

# 3M™ Thermally Conductive Grease TCG-2035 / TCG-2031

## Product Description

3M™ Thermally Conductive Grease TCG-2035 is an ultra-high performance thermal interface material for transferring thermal energy from a heat source (e.g.: processor chip, graphics chip, etc.) to a heat sinking or heat spreading surface. The 3M Grease TCG-2035's blend of inorganic fillers in a non-silicone resin system provides for excellent bulk thermal conductivity along with very low thermal resistance.

3M™ Thermally Conductive Grease TCG-2031 has a lower viscosity versus the 3M™ Thermally Conductive Grease TCG-2035 as a small amount of solvent has been blended into the product. The lower viscosity of the 3M Grease TCG-2031 can allow for a thinner bond line leading to improved thermal resistance and is also designed for use in screen printing applications.

## Key Features

- High Performance thermal interface material.
- Superior bulk conductivity.
- Excellent thermal impedance.
- Non-silicone based formulation.
- < 40  $\mu$  max particle diameter.
- 3M Grease TCG-2031 is screen printable.

## Typical Physical Properties

**Note:** The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

$G^* = 5400 \text{ Pa @ } 25^\circ\text{C} (*1425 \text{ Pa})$	$G' = 3150 \text{ Pa @ } 25^\circ\text{C} (*800 \text{ Pa})$
$\eta^* = 74 \text{ Pa-sec @ } 25^\circ\text{C} (*20 \text{ Pa-sec})$	$\delta = 2.92 \text{ g/cm}^3 (*2.81)$
Dielectric Constant = 5.4 @ 1kHz	Vol Resistivity = $1.36 \times 10^9 \Omega\text{-cm @ } 1 \text{ kHz}$
Dielectric Breakdown Strength = 4700 Volts/mm	

\*Information relates to the 3M Grease TCG-2031.



## Typical Performance Characteristics

**Note:** The following technical information and data should be considered representative or typical only and should not be used for specification purposes.

$k = 4.1 \text{ W/m-K}$

Thermal Impedance:  $0.012 \text{ C-in}^2/\text{W}$  ( $0.081 \text{ C-cm}^2/\text{W}$ ) (Thermal Impedance measured with a modified 3M ASTM-D5470 Test Method)

<b>Operating Temperature Range*</b>	Long Term (Weeks-Months)	100 to 125°C
<b>3M Test Method</b>	Short Term (Hours-Days)	125 to 150°C

**\*Note:** The end use customer application, design & verification testing will determine the final in use effective temperature range based on each application's environmental conditions.

## Storage and Shelf Life

Product Shelf life is 9 months from date of manufacture when stored in the original product container and packaging materials and stored at room temperature (18-24°C) and 50% RH.

To ensure best uniformity of conductive fillers, the product should be mixed prior to use to ensure uniform distribution of fillers.

## Directions for Use

Apply the product at the desired interface and use pressure (from approximately 1-25 psi applied at a variable or constant force as determined by end user) when bringing the substrate interfaces together. Pressure is applied until the desired gap thickness is achieved. Apply sufficient product to ensure good gap filling at the desired final nominal gap thickness (Sufficient product volume use can be demonstrated by having a small amount of squeeze-out at the edges of the interface). Heat can be applied (40-50°C) to lower the product viscosity to aid in product flow and for establishing a desired gap thickness.

The 3M™ Thermally Conductive Grease TCG-2031 product contains a small amount of solvent to lower viscosity and allow for screen printing. Screen print to a desired surface and allow product to rest open faced for 2-10 minutes at room temperature to allow solvent to evaporate prior to assembly. Review MSDS for detailed use information.

## Regulatory

For regulatory information about this product, refer to our website at 3M.com.

## For Additional Information

To request additional product information or to arrange for sales assistance, call toll free 1-800-251-8634. Address correspondence to: 3M, Electronics Markets Materials Division, 3M Center, Building 225-3S-06, St. Paul, MN 55144-1000. Our fax number is 651-778-4244 or 1-877-369-2923. In Canada, phone: 1-800-364-3577. In Puerto Rico, phone: 1-787-750-3000. In Mexico, phone: 52-70-04-00.

## Technical Information

The technical information, recommendations and other statements contained in this document are based upon tests or experience that 3M believes are reliable, but the accuracy or completeness of such information is not guaranteed.

## Product Use

Many factors beyond 3M's control and uniquely within user's knowledge and control can affect the use and performance of a 3M product in a particular application. Given the variety of factors that can affect the use and performance of a 3M product, user is solely responsible for evaluating the 3M product and determining whether it is fit for a particular purpose and suitable for user's method of application.

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These products are not warranted or guaranteed to be silicone-free.



### Electronics Markets Materials Division

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