Product Specification [产品规格书]:	ISSUED BY: Engineering Dept	
Subject [主题]: 0.6 – 0.64mm Stock Thickness Multispring B Signal Press-In Zone Specification	Date Issued	2026/09/12
	Date Revised	2026/09/12

This specification is referred to the Multispring B signal Press-In Zone for nominal hole Ø1mm and 0.6 – 0.64mm stock thickness.

索引【INDEX】

1. 适用范围 【Scope】
2. 印刷板与孔信息【Printed board and hole information】
3. 压接区信息【Press-in zone information】
4. 应用信息【Information on the application】
5. 压接操作说明与工具【Instruction for the press-in operation】
6. 压接特性【Press-in characteristics】
   6-1. 机械性能【Mechanical】
   6-2. 电气性能【Electrical】
   6-3. 环境性能【Environmental】
7. 要求【Requirements】

Product Specification [产品规格书]:	ISSUED BY: Engineering Dept	
Subject [主题]: 0.6 – 0.64mm Stock Thickness Multispring B Signal Press-In Zone Specification	Date Issued	2026/09/12
	Date Revised	2026/09/12

【1.适用范围 Scope】

本规格书涵盖 IEC 60352-5（第 5 版；2012 年）所要求的所有信息，适用于公称孔径 Ø1mm、料厚 0.6 – 0.64mm 的 Multispring 压接区（以下简称“Multispring”）。钻孔不遵循 IEC 60352-5 规范，

This specification covers all the information as required in the IEC 60352-5 (Issue 5; 2012) for a Multispring Press-In zone (further named "Multispring") for nominal hole-Ø1mm and made from 0.6 – 0.64mm stock thickness.

钻孔为 1.10mm 而非 1.15mm。原因是在化学 Sn PCB 中，将成品孔径更接近公称值。IEC 要求补充了基于“Arbeitskreis Prüfrichtlinie für KFZ-Steckverbinder”的汽车应用要求。

The drilled holes do not follow the IEC-specification 60352-5 and are drilled 1.10mm instead of 1.15mm. Reason for this is to shift the finished hole diameter in chem. Sn PCB's more towards the nominal value.

IEC 要求补充了基于“Arbeitskreis Prüfrichtlinie für KFZ-Steckverbinder”的汽车应用（发动机区域）要求。

The IEC requirements are supplemented with the requirements for automotive use based on the "Arbeitskreis Prüfrichtlinie für KFZ-Steckverbinder".

【2. 印刷板与孔信息 Printed board and hole information】

- 印刷板材料：
- Printed board material according to

高温 FR4（CTE 优化）：基材 Matsushita R1566 或 Nanya NP175F / 8 层 Prepreg 7628。PCB 在插针前经受 2 次无铅温度曲线回流老化。

High temperature FR4 (CTE optimized): Base material: Matsushita R1566 or Nanya NP175F / 8 mal Prepreg 7628

FR4（普通）：基材 S1000。PCB 在插针前经受 2 次无铅温度曲线回流老化。

FR4 (normal): Base material: S1000 Aging of PCB with 2 reflow cycle with lead free temperature profile before pin insertion

- 最大导电层数： 不限。
- Maximum number of conductive layers: not limited.

- 印刷板厚度： 1.6 ± 0.14mm 和 1.5 ± 0.14mm（不含铜和阻焊层）。
- Printed board thickness: 1.6 ±0.14 mm and 1.5 ± 0.14 mm (without copper and solder resist)

- 镀通孔尺寸：
- Plated-Through-Hole dimensions:

镀前孔径 = 1.10 ± 0.03mm
Hole-Ø prior to plating = 1.10±0.03 mm

PTH 壁厚：30…55 µm Cu
Thickness of the PTH-wall: 30...55 µm Cu

成品孔径 = 1.03 + 0.04 / - 0.06mm
Finished hole-Ø = 1.03 +0,04 -0,06 mm

- 印刷板镀层材料：
- Printed board plating material :

PCB Type A： 镀锡 PCB：回流老化前化学 Sn ≥ 1 µm（Ag 含量：0.5…1.5 重量%；cpk 1.33；3 Sigma 典型值 1.1 µm – 1.3 µm）

PCB Type A: Sn plated PCB’s: Chemical Sn ≥ 1 µm before reflow ageing (amount of Ag: 0.5...1.5 weight %; cpk

1.33; typical values with 3 Sigma are 1.1 µm – 1.3 µm)

PCB Type B: OSP 保护 PCB: OSP，表面厚度 0.2 µm – 0.5 µm，已释放 Enthone 公司 Entek Plus HT 或 Shikoku 公司 Glicoat F2(LX)。
PCB Type B: OSP protected PCB's: OSP, surface thickness 0.2 µm-0.5 µm, released Entek Plus HT of company Enthone or Glicoat F2(LX) of company Shikoku.

其他镀层材料需按需测试。
Other plating materials have to be tested on request.

【3. 压接区信息 Press-in zone information】

- 设计： 见第 5 页尺寸图。为避免压接操作中损坏 PTH 孔，导针几何形状必须倒圆，并与实际 Multispring 几何形状平滑过渡。
- Design: see dimensional drawing on page 5

- 料材：
- Stock Material:

材料类型 A： CuSn6 C51900 / CuSn6 UNS C51900，抗拉强度 560 – 650 N/mm²
Material Type A: CuSn6 C51900 CuSn6 UNS C51900 with tensile strength between 560-650 N/mm²

材料类型 B： CuNiSi C19010 / CuNiSi UNS C19010 R580s，抗拉强度 580 – 650 N/mm²
Material Type B: CuNiSi C19010 CuNiSi UNS C19010 R580s with tensile strength 580-650 N/mm²

- 镀层：
- Plating:

Scenario A 旧测量方法 SnFlash： 用于安全气囊应用。按旧测量方法（2019 年 3 月前）SnFlash 测量：0.25 – 0.52 µm SnPb/Sn over 1.27 – 2.2 µm Ni。仅 1 个测量点（见第 5 页）。
Scenario A old measuring method SnFlash Meant for airbag applications. SnFlash measurement according old measuring method (before 03/2019) 0.25-0.52 µm SnPb/Sn over 1.27-2.2µm Ni. Only 1 measuring point (see page 5).

Scenario B 旧测量方法 SnFlash： 用于 ABS 和非安全气囊应用。按旧测量方法（2019 年 3 月前）SnFlash 测量：0.25 – 0.58 µm Sn over 1.27 – 2.2 µm Ni。2 个测量点（见第 5 页）。目标应为 0.42 µm Sn。
Scenario B old measuring method SnFlash: Meant for ABS and non-airbag applications. SnFlash measurement according old measuring method (before 03/2019) 0.25-0.58 µm Sn over 1.27-2.2 µm Ni. 2 measuring points: (see page 5).Target should be 0.42 µm Sn

Scenario C 新测量方法 SnFlash： 用于 2019 年 3 月后新应用。按新测量方法（2019 年 3 月后）SnFlash 测量：在 2 个测量点测量（见第 5 页）。基于两侧的厚度测量：0.45…0.85 µm Sn over 1.27…2.2 µm Ni。镀层线新启动后前 30 分钟允许厚度增加至 0.45…0.90 µm Sn over 1.27…2.2 µm Ni。厚度测量需按 Bosch 通用测量说明 1 279 916 072 和 Sn 专用说明 1 279 916 073（TE 规格 129-90108）进行。
Scenario C new measuring method SnFlash: Meant for new applications after 03/2019 SnFlash measurement according the new measuring method (after 03/2019)Measurement done on 2 measuring points (see page 5)Thickness measurement based on both sides: 0.45...0.85 µm Sn over 1.27…2.2 µm Ni.For the first 30 minutes after new start of plating line an increased thickness of 0.45…0.90 µm Sn over 1.27…2.2 µm Ni is allowed. Thickness measurement needs to be done according to Bosch General Measurement instruction 1 279 916 072 and specific Instruction for Sn 1 279 916 073 (TE spec 129-90108).

Scenario D 旧测量方法 SnEP： 不再适用（2019 年 3 月前）。
Scenario D old measuring method: SnEP: Not applicable anymore (before 03/2019)

Scenario E 新测量方法 SnEP： 用于 2019 年 3 月后新应用。0.35…0.75 µm SnEP（Enayati GmbH & Co KG，订单

Product Specification [产品规格书]:	ISSUED BY: Engineering Dept	
Subject [主题]: 0.6 – 0.64mm Stock Thickness Multispring B Signal Press-In Zone Specification	Date Issued	2026/09/12
	Date Revised	2026/09/12

规格 2 269 915 602 v02）over 1.30…2.2 µm Ni，在功能压接区见第 5 页图纸（2 个测量点与 Scenario B 旧 & C 新相同）。镀层表面厚度测量需按 Bosch 1 279 916 072 通用要求及 Bosch 1 279 916 074 SnAg/AgSn flash 镀层专用要求进行。电镀后任何热处理（如回流工艺）未经产品工程和客户同意不得进行。

Scenario E new measuring method: SnEP: Meant for new applications after 03/2019 0.35 … 0.75 µm SnEP Fa. Enayati GmbH &Co KG (order specification 2 269 915 602 v02) over 1.30 …2.2 µm Ni at functional press fit zone see drawings page 5 (2 measuring points are same as scenario B old & C new) The surface thickness measurement of the plating has to be done according to Bosch 1 279 916 072 in general and according to Bosch 1 279 916 074 SnAg / AgSn flash coating specific. Any temperature treatment after electroplating (for example reflow process) is not allowed without the agreement of product engineering and customer

一般说明：
General remarks

减少 Sn 晶须形成的措施需与客户共同检查。
Measures to reduce Sn-whisker formation have to be checked together with customer.

镀层厚度测量点位于 Multispring 压接区的功能侧。见第 5 页图纸。
Measuring points for plating thickness are situated on the functional sides of the Multispring press-fit zone. See drawing on page 5.

压接操作期间在 Multispring 区使用润滑剂可能影响性能，应避免。
The use of a lubricant on the Multispring zone during the press-in operation can influence the performance and should therefore be avoided.

其他镀层需按需测试。
Other plating has to be tested on request.

已释放的材料/镀层与 PCB 参数组合：

Multispring B	08-90807-1	08-90807-2	08-90807-3	08-90807-4	08-90807-5
使用材料	CuSn6 C51900	CuSn6 C51900	CuSn6 C51900	CuSi6 C51900	CuNiSi C19010
镀层	SnFlash 旧 Scenario B	SnFlash 新 Scenario C	SnEP 旧 Scenario D	SnEP 新 Scenario E	SnEP 新 Scenario E
PCB 技术	iSn	iSn	iSn	iSn / OSP	iSn / OSP
Info: Bosch BV	1 279 927 156 02	2 269 915 608 00	1 279 927 405 00	1 039 xxx yyy v00	1 039 926 523 v00 / 2 269 915 681

Product Specification [产品规格书]:	ISSUED BY: Engineering Dept	
Subject [主题]: 0.6 – 0.64mm Stock Thickness Multispring B Signal Press-In Zone Specification	Date Issued	2026/09/12
	Date Revised	2026/09/12

【4. 应用信息 Information on the application】

所述 Multispring 压接区可用于：
The Multispring press-fit zone as described, can be used in a

- 单个压接端子
- Individual press-in termination.

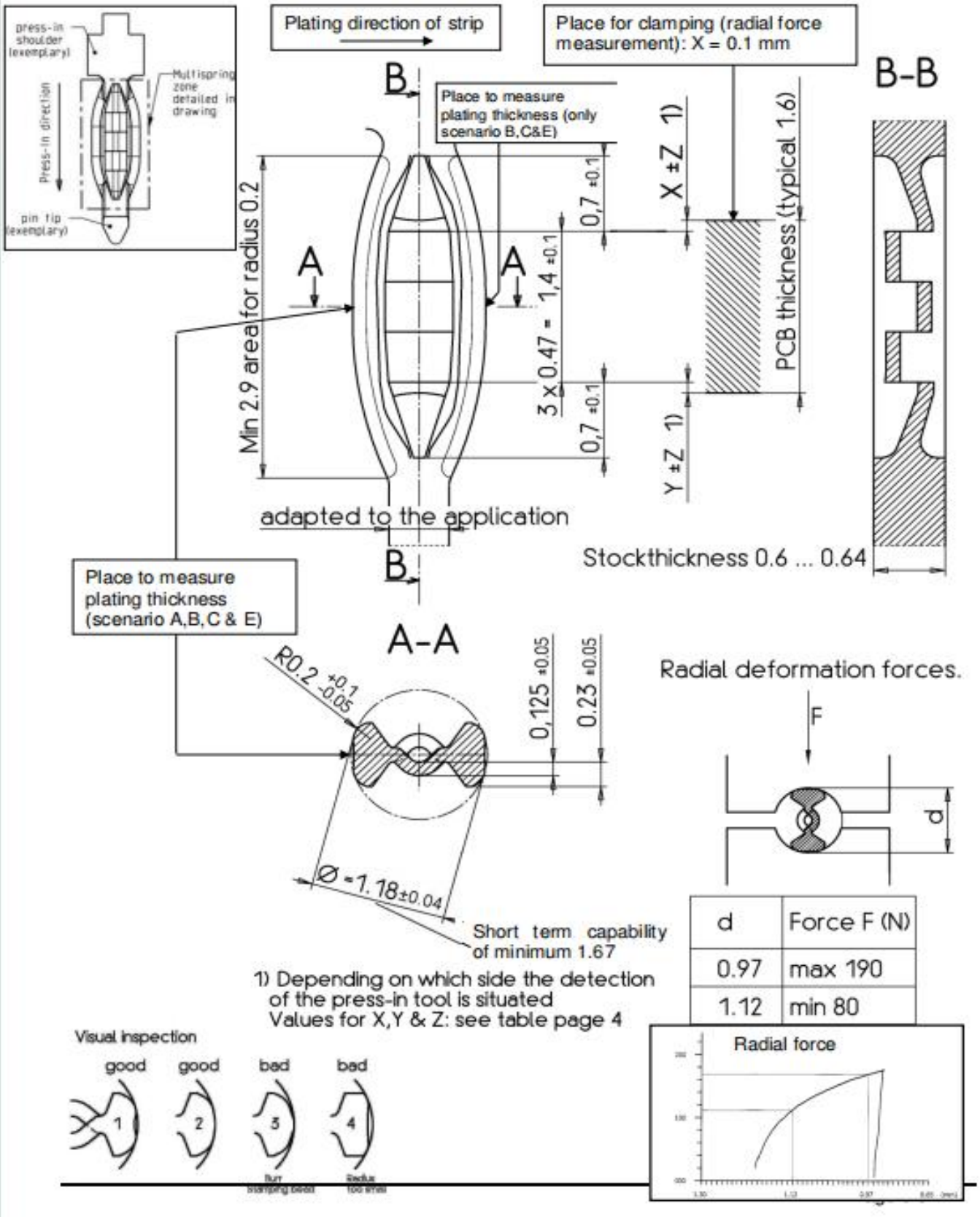
- 直式或直角端子
- Straight or right angle termination.

- 后部插塞
- Rear plug up.

- 绕接
- Wrapped connection.

- 预装压接端子的连接器或模块
- Connector or module with pre-assembled press-in terminations.

Product Specification [产品规格书]:	ISSUED BY: Engineering Dept	
Subject [主题]: 0.6 – 0.64mm Stock Thickness Multispring B Signal Press-In Zone Specification	Date Issued	2026/09/12
	Date Revised	2026/09/12



d	Force F (N)
0.97	max 190
1.12	min 80

【5. 压接操作说明 Instruction for the press-in operation】

- 目前不保证使用新的压接端子进行更换。修复需按需测试。
- Replacement with a new press-in termination is for the moment not guaranteed. Repairs have to be tested on request.

- 压接深度： 见第 5 页尺寸图（针对公称厚度印刷板 1.6mm）。
- Press-in depth: See the dimensional drawing on page 5 for the nominal thickness printed board (1.6mm)

较薄印刷板需测试。
The use of thinner printed boards has to be tested.

对于较厚印刷板，压接区位置最好位于印刷板厚度的上半部分。见应用图和表格。
For thicker printed boards the position of the press-in zone should be preferably in the upper half of the printed board thickness. See the application drawing and table.

对于同一模块中高引脚数的复杂应用，X ± 0.2mm 的尺寸可解释为所有压接深度的平均值。但最大单个压接深度应在 X ± 0.3mm 范围内。对于单针插入等独立针，深度公差 +0.2mm 至 -0.2mm 有效。
For complex applications with a high number of pins in the same module, the dimension of X ± 0.2mm can be interpreted of the mean of all press-in depths. The maximum single press-in depth should however be within X±0.3mm. For standalone pins as Single Pin Insertion, the depth tolerance of +0.2 mm to -0.2 mm is valid

PCB 厚度（公称） PCB Thickness (nominal)	公称压接尺寸 X Nominal Press-in dimension X	公称压接尺寸 Y Nominal Press-in dimension Y	公差压接尺寸 Z Tolerance Press-in dimension Z+
> 1.6 mm	0.1	0.1	±0.2
1.5...1.6 mm	0.1	0.1	
0.8...1.5 mm *)	未释放	未释放	

根据压接工具的检测侧，可使用尺寸 X 或 Y。
Depending on the detection side of the press-in tooling, dimension X or Y can be used.

较薄印刷电路板的使用尚未测试。使用较薄 PCB 时，正常保证的保持力和 PCB 变形可能偏离通常允许的限值。如有需要，应按需测试。
The use of thinner printed circuit boards has not been tested. The normal granted retention forces and PCB deformations can deviate from the usual allowed limits when using a thinner PCB. This should be tested on request if needed.

压接力度/距离应受控。
Press in force / distance should be controlled.

- 压接速度：
- Press-in speed:

针座、壳体和模块最大 5mm/s。散针最大 200mm/s。其他速度需测试。
Maximum 5mm/s for headers, housings & modules. Maximum 200 mm/s for stitched pins. Other speeds need to be

tested

【6. 压接特性 Press-in characteristics】

6.1 机械性能 Mechanical

压接力和保持力（单个 Multispring 端子）：
Press-in and retention forces (performed on single multispring terminations)

Multispring 镀层	最大压接力	典型压接力	最小压接力	最小推出力
SnFlash/SnPbFlash	150N	100-135N	70N	20N
SnEP	150N	80-125N	65N	15N
Au	tbd	tbd	tbd	tbd

值基于化学镀锡印刷板（SnFlash 基于 2008 年 11 月鉴定件）)
Values in chemical tin-plated printed boards (SnFlash based on the qualification parts 11/2008)

每个压接区的值
Value pro press-in zone

每个端子最小推出力（含寿命终止）
Minimum push-out force per termination (incl. end of life).

其他印刷电路板中的值：需按需测试。
Values in other printed circuit boards: have to be tested on request.

6.2 电气性能 Electrical

接触电阻 < 0.5mΩ（按 IEC 60352-5 在镀锡印刷板中测量）
Contact resistance < 0.5 m (measured values acc IEC 60352-5 in tin plated printed boards)

6.3 环境性能 Environmental
温度范围： -40°C / +140°C
Temperature Range –40°C /+140°C

其他温度可根据应用中使用的印刷板温度限制使用，但需测试。
Other temperatures can be used depending on the temperature limitations of the printed board used in the

application but have to be tested.

【7. 要求 Requirements】

鉴定测试基于 IEC 60352-5。测试组 C 基于更严格的汽车要求。
Qualification tests based on IEC 60352-5. Test group C based on more severe automotive requirements.

CP1：接触电阻（IEC 60352-5）
CP1: Contact resistance (IEC 60352-5)

CP2：温度冲击（EN 60068 2-14）持续时间：144 循环 -40°C / +130°C，各 15 分钟
CP2: Temperature shock (EN 60068 2-14) Duration: 144 cycles -40°C / +130°C , 15 minutes each

CP3：温度循环（EN 60068 2-14）测试 Nb -40°C / +100°C 各 3h，持续时间：20 循环
CP3: Temperature cycling (EN 60068 2-14) Test Nb -40°C / +100°C each 3h duration: 20 cycles

CP4：干热储存（EN 60068 2）持续时间：120h；温度：+120°C
CP4: Storage in dry heat (EN 60068 2) Duration: 120 h; temperature: +120°C

CP5：外观检查（IEC 512 2-1a）
CP5: Visual examination (IEC 512 2-1a)

CP6：工业大气（DIN 41640 T72）0.20 ppm SO2；0.01 ppm H2S；0.20 ppm NO2；0.01 ppm Cl2，循环体积 1 m³/h，21 天；相对湿度：75%
CP6: Industrial atmosphere (DIN 41640 T72) 0.20 ppm SO2; 0.01 ppm H2S; 0.20 ppm NO2; 0.01 ppm Cl2 , Circulation volume 1 m3/h, 21 days; rel. humidity: 75%

CP7：湿热循环（EN 60068 2-30）变体 2；持续时间 10 循环，每循环 24h；下限：+25°C，上限：+55°C
CP7: Damp heat cyclic (EN 60068 2-30) Variant 2; duration 10 cycles of 24h; lower limit: +25°C, upper limit: +55°C

CP8：接触电阻（IEC 60352-5）
CP8: Contact resistance (IEC 60352-5)

CP9：外观检查（IEC 512 2-1a）
CP9: Visual examination (IEC 512 2-1a)