EMS-TM-G35

Thermal grease, 3.5 W/m·K, 1 kg can and syringe

Non-curing thermal paste for the TIM2 plane, lid or heat-sink base to cold plate.

Non-curing thermal grease at 3.5 W/m·K, applied at a 0.05 mm minimum bond line. Apparent thermal impedance is 0.020 °C·in²/W at 30 psi, measured by ASTM D5470 with both the test pressure and the thickness travelling with the figure. The failure it is selected against is pump-out: CTE mismatch between lid and cold plate displaces the paste over thousands of thermal cycles, and the grade stays correct on a flat interface with hard stops that set the bond line.

ORDERING INFORMATION

Part number	**EMS-TM-G35**
Thermal conductivity (through-plane)	**3.5 W/m·K**
Thermal impedance at 30 psi	**0.020 °C·in²/W at 30 psi**
Minimum interface thickness	**0.05 mm**
Packaging	**1 kg can; syringe for field rework**
Ladder position	**published anchor model of the ladder**
Silicone content	**Silicone-free grade quoted against drawing**
Sample lead time	**5–10 working days**

THERMAL PERFORMANCE

Parameter	Value	Notes
Model code	**EMS-TM-G35**	Ladder position: published anchor model of the ladder.
Thermal conductivity, through-plane	**3.5 W/m·K**	ASTM D5470 three-point regression. Through-plane figure; comparable with pad and phase-change figures and never published without its pressure and thickness. ASTM D5470 measures apparent thermal impedance at a controlled pressure and thickness; intrinsic conductivity comes from repeating the measurement at several thicknesses and regressing the results, where the intercept is contact resistance and the slope gives the conductivity. A conductivity figure without its pressure and thickness is not a specification.
Thermal impedance at 30 psi	**0.020 °C·in²/W at 30 psi**	Published figure, ASTM D5470, measured at 30 psi. The test pressure and the thickness travel with the figure.
Thickness of the impedance figure	**Printed with the figure on the datasheet**	ASTM D5470 impedance depends on the bond line. The thickness behind the figure is stated with it, because the same grade publishes different impedance bands at different thicknesses.
Minimum interface thickness (bond line)	**0.05 mm**	Minimum interface thickness of the anchor grade across the ladder. A paste wets micro-gaps in a thin bond line; it does not bridge a gap. If assembly pressure or gap tolerance is uncontrolled, bond line varies across the part and impedance varies with it.

Parameter	Value	Notes
Two grades a factor of 2 apart in W/m·K	**Far closer than a factor of 2 apart in impedance**	Impedance at one bond line separates grades less than the conductivity column suggests, which is why the impedance row carries the same weight as the conductivity row.
Operating temperature range	**-50 °C to +150 °C**	Ladder range, bracketed by IEC 60068-2-14. A ceiling is a grade decision: a loop that runs hot removes the pad class before the conductivity comparison starts.
Thermal weight loss, 125 °C / 48 h	**Below 0.2 % after 125 °C for 48 h**	Thermal weight loss as the dry-out proxy. Measured figure on the anchor grade; the grade is also published with no overflow up to 150 °C.
Pre-heating before use	**Not required before use on the anchor grade**	The anchor grade is published with no pre-heating before use and no overflow up to 150 °C.
Pump-out resistance	**Not published as a figure for this grade**	Pump-out from CTE mismatch over thousands of thermal cycles is the dominant grease failure mode. The published selection warning asks the buyer to confirm pump-out risk, thermal cycling, storage and re-assembly. Countermeasures are a phase change material that softens in place or a cured pad.

PHYSICAL, COMPLIANCE AND PACKAGING

Parameter	Value	Notes
Density	**2.6 g/cm³**	ASTM D792. Anchor grade figure for the ladder.
Viscosity at 25 °C	**280 Pa·s at 25 °C**	Brookfield RVF, #7 spindle. Anchor grade figure for the ladder.
RoHS	**Declared to the RoHS 2011/65/EU restricted-substance list**	RoHS restricts ten substances at 0.1 % by weight per homogeneous material, with cadmium the exception at 0.01 %. Method IEC 62321. Published as the requirement the grade is built to, not as an approval held. Certification and standard designations are named only. No certificate, registration, patent or file number is published, and no third-party approval document is in hand for a model in this family.
Halogen content	**Reported per delivered batch**	Method EN 14582. No acceptance threshold is published here; the limit is set by the buyer's specification and the batch report is issued with the datasheet.
REACH	**SVHC screen against the current candidate list**	Method EN 14372. The 2025 REACH SVHC candidate list runs to more than 240 substances and includes three silicones: D4 (octamethylcyclotetrasiloxane), D5 (decamethylcyclopentasiloxane) and D6 (dodecamethylcyclohexasiloxane). Certification and standard designations are named only. No certificate, registration, patent or file number is published, and no third-party approval document is in hand for a model in this family.
Silicone content	**Silicone-free grade quoted against drawing**	Silicone oil does not stay in the bond line. The stocked silicone-free grade sits in the pad ladder at 2.0 W/m·K, 45–55 Shore 00, 2.5 g/cc.
Shelf life	**12 months**	Anchor grade figure, from the date of shipment.

Parameter	Value	Notes
Packaging and storage	**1 kg can · syringe**	1 kg cans and syringes ship from stock; storage temperature per the safety data sheet. Samples ship in 5–10 working days.
Standards applied	**ASTM D5470 · ASTM D792 · IEC 62321 · EN 14582 · EN 14372 · IEC 60068-2-14**	Standard designations are named. Certification and standard designations are named only. No certificate, registration, patent or file number is published, and no third-party approval document is in hand for a model in this family.

APPLICATIONS

- Flat interfaces with hard stops that set the bond line
- Lid or heat-sink base to cold plate on a machined surface
- Stencil printing, screen printing or syringe dispensing
- Field rework where a cured pad cannot be positioned

COMPATIBLE WITH

- EMS-TM-P series gap filler pads where the gap is 1.0 mm or more
- EMS-TM-PC series phase change pads where thermal cycling drives pump-out
- EMS-TM-GR series graphene pads where through-plane conductivity above the grease band is required
- Stencil, screen-print and syringe dispensing equipment

NOT THE RIGHT PART WHERE

- The gap is above the bond line a paste is designed for; a paste does not bridge a gap
- The interface has to isolate: no dielectric breakdown or dielectric-constant figure is published for grease, so the answer is a pad at 5.0 kV/mm or more by ASTM D149, or an insulator film
- Thermal cycling is severe and the assembly cannot hold a hard stop; a phase change pad or a cured pad is the grade decision

MODEL LADDER — THERMAL GREASE

Parameter	Value	Notes
EMS-TM-G10	**1.0 W/m·K · 0.060 °C·in²/W (max) at 30 psi**	Ladder target, class band
EMS-TM-G20	**2.0 W/m·K · 0.050 °C·in²/W (max) at 30 psi**	Ladder target
EMS-TM-G30	**3.0 W/m·K · 0.030 °C·in²/W (max) at 30 psi**	Ladder target
EMS-TM-G35	**3.5 W/m·K · 0.020 °C·in²/W at 30 psi**	Published anchor model
EMS-TM-G50	**5.0 W/m·K · 0.015 °C·in²/W at 30 psi**	Published series minimum
EMS-TM-G60	**6.0 W/m·K · 0.015 °C·in²/W (max) at 30 psi**	Ladder target, premium class

CLASS CEILINGS FOR COMPARISON

Parameter	Value	Notes
Thermal grease	**-50 °C to +150 °C**	This ladder
Phase change	**-40 °C to +125 °C**	EMS-TM-PC series
Gap filler pad, 7.5 W/m·K	**-65 °C to +125 °C**	EMS-TM-P75-20

Parameter	Value	Notes
Gap filler pad, 5.0 W/m·K	**-40 °C to +150 °C**	EMS-TM-P50 series
Published class range for grease	**1.0 W/m·K to 8.5 W/m·K**	This ladder stops at 6.0 W/m·K, where only impedance at pressure separates grades

NOTES

- Thermal impedance is published with its test pressure and its thickness. Thermal conductivity never appears alone on this datasheet.
- Ladder targets are marked as such in the note column: where a figure is a ladder target rather than a published figure, the datasheet renders the delivered batch figure at the stated pressure.
- No electrical isolation row appears on a grease datasheet, because no dielectric breakdown or dielectric-constant figure is published for grease. Isolation is routed to the pad family: 5.0 kV/mm or more by ASTM D149 on the 5.0 W/m·K pad grade, or an insulator film.
- Where the figure you need is not on the datasheet, it is measured on the delivered batch and added to it.
- Scope: the TIM2 plane, lid or heat-sink base to cold plate and cold plate to manifold or rail. No coolant distribution units and no cold plates are supplied.
- Supplied by EMS-Trade Cooling, a Shenzhen trading house that integrates, inspects, stocks and ships. Die-cutting runs to the supplied drawing with a first-article inspection record per order. No manufacturing of this item is claimed.

Full specification sheet and current pricing
EMS-Trade Cooling · ems-cool.com
Typical lead time confirmed on order acknowledgement.

EMS-TM-G35
Rev. A
2026-09-19