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	Date Issued	2025-04-01	Prepared by	SangShen
	Date revised	2025-04-01	checked by	
Product Specification	Rev. No.	A0	Approved by	Willy

Title： Car Wafer Serial Connector

1. SCOPE（适用范围）

This specification covers the performance, tests and quality requirements for the Car Wafer Serial Connector . 本规范涵盖了汽车 Wafer 系列连接器的性能、测试和质量要求。)

2. PRODUCT DESCRIPTION（ 产品描述）

DESCRIPTION（描述）	Part Number（料号）
针座	K174051WR-2x04-PTSWB
	K174051WR-2x06-PTSN
	K174051WR-2x07-PTSWW
	K174051WR-2x10-PTSN
	K174051WR-2x18-PTSN
	K174051WV-2x10-PTSN
	K174051WV-2x14-PTSN
	K174051WV-2x04-PTSWB
	K174051WV-2x06-PTSWB
	K174051WV-2x07-PTSWW
	K174051WV-2x08-PTSWB
	K174051WV-2x18-PTSWB
胶壳	K174051HF-2x06-PTW
	K174051HM-2x04-PTB
	K174051HM-2x06-N0
	K174051HM-2x07-PTW
	K174051HM-2x08-N0
	K174051HM-2x10-N0
端子	K174051TF-PSN-D
	K174051TM-PSN-F

3. APPLICABLE DOCUMENT （适用文件）

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.（下列文件构成本规范的一部分，在此规定的范围内。本规范要求与产品图纸有冲突时，以产品图纸为准。如果本规范的要求与参考文件发生冲突，应以本规范为准。）

4. REQUIREMENTS （要求）

4.1. Design and Structure （设计和结构）

Product shall be of the design, structure and physical dimensions specified on the applicable product drawing.（产品的设计、结构和物理尺寸参考所适用的产品图纸）

4.2. Materials/ Finish (材料/表面处理)

Materials used in the structure of product shall be as specified on the applicable product drawing. (产品结构中使用的材料参考所适用的产品图纸)

4.3.Ratings （额定功率）

Item（项目）	Standard（标准）
Rated Voltage (Maximum)额定电压	24V DC
Rated Current (Maximum)额定电流	3A Max(with 13AWG wire)
Operating temperature range工作温度范围	-40℃～+125℃ From -40 to +125 degree centigrade

5. TEST STANDARD （测试条件）

5.1 Unless otherwise specified, the standard range of atmospheric conditions for making measurements and tests are as follows （除另有说明外，用以进行测量和测试的标准环境条件范围如下）

Ambient temperature（环境温度）: 5℃ to 35℃

Normal humidity （正常湿度）: 45% to 85%

Air pressure （气压）: 86Kpa to 106Kpa

5.2 However if doubt arises on the decision based on the measured Values under the above-mentioned Conditions.The following conditions shall be employed: （但是在对判定产生疑问时,按下述状态实施）

Temperature （温度）： 20±2℃

Relative humidity （相对湿度）： 65±5%

Air pressure （气压）: 86Kpa to 106Kpa

6. PERFORMANCE AND TEST DESCRIPTION （性能和测试类型）

6.1 APPEARANCE （外观）

ITEM	DESCRIPTION（类型）	TEST CONDITION（测试条件）	REQUIREMENT（要求）
1	**Appearance（外观）**	**Visual examination （目视检查）** **vision（视力）: > 1.0， atnormal strength of vision and color perception.（视力及色觉正常）** **illumination（照明）:（200～300）lx** **viewing distance（目视距离）:0.3～0.5M**	**1. Plastic part: smooth and flat surface without discolor, broken, crack, distortion defects is acceptable.（塑胶表面光滑平整，无变色，开裂，裂纹，变形等不良现象）** **2.The contact crimp identification, other component shall be checked against the relevant specification.（标志、其它零部件外观符合相应规范）** **3.Metal part: bright and even surface without rust, oxide, fog and obvious physical damage defects is acceptable.（金属件表面无锈蚀、氧化、无明显的机械损伤等缺陷）**

6.2 ELECTRICAL （电气）

ITEM	DESCRIPTION（类型）	TEST CONDITION （测试条件）	REQUIREMENT（要求）
1	**Voltage Drop（电压降）**	**Mated connectors, measure by dry current of 6/11/14A maximum. 30min.（配对后通过最大 6/11/14A 的电流持续 30 分钟）** **Test currents: 6A for 22~20AWG wire ;11A for 18~15AWG wire;14A for 13AWG wire**	**≤10mV/A**

2	**Contact Resistance** （接触电阻）	**Carefully mate the contact pair (male contact, female contact) to the appropriate depth under low energy (Dry circuit: 20mV open circuit voltage and 10mA current limit.)** （配对连接器后在开路电压为**20mV**电流为**100mA**的电路下条件下测试）	**Contact resistance**（接触电阻）： **30mΩ Min**
3	**Insulation Resistance** （绝缘电阻）	**Apply 500V DC between the adjacent contacts and ground in the connectors for 1 Min.**(在相互绝缘的所有接线端子之间及端子与金属外壳之间输入电流**DC500V**,持续时间**1**分钟）	**insulation resistance for desiccation bound: 100MΩ.** （相邻触点间的绝缘电阻至少为:**100MΩ** ）
4	**Dielectric Voltage** （耐电压）	**Apply 1500V AC(RMS),50Hz for 1 minute between adjacent terminals.** (在相互绝缘的所有接线端子之间及端子与金属外壳之间输入电流**AC1500V**（**50Hz**),持续时间**1**分钟)	**No dielectric crack or breakdown shall occur.** （试验后，无绝缘性不良的现象： 无击穿现象发生）
5	**Current leakage**（漏电流）	**Apply 500V （50Hz） between the adjacent contacts and ground in the connectors for 1 Min.**（在相互绝缘的所有接线端子之间及端子与金属外壳之间输入电流**500V**（**50Hz**),持续时间**1**分钟)	**1mA Max**

6.3 MECHANICAL （机械）

ITEM	DESCRIPTION（类型）	TEST CONDITION （测试条件）	REQUIREMENT（要求）
1	**Random Vibration**（随机振动）	**The mated connectors shall vibrated in each of three mutually perpendicular planes for the period of 8h in each plane.** （对配件在三个互相垂直轴的每个轴向施加 **8** 小时的振动）	**Testing: Discontinuity (when R>100ohm) 1 us max;**（测试要求：不允许连接电阻≥**100mΩ**，瞬断时间 **1** 微秒最大）
			After test: Contact resistance: 50mΩ max.（测试后接触电阻 **50mΩ**最大）
			After test: Voltage drop<=10mV/A.（测试后电压降≤**10mV/A**）
			After test: Insulation resistance: 100Mohm max.（试验后绝缘电阻≥**100MΩ**）
			Appearance: No deterioration, cracks,deformities, excessive plating wear, etc.（外观：无退化，裂缝，残缺，镀层脱落，磨损等）

6.4 ENVIRONMENTAL (环境)

ITEM	DESCRIPTION（类型）	TEST CONDITION（测试条件）	REQUIREMENT（要求）
1	**Resistance to solder Heat** （耐焊性 ）	**Soldering Time**（焊接时间）**:**（**10±1**）**s** **Solder Temperature**（温度）**:**（**260±5**）℃ **The dipped part shall be allowed to cool in air for 1h.**（焊接后在正常条件下恢复 **1** 小时 ）	**Any evidence of mechanical damage shall be considered a failure.** （能经受焊接热试验的影响，无损伤）

2	**High Temperature Test**（耐高温）	**Place the test samples in a test chamber and leave them there at the temperature 125℃±2℃ for 4 h. The sample shall be allowed to cool in air for 24 h.**（将试样放在**125**℃的高温箱内，温度偏差为**±2**℃，时间为**4h**，再在常温下放置**24h**后检查）	**The sample shall fulfill visual examination, contact resistance ≤0.02Ω, and insulation resistance ≥100MΩ after high temperature exposure. Failure of any specified measurement, or evidence of mechanical damage shall be considered a failure.**（试验后外观无损伤，接触电阻**≤0.02Ω**，绝缘电阻**≥100MΩ**）
3	**Low temperature Testing**（耐低温）	**Place the test sample in a test chamber and leave them there at the temperature -40℃±2℃ for 4 h. The sample shall be allowed to cool in air for 24 h.**（将试样放于**-40±2**℃的低温箱内，时间为**4h**，再在常温下放置**24h**后检查）	**The sample shall fulfill visual examination, contact resistance ≤0.02Ω, and insulation resistance ≥100MΩ after high temperature exposure. Failure of any specified measurement, or evidence of mechanical damage shall be considered a failure.**（试验后外观无损伤，接触电阻**≤0.02Ω**，绝缘电阻**≥100MΩ**）

4	**Solder Ability（可焊性 ）**	**Prior to flux application and subsequent solder dip, all devices shall be subjected to aging by exposure to steam in a steam chamber for 4h. Contacts shall be immersed in flux, to the minimum depth necessary to effectively cover the surface to be tested. The dross shall be skimmed from the surface of the molten solder. The molten solder shall be maintained at a uniform temperature of (235±5)°C. The surface of the molten solder shall be skimmed just prior to immersing the leads in the solder. The part shall be immersed once in the molten solder to the depth, and in the same manner. The immersion and emersion rates shall be（25±2.5）mm/min and the dwell time shall be（2.0±0.5）s. The dipped part shall be allowed to cool in air.** （可焊性试验之前需进行老化试验。蒸汽老化试验在蒸汽中 **4** 小时。在每次试验之前需先用一块合适的材料把熔融焊料的表面刮的清洁光亮，刮后需立即进行试验。在试验室温度下，首先将被试验的锡脚浸入到焊剂中。然后立即将锡脚以纵轴线方向浸入到锡炉中去，锡炉中焊料的温度为（**260±5**）℃。锡脚的浸锡点与锡炉之间的距离大于 **10mm**。浸锡速度为（**25±2.5**）**mm/min**。浸锡时间为（**2.0±0.5**）**s**。然后以（**25±2.5**）**mm/min** 的速度取出试验样品）	**The part shall be visually examined using 4X to 10X magnification. The tested areas shall be essentially bright and smooth with no imperfections.The remaining may contain scattered imperfections such as pin holes, rough spots, or dewetted areas. These imperfections shall not be concentrated in one area. 90% of immersed area must show no voids, pin holes.**（试验后进行外观检查，借助肉眼或 **4**～**10** 倍的放大镜来检查。浸锡过的表面必须覆盖上一层光滑明亮的焊料层，只允许有少量分散的诸如针孔，粗糙斑点或脱水区域，这类缺陷不可集中在一个区域。上锡率≥**90**%。）

5	**Temperature Cycling**（温度循环）	**Procedure**（步骤）**:** **a)**（**-40±2**）℃ **2h** **b)**（**125±2**）℃ **2h** **The time of temperature change could not more than 180 s. After finishing not less than 5 cycles, condition prior to testing.** （温度之间的转换时间不超过**180**秒，从**a**到**b** 为一个循环周期，至少进行**5**个循环。）	**The sample shall fulfill visual examination, contact resistance ≤0.02Ω, and insulation resistance ≥100MΩ after high temperature exposure. Failure of any specified measurement, or evidence of mechanical damage shall be considered a failure.**（试验后外观无损伤，接触电阻**≤0.02Ω**，绝缘电阻**≥100MΩ**）
6	**Humidity heat, Constant**（恒定湿热）	**Place the test samples in the chamber(shall not match the contact pair).Raise the temperature to the**（**30±2**）℃**, During the temperature transition, the humidity need not be controlled. Then raise the humidity to**（**93+2/-3**）％ **within 1h.Hold the test samples to** （**30±2**）℃ **at**（**93+2/-3**）％ **RH for 96h. The sample shall be allowed to cool in air for 24 h.**（把试验样品（线束插接件不插合）放入高低温交变湿热试验箱中，将温度升到（**30±2**）℃,待平衡后保温**1h**，然后放入水汽中在**1h**内使温度达到（**30±2**）℃,相对湿度达到（**93+2/-3**）％，搁置**96h**后取出试验样品，在常温下恢复**24h**后检查。）	**The sample shall fulfill visual examination, contact resistance ≤0.02Ω, and insulation resistance ≥100MΩ after high temperature exposure. Failure of any specified measurement, or evidence of mechanical damage shall be considered a failure.**（试验后外观无损伤，接触电阻**≤0.02Ω**，绝缘电阻**≥100MΩ**）

7	**Salt spray**（盐雾）	**The salt solution concentration shall be 5%.The 5% solution shall be prepared by dissolving 5 ± 1 parts by weight of salt in 95 parts by weight of distilled or other water. Apply it to mated connectors fitted with the full complement of contacts and cables connected. The duration of the test shall be 48h. The pH shall be maintained between 6.5 and 7.2. The test shall be conducted with a temperature in the exposure zone that is maintained at (35±2) ℃. Salt deposits shall be removed by a gentle wash or a dip in running water and a light brushing. The sample shall resume at room temperature for 1～2h.**（将试验样品置于 **35±2**℃试验箱中，采用盐水溶液浓度为（**5±1**）**%**配 **95%**，蒸馏水或其他水中溶解，**PH** 值在 **6.5**～**7.2** 之间；连续雾化 **48h,**试验后用流动的蒸馏水轻轻洗去表面沉积物。在常温常湿条件下恢复（**1**～**2**）**h** 后检查试验样品。）	**Visual examination. The following appearance shall not be allowed: Exposure of base metals, pitting and porosity of finishes. Cracking and delaminating of components or finishes, or both.** （试验后，外观检查，金属无露出底色，锈蚀和气孔，或表面开裂或脱层等不良现象。）

7. PACKAGING TRANSPORTATION STORAGE.（包装，运输，贮存）：

7.1 Packaging（包装）

(1) Pieces of plastic packaging for clamshell boxes, terminal for plate with material with inner packing, pack (stick) into the quality certificate, indicate the product name, specification, quantity production date.（塑胶件包装为吸塑盒，端子内包装为盘装带料包装，装（贴）入合格证，注明产品名称、规格型号、数量生产日期）

(2) Exterior package is carton, facing the packing list, the packing list marked with product name, specification model, quantity, date of dispatch.（外包装为纸箱，贴装箱单，装箱单上注明产品名称、规格型号、数量、出货日期）

(3) The product in the box must not rock.（产品在箱内不可晃动）

7.2 Transportation （运输）

Allow for any way transportation, can't get wet and mechanical injury.（允许用任何方式运输，不可淋湿及造成机械性损伤.）

7.3 Storage （贮存）

The connector of packing finished should be in the ambient temperature between - 10℃ to +40℃, relative humidity ≤ 80%. To store in storehouse does not have acidic, alkaline air and other corrosive gas in the ambient air.（包装完毕的连接器应在环境温度为**-10**℃～**+40**℃，相对湿度**≤80%**，周围空气中没有酸性，碱性及其它腐蚀性气体的库房中贮存.）

8. THE COMPANY RESERVES AT ANY TIME CHANGE OR IMPROVE THE RIGHTS OF RELATED PRODUCTS.（本公司保留在任何时间修改或完善相关产品的权利.）

Rev.	Description	Date revised	Created/ Revised by
A0	New Release	2025/04/01	SangShen