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## TECHNICAL BULLETIN

# STG-53A

## Silicone Thermal Compound

### Product Description

**STG-53A is silicone-based thermal grease used to insure quick efficient heat transfer and dissipation.** This material will not dry, harden or melt in normal industrial use and provides long-term material stability. It can be used for mounting semiconductor devices, power transistors, and diodes; coupling heat generating assemblies to chassis; heat transfer medium on ballast; thermal joints; and many electronics, automotive and electrical applications.

### Key Features and Benefits

• <b>Good Thermal Performance-</b> ( 0.80 W/m <sup>2</sup> °k)
• <b>Low Interface Thermal Resistance.</b> – ( 0.05 °C-In <sub>2</sub> /W)
• <b>Thin Bond lines to ≤1 mil.</b>
• <b>Low bleed and evaporation.</b>

- Non-Toxic.
- Reworkable/Easy to Remove.
- Easy to Apply by Dispensing or Screen Printing/Stencil.

### Typical Applications

**STG-53A Heat Sink Compound** is applied to the base and mounting studs of transistors, diodes and silicone controlled rectifiers. In these situations, a small amount of the thermal grease is applied using either the dispensing of screen printing/stencil methods **STG-53A** can be used as a high-voltage corona suppressant/non-flammable coating, in connections for fly back transformers located in TV sets and similar design applications. It is also used in mounting semiconductor devices; thermoelectric modules; power transistors and diodes; coupling entire heat generating assemblies to chassis; heat transfer medium on ballasts; thermal joints; thermocouple wells; mounting power resistors; and for any devices where efficient cooling is required in major industries including, electronic (computer, appliance, wireless, etc.), automotive and electrical.

### Shelf-Life

**STG-53A** has a shelf-life of 5 years at room temperature (25°C) in unopened containers. Slight settling of the filler may occur during long-term storage. In this case, it is recommended to re-disperse the filler by hand or mechanical mixing. Refrigerate material at 0-10°C to avoid any settling.

### Clean Up

Standard approved clean-up and disposal procedures should be followed in every situation. The use of disposable containers and utensils are recommended whenever possible to simplify and expedite clean-up. However, when disposable containers are impractical, **STG-53A** can be removed by cleaning solvents with such as Mineral Spirit (Paint Thinner), Heptane or Isopropyl Alcohol.

### Typical Properties

Property	Value
Viscosity:	Thixotropic Paste
Specific Gravity, @ 25°C	2.4
Color:	White
Evaporation, @ 200°C, 24 Hrs., %/Wt.	0.5
Bleed @ 200°C, 24 Hrs., %/Wt.	0.2
Thermal Conductivity, (ASTM D5470)	
Cal/Sec. Cm.°C	19 x 10 <sup>-4</sup>
BTU.In/(Hr.Ft <sup>2</sup> .°F)	5.5
<b>W/m.°K</b>	<b>0.80</b>
<b>Thermal Resistance (°C-In<sub>2</sub>/W )</b>	<b>0.05</b>
<b>Electrical Properties:</b>	400
Dielectric strength (ASTM D150) 0.05" gap, V/mil	
Dielectric constant (ASTM D150) 25°C @ 1 KHz.	4.9
Dissipation factor (ASTM D150) 25°C @ 1 KHz.	0.0011
Volume Resistivity (ASTM D257) Ohm-cm.	1.9 x 10 <sup>14</sup>
Operating Temperature Range	-65°C to 205°C

**CLAIMER:** All data given here is offered as a guide to the use of these materials and not as a guarantee of their performance. The user should evaluate their suitability for own purposes. Properties are typical and should not be used in preparing specifications. Statements are not to be construed as recommendations to infringe any patent.