



GORE® SMT EMI Gaskets and Grounding Pads

*SUPERSOFT SERIES
FOR AUTOMOTIVE ELECTRONICS*

Exceptional EMI protection with easy SMT integration

In automotive electronic devices, grounding and shielding products must ensure electrical performance without breaking under severe mechanical and environmental stress throughout the vehicle service life. However, metal spring contacts and clips typically create single point contact that can fatigue over time and decrease electrical performance after exposure to conditions such as vibration, shock, extreme temperatures and other challenging road conditions. In addition, metal contacts can scratch mating surfaces damaging the device enclosure and generating conductive particles. All of these issues can compromise device performance leading to failure and warranty issues.

GORE® SMT EMI Gaskets and Grounding Pads, Supersoft Series delivers excellent electrical performance by providing reliable grounding and shielding in challenging automotive conditions. These components ensure consistent grounding through a large conformable contact area for low DC resistance throughout the vehicle service life. In addition, the patented construction of the Supersoft Series reduces the likelihood of enclosure surface abrasion and particulation (Table 1 and Figure 1).

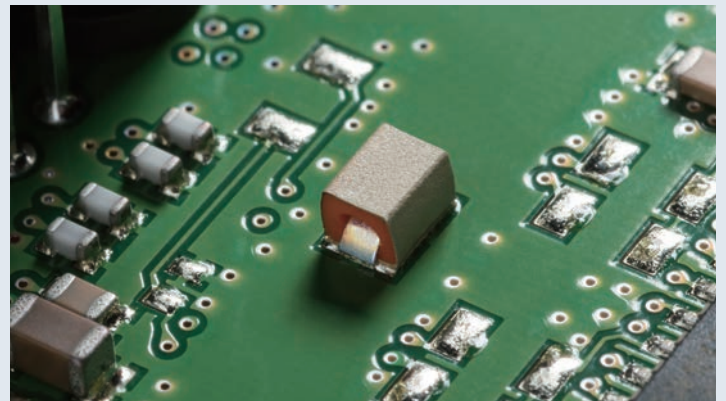
INCREASED DESIGN FLEXIBILITY AND EASY INTEGRATION

The Supersoft Series offers a convenient design compatible with surface mount technology (SMT) that can be easily integrated into existing production lines. These off-the-shelf components eliminate the need for custom designs and secondary processing. This translates to increased flexibility in your designs, easy installation, faster production rates and lower total costs over time.

PROVEN TRACK RECORD

For more than 10 years, GORE® SMT EMI Gaskets and Grounding Pads, Supersoft Series has delivered reliable performance in many automotive electronics. The Supersoft Series can be reliably used in typical applications such as:

- Advanced driver assistance systems (ADAS)
- Cameras and radar systems
- Connectivity devices
- Infotainment systems
- Instrument cluster control modules
- Navigation systems
- Powertrain electronics
- Telematics control units (TCU)



BENEFITS OF GORE® SMT EMI GASKETS AND GROUNDING PADS, SUPERSOFT SERIES

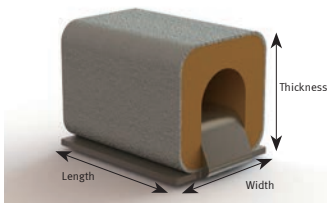
- Large conformable contact area for low DC resistance throughout vehicle service life due to patented construction
- Reduced electromagnetic interference (EMI) and crosstalk in challenging environments
- Reduced likelihood of enclosure surface abrasion and particulation
- Increased design flexibility and reduced total costs with easily integrated standard parts versus custom designs
- Faster production rates because of consistent and repeatable assembly with SMT-compatible parts



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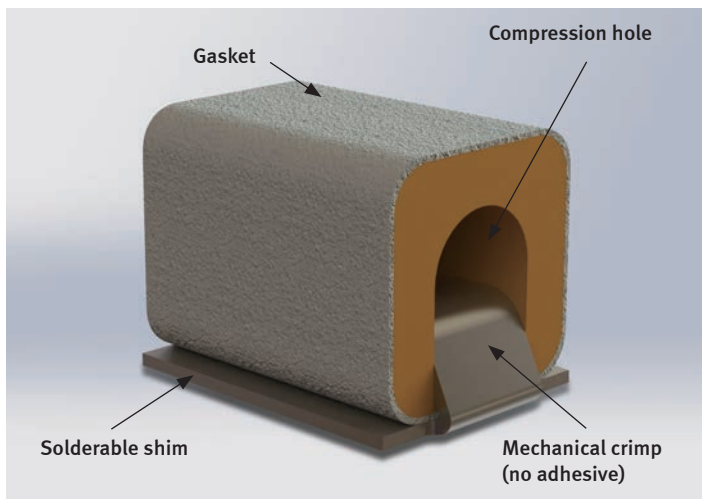
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TABLE 1: PRODUCT INFORMATION

Property	Value
Operating Temperature	-55°C to +150°C
Gasket Material	Silver nickel-filled silicone over silicone core
Shim Material	Silver-plated copper alloy
Gasket Color	Orange core with tan cover
Shim Color	Grey
Recommended Installation	Parallel to radiating elements
Dimensions	
Material Declaration*	RoHS

* W. L. Gore & Associates declares that we do not intentionally add substances listed in EU Directive 2011/65/EU to GORE® SMT EMI Gaskets and Grounding Pads. Independent lab tests have been performed, and results are available upon request.

FIGURE 1: PATENTED CONSTRUCTION OF SUPERSOFT SERIES



RELIABLE PERFORMANCE

The Supersoft Series of GORE® SMT EMI Gaskets and Grounding Pads have been extensively tested according to the following performance standards.

Please contact your Gore representative for more detailed information.

FIGURE 2: ENVIRONMENTAL PERFORMANCE TESTING OF SUPERSOFT SERIES

MECHANICAL PERFORMANCE

Commercial Sprung Mass Vibration

Performance after vibration at various temperatures

METHOD:
• ISO 16750-3

TEST CONDITIONS:
• 32 hr/ plane
• 3 primary planes
• Overlay Temperature:
Tmin: -40 °C
Tmax: +150 °C

Mechanical Shock

Performance after exposure to mechanical shocks

METHOD:
• ISO 16750-3

TEST CONDITIONS:
• Half sine pulse shape
• 500 m/s² acceleration
• 6 ms duration
• 10x cycles/direction
• 6 primary directions

CLIMATE PERFORMANCE

High Temperature Steady State

Performance after exposure to high temperature conditions

METHOD:
• ISO 16750-4
TEST CONDITIONS:
• +150 °C
• 2000 hr duration

Damp Heat Steady State

Performance after exposure to hot, humid environments

METHOD:
• ISO 16750-4
TEST CONDITIONS:
• +85 °C
• 85% relative humidity
• 504 hr duration

Thermal Shock with Specified Transition Time

Performance after exposure to changing temperature conditions

METHOD:
• ISO 16750-4
TEST CONDITIONS:
• Tmin: -40 °C
• Tmax: +150 °C
• < 30 s temperature change
• 30 min dwell time
• 300x cycles

TABLE 2: SUPERSOFT SERIES TYPICAL PERFORMANCE¹

Gore Part Number	Thickness (mm)	Length (mm)	Width (mm)	Weight (g)	Low Compression			Recommended Compression			High Compression		
					Compressed Part Height (mm)	DC Resistance (ohms)	Force to Achieve Compression (N)	Compressed Part Height (mm)	DC Resistance (ohms)	Force to Achieve Compression (N)	Compressed Part Height (mm)	DC Resistance (ohms)	Force to Achieve Compression (N)
25SMT-4442-01 REV A	1.66	3.56	1.79	0.020	1.48	0.008	0.9	1.19	0.006	2.3	0.90	0.009	7.0
25SMT-4442-03 REV A	2.42	3.58	2.57	0.037	2.20	0.012	1.8	1.90	0.011	3.6	1.60	0.011	6.2

¹ Values are for reference only and are not intended for specification purposes.

LOW DC RESISTANCE WITH MINIMAL FORCE

Gore performed testing on soldered and reflowed parts. Results showed that the Supersoft Series is conductive on contact and resilient after compression. The amount of force and DC resistance differs for each part number as shown in Table 2, and Figures 3 and 4.

The combination of a large conformable contact area and minimal force requirements make the Supersoft Series an excellent choice for a variety of applications such as enclosure grounding, board-to-board grounding and EMI shielding.

FIGURE 3: FORCE DISPLACEMENT RESISTANCE AFTER REFLOW FOR 25SMT-4442-01 REV A

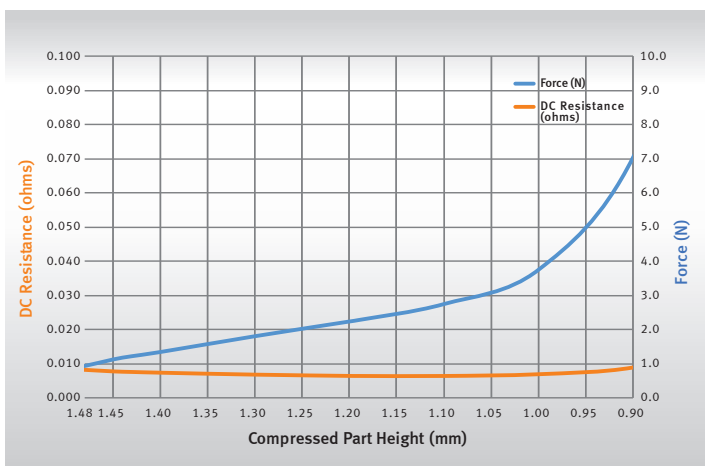
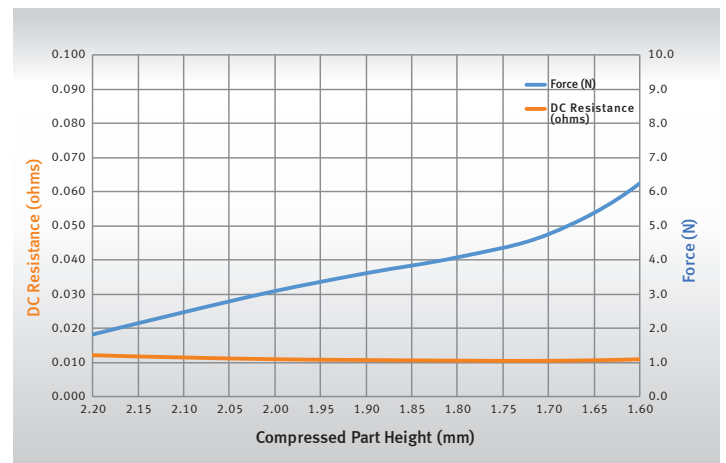


FIGURE 4: FORCE DISPLACEMENT RESISTANCE AFTER REFLOW FOR 25SMT-4442-03 REV A



OUTSTANDING RECOVERABILITY

If a module is re-opened for modifications during initial production, testing or rework, the grounding pads must be able to rebound and create a consistent and reliable connection. Recoverability measures the gasket’s ability to maintain gap filling following a release of a compression load.

Using the Standard Test Methods for Rubber Property — Compression Set, results showed that the Supersoft Series demonstrated outstanding recoverability (Table 4). This high level of recoverability ensures that the electrical path is maintained when compression is removed and then re-established.



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TABLE 4: RECOVERABILITY OF SUPERSOFT SERIES

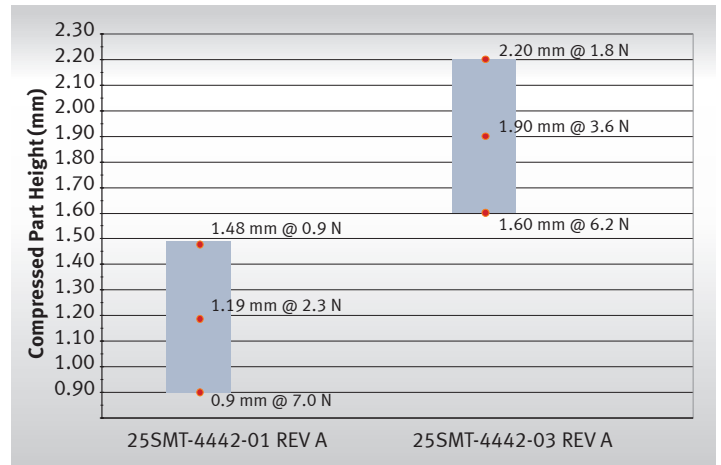
Gore Part Number	Test Method	After 22 Hours of Compression	After 70 Hours of Compression
25SMT-4442-01 REV A	ASTM D395	96%	96%
25SMT-4442-01 REV A	Test Method B	97%	97%

SELECTION GUIDELINES

The Supersoft Series is engineered to survive multiple reflow processes and maintain conductivity in a wide range of compressed part heights (gap distances). Specific application requirements depend upon the following criteria:

- Gap distance between the Printed Circuit Board (PCB) and the mating surface (Figure 5)
- Compression force between the mating surface and Gore's part
- Required DC resistance and/or shielding effectiveness to achieve electromagnetic compatibility (EMC) (Table 2).

FIGURE 5: RECOMMENDED COMPRESSED PART HEIGHTS FOR SUPERSOFT SERIES



ORDERING INFORMATION

GORE® SMT EMI Gaskets and Grounding Pads, Supersoft Series for automotive electronics is available in standard sizes. Visit our website at gore.com/autoemi for more technical information, including a design guide.

To discuss your specific application needs or request a quote, contact a Gore sales representative.

GORE® SMT EMI Gaskets and Grounding Pads, Supersoft Series for automotive electronics is covered by patent No. US 6,255,581 B1 and US 7,129,421 B2. Corresponding foreign patents issued.

NOTICE — USE RESTRICTIONS APPLY Not for use in food, drug, cosmetic or medical device manufacturing, processing, or packaging operations.

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