

CoolTherm™ MG-133 Thermally Conductive Gel

Description

LORD CoolTherm™ MG-133 thermally conductive gel is a one-component, silicone interface material that exhibits the low thermal resistance properties of a grease while possessing the integrity of a gel.

CoolTherm MG-133 gel is designed to provide efficient heat transfer from flip chip microprocessors, PPGAs, BGAs, microBGAs, DSP chips, graphic accelerator chips, and other high wattage electronic components that are on ceramic substrates. CoolTherm MG-133 gel was not developed for organic substrates.

Features and Benefits

Thin Bondlines – achieves thin bondlines of 1-2 mils, minimizing the thermal pathway and maximizing heat flow.

High Thermal Conductivity – provides high thermal conductivity for applications where superior heat dissipation is required.

Low Thermal Resistance – provides minimal thermal resistance due to low viscosity and good wetting.

High Reliability – provides excellent resistance to moisture and temperature cycling; resists pump-out and cracking.

Reworkability – low modulus at elevated temperatures allows material to be repaired.

Typical Properties*

Uncured

Appearance	Gray Paste
Viscosity, cps @ 25°C TA AR550 Rheometer	
Shear Rate 5/sec	128,400
Shear Rate 10/sec	105,900
Specific Gravity	2.9
Gel Time	–
Working Life, hr @ 25°C	8

Cured

Volume Resistivity, ohm-cm @ 25°C	–
Thermal Conductivity, W/mk	3.6
Coefficient of Linear Thermal Expansion, ppm/°C	178
Glass Transition Temperature (T _g), °C	-110
Storage Modulus, Pa @ 25°C by DMTA	10,000

*Data is typical and not to be used for specification purposes.

LORD TECHNICAL DATA

Application

Applying – Before use with dispensing equipment, allow gel to be warmed to room temperature (ideally 20-25°C). Thaw gel by placing the syringe in a vertical (upright) position with dispense tip facing downward in an ambient environment. Consult handling instructions** for specific guidelines.

Mount the syringe onto the dispensing equipment that has been thoroughly cleaned and purge gel through the system until an unbroken flow of gel is extruded.

Curing – Allow gel to cure for 60 minutes at 100°C or for 30 minutes at 120°C. This time-at-temperature profile refers to the time the material should be allowed to cure once it reaches the target temperature. Allowance should be made for oven ramp rates, parts with large thermal mass and other circumstances that may delay material reaching the target temperature.

Cleanup – Clean equipment and tools prior to the gel cure with isopropyl alcohol or similar solvents in a well-ventilated area.

Shelf Life/Storage

Shelf life is six months from date of manufacture when stored at -30°C in original, unopened container. Syringe must be maintained at -30°C in a vertical (upright) position with the dispense tip facing down. Do not store syringe on its side (horizontally).

This material is shipped and stored frozen. Consult handling instructions** for thawing.

Cautionary Information

Before using this or any LORD product, refer to the Safety Data Sheet (SDS) and label for safe use and handling instructions.

For industrial/commercial use only. Must be applied by trained personnel only. Not to be used in household applications. Not for consumer use.

**Handling instructions are available on LORD.com.

Values stated in this technical data sheet represent typical values as not all tests are run on each lot of material produced. For formalized product specifications for specific product end uses, contact the Customer Support Center.

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