

# Thermal Interface Paste TIP 2792

Applied between the printed circuit board and the heatsink or heat-dissipating casings, the Thermal Interface Paste **TIP 2792** is used as Thermal Interface Material (TIM). Its elasticity ensures a reliable thermal connection, thus improving the heat transfer / heat dissipation and efficiently lowering the operating heat.

Heat vias can be safely filled with this paste, thus increasing the thermal interface.

- base: silicone resin
- addition cross-linking
- screen printing application in variable structures and layer thicknesses
- for thermo-mechanical decoupling
- simplifies the thermal management for achieving a higher luminosity of LEDs and a longer lifespan of assemblies or high-current devices
- excellent electrical insulation properties
- best flame class V-0 in acc. with UL 94 (on 1.5 mm FR4 base material)
- reflow resistant (the resistance to wave soldering has to be verified in pre-trials)
- non-withstanding mechanical stress
- the adhesion and curing on various base materials such as HAL, IMT, ENiG and aluminum have to be verified; a strong adhesion is generally not required for this purpose
- can be used in combination with heatsink paste **HSP 4 A** (see report 167 “The use of printed thermal transfer pastes to improve thermal dissipation on printed circuit boards”)

## Characteristics

Colour/appearance	white
Solids content	100 % by weight
Viscosity* at 20 °C [68 °F] DIN EN ISO 3219	31,000 ± 3,000 mPas
Density at 20 °C [68 °F] DIN EN ISO 2811-1	1.37 ± 0.05 g/cm <sup>3</sup>

\* measured with Haake RS 600, C 1/1°, D = 50 s<sup>-1</sup>  
viscosity measuring unit supplied by Thermo Fisher Scientific, [www.thermofisher.com](http://www.thermofisher.com)

Index TIP = Thermal Interface Paste

## Physical and mechanical properties

Property	Test method	Result
Shore-A hardness	DIN 53505, 5 mm layer thickness after 500 h at 40 °C [104 °F] /92 % R.H.	55–65
Solvent resistance	IPC-TM-650, 2.3.42 isopropanol isopropanol (75 %) / H <sub>2</sub> O (25 %) deionized H <sub>2</sub> O	passed passed passed
Water absorption	DIN EN ISO 62 1 h/23 °C [73,4 °F] 1 h/100 °C [212 °F]	≈ 0.04 % < 1 %
Temperature resistance	1000 h storage at 150 °C [302 °F]	≈ 1.55 % mass loss
Thermal class*	based on DIN IEC 60085	F = 180 °C [356 °F]
Heat transmission resistance	ASTM D 5470, stationary cylinder method, 35 µm layer thickness	87 mm <sup>2</sup> K/W

\* can be used in a temperature range of **-40 up to at least + 180 °C** [-40 up to at least 356 °F]; a use down to -65 °C [-85 °F] is possible. Both at the lower and upper ends of this range the performance and reliability of the material can be negatively affected in some applications. In these cases, additional pre-trials and tests are required.

## Electrical properties

Property	Test method	Result
Dielectric strength	VDE 0303, part 21 DIN EN 60243-1	≥ 60 kV/mm
	VDE 0303, part 21/DIN EN 60243-1 after 1000 h at 80 °C [176 °F] / 85 R.H.	≥ 60 kV/mm
	IPC-TM-650, 2.5.6.1	passed
Moisture and insulation resistance	85/85 test; ramp like storage at high atmospheric humidity and high temperature, among others 3 days at 85 °C [185 °F] and 85 % r. h.	≥ 10 <sup>9</sup> Ohm

## Processing



Please read this technical report and the publications listed below carefully before using the product. These sheets are enclosed with the first shipment of product or sample.

### MSDS

The corresponding material safety data sheet contains detailed information and characteristics on safety precautions, environmental protection, transport, storage, handling and waste disposal.

### TI

[Technical information TI 15/3](#) "Protective measures when using chemicals including lacquers, casting compounds, thinners, cleaning agents"

### TI

[Technical information TI 15/13](#) "Precognizing in the pcb fabrication process"

### TI

[Technical information TI 15/18](#) "Handling of silicones"

→ Ensure that the surface to be coated is clean, dry and grease-/oxide-free and that copper surfaces preferably have an average surface roughness of 2 µm.

Since the many different permutations make it impossible to evaluate the whole spectrum (parameters, reactions with materials used, chemical processes and machines) of processes and subsequent processes in all their variations, the parameters we recommend are to be viewed as guidelines only that were determined in laboratory conditions. We advise you to determine the exact process limitations within your production environment, in particular as regards compatibility with your specific follow-up processes, in order to ensure a stable fabrication process and products of the highest possible quality.

The specified product data is based upon standard processing conditions/test conditions of the mentioned norms and must be verified if necessary while observing suitable test conditions on processed products.

Feel free to contact our application technology department (ATD) if you have any questions or for a consultation.

### Safety recommendation

→ When using chemicals, the common precautions should be carefully noted.

### Auxiliary products recommended

- [Cleaning agent R 5817](#)  
for the manual cleaning of screens and tools

### Screen printing

The Thermal Interface Paste **TIP 2792** is usually printed in layer thicknesses of 30-150 µm. For this purpose, screen mesh of the type 24-150 to 31-100 is suitable.



Stir before use

A higher layer build-up by multiple printing is possible. For this, the next layer is only applied after the previous one has cured completely.

### Drying/curing

The product is cured for 30 min at 120°C.

→ Please note the recommendations given in the Technical Information sheet TI 15/18 with regards to a possible inhibition in the curing of addition cross-linking silicones.

### Transporting of PCBs printed with TIP 2792

→ Take appropriate measures to avoid mechanical damaging during transport. We recommend to use, for example intermediate layers for protection.

### Packaging

The packing units available are indicated in our offer which we will send you upon request.

### Shelf life and storage conditions



Shelf life: In sealed original containers at least 3 months



Storage conditions: +5 °C to +25 °C [+41 °F to +77 °F]



Protect against humidity

For warehousing reasons, isolated cases may occur where the shelf life upon shipment is less than the shelf life indicated in this technical report. However, it is ensured that our products have **at least** two-thirds of their shelf life remaining when they leave our company. Labels on containers show shelf life and storage conditions.

## Disclaimer

All descriptions and images of our goods and products contained in our technical literature, catalogues, flyers, circular letters, advertisements, price lists, websites, data sheets and brochures, and in particular the information given in this literature are non-binding unless expressly stated otherwise in the Agreement. This shall also include the property rights of third parties if applicable.

The products are exclusively intended for the applications indicated in the corresponding technical data sheets. The advisory service does not exempt you from performing your own assessments, in particular as regards their suitability for the applications intended. The application, use and processing of our products and of the products manufactured by you based on the advice given by our Application Technology Department are beyond our control and thus entirely your responsibility. The sale of our products is effected in accordance with our current terms of sale and delivery.

Any questions? We would be pleased to offer you advice and assistance in solving your problems. Samples and technical literature are available upon request.

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