GORE® SMT EMI Gaskets and Grounding Pads

NEW

Supersoft Series 6101

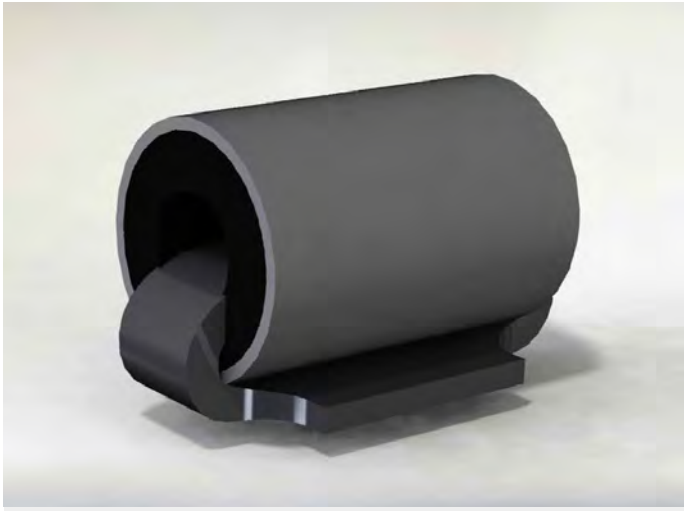
Ensure Consistent Electrical Performance with Highly Compressible Construction in SMT Compatible Format

The Supersoft Series of GORE® SMT EMI Gaskets and Grounding Pads are standard components that enable designers to create EMI shields in non-linear 2-D or 3-D shapes, reduce device thickness where EMI cans are used, and create grounding points as needed in a very small footprint on the circuit board. These components are highly conductive on contact, easily compressed with minimal force, and resilient after compression. These features ensure consistent electrical performance and makes Gore's Supersoft Series an excellent choice for EMI shielding or grounding for systems such as LCDs, flexible circuits, antennas, and cameras and devices such as smart phones, tablets, and laptops. The highly compressible construction, requiring low closure forces, makes it suitable for devices with plastic housings and also provides consistent contact in housings that have surface variations such as aluminum as-cast enclosures.

Targeted Applications

- Mobile phones
- Tablets
- Laptops
- Camera modules
- Flex circuits

Gore's Supersoft Series 6101 packed in reel tape



Benefits of GORE® SMT EMI Gaskets and Grounding Pads

- Excellent shielding effectiveness, with low DC resistance in small standard component and minimal force required
- Offers more design flexibility with standard component, and speeds time to market due to eliminating the need for custom parts
- Supports fast, high volume production due to SMT compatibility
- Reduces circuit board area due to small component size
- Reliable electrical and mechanical performance due to conformable material that maintains consistent contact without compromising the integrity of the mating surface

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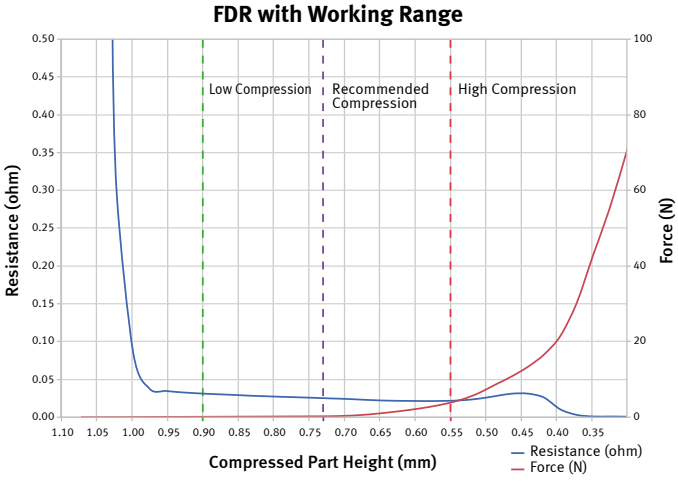
Force Displacement Resistance

The Supersoft Series provides conductivity on contact; however, the amount of force and DC resistance changes as the part is compressed as shown in Table 1 and Figure 1.

Table 1: Supersoft Series Specifications

Gore P/N	Height (mm)	Width (mm)	Length (mm)	Typical Weight (grams)	Low Compression			Recommended Compression			High Compression		
					Stop Height (mm)	DCR (ohms)	Compression Force (N)	Stop Height (mm)	DCR (ohms)	Compression Force (N)	Stop Height (mm)	DCR (ohms)	Compression Force (N)
25SMT-6101-01	1.12	1.02	1.85	0.0053	0.90	0.04	0.12	0.73	0.025	0.25	0.55	0.023	4.0

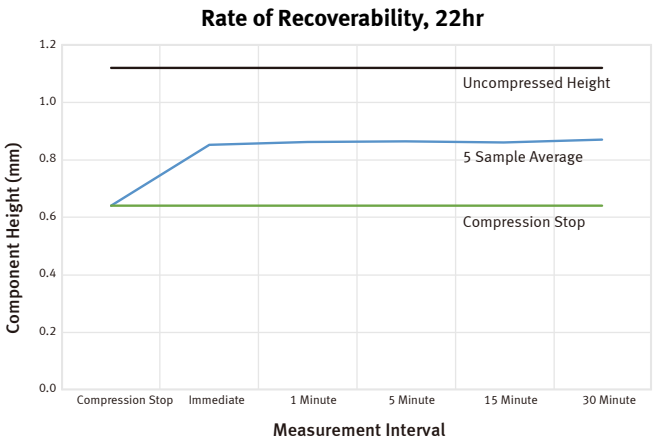
Figure 1: Force Displacement Resistance for 25SMT-6101-01



Recoverability

Recoverability is the inverse of compression set. If a device will be opened for hardware upgrades, field repairs, or modifications during initial production, the shielding materials must be able to rebound and create a consistent connection after the device is closed. Recoverability measures the gasket's ability to maintain some level of gap-filling following a release of a compression load. Using *ASTM D395 B, Standard Test Methods for Rubber Property, Test Method B: Compression Set under Constant Deflection in Air*, the Supersoft Series of GORE® SMT EMI Gaskets and Grounding Pads have demonstrated high levels of recoverability immediately following release of the compressive load (Figure 2). This high level of recoverability ensures that the electrical path is maintained when compression is removed and then reestablished.

Figure 2: Recoverability of 25SMT-6101-01



Environmental Testing for Supersoft Series

A crucial factor in assessing the performance of gasket or grounding materials is their performance over a wide range of environmental conditions. Gore has performed a number of tests on the Supersoft Series of the GORE® SMT EMI Gaskets and Grounding Pads (Table 2). These products were compressed to 0.83 mm and tested in 9 different scenarios. The change in DC resistance was less than + 0.015 ohms and in many cases the resistance decreased. The minimal amount of change in DC resistance for the Supersoft Series demonstrates their consistent and reliable performance in demanding environments.

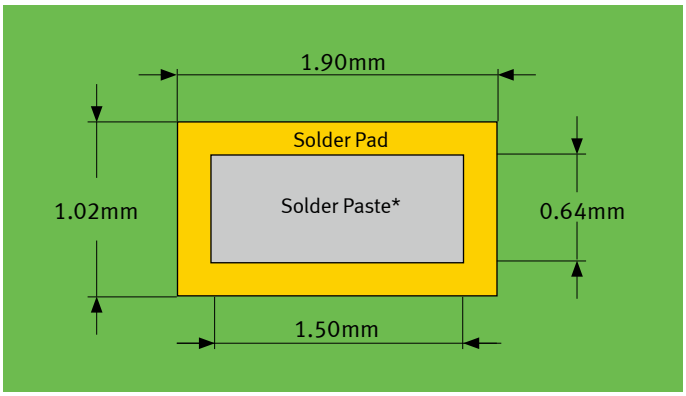
Table 2: Environmental Testing Results

Test	Standard	Test Conditions
Cold	IEC 60068-2-1	-65˚C, 96 hours
Dry Heat	IEC 60068-2-2	85˚C, 96 hours
Vibration	IEC 60068-2-6	Sinusoidal 5 Hz to 100 Hz, 5g max. acceleration, 90 minutes on each of the 3 axes
Salt Mist	IEC 60068-2-11	35˚C, 5 parts by weight NaCl and 95 parts by weight H2O, 24 hours
Temperature Change	IEC 60068-2-14	-40˚C to +125˚C, 30 minutes at extremes, 15 minutes at 25˚C, 90 minutes per cycle, 25 cycles
Mixed Flowing Gas	IEC 60068-2-60	Hydrogen sulfide (H2S) at 100 PPB, sulfur dioxide (SO2) at 500 PPB, 96 hours
Damp Heat	IEC 60068-2-78	65˚C, 100% humidity, 96 hours
Accelerated Life Test	Gore test	5 days at 85˚C and 85% relative humidity
Multiple Reflow	Gore test	5 reflow cycles at 255˚C max for 30 seconds (liquidus). 7 stage reflow oven, convected air

Manufacturing Considerations

The 25SMT-6101-01 is an addition to the Supersoft Series of GORE® SMT EMI Gaskets and Grounding Pads. This part is of similar material composition as the other components in this series and are intended to be used in traditional PCB packaging and manufacturing operations. When choosing a nozzle for component placement, a standard nozzle suitable for 0603 SMD packages should provide the best results. This product is suitable for typical pick and place operations and lead free reflow conditions of 250ºC for 30 seconds and 5 passes through the oven.

Recommended Solder Mask Openings and Solder Paste Laydown Dimensions



*Recommended solder paste thickness: 125 microns.

GORE® SMT EMI Gaskets and Grounding Pads

Supersoft Series 6101

GORE® SMT EMI Gaskets and Grounding Pads are covered by patent No. US 6,255,581 B1 and US 6,210,789 B1. Corresponding foreign patents issued.

GORE® SMT EMI Gaskets and Grounding Pads - SMT Supersoft Series 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.

Ordering Information

All components of GORE® SMT EMI Gaskets and Grounding Pads, including carrier tape, cover tape, and reels are packaged according to EIA 481. The carrier tape is conductive carbon-filled polycarbonate or polystyrene. Most of the parts are packaged in a 4-mm pitch carrier tape, with larger parts packaged in 8-mm pitch (Figures 1 and 2). Tape is available in widths of 12 mm, 16 mm, and 24 mm, depending on the part geometry (Table 1). The A_0, B_0, and K_0 pocket dimensions (Figure 3) vary based on the part dimensions as shown in Tables 3 and 4.

The peeling force of the cover tapes is between 10 and 100 grams. All cover tape is static dissipative and is sealed using a pressure-sensitive adhesive.

Figure 2: Configuration of Carrier Tape, 8-mm Pitch

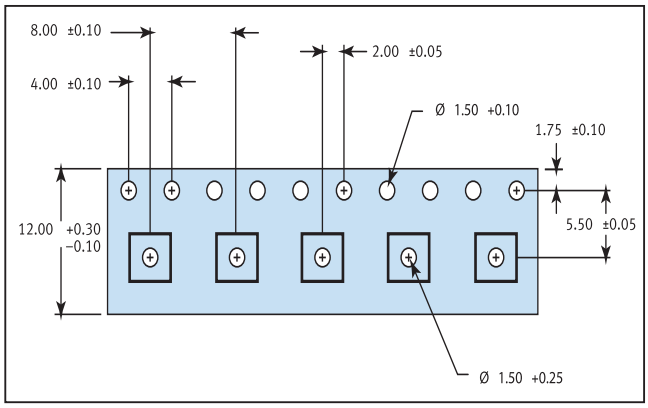


Table 1: Carrier Tape Dimensions

Tape Width (mm)	A (mm)	B (mm)
12 x 4	12.00 (+0.30/-0.10)	5.50 (± 0.05)
16 x 4	16.00 (+0.30/-0.10)	7.50 (± 0.10)
24 x 4	24.00 (+0.30/-0.10)	11.50 (± 0.10)

Figure 1: Configuration of Carrier Tape, 4-mm Pitch

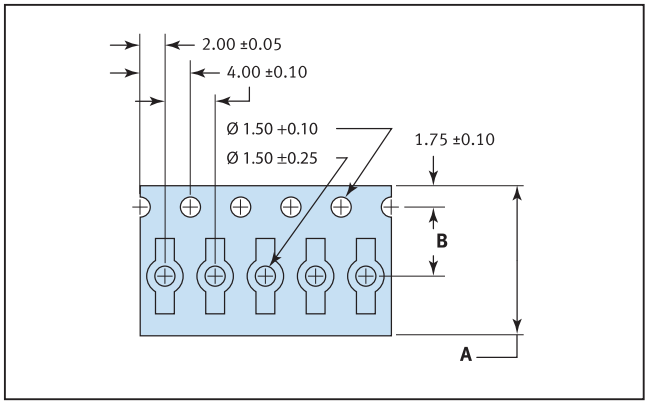
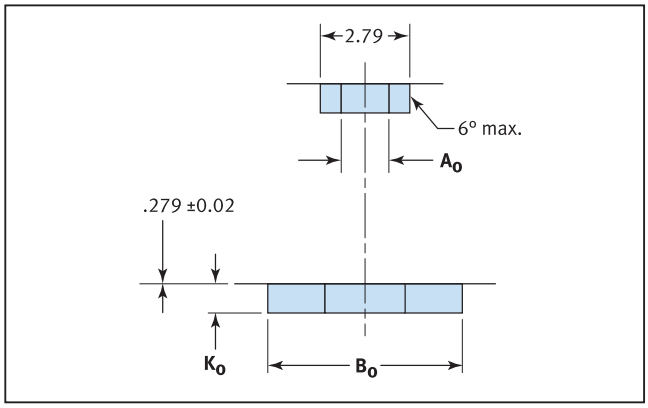


Figure 3: Pocket Dimensions for Carrier Tape



Gore uses reels that have 330-mm plastic flanges with 100-mm inside diameter cores and 330-mm outside diameter cores (Figure 4). The inside diameter has three sprocket notches with a minimum diameter of 20.2 mm. The reels are labeled on one side with the part number, the lot number, the date, and the number of parts on the reel. Reels are packaged into cartons; the number of reels per carton varies depending on tape width (Table 2).

Figure 4: Typical Reel of GORE® SMT EMI Gaskets and Grounding Pads

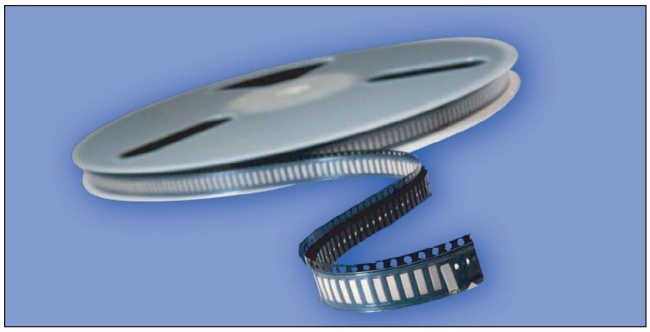


Table 2: Reel Packaging

Tape Width	Maximum Reels Per Carton
12 mm	15
16 mm	13
24 mm	9

Gore lot numbers are sequentially assigned as the product is produced. As other raw materials are introduced in production, e.g., metal shims, new lot numbers are assigned for the work-in-process items, but all raw material lots can be traced. Our supplier provides lot numbers for the carrier tape and cover tape. Gore records the operating conditions and all processes performed on each lot and stores this data in our System 9000 Quality Control Database.

Part and Packaging Dimensions for GORE® SMT EMI Gaskets and Grounding Pads

Thickness dimensions for the SMT GS5200 Series include the shim (Figure 5), and all of the dimensions of the SMT Supersoft Series include both the shim and the mechanical crimp (Figure 6). See Tables 3 and 4 for dimensions of each part, including corresponding specifications for carrier tape, reel, pocket, solder mask opening, and solder paste pads.

Figure 5: Dimensions of SMT GS5200 Series

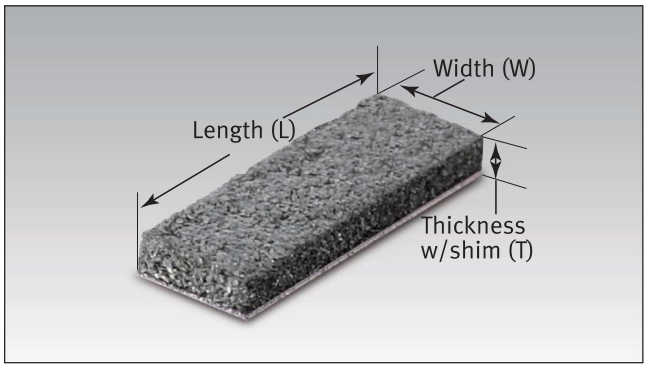
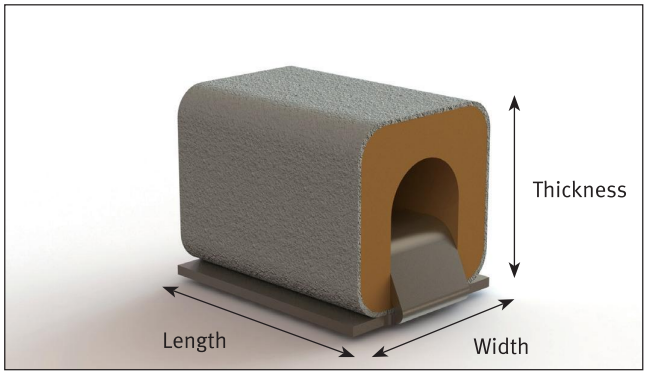


Figure 6: Dimensions of SMT Supersoft Series



GORE® SMT EMI Gaskets and Grounding Pads

Ordering Information

Table 3: Part Numbers and Packaging Dimensions for SMT 5200 Series

Gore Part Number	Length (L) (mm)	Width (W) (mm)	Thickness (T) (mm)	Carrier Tape Configuration (mm)	Parts per Reel	Typical Part Weight (g)	Pocket Dimensions			Solder Mask Opening		Solder Paste Pads		
							A_0 (mm)	B_0 (mm)	K_0 (mm)	Length (A) (mm)	Width (B) (mm)	Quantity	Diameter (C) (mm)	Configuration
25SMT-3645-21	5.50	1.10	0.50	12 x 4	15,000	0.0115	1.30	5.88	0.66	5.55	1.21	3	0.66	Linear
25SMT-3645-22	8.00	1.10	0.50	16 x 4	15,000	0.0160	1.30	8.38	0.66	8.05	1.21	3	0.66	Linear
25SMT-3645-34	5.50	0.90	0.50	12 x 4	15,000	0.0200	1.10	5.88	0.65	5.55	0.99	3	0.54	Linear
25SMT-3645-9	5.50	1.25	0.72	12 x 4	15,000	0.0158	1.48	5.88	0.85	5.55	1.38	3	0.75	Linear
25SMT-3645-10	8.00	1.25	0.72	16 x 4	15,000	0.0230	1.48	8.38	0.85	8.05	1.38	3	0.75	Linear
25SMT-3645-11	12.00	1.25	0.72	24 x 4	15,000	0.0339	1.45	12.34	0.86	12.05	1.38	3	0.75	Linear
25SMT-3645-17	5.50	1.10	0.72	12 x 4	15,000	0.0142	1.30	5.88	0.85	5.55	1.21	3	0.66	Linear
25SMT-3645-25	12.00	2.00	0.72	24 x 4	15,000	0.0500	2.40	12.35	0.88	12.05	2.20	4	1.20	Linear
25SMT-3645-26	8.00	2.00	0.72	16 x 4	15,000	0.0400	2.20	8.23	0.76	8.05	2.20	3	1.20	Linear
25SMT-3645-27	5.50	2.00	0.72	12 x 4	15,000	0.0240	2.20	5.73	0.76	5.55	2.20	3	1.20	Linear
25SMT-3645-33	3.20	1.10	0.72	12 x 4	15,000	0.0078	1.40	3.55	1.00	3.25	1.21	2	0.66	Linear
25SMT-3645-40	5.50	1.25	0.84	12 x 4	10,000	0.0110	1.50	5.90	1.05	5.55	1.38	3	0.75	Linear
25SMT-3645-41	3.20	1.25	0.84	12 x 4	10,000	0.0100	1.47	3.43	1.07	3.25	1.38	2	0.75	Linear
25SMT-3645-43	3.20	3.20	1.30	12 x 8	5,000	0.0370	3.65	3.65	1.65	3.25	3.52	4	0.75	Square
25SMT-3645-44	8.00	2.00	1.30	16 x 4	7,500	0.0580	2.40	8.50	1.63	8.05	2.20	3	1.20	Linear

Table 4: Part Numbers and Packaging Dimensions for SMT Supersoft Series

Gore Part Number	Length (L) (mm)	Width (W) (mm)	Thickness (T) (mm)	Carrier Tape Configuration (mm)	Parts per Reel	Typical Part Weight (g)	Pocket Dimensions			Solder Mask Opening		Solder Paste Pads		
							A_0 (mm)	B_0 (mm)	K_0 (mm)	Length (A) (mm)	Width (B) (mm)	Quantity	Diameter (C) (mm)	Configuration
25SMT-6110-01	3.56	1.79	1.66	12 x 4	6,500	0.0219	1.95	3.95	1.81	3.92	1.97	2	1.02	Linear
25SMT-6110-03	3.58	2.57	2.42	12 x 4	6,500	0.0360	2.75	3.86	2.55	3.94	2.83	2	1.50	Linear

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