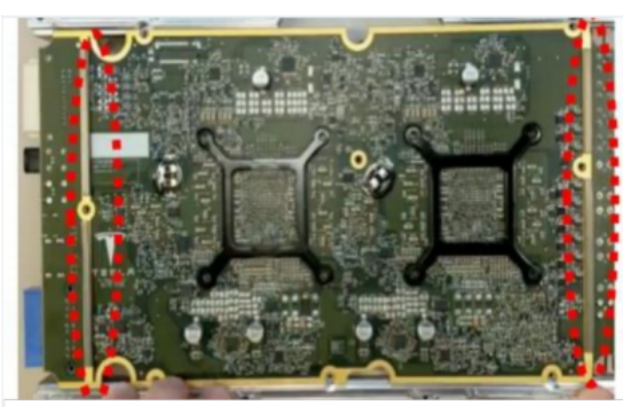
new product release

SMT Conductive Silicone Elastomer for Direct Reflow Soldering on Board

Johan Stough® SMT/SMD Gasket – Weldable Conductive Silicone Elastomer

For PCBs – should you use metal spring contacts or adhesive-based conductive foam? The Johan Stough® SMT/SMD Gasket is packaged in SMT tape and designed for direct reflow soldering; a single process simultaneously achieves low-resistance electrical connectivity and elastic buffering – featuring a hollow ultra-soft silicone structure with exceptional resilience, minimal compression loss, and high thermal durability. This product serves as an ideal alternative to metal spring contacts and adhesive-based conductive foam.Primarily targeted at automotive systems and automotive electronics, it also covers applications in mobile phones, LCD displays, smart wearables, computers, servers, and medical devices.

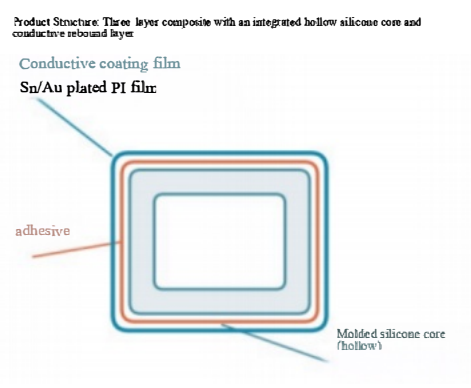
SMT assembly: Similar to component placement – mounting elastomers.



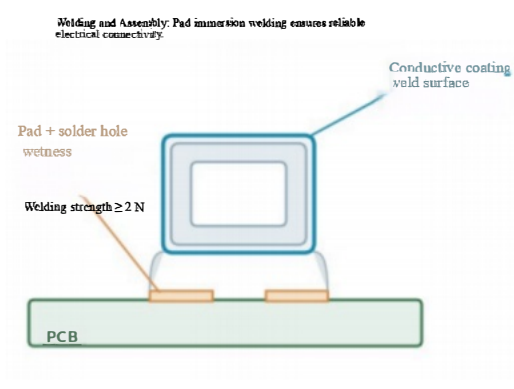
PCB interconnects, grounding, and support buffering

The SMT process on the main board enables single-pass reflow soldering for component placement, eliminating the need for subsequent manual assembly

Standard ribbon packaging, compatible with surface mount assembly machines– ribbon feeding system supporting high-speed automated assembly operations.



Structure: Conductive coating film + Adhesive + Molded silicone core– A PI film coated with Sn/Au encapsulates the silicone core, balancing electrical conductivity and springback performance.



Welded Surface Coating Design

Pad immersion soldering; maximum reflow soldering temperature: 260℃

Why choose SMT Gasket for automotive electronics?

Metal spring contacts and conductive fabric pads are traditional solutions for vehicle grounding; however, these methods frequently give rise to issues throughout the entire vehicle lifecycle: Single-point contact is prone to fatigue and electrical performance degradation under vibration, impact, or high/low-temperature cycling; the scraping action on the mating surfaces can damage the housing coating and generate conductive debris, creating potential short-circuit risks. Johan SMT Gasket fundamentally addresses these issues:

Large-Area Bonding Contact

The hollow ultra-soft silicone material provides a larger contact area; compared to the single point contact of metal springs, it ensures more stable grounding and lower electrical resistance

Low rebound force, absorption tolerance

The hollow structure is soft and easily compressible; its large compression stroke compensates for assembly tolerances and eliminates the gap between the PCB and its components.

Avoid Scratching the PCB and the Mating Surfaces.

Soft silicone contact – no metal scratching, no generation of conductive debris – protects device housing coatings.

SMT automation – reducing costs and increasing efficiency–

Standard tape-and-board packaging (EIA-481), automated placement and reflow soldering for surface mount technology (SMT) machines – faster cycle times, elimination of manual assembly – lower overall costs

Welded joint – no detachment under vibration–

Reflow soldering creates a metallurgical bond, offering resistance to vibration and impact, ensuring reliable grounding throughout the entire vehicle lifecycle.

Wide-Temperature Durability

Operating temperature range: -40~150 'C; dual 85×1000 h thermal cycling at-40/125°C; performance remains stable after 48 h of salt spray test.

Vehicle Infotainment System | Vehicle Radar / ADAS | Domain Controller / T-Box | power amplifier | base station equipment | Mobile phone / Wearable device / Laptop | Server / Medical Devices

Typical application: PCB board-level grounding and shielding contact – suitable for all applications requiring "compressible elastic conductivity"; it can be considered as a viable alternative for any workstation utilizing metal tabs with adhesive-coated conductive foam.

How to choose between the four series?

SR-AP series

SR-SPseries

SFseries

MSWseries

Structural comparison: Different conductive outer layers; varying core and welding methods.

SR-AP/SP features a silicone rubber body coated with a specialized plating film; SF utilizes a silicone foam core with low rebound force; MSW incorporates corrosion-resistant mechanical welding tabs, enabling easier welding and enhanced reliability.

Series	Material Structure	Recommended compression amount	Characteristic
SR-APseries	Au-plated conductive film + Molded silicone	20–60%	Ultra-low on-resistance, superior environmental reliability – delivering optimal performance.
SR-SPseries	Sn-plated conductive film + Molded silicone	20–60%	Ultra-low on-resistance, superior environmental reliability – all at low cost.
SFseries	Conductive film/Conductive fabric + Silicone foam	10–40%	Lower rebound force, superior environmental reliability – for you
MSW Series (Ultra-High Reliability)	Conductive silicone coating + Molded silicone + Corrosion-resistant mechanical welding sheet	10–40%	Ultra-low on-resistance, weldable – optimal performance

Dimension: W: 2 mm or more / H: 1 mm or more (SF Series H: 2 mm or more) | Reflow soldering temperature: Max 260°C | Operating temperature: -40°C to 150°C

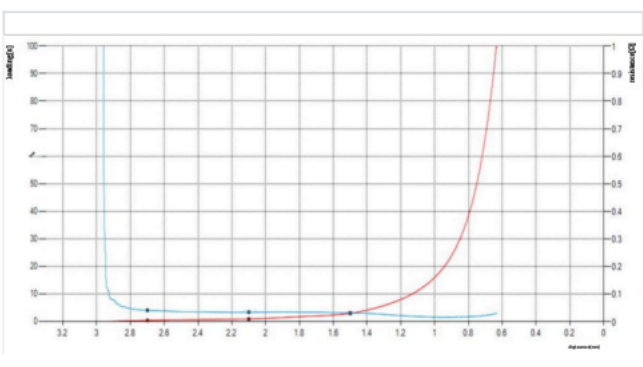
Initial/Post-weld resistance <0.1 Ω (SF <0.15 Ω); Welding strength ≥ 2 N (1.5–3 mm)

Process Flow: Raw material inspection → Re-coiling and slitting → Cold/Hot laminating → Die-cutting and laminating → Assembly pre-treatment → Wrapping and shaping → Semi-finished product cutting → Performance quality inspection → Belt packaging → Packaging and shipment – All processes are subject to independent quality control.

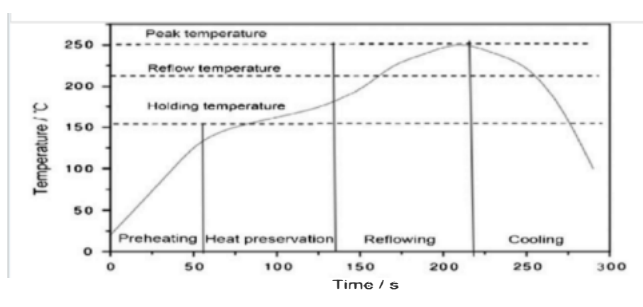
Measured data: Combining low resistance with rebound force

The Greater the Compression Amount, the Lower the Contact Resistance.

Measured displacement–rebound force–resistance characteristics (23°C/50% RH; sample dimensions: 3×3×1.5 mm, tin-plated): At 10% compression: contact resistance = 0.041 Ω, rebound force = 0.414 N; At 30% compression: 0.034 Ω, 0.917 N; At 50% compression: 0.032 Ω, 2.980 N – stable low-resistance conduction can be achieved even at low compression levels.



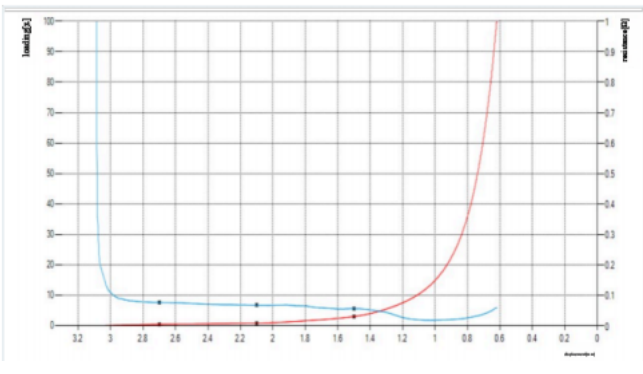
Initial displacement–springback force–resistance curve– JISC Automatic Loading Resistance Tester, 5 mm/min



Reflow soldering process curve

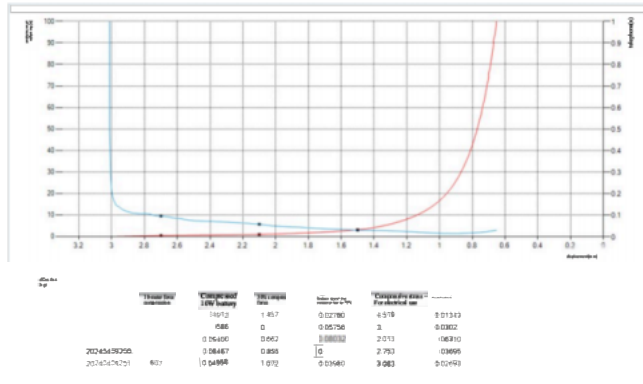
Average soldering contact resistance: 0.047 Ω; Average soldering force: 10.3 N (3×3×1.5 mm tinned solder; 5 specimens measured)

After Aging, the Resilience and Resistance Remain Stable.



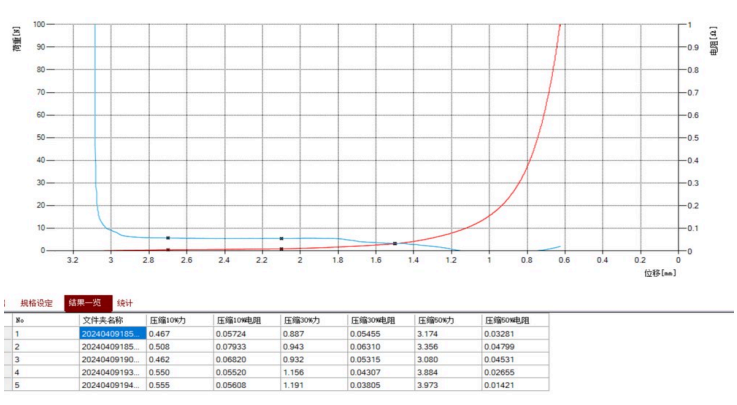
High-temperature rebound: Rebound rate of 97.7%

125°C × 22 h, 30% pre-pressing (GB/T 10653); the post-rebound curve is essentially identical to the initial curve.



Dual 85°C/85% RH aging: 85°C/85% RH × 1000 h

After 30% pre-pressing aging, there is no significant change in rebound force or resistance.



No	文件夹名称	压缩10K力	压缩10K电阻	压缩30K力	压缩30K电阻	压缩50K力	压缩50K电阻
1	20240409185...	0.467	0.05724	0.887	0.05455	3.174	0.03281
2	20240409185...	0.508	0.07933	0.943	0.06310	3.356	0.04799
3	20240409190...	0.462	0.06820	0.932	0.05315	3.080	0.04531
4	20240409193...	0.550	0.05620	1.156	0.04307	3.884	0.02655
5	20240409194...	0.555	0.05608	1.191	0.03805	3.973	0.01421

Temperature shock: -40°C/125°C × 352-cycle After 30% pre-pressing and temperature shock, there is no significant change in rebound force or resistance

Environmental and Reliability Verification

Salt spray: 5% NaCl solution, 35°C for 48 h; corrosion rating> Level 7; no color change or change in resistance.

Coating adhesion strength: The 100-square test – left, center, and right sampling – all meet Grade 5B flame retardancy: UL94 V-1

Environmental Protection: Complies with RoHS, REACH, and halogen-free requirements

Compressive permanent deformation ≤10% (125°C/50%/22 h); no significant change in rebound force or resistance after exposure to high temperature and high humidity.

After warm soaking, there is no significant change in the rebound force or resistance; Salt spray test (48 h)> Grade 7; 5B UL94 V-1; RoHS / REACH / Halogen Free

brief summary: The Johan Stough@ SMT/SMD Gasket integrates "conductive grounding+ elastic buffering"into a single, reflow solderable silicone elastomer, eliminating the need for metal spring assembly or conductive foam application processes with a high thermal recovery rate of 97 .7%,it maintains stable performance after dual 85°C thermal eyeling, hot stamping,and salt spray aging tests, providing a highly reliable board level conductive buffering solution for mobile phones,wearables, servers, medical devices,and automotive applications

The above represents typical test data from the product documentation; applicable test standards include GB/T 10653, UL94, GB/T 10125, etc. Actual performance may be influenced by pad design, compression amount, and manufacturing conditions; please verify the specifications again before use.