

## INTRODUCTION

Laird Performance Materials' Soft SMD (Surface Mount Device) Contact is used for circuit grounding and shielding of SMT (Surface Mount Technology) devices. This contact is designed to be solder reflow compatible and suitable for automatic processing.

## PRODUCT SERIES DEFINITION

### HB-SMD (SLG/SLH SERIES)

- Metalized PI film over PU foam, rectangular shape (SLG series) or hourglass shape (SLH series).

### HT-SMD (SLM/SSM SERIES)

- Metalized PI film over silicone foam, rectangular shape in general; two different compression strengths to select; customized dimensions are available for the SSM series.

## CONSTRUCTION

### HB-SMD (SLG/SLH SERIES)

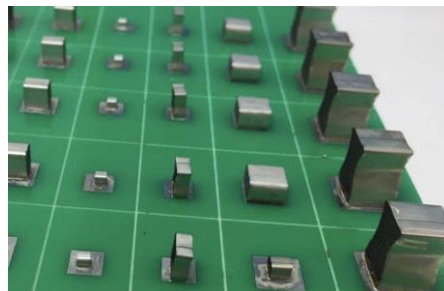


Metal Plating PI Film

### HT-SMD (SLM/SSM SERIES)



Metal Plating PI Film



## FEATURES

### HB-SMD (SLG/SLH SERIES)

- Metalized PI film over PU foam
- Rectangular shape (SLG series) or hourglass shape (SLH series)

### HT-SMD (SLM/SSM SERIES)

- Metalized PI film over silicone foam
- Rectangular shape (standard types)
- Different compression strengths available
- SSM series with customized dimensions

## SELECTION TABLE

	Series	Elastomer Based	Max. Operation Temperature	Flame Retardance	Profile
HB-SMD	SLG	PU	85°C	UL94 HB	Rectangular
	SLH	PU	85°C	UL94 HB	Hourglass shape
HT-SMD	SLM	Silicone	125°C	UL94 V1	Rectangular
	SSM	Silicone	125°C	UL94 V1	Rectangular*

\* SSM series available for customized height and shape

## MARKETS

- Consumer Electronics
- Automotive

## Specification

### SLG/SLH SERIES (HB-SMD)

Item	Unit	Value	Test Method
Z-axis Resistance @30% Compression			Laird Internal
before reflow	Ω	<0.06	(5mm x 5mm x 5mm)
after reflow	Ω	<0.10	
Flammability		PASS	UL94 HB*
Solder Adhesion Strength (contact to PCB)	Kgf	> 0.2	Laird Internal method (3mm x 3mm x 3mm)
Hardness (Shore A)	durometer	<20	ASTM D 2240
Compression Set	%	<20%	ASTM D3574(70°C,22hr)
Operation Temperature	°C	-40 to 85	

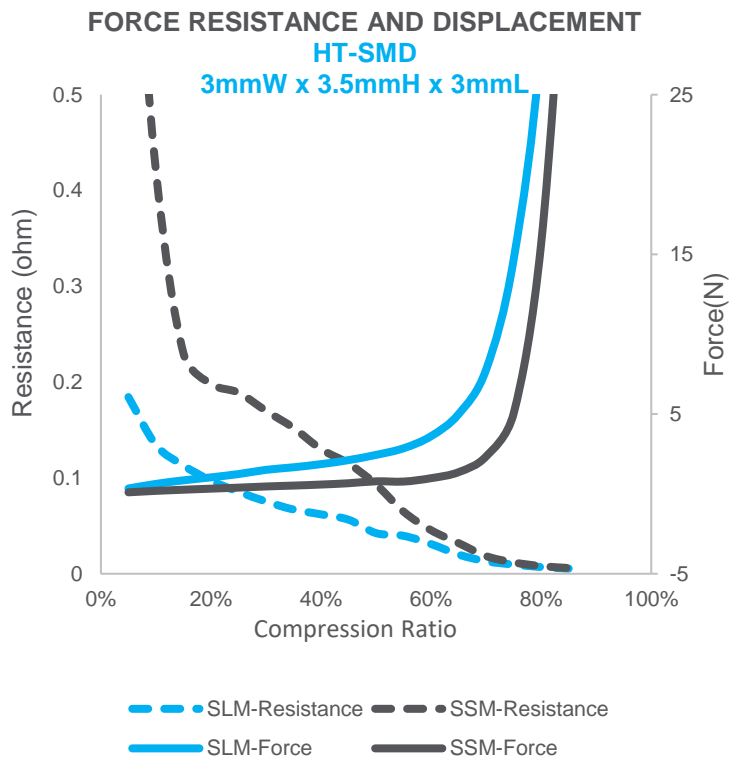
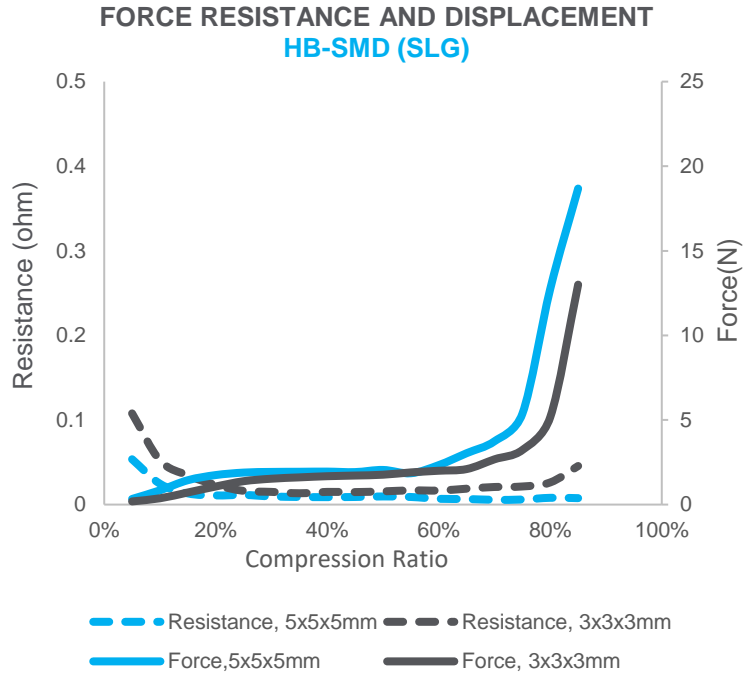
\*UL file number E170327, UL designation code HB026

### SLM/SSM SERIES (HT-SMD)

Item	Unit	Value	Test Method
Z-axis Resistance @30% Compression			Laird Internal
before reflow	Ω	<0.06	(5mm x 5mm x 5mm)
after reflow	Ω	<0.10	
Flammability		PASS	UL94 V1*
Solder Adhesion Strength (contact to PCB)	Kgf	>0.2	Laird Internal (3mm x 3mm x 3mm)
Compression Set	%	<20%	ASTM D3574(125°C,22hr)
Operation Temperature	°C	-40 to 125	

\*UL file number E170327, UL designation code V1 051

## COMPRESSION FORCE



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## PART NUMBER STRUCTURE

5 7	S L M	W W W	H H H	L L L
1st to 2nd: <b>Package</b>	3rd to 5th: <b>Product Name</b>	6th to 8th: <b>Width</b>	6th to 8th: <b>Height</b>	9th to 11th: <b>Length</b>
EX. 57=Bulk package EX. 67=Tape and Reel	EX. ULH, SLM, SLG, etc.	EX. 050 - 5.0mm	EX. 050 - 5.0mm	EX. 050 - 5.0mm

EX: 67SLG050030060 for SLG-SMD in dimension of 5.0mmW x 3.0mmH x 6.0mmL

## DIMENSION AVAILABILITY

Height (mm)	SLG		SLH		SLM		SSM	
	W	H	W	H	W	H	W	H
8	8	8	8	8	9.9	9.9	9.9	9.9
7	7	7	7	7				
6	6	6	6	6	6.5	6.5	6.5	6.5
5	5	5	5	5	5	5	5	5
4	4	4	4	4				
3	3	3	3	3	3.5	3.5	3.5	3.5
2	2	2	2	2	2.5	2.5	2.5	2.5
1.5	1.5	1.5	1.5	1.5	1.8	1.8	1.8	1.8
								1
	2	3	4	5	6	7	8	2
			3	4	5	6	7	8
					2	3	4	5
								6
								7
								8

## GENERAL NOTES

- Soft SMD Contacts are highly flexible and not sensitive to height and its tolerance. Basically the tolerance of height is +/-0.5mm for SLG-SMD, SLH-SMD, and SSM-SMD when the height is less than 5mm. The height tolerance of SLM-SMD is 20 percent, in general. Please contact the Laird Engineering Team to confirm the tolerance.
- Soft SMD Contacts can go passing the reflow process under general the temperature profile of the PCB. The peak temperature could be up to 260°C for less than five seconds.
- HB-SMD is a PU foam core product exhibiting balance in performance and price. Though it can pass solder reflow twice, Laird recommends choosing HT-SMD if there is a need to pass solder reflow twice.
- HT-SMD is a silicone foam core product which can suffer higher temperature resistance than HB-SMD.
- The optimum compression ratio depends on the dimension and application. In general, we recommend compressing the contacts between 15 to 30 percent.

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- The minimum length of Soft SMD Contacts is 2mm. The product with shorter than 2mm length may have some distortion.
- There is an overlap line in Soft SMD Contacts. It should be placed on the top side (upward) with no contact to the PCB.
- Laird recommends the contact pad on the PCB be the same as the dimension (length & width) of Soft SMD Contacts. To prevent shorts or contact happening when Soft SMD Contacts are under compressed, the typically minimum spacing (inhibition area) from other components is 1.0mm in the length direction (foam side) and 1.25mm in the width direction.
- Solder paste should be printed evenly on the area of the solder pad. Strip(s) printing or uneven solder thickness may increase the risk of displacement.
- We recommend the thickness of solder paste printing for Soft SMD Contacts is within 0.12mm to 0.2mm. Thick solder may cause the foam of Soft SMD Contacts to melt during soldering reflow.
- Soft SMD Contacts are not reusable. The contacts must be replaced when rework or repair occurs. Please refer to the “Rework/Repair Process” below for more details.
- With the HB Series, though the operating temperature of Soft SMD Contacts could be up to 85°C, to keep the performance at desired levels, an ambient temperature below 70°C is recommended. Exceeding 70°C would affect component performance gradually.
- Soft SMD Contacts should be released freely without compression while passing the soldering reflow process or wave soldering process.
- When the dimension is small, due to the air blown, Soft SMD Contacts could be displaced while passing the reflow oven. We suggest reducing the air flow or adding a lightweight fixture on the top of Soft SMD Contacts.
- Either the soldering reflow process or wave soldering process is suitable to make Soft SMD Contacts solder to the PCB. If the PCB needs to pass both processes (soldering reflow and wave soldering), Laird recommends you do not place Soft SMD Contacts on the PCB until the second soldering process.
- Do not touch Soft SMD Contacts by hand while wearing no gloves.

## SHELF LIFE

12 months at 23°C / 60% R.H.

## SELECTION OF FLUX

- Flux identification matrix is below.

Flux Composition	Flux/Flux Residue Activity Levels	% Halide <sup>1</sup> (by weight)	Flux Type <sup>2</sup>	Flux Designator
Rosin (RO)	Low	<0.05%	L0	ROL0
		<0.5%	L1	ROL1
	Moderate	<0.05%	M0	ROM0
		0.5-2.0%	M1	ROM1
	High	<0.05%	H0	ROH0
		>2.0%	H1	ROH1
Resin (RE)	Low	<0.05%	L0	REL0
		<0.5%	L1	REL1
	Moderate	<0.05%	M0	REM0
		0.5-2.0%	M1	REM1
	High	<0.05%	H0	REH0
		>2.0%	H1	REH1
Organic (OR)	Low	<0.05%	L0	ORL0
		<0.5%	L1	ORL1
	Moderate	<0.05%	M0	ORM0
		0.5-2.0%	M1	ORM1
	High	<0.05%	H0	ORH0
		>2.0%	H1	ORH1
Inorganic (IN)	Low	<0.05%	L0	INL0
		<0.5%	L1	INL1
	Moderate	<0.05%	M0	INM0
		0.5-2.0%	M1	INM1
	High	<0.05%	H0	INH0
		>2.0%	H1	INH1

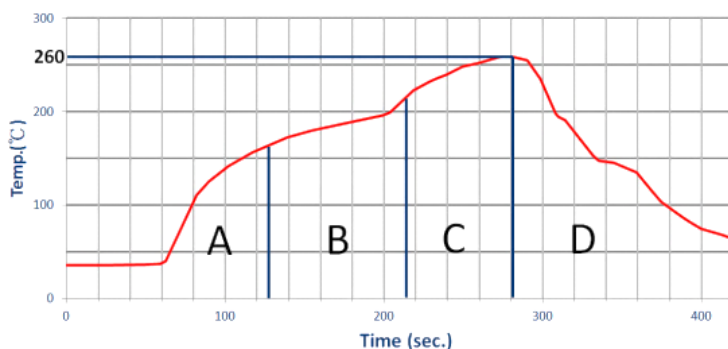
1. Halide measuring <0.05% by weight in flux solids and may be known as halide-free. This method determines the amount of ionic halide present

2. The 0 and 1 indicate the absence or presence of halides, respectively.

Source: IPC J-STD-004B

- Flux with low solid content, level 0 is preferred.

## REFLOW TEMPERATURE PROFILE RECOMMENDATION



Stage	Temperature	Time
A. Preheating Stage	Room Temp.-170°C	125sec
B. Heating/Soaking Stage	170-217°C	92sec
C. Reflow Stage	217-Peak Temp.(~265°C Max)	63sec
D. Cooling Stage	Peak Temp.-Room Temp.	>60sec

- Longer residual time or higher peak temperature may damage the Soft SMD Contacts.
- Reflow at 265°C shall be less than 5 seconds.
- Air flow rate shall be set at 0.5-1.6 meters/sec for reflow ovens heated by air.
- For reflow ovens with 8 different zones or more, below are temperature setting for reference.

Temperature Setting (°C)	Zone 1	Zone 2	Zone 3	Zone 4	Zone 5	Zone 6	Zone 7	Zone 8
Top side	155	170	180	200	210	230	255	260
Bottom side	155	170	180	200	210	230	255	260

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