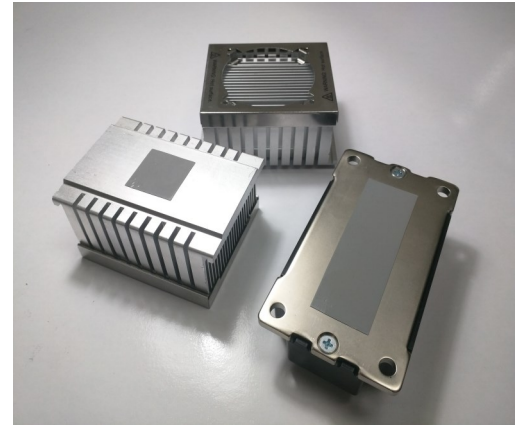


M45 is a free standing 45C phase change thermal film designed to provide high performance heat transfer for a variety of power module packages, LED assemblies, CPU/Sink or any demanding electronics cooling application where efficient and reliable heat transfer is required. Available standard as either a 5 mil, 8 mil or 12 mil thick free standing phase change film in either sheet or die cut format.

Upon initial phase change, M45 begins its controlled flow from its original pre-formed die cut size adjusting for surface irregularities and flatness conditions leading to improved thermal performance. This also includes a reduction of the bond line thickness as mounting pressures are increased.

- High Thermal Conductivity PCM Film
- Low Thermal Impedance Over Range of Pressures
- Uniform Film Thickness
- Thixotropic / Silicone free compound
- Easy to apply—Release Liner Tab System
- Excellent Replacement for Thermal Greases
- Re-workable after Phase Change
- Metal Foil Substrate Coating Options



M45 Phase Change Film

Phase Change Temp.....45°C / 113°F
 Compound Flow Design.....Thixotropic
 Max Operating Temp.....125C
 Thermal Conductivity.....5.5 W/m-K

M45 Film Thickness

M45-5.....0.005" (0.13mm)
 M45-8.....0.008" (0.20mm)
 M45-12.....0.012" (0.30mm)

Contact us for custom M45 Film thickness or substrate coating options

M45 Thermal Impedance

Thermal impedance testing performed per ASTM D5470

5 mil (0.13mm) M45 Film

10 PSI	0.0138 °C-in ² / W		0.089 °C-cm ² / W
20 PSI	0.0114 °C-in ² / W		0.074 °C-cm ² / W
40 PSI	0.0087 °C-in ² / W		0.056 °C-cm ² / W
80 PSI	0.0070 °C-in ² / W		0.045 °C-cm ² / W
100 PSI	0.0064 °C-in ² / W		0.041 °C-cm ² / W
120 PSI	0.0062 °C-in ² / W		0.040 °C-cm ² / W

8 mil (0.20mm) M45 Film

10 PSI	0.0148 °C-in ² / W		0.095 °C-cm ² / W
20 PSI	0.0118 °C-in ² / W		0.076 °C-cm ² / W
40 PSI	0.0093 °C-in ² / W		0.060 °C-cm ² / W
80 PSI	0.0076 °C-in ² / W		0.049 °C-cm ² / W
100 PSI	0.0069 °C-in ² / W		0.045 °C-cm ² / W
120 PSI	0.0065 °C-in ² / W		0.042 °C-cm ² / W

12 mil (0.30mm) M45 Film

10 PSI	0.0158 °C-in ² / W		0.102 °C-cm ² / W
20 PSI	0.0124 °C-in ² / W		0.080 °C-cm ² / W
40 PSI	0.0100 °C-in ² / W		0.065 °C-cm ² / W
80 PSI	0.0082 °C-in ² / W		0.053 °C-cm ² / W
100 PSI	0.0076 °C-in ² / W		0.049 °C-cm ² / W
120 PSI	0.0071 °C-in ² / W		0.046 °C-cm ² / W

Other Information

RoHs Compliant / REACH Compliant / Halogen Free

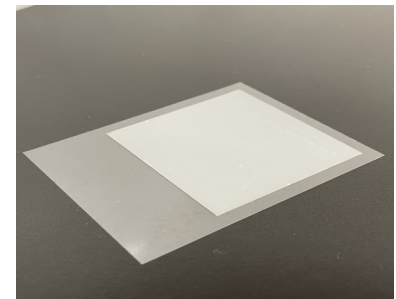


Typical Device Applications

- Power Modules / IGBT
- MOSFET
- Memory Modules
- CPU / Heat Sink Assembly
- LED Assembly
- Medical Device Cooling
- Consumer/Automotive Electronics
- Heat Pipe Assembly
- Servo Drive Controls
- Power Electronics

Release Liner / Thermal Pad Transfer System

When designing M45 to achieve excellent thermal transfer results, the thermal performance was not the only target. An additional key advantage in using M45 is the offering of the TIMTEL Die Cut Thermal Pad Transfer System. The purpose of this die cut design was to avoid common issues typically experienced by similar phase change thermal pad application systems available in market place today.



PCM Characteristic	M45 Film
TIM Type / Phase Change Temp	Phase Change / 45C
M45 Compound Design	Silicone Free
M45 Color	Gray
Delivery Formats	Sheets and Die Cuts
Standard Sheet Size	6.00" x 14.00" (152mm x 355mm)
Die Cut Dimensional Tolerance	+/- 0.020" (0.51mm), M45 Pad Only
Film Thickness Tolerance	5 mil (0.13mm) +/- 20% 8 mil (0.20mm) +/- 15% 12 mil (0.30mm) +/- 10%
Substrate Coating Options	Single Side Substrate Coating Only Aluminum Foil Copper Foil Stainless Steel Foil Graphite Heat Spreader Foil
Storage Conditions	Store in a cool, dry location at 80F/27C or below in original packaging until use.
Transit Methods / Conditions	Due to low phase change temp of 45C, die cut parts are shipped in a cooler with ice pack(s). Cold storage is not required when receiving or storing this material. It is recommended to ship product via air freight (not ground) during warmer months.