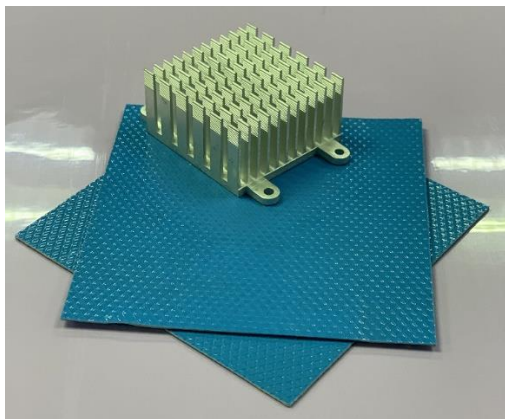


OP-647 & OP-654

High Performance Thermal Pad

Description:

OP-647 and OP-654 are high performance thermally conductive pads designed to solve some of the most challenging tasks. These products are not electrically conductive, and it conforms to surface irregularities with moderate pressure.



Applications:

- Motor and engine controllers
- Televisions and consumer electronics
- Automotive electronics
- Power semiconductors
- Power conversion equipment
- Aerospace electronics

Features and Benefits:

- Operating temperature up to 170°C
- High thermal conductivity
- Low oil bleeding and TML

Availability:

Thickness : 0.75– 5.08 mm (0.03 – 0.2")

Physical Properties:

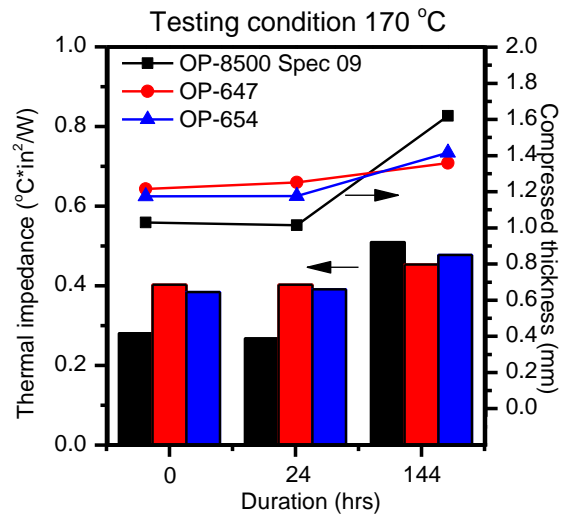
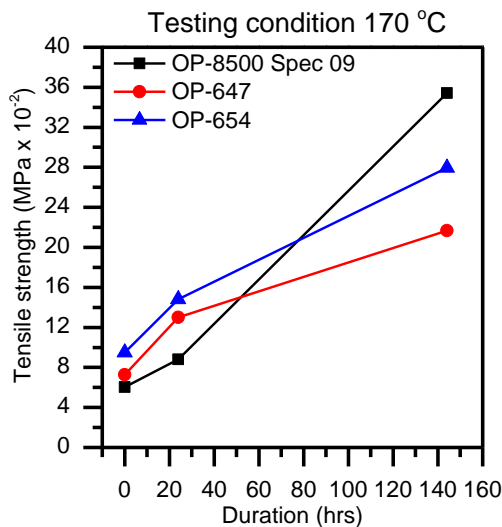
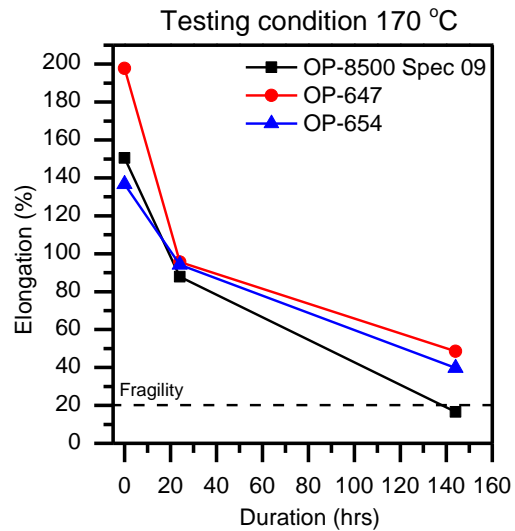
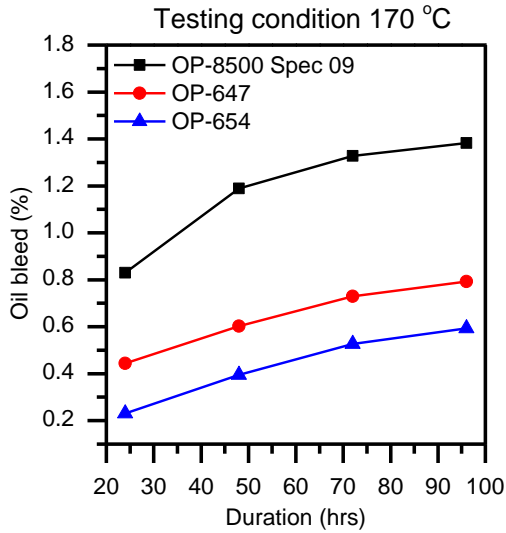
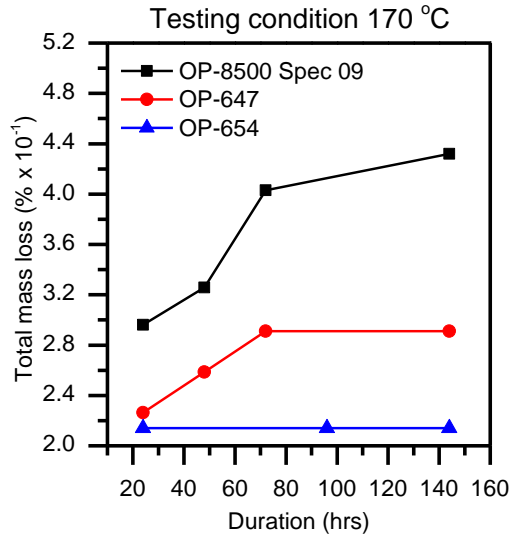
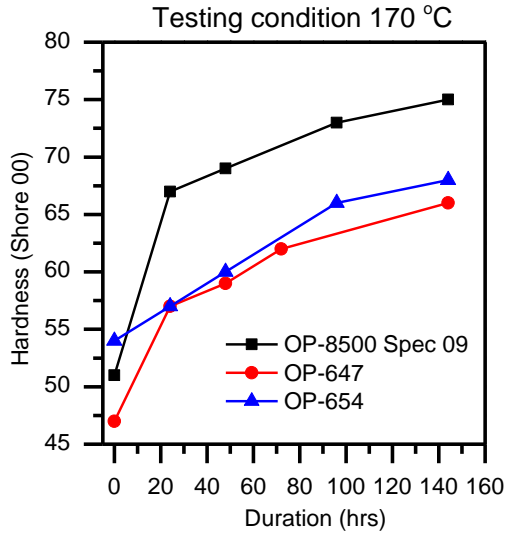
Datasheet for Performance Characteristics				
CHARACTERISTICS	TEST	UNIT	OP-647	OP-654
			SPECIFICATIONS	
Thermal conductivity	ASTM 22470	W/m.K	6.0	6.0
Thermal impedance (25 psi, 1.2mm)	ASTM22470	°C*in/W	0.403	0.384
Specific gravity	ASTM D792	NA	3.22	3.23
Tensile strength	ASTM D412	MPa	0.07	0.09
Elongation	ASTM D412	%	197	136
Hardness	ASTM D2240	Shore 00	47	54
Silicone extraction	SEM	%	0.4	0.2
Total mass loss (170 °C, 24hrs)	SEM	%	0.23	0.21
Adhesive strength, 180° peel (PET from pad)	Modified ASTM D3330	Oz/mm	0.032	0.016
Breakdown voltage	ASTM D149	kV	10.97	11.66
Volume resistivity	ASTM D257	Ohm.cm	3.08 x 10 ²	3.18 x 10 ¹²
Flammability rating (1mm thickness)	UL (SGS)	NA	V0	V0
Application temperature	NA	°C	-40 to 170 °C	-40 to 170 °C
RoHS & REACH compliant	NA	NA	Compliant	Compliant
Shelf life	NA	months	12	12

SEM, Inc.
1600 Lexington Ave
Suite 236A
Rochester, NY 14606
Tel: +1 585-643-2000

SEM BELGIUM bvba
Slijpesteenweg 28
8432 MIDDLEKERKE Leffinge (Belgié)
Tel. +32 59 56 02 70

SEM (Far East), Ltd.
Unit 3, 3/F, Block A
New Trade Plaza
6 On Ping Street
Shatin, N.T., Hong Kong
Tel: +852 2686 9872

Reliability of OP-647 and OP-654 at 170 °C:



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Carrier options:

Carrier can be added in order to improve the mechanical strength of the product and for ease of handling. However, the thermal performance will be reduced. Please consult our engineering team for advice.

Parameters	Carrier						
	Fiber glass (FG)	Rubber cloth (RC)	Polyimide film (PI)	Aluminium foil (AF)	Non tack silicone film (DA)	Pressure sensitive adhesive tape (PSA)	Talcum powder treatment (DAT)
Function	Reinforcement	<ul style="list-style-type: none"> Reinforcement Allow for re-use of the pad Allow low level of shearing motion 				Permanent attachment	Low tack interface
Thermal Performance	NA	Fair, 240 °C	Excellent, 260°C	NA	Fair, 200°C	NA	NA
Breakdown Voltage	NA	>4kV	>6kV	NA	NA	NA	NA
Criteria	Compulsory for thickness ≤ 0.03" (0.75 mm)	Not recommended			Optional to thickness > 0.039" (1.0 mm)	Optional to all thickness	Optional to all thickness

*Tested in accordance of UL94 specification
-the technical specification data is based on SEM tests and analysis that we believe to be reliable. However, in no event, shall SEM be liable for inaccuracies or omissions contained therein. In all cases, details and values should be verified by the customer.

Ordering information:

Please contact SEM for custom width and part size.

OP - 654 - 025 - RC - A1
 Product name - Series (eg. 654) - Thickness (eg. 0.25 mm) - Carrier (eg. Rubber cloth) - Carrier side (eg. A1 = 1 side)
 A2 = 2 side

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