



## The Compashield SMT Pad

In electronic devices, grounding and shielding products should ensure electrical performance without breaking under mechanical or environmental stress throughout the lifetime of the product.

## Features and Benefits

The flexible and easily compressible SMT Pad can take up tolerances and close the gap between a PCB and other contacting surfaces, in addition to providing a reliable grounding contact.

- Large contact area vs metal spring provides a better utilization of the PCB area and creates space for more components.
- The large bottom termination ensures the correct positioning throughout the soldering process and leaves a strong solder joint.
- Excellent chemical bonding between the gasket and the solderable metal strip which guarantees that the SMT Pad stays in position on the PCB during the full life cycle.
- Superior bounce back and compression set makes the product vibrations safe and have full electrical contact, even if the conditions are tough.
- The non-abrasive SMT Pad ensures no scratching on the contacting surface.
- Soft and flexible body with a low electrical resistance and low compression force.
- No risk for cracks, regardless compression degree, caused by high temperature or extreme temperature fluctuations.
- Replaces most metal springs & fabric/foil gaskets.
- The production takes place in a clean and controlled environment and each individual SMT Pad is vision controlled before packaging into Tape-and-Reel.

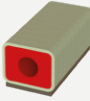
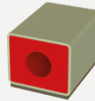
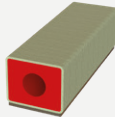
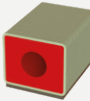
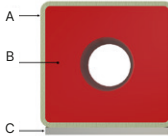
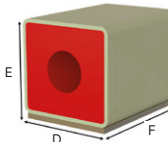
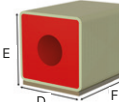
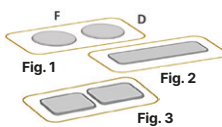
## Industries and Applications

The Compashield SMT Pad is used as a grounding contact on printed circuit boards commonly used in Automotive and Electronics industry, Advanced driver assistance systems, cameras, radars, infotainment systems, power-train electronics and ECU's.

### Product Properties

The Compashield SMT Pad has a hollow profile with a core of soft silicone rubber and a shell of electrically conductive silicone rubber.

Table 1. SMT Pad properties and dimensions

Property	Test Standard	Unit	1343001	1348501	1348502	1358001
						
RCS*		mm	1.2	1.9	1.9	1.9
Force to compress to RCS*		N	2.1	2.6	5.5	2.0
Electrical resistance at RCS*	Nolato R9 / R10**	Ohm	0.040	0.030	0.020	0.040
Compression set, @22h/125°C	ISO 815	%	11	10	10	13
Material						
A			Nolato 8610	Nolato 8610	Nolato 8610	Nolato 8610
B			Nolato 1445	Nolato 1540	Nolato 1540	Nolato 1445
C		Sn plated metal strip				
Dimension (mm)						
D			1.60	2.50	2.50	2.50
E			1.60	2.40	2.40	2.40
F			3.60	3.60	8.00	3.60
Recommended PCB solder mask opening						
D			1.85	2.75	2.75	2.75
F			3.75	3.75	8.15	3.75
Recommended solderpaste pattern						
Fig. 1			-	Ø1.65×2±5%	Ø2.3×3±5%	Ø1.65×2±5%
Fig. 2			1.46×3.55±5%	1.65×3.30±5%	1.50×7.6±5%	1.65×3.30±5%
Fig. 3			-	-	-	-
Production site						
Sweden			X	X	X	X
China			X	X	-	-

\*RCS – Recommended compression stop    \*\*All is measured with R9 except 1343001 which is measured with R10.

The recommended solder paste pattern for the SMT Pad should be either evenly distributed circles (Fig 1), a rectangle (Fig 2) or evenly spaced rectangles (Fig 3). All patterns allow for a sufficient volume of solder without flooding the ground trace with excess solder.

For more information see “DS Compashield SMT Pad Production Guidelines”.

Property	Test Standard	Unit	1358101	1413201	1390601	1381401
						
RCS*		mm	1.9	2.9	4.0	5.0
Force to compress to RCS*		N	2.6	1.6	2.7	7.9
Electrical resistance at RCS*	Nolato R3 / R9**	Ohm	0.045	0.075	0.070	0.100
Compression set, @22h/125°C	ISO 815	%	9	18	10	10
Material						
A			Nolato 8610	Nolato 8610	Nolato 8610	Nolato 8610
B			Nolato 1445	Nolato 1445	Nolato 1445	Nolato 1445
C		Sn plated metal strip				
Dimension (mm)						
D			2.50	4.0	5.0	3.75
E			2.70	3.9	5.0	6.20
F			3.60	1.9	3.0	6.90
Recommended PCB solder mask opening						
D			2.75	3.8	5.0	4.0
F			3.75	2.0	3.1	7.0
Recommended solderpaste pattern						
Fig. 1			Ø1.65×2±5%	-	-	Ø3.0×2±5%
Fig. 2			1.65×3.30±5%	3.0×1.55±5%	-	3.0×6.26±5%
Fig. 3			-	-	2.2×2.0×2±5%	-
Production site						
Sweden			X	-	-	-
China			X	X	X	X

\*RCS – Recommended compression stop    \*\*All is measured with R3 except 1358101 which is measured with R9.

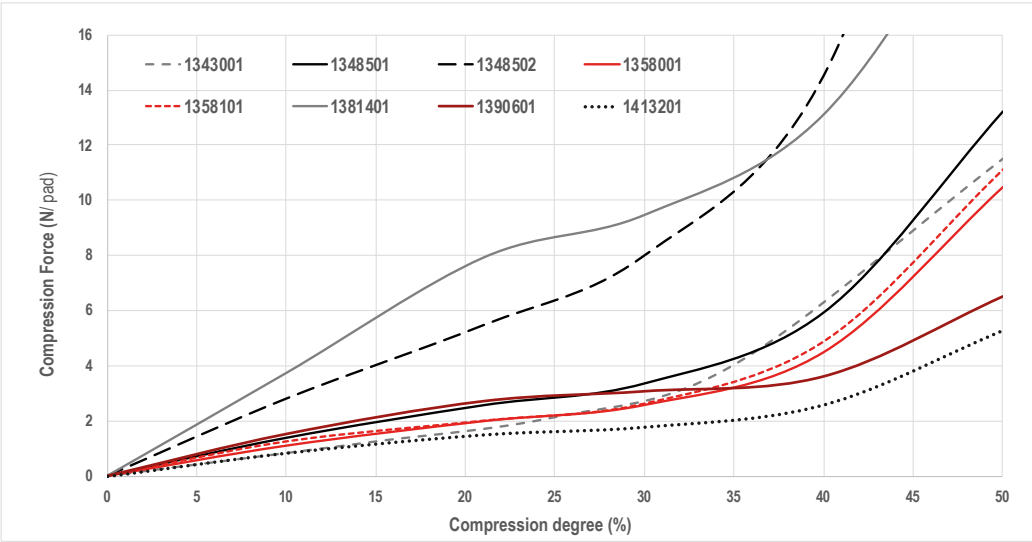


Diagram 1. Compression force vs compression degree.

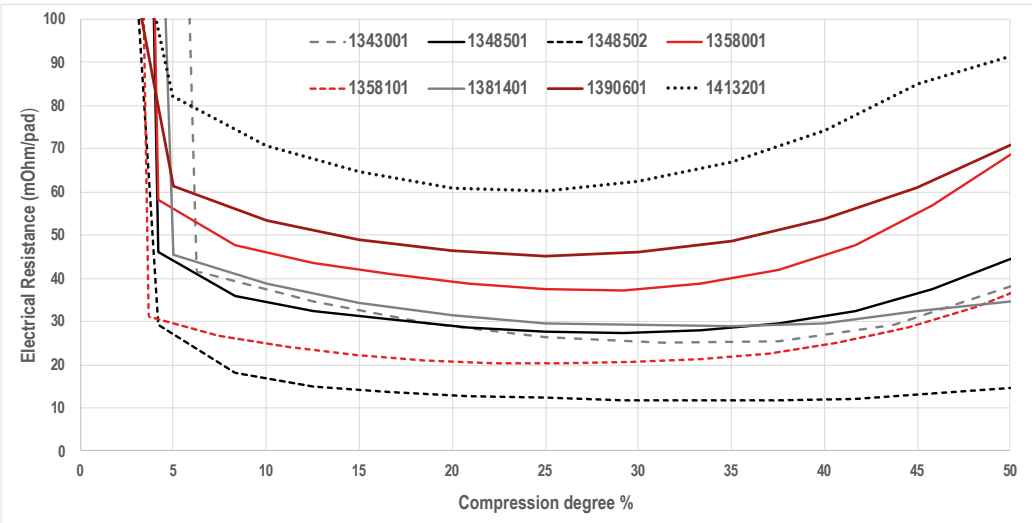


Diagram 2. Electrical resistance vs compression degree.

The recommended operating temperature is between -40°C and +125°C. To ensure a safe and repeatable compression, Nolato recommends the use of mechanical compression stops. A compression degree of 15-35% is recommended. A higher compression degree can be used after evaluation by customer.

### Accelerated Life Testing

SMT Pad performance has been evaluated after accelerated life testing. The tests were performed at different conditions (see table below).

The SMT Pad performance was tested after accelerated aging test in a test fixture simulating a grounding application.

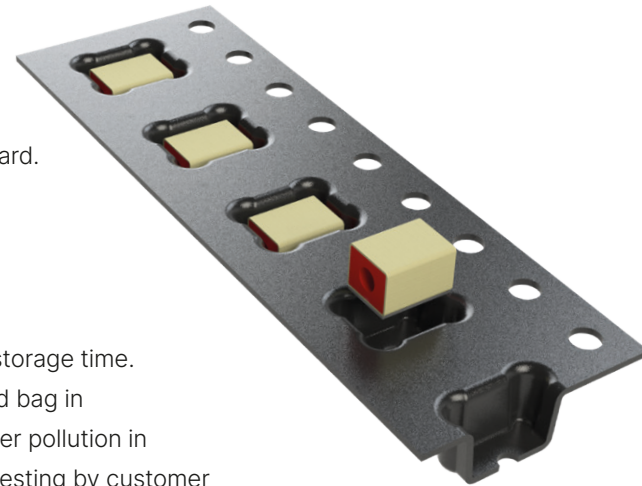
Property	Test Conditions
Cold	-65°C / 96 hr
Thermal cycling	-40 to +125°C (30 min. dwell time & 10K/min.) 1000 cycles
Dry heat	125°C 2000 hours
Damp heat steady state	85°C/ 85% RH duration 1000 hours

## Environment

The Nolato Compashield SMT Pad fulfill the requirements set by the Directive 2011/65/EU and its amendments (RoHS).

## Packaging

The Compashield SMT Pad is delivered in a standard Tape-and-Reel format for automated placement in standard SMT process. The packaging complies with the EIA-481 standard. For more information see “CS Pad Packing information”.



## Storage conditions

The Compashield SMT Pad is MSL-1 classified with unlimited storage time. This assumes that the component is stored in a vacuum sealed bag in Tape-and-Reel and protected from rain, direct sunshine or other pollution in the environment that could affect its properties. Solderability testing by customer after 1 year of storage is recommended.

## Disclaimer

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## Nolato EMC & Thermal Solutions

Nolato is a world leading developer and supplier of material and know-how for EMI shielding solutions made of electrically conductive silicon and Thermal Interference Materials. Our headquarters and Nolato Tech Center are located in Hallsberg, Sweden with additional manufacturing sites in Beijing and Suzhou in China, Penang in Malaysia, Mosonmagyaróvár in Hungary, Maldon in UK, Querétaro in Mexico, Bangalore in India and New Jersey, USA. Nolato offers local production on a global scale with more than seventy EMC Production Partners around the world manufacturing the Trishield gasket.

Founded in 1970, Nolato EMC & Thermal Solutions became a part of the Nolato Group in 1988. Nolato's quality and environmental management systems have been certified with ISO 9001, ISO14001, IATF 16949 and MIL 83528.

## Contact us

For further information and if you would like to discuss more on how we can assist you in your project - don't hesitate to give us a call or send us an email!

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