EMS-TM-P75-20

Gap filler pad, 7.5 W/m·K, 2.0 mm thick, 32 Shore 00

Cured soft elastomer pad die-cut for the TIM2 plane, lid or heat-sink base to cold plate.

Cured soft elastomer gap filler pad at 7.5 W/m·K and 32 Shore 00, die-cut to 2.0 mm thick from a stocked envelope of 500 µm to 5 000 µm. Impedance is published at 10 psi, 30 psi and 50 psi by ASTM D5470 and travels with both its pressure and its thickness. The failure it is selected against is silicone oil reaching the loop: oil bleed is capped at 1 %, measured on 30 mm diameter filter paper at 25 % compression, 125 °C for 48 h. Top of the stocked ladder; the grade whose impedance band is published at three pressures.

ORDERING INFORMATION

Part number	**EMS-TM-P75-20**
Thermal conductivity (through-plane)	**7.5 W/m·K**
Hardness	**32 Shore 00**
Thickness	**2.0 mm die-cut**
Thickness envelope for the grade	**500–5 000 µm supplied; 2.0 mm die-cut**
Impedance test pressures	**10 psi · 30 psi · 50 psi**
Isolation	**Not published for this grade**
Packaging	**Die-cut parts on release liner, bagged to the drawing; custom outline to supplied drawing**

THERMAL PERFORMANCE AND DIMENSIONS

Parameter	Value	Notes
Model code	**EMS-TM-P75-20**	Ladder position: Top of the stocked ladder; the grade whose impedance band is published at three pressures.
Thermal conductivity, through-plane	**7.5 W/m·K**	ASTM D5470 three-point regression, and ISO 22007-2 where the grade quotes it. Through-plane figure; comparable with grease and phase-change figures. 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 10 psi	**0.154 °C·in²/W to 0.539 °C·in²/W**	Published band for the 7.5 W/m·K grade by ASTM D5470, across its supplied thickness range. Ten psi is the lowest of the three published assembly pressures.
Thermal impedance at 30 psi	**0.074 °C·in²/W to 0.203 °C·in²/W**	Published band for the 7.5 W/m·K grade by ASTM D5470. Same material and same thickness range as the 10 psi and 50 psi rows.
Thermal impedance at 50 psi	**0.061 °C·in²/W to 0.129 °C·in²/W**	Published band for the 7.5 W/m·K grade by ASTM D5470. The band moves by more than a factor of 2 across the three assembly pressures.

Parameter	Value	Notes
Test pressure and thickness of the impedance rows	**10 psi, 30 psi and 50 psi; thickness per the delivered batch**	ASTM D5470 measures apparent thermal impedance at a controlled pressure and thickness, and both are printed with the figure.
Thickness, die-cut	**2.0 mm**	Stocked thickness for this code. The envelope for the grade is 500 µm to 5 000 µm; custom pads are offered across 0.25 mm to 20 mm to drawing.
Thickness range	**500 µm to 5 000 µm**	ASTM D374. Thickness tolerance is not published in the source, so the datasheet carries the drawing tolerance agreed on the first article.
Thickness tolerance	**Per the agreed drawing**	Thickness tolerance is not published; the first-article drawing tolerance governs and is printed on the datasheet for the delivered order.
Hardness	**32 Shore 00**	ASTM D2240. Hardness is the assembly-stress number; conductivity is the thermal number, and the ladder orders by the pair. Deflection is published at 10, 30 and 50 psi. The impedance at your assembly pressure is the figure to quote, not the impedance at a neighbouring pressure.
Density	**3.50 g/cm³**	Density of the published grade, measured by ASTM D792.

ELECTRICAL, CONTAMINATION AND COMPLIANCE

Parameter	Value	Notes
Breakdown voltage	**Not published for this grade**	The 5.0 W/m·K grade publishes 5.0 kV/mm minimum by ASTM D149; no breakdown figure is published for the 7.5 W/m·K grade, so it is measured on the delivered batch where the interface has to isolate.
Dielectric constant at 1 MHz	**8.10 at 1 MHz**	ASTM D150. The value belongs to the grade and renders per grade, not as a family constant.
Volume resistivity	**8.7 × 10¹³ ohm·cm**	Published figure for this grade. No test method is named in the source.
Oil bleed	**1 % maximum**	Measured on 30 mm diameter filter paper at 25 % compression, 125 °C for 48 h. Silicone oil shed from a pad under heat and compression is a contamination route to every elastomer seal downstream.
Outgassing TML	**0.170 %**	Measured figures reported by ASTM E595 screening on a comparable published pad in this category. No pass/fail threshold is published, because the threshold is not confirmed from a primary source; the figures for the delivered grade are issued with its datasheet.
Outgassing CVCM	**0.010 %**	Measured figures reported by ASTM E595 screening on a comparable published pad in this category. No pass/fail threshold is published, because the threshold is not confirmed from a primary source; the figures for the delivered grade are issued with its datasheet.
Low siloxane D3–D20	**Not published for this grade**	The low-siloxane statement is published on the silicone-free 2.0 W/m·K grade, at D3–D20 below 20 ppm.

Parameter	Value	Notes
Operating temperature range	**-65 °C to +125 °C**	IEC 60068-2-14. The 5.0 W/m·K grade publishes -40 °C to +150 °C; a ceiling is a grade decision, not a family constant.
Flame rating	**UL 94 V-0**	The rating these grades are built to. The rating name is published; no reference to a certification document is published, because none is in hand.
Adhesive face and liner	**Natural tack on both faces; adhesive face to order**	The buyer orders a drawing rather than a chemistry: die-cut outline, thickness, adhesive face and release liner.
Shelf life and storage	**12 months from shipment**	Published grade figure. Storage per the safety data sheet.
Die-cutting and first article	**Die-cut to the supplied outline**	First-article inspection record per order; sample lead time 5–10 working days.
Standards applied	**ASTM D5470 · ASTM D374 · ASTM D2240 · ASTM D792 · ASTM D149 · ASTM D150 · ASTM E595 · UL 94 (IEC 60695)**	Standard designations are named. UL 94 V-0 is the rating these grades are built to; no reference to a certification document is published, because none is in hand.

APPLICATIONS

- Warped lids and non-flat cold plates where compliance covers what bulk conductivity does not
- Rack-scale gaps from 1.0 mm upwards, die-cut to the drawing
- Interfaces that have to isolate as well as conduct
- Replacement of a paste where thermal cycling drives pump-out

COMPATIBLE WITH

- EMS-TM-G series thermal grease where the bond line is 0.05 mm and the surfaces are flat
- EMS-TM-PC series phase change pads where the gap is below the pad envelope
- EMS-TM-GR series graphene pads where through-plane conductivity above the pad band is required
- Die-cut outlines supplied as a drawing with thickness, adhesive face and release liner

ORDERED AS

- A die-cut outline, a thickness and a hardness, not a chemistry
- One face or both faces adhesive-backed, with a release liner
- A first-article inspection record against the supplied drawing

MODEL LADDER — GAP FILLER PADS

Parameter	Value	Notes
EMS-TM-P12-10 · P12-20 · P12-30	**1.2 W/m·K · 10 Shore 00 · 2.0 g/cm³**	1.0 / 2.0 / 3.0 mm; ultra-soft grade
EMS-TM-P20-10 · P20-20	**2.0 W/m·K · 45–55 Shore 00 · 2.5 g/cm³**	1.0 / 2.0 mm; silicone-free grade
EMS-TM-P30-10 · P30-20	**3.0 W/m·K · 45 Shore 00 (ladder target)**	1.0 / 2.0 mm
EMS-TM-P50-10 · P50-20 · P50-30	**5.0 W/m·K · 40 Shore 00 · 3.2 g/cm³**	1.0 / 2.0 / 3.0 mm; published grade, 0.75–6.0 mm
EMS-TM-P60-10 · P60-20	**6.0 W/m·K · 40 Shore 00 · 3.285 g/cm³**	1.0 / 2.0 mm
EMS-TM-P70-10 · P70-20	**7.0 W/m·K · 65 Shore 00 · 3.3 g/cm³**	1.0 / 2.0 mm; firm end of the ladder
EMS-TM-P75-20	**7.5 W/m·K · 32 Shore 00 · 3.50 g/cm³**	2.0 mm die-cut; supplied 500–5 000 µm

LADDER ENDS AND THEIR USE

Parameter	Value	Notes
Ultra-soft end	**1.2 W/m·K at 10 Shore 00**	Warped lids and thin boards, where assembly stress is the constraint
Firm end	**7.0 W/m·K at 65 Shore 00**	Flat interfaces under firm clamping, where deflection is not wanted
Silicone-free grade	**2.0 W/m·K at 45–55 Shore 00**	The compliance answer where the REACH SVHC list or an oil-bleed limit rules out a silicone grade
Published grade	**5.0 W/m·K at 40 Shore 00**	Covers 0.75 mm to 6.0 mm and publishes 5.0 kV/mm minimum by ASTM D149

NOTES

- Thermal impedance carries its test pressure and its thickness. Thermal conductivity is never published alone on this datasheet.
- Through-plane conductivity is the figure on this datasheet. In-plane conductivity is a different measurement axis and is never printed in the same row or column as a through-plane figure.
- Outgassing is published as measured figures only, TML 0.170 % and CVCM 0.010 % by ASTM E595. No pass/fail threshold is published as a specification, because the threshold is not confirmed.
- Where the blueprint marks a figure as a ladder target, the note column says so; the datasheet renders the delivered batch figure at the stated pressure.
- Isolation is published per grade, not per family: breakdown voltage and dielectric constant belong to the grade, so they render as rows on the grade's own datasheet.
- 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.

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