

HEM STC035 & 050

Super Thermal Conductive Sheets

Overview/Product Description:

HITEK STC stands apart from traditional thermal interface materials by virtue of its ability to handle exceptionally high power levels. In high power applications simple, cost effective solutions were limited — until now.

Most TIM are commonly rated 1 - 3 W/m-K, with some as high as 6 - 10 W/m-K. STC materials are rated up to 16 W/m-K and are available in an array of thicknesses.

STC's conformability allows it to fill voids and rough surfaces; resulting in high levels of thermal coupling at 15% - 20% deflection.

Consider STC for the following markets:

- Automotive
- Trains and aircraft
- Military: i.e. High-powered radar
- Communications equipment
- Energy generation
- Motors, heaters, etc.

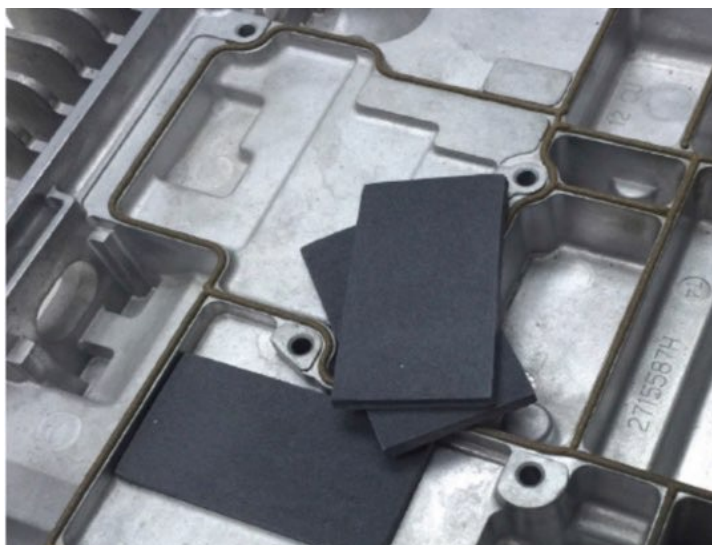
Shelf Life

Without psa 2 years (D.O.S.)
 With psa 1 year (D.O.S.)

Features & Benefits:

- High thermal conductivity values alongside a variety of thicknesses.
- Broad operating temperature range.
- Outstanding thermal conductivity 14W/m-K & 16Wm-K.
- Flexible and easily compressed.
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- Enhances thermal coupling between substrates.
- Low tackiness.
- Easy to handle unlike messy gels & pastes.
- RoHS and REACH compliant.
- Eliminates the need for traditional, complex and costly solutions.

* Report available upon request



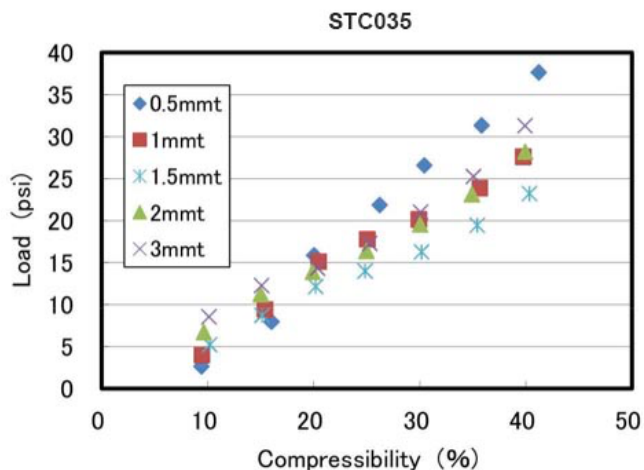
Properties:

Part Number	HEM STC035	HEM STC050
Construction & Composition	Silicone elastomer, Carbon fibre filler and graphene	Silicone elastomer, Carbon fibre filler and graphene
Thickness (mm) [$\geq 0.5\text{mm} \pm 10\%$]	0.5 - 2.0	0.2 - 2.0
Colour	Black	Black
Hardness (Shore A)	20	50
UL Flammability (UL 94)	V-0*	V-0*
Operating Temperature Range (°C)	-50 to +200	-50 to +200
Volume Resistivity ($\Omega\text{-cm}$) ASTM D4496-13	$6.7 \cdot 10^4$	$> 6 \cdot 10^4$
Specific Gravity	2.4	2.4
Thermal Conductivity (W/mK) ASTM D5470	14	16
Breakdown Voltage (AC kV/mm)	< 0.1	< 0.1
Withstand Voltage (AC kV/mm)	< 0.1	< 0.1
Specific Heat Capacity (J/g-K)	0.87	0.87
Thermal Mass (kJ/m ³ -K)	2088	2088
Maximum Sheet Size (mm)	130 x 130	140 x 140

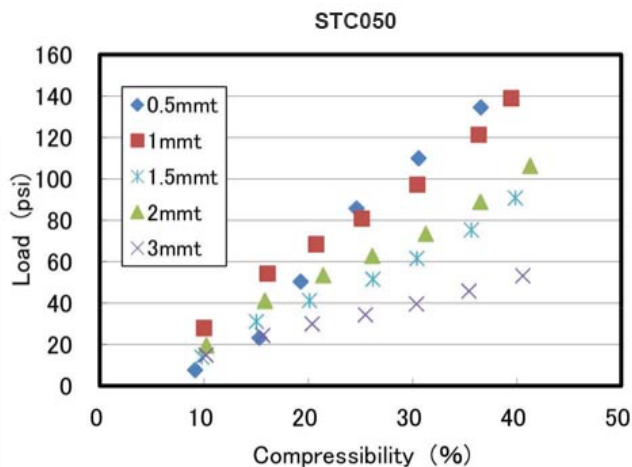
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HEM STC035 - Deflection under load:



HEM STC050 - Deflection under load:



Heat cycle test conditions:

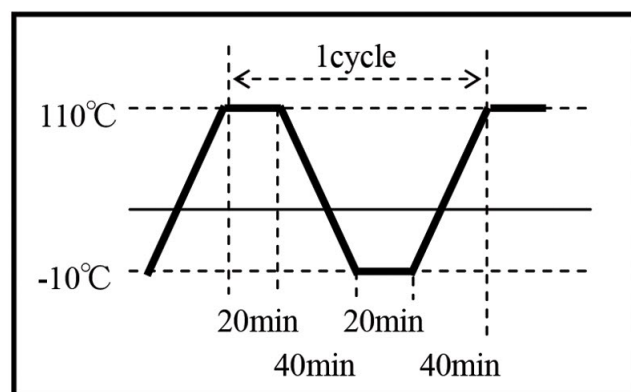


Fig.1 Heat cycle test conditions: Samples were installed in the heat cycle chamber with 20% compression and also without load, then measured at intervals.

HEM STC035 - Heat cycle test (-10°C ~ 110°C):

Time (H)	0	250	500	1000
Hardness A	25	27	27	28
Thermal resistance °C/W	0.94	0.94	0.91	0.92

HEM STC050 - Heat cycle test (-10°C ~ 110°C):

Time (H)	0	250	500	1000
Hardness A	55	58	58	60
Thermal resistance °C/W	0.81	0.81	0.79	0.83

HEM STC035 - High temperature (150°C x 1,000 H):

Time (H)	0	250	500	1000
Hardness A	25	28	31	35
Thermal resistance °C/W	0.94	0.93	0.91	0.92

HEM STC050 - High temperature (150°C x 1,000 H):

Time (H)	0	250	500	1000
Hardness A	55	61	62	65
Thermal resistance °C/W	0.81	0.80	0.80	0.82