GORE® EMI Shielding SOLUTIONS

GS8000 SERIES — Gaskets and Grounding Pads

Increase package design flexibility while maintaining electrical integrity

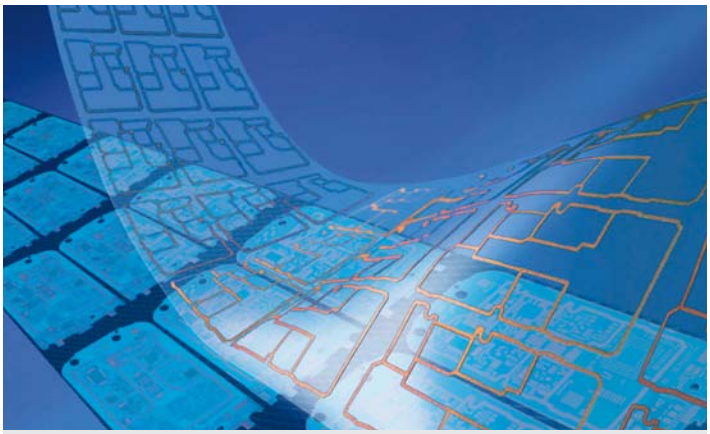
The GS8000 Series of GORE® EMI Shielding Solutions improves package design flexibility without compromising the electrical performance of the device. Their extended service heights enable these highly compressible materials to maintain consistent conductivity through a wide range of gaps (see Figure 1 and Figure 2). With Gore's strong technology focus in materials, the GS8000 Series was developed with a unique conductive foam. The soft conductive-foam construction accommodates surface variations in covers and printed circuit boards, alleviating the need to specify very tight tolerances. This soft construction also makes the GS8000 Series compatible with plastic housings and snap fasteners. This material maintains excellent shielding performance in a trace width as narrow as one millimeter, providing comparable performance to other EMI shielding materials that are three times the width. With the lower compression or closure force, fewer fasteners are needed.

Table 1: Environmental and Mechanical Properties

Property	Value
Temperature range	- 45°C to 85°C
RoHS Status (lead, cadmium, hexavalent chromium, mercury, bromine)	Pass
Flammability in accordance with UL 94 horizontal burn method	Pass
Halogen levels (measured per BS EN 14582:2007) Chlorine Bromine Fluorine Iodine	 ‹ 50 ppm ‹ 50 ppm ‹ 50 ppm ‹ 50 ppm
Typical working range (for grounding pads)	0.15 mm to 2.2 mm (0.006 in to 0.087 in)
Typical working range (for EMI gaskets)	0.15 mm to 1.4 mm (0.006 in to 0.055 in)
Typical pressure to recommended compression stop (RCS)	5 to 30 psi

Typical Applications

- Portable electronic devices, mobile phones, and GPS
- Portable computers
- Hand-held field testing equipment

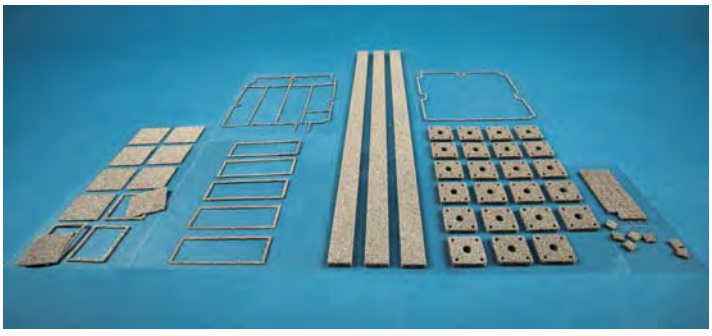


Benefits of GORE® EMI Shielding Solutions — GS8000 Series

- Unsurpassed shielding effectiveness and minimal DC resistance with low compressive force and broad range of tolerance take-up
- Reliable electrical performance over wide range of gap distances from soft foam construction
- Effective shielding performance in trace widths as narrow as one millimeter
- Improved design flexibility because of low closure force

Available as grounding pads and precision die-cut parts that enable precise, high-volume assembly, the GS8000 Series of GORE® EMI Shielding Solutions provide maximum cavity-to-cavity EMI protection in a smaller size for more design flexibility.

Available as custom die-cut gaskets, strip gaskets, and grounding pads



Covered by patent No. US 6,309,742

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Extended Service Heights

The GS8000 Series of GORE® EMI Shielding Solutions performs well in both grounding and EMI shielding applications (Table 3). Gore recommends using each variant within a range of service heights (gap distances). For shielding applications, Gore recommends a smaller service height range than for grounding applications to ensure a robust EMI seal.

The low closure force and broad range of tolerance take-up results in multiple product choices for some gap distances. Selecting the most suitable variant for a given application depends on the following:

- Gap distance of the housing that needs to be filled
- Compression force required to achieve the specified gap distance
- Required DC resistance for grounding applications (or required shielding effectiveness for shielding applications) at a specified gap distance

Figure 1 and Figure 2 show recommended service heights (gap distances) for each variant.

Pressure and DC Resistance

Four variants of the GS8000 Series provide conductivity when compressed to 0.6 mm (0.024 in); however, the amount of pressure and DC resistance varies for each. Table 2 shows the values for each of these four variants.

Table 2: Pressure and DC Resistance Values at 0.6 mm Gap (data taken from Figures 3 – 6)

Variants	Pressure Required psi (kPa)	DC Resistance (ohms)
GS8000-03A	7 (48)	0.125
GS8000-063	15 (103)	0.03
GS8000-095	55 (379)	0.02
GS8000-126	75 (517)	0.01

Figure 1: Recommended Service Heights for Use in EMI Gasket Applications

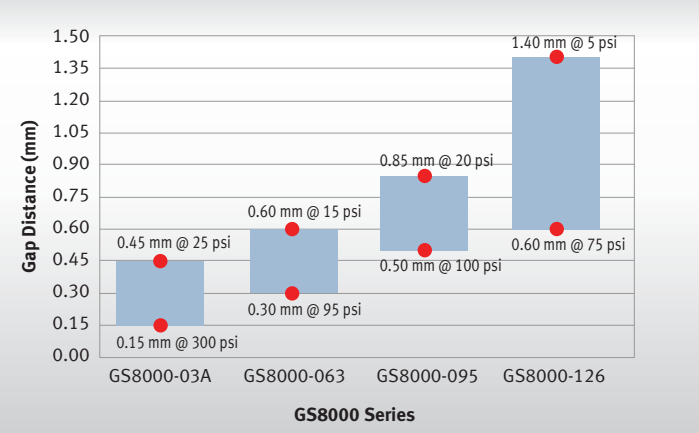

Figure 2: Recommended Service Heights for Use in Grounding Pads

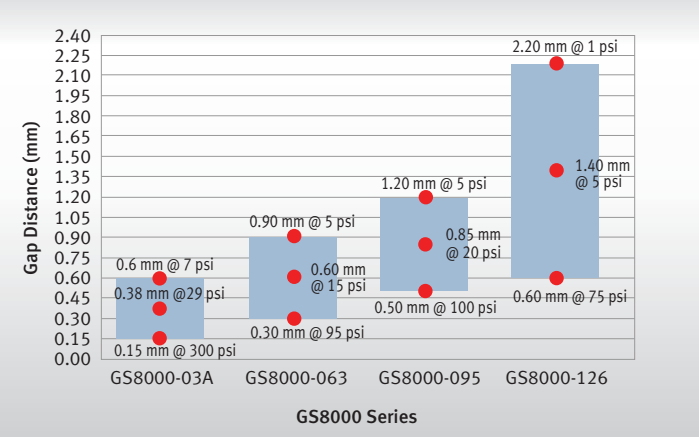

Table 3: Product Typical Performance (measured on 5 x 5 mm grounding pads)

Variants	Weight (g)	Compression Stop mm (in)		Pressure to Achieve Compression psi (kPa)	Initial DC Resistance (ohms)	Recovered Thickness mm (in)*
GS8000-03A	0.008	High	0.60 (0.024)	7 (48)	0.125	0.70 (0.028)
		Recommended	0.38 (0.015)	29 (200)	0.027	0.51 (0.020)
		Low	0.15 (0.006)	300 (2067)	0.004	0.21 (0.008)
GS8000-063	0.010	High	0.90 (0.035)	5 (34)	0.070	1.19 (0.047)
		Recommended	0.60 (0.024)	15 (103)	0.025	0.91 (0.036)
		Low	0.30 (0.012)	95 (655)	0.007	0.51 (0.020)
GS8000-095	0.011	High	1.20 (0.047)	5 (34)	0.115	1.65 (0.065)
		Recommended	0.85 (0.033)	20 (138)	0.040	1.24 (0.049)
		Low	0.50 (0.020)	100 (689)	0.010	0.74 (0.029)
GS8000-126	0.013	High	2.20 (0.087)	1 (6.9)	0.240	2.62 (0.103)
		Recommended	1.40 (0.055)	5 (34)	0.150	1.90 (0.075)
		Low	0.60 (0.024)	75 (517)	0.012	0.94 (0.037)

* To measure the recovered thickness, samples were compressed to the compression stop. While compressed, the samples were subjected to a 70°C temperature soak for 70 hrs per ASTM D395B. Lastly, the samples were released from compression and allowed to recover for 30 minutes before the recovered thickness was measured.

When using the GS8000 Series as an EMI gasketing material, Gore recommends a smaller service height range to ensure an effective EMI seal. We recommend compressing the GS8000 gasket material to at least the recommended compression stop (Table 4).

Table 4: Shielding Effectiveness[1]

Variants	Recommended Compression Stop mm (in)		Pressure to Achieve Compression psi (kPa)	Shielding Effectiveness[1]
GS8000-03A	High	0.45 (0.018)	25 (172)	› 90 dB
	Low	0.15 (0.006)	300 (2067)	› 100 dB
GS8000-063	High	0.60 (0.024)	15 (103)	› 90 dB
	Low	0.30 (0.012)	95 (655)	› 100 dB
GS8000-095	High	0.85 (0.033)	20 (138)	› 85 dB
	Low	0.50 (0.020)	100 (689)	› 95 dB
GS8000-126	High	1.40 (0.055)	5 (34)	› 75 dB
	Low	0.60 (0.024)	75 (517)	› 95 dB

[1] All measurements made using ARP-1705 modified test method through 3 GHz on 2 mm trace width

Force Displacement Resistance

The GS8000 Series requires compression in order to achieve an electrical pathway. They provide conductivity on contact; however, the amount of force and DC resistance differs for each variant (Figures 3–6).

Figure 3: GS8000-03A Force Displacement Resistance

(testing with 5 x 5 mm grounding pads)

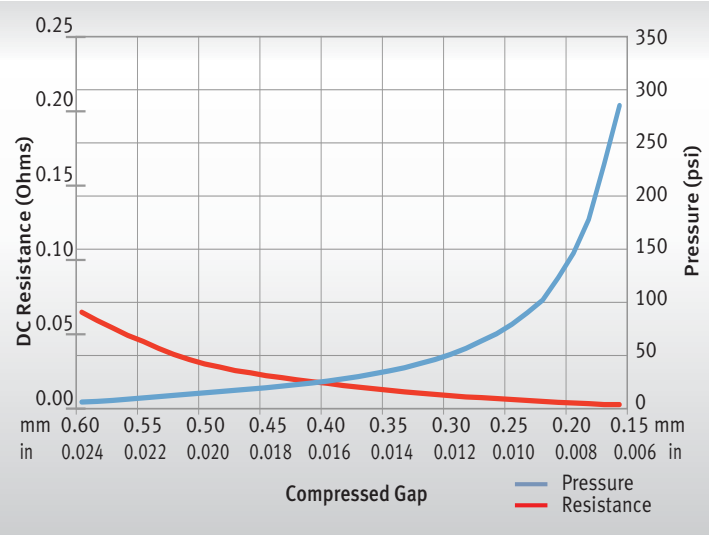

Figure 4: GS8000-063 Force Displacement Resistance

(testing with 5 x 5 mm grounding pads)

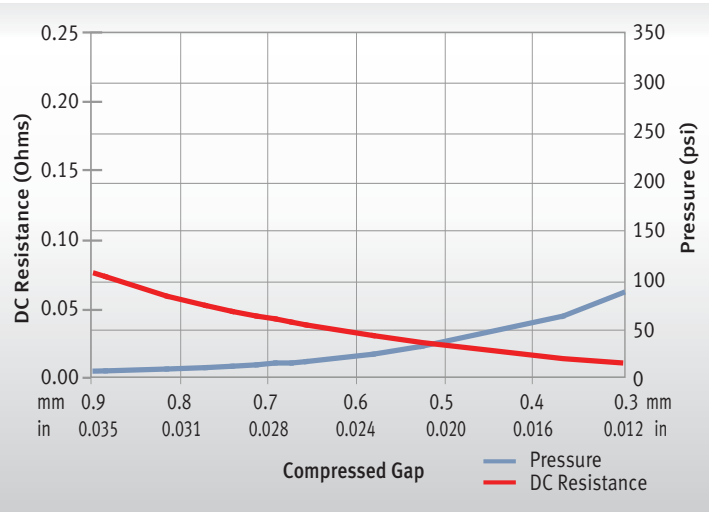

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Figure 5: GS8000-095 Force Displacement Resistance
(testing with 5 x 5 mm grounding pads)

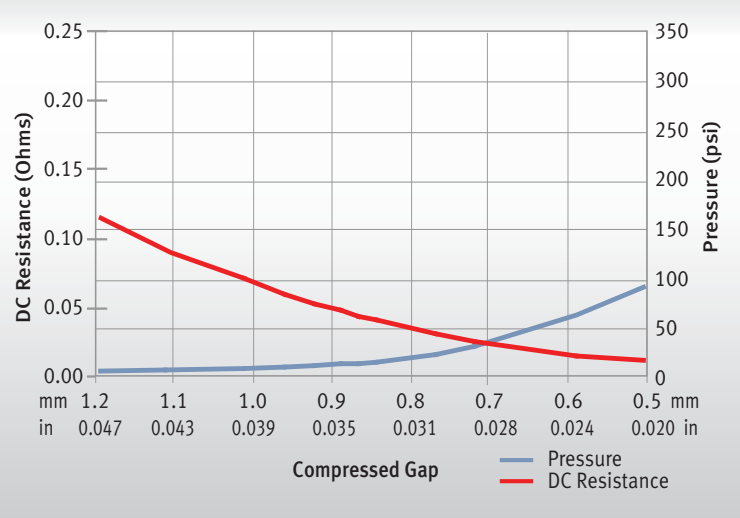
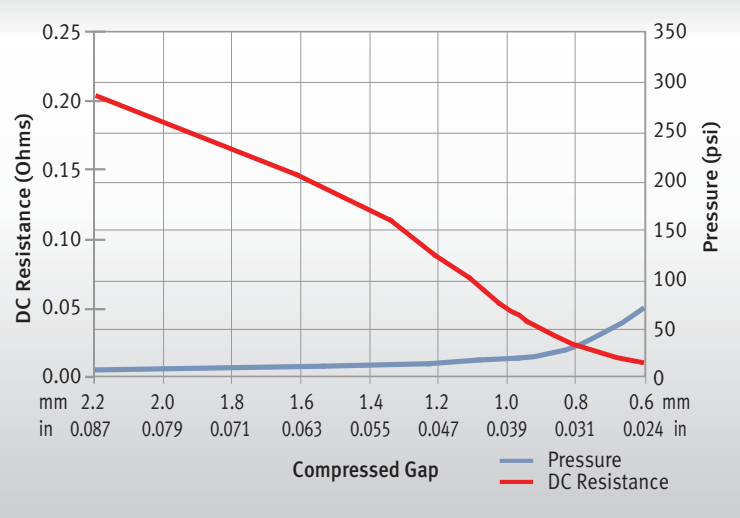


Figure 6: GS8000-126 Force Displacement Resistance
(testing with 5 x 5 mm grounding pads)



Ordering Information

The GS8000 Series of GORE® EMI Shielding Solutions available as custom die-cut gaskets, strip gaskets, and grounding pads. To order or specify GS8000 Series grounding pads and custom die-cut gaskets, contact Gore for assistance.

Standard strip gaskets (Table 5) are available through several distributors. Go to gore.com/emidistributors for the list. These strip gaskets are packaged on 15-meter rolls. For other available strip gasket configurations, contact Gore for assistance.

Table 5: Strip Gasket Ordering Information

Part Number	Variants	Width
EDR-80-03A-0500-SC	GS8000-03A	0.500 in
EDR-80-03A-0250-SC	GS8000-03A	0.250 in
EDR-80-03A-0125-SC	GS8000-03A	0.125 in
EDR-80-063-0500-SC	GS8000-063	0.500 in
EDR-80-063-0250-SC	GS8000-063	0.250 in
EDR-80-063-0125-SC	GS8000-063	0.125 in
EDR-80-095-0500-SC	GS8000-095	0.500 in
EDR-80-095-0250-SC	GS8000-095	0.250 in
EDR-80-095-0125-SC	GS8000-095	0.125 in
EDR-80-126-0500-SC	GS8000-126	0.500 in
EDR-80-126-0250-SC	GS8000-126	0.250 in
EDR-80-126-0125-SC	GS8000-126	0.125 in

Covered by patent No. US 6,309,742

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

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

Gore:

EDR-80-095-0750-SC EDR-80-126-0375-SC EDR-80-063-0250-SC EDR-80-03X-0375-SC EDR-80-095-0125-SC EDR-80-095-0500-SC EDR-80-063-0750-SC EDR-80-095-0375-SC EDR-80-126-0500-SC EDR-80-063-0125-SC EDR-80-063-0375-SC EDR-80-03X-0125-SC EDR-80-03X-0500-SC EDR-80-126-0250-SC EDR-80-03X-0750-SC EDR-80-095-1000-SC EDR-80-126-1000-SC EDR-80-126-0750-SC EDR-80-063-0500-SC EDR-80-126-0125-SC EDR-80-095-0250-SC EDR-80-03X-1000-SC EDR-80-03X-0250-SC EDR-80-063-1000-SC EDR-80--03A-1000-SC EDR-80--03A-0125-SC EDR-80--03A-0500-SC EDR-80--03A-0250-SC EDR-80--03A-0750-SC EDR-80--03A-0375-SC