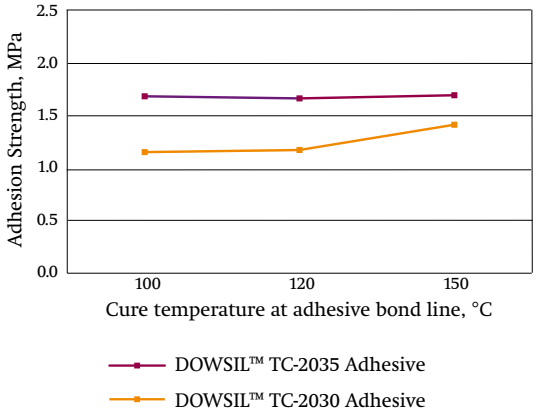
Thermal Resistivity
at different BLTs



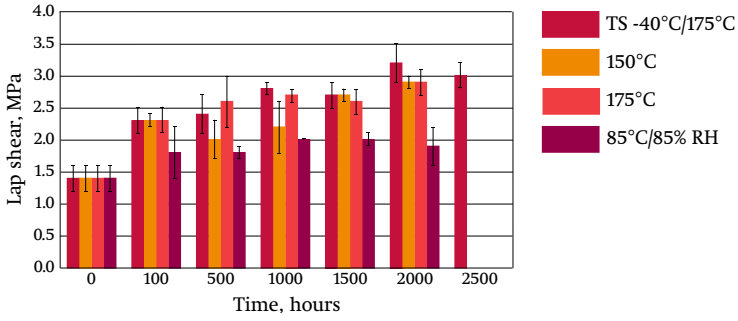
Adhesion Strength Reliability
DOWSIL™ TC-2030 Adhesive



Adhesion Built on Aluminum
after 10 min of exposure at temperature



Adhesion Strength Reliability
DOWSIL™ TC-2035 Adhesive



One Company, Many Transportation Solutions

DOWSIL™ TC-2030 Adhesive and DOWSIL™ TC-2035 Adhesive are available from Dow worldwide. Specially designed to address the thermal challenges of today's most demanding PCB system assembly applications, these high-performance materials round out Dow's broad and expanding portfolio of advanced solutions for thermal management.

Learn More

We bring more than just an industry-leading portfolio of advanced silicone-based materials. As your dedicated innovation leader, we bring proven process and application expertise, a network of technical experts, a reliable global supply base and world-class customer service.

To find out how we can support your applications, visit **consumer.dow.com/pcb**.

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