



最新信息及产品选型
Latest information and product selection

一站式跨学科精密零组件解决方案提供商

One-stop Interdisciplinary Precise Components & Module Solution Provider

深圳市拓普联科技股份有限公司

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深圳市拓普联科技股份有限公司
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72/75	实心Pin	Solid Pin
76/77	磁性连接器	Magnetic Connector
78/85	弹片	Spring Clip



公司概况 Company Profile

深圳市拓普联科技术股份有限公司是国家级高新技术企业,成立于 2005 年,专注于 Pogo Pin 领域,经过多年的发展,已成为 Pogo Pin 行业的领军企业。目前公司产品延伸至精密组件、连接器及线束、实心 Pin、天线、五金注塑等,为客户提供各类定制化的精密零组件解决方案,在业内具备持续领先的综合竞争力。

Shenzhen Top-link Technologies Co., Ltd. is a national high-tech enterprise, which was established in 2005 and concentrated on Pogo Pin from then on. After years of development, it has occupied a leader position in the pogo pin industry. At present, the company's products extend to precise components, cables & connectors, Pogo Pin, solid Pin, antenna and other products, provide customers with all kinds of customized precise component solutions, and possess comprehensive competitiveness in the industry.

拓普联科在开发设计、质量管理和智能制造领域的专业能力,能够满足市场的多元化需求,为客户提供卓越的产品和服务。目前已与博士、华为、立讯、歌尔、比亚迪、美律等全球知名客户建立了稳定长期的战略合作关系。

Top-link's professional capabilities in R&D, quality management and intelligent manufacturing can meet the diversified needs of the market and provide customers with excellent products and services. At present, we have established stable and long-term strategic cooperative relations with Bose, Huawei, luxshare, Goertek, BYD, Merry and other global famous customers .

凭借多年技术积累、与众多厂商的同步开发经验,结合国际一流的研发工具、设计软件及实验室,以及具有国际视野的一流团队,我们在行业内始终保持技术优势地位,我们致力于为客户提供高度定制的跨学科精密零组件的系统解决方案,帮助客户更快更好的实现产品,为每个客户及利益相关者创造全新的价值增长动力。

Depending on many years' technology accumulation & synchronously development experiences with many well-known customers, combining with international advanced technical tool, design software & laboratory, work together with our professional staff who possess a global vision, we have always maintained a technological advantage in the industry, and we are committed to providing customers with highly customized interdisciplinary precision components system solutions to help customers achieve products faster and better, and create new value growth impetus for each customer and stakeholder.

企业文化 Enterprise Culture



发展历程 Milestone



2005
在深圳成立
Established in Shenzhen



2007
通过ISO9001认证
ISO9001 certificated



2013
与OPPO合作开创手机闪充
Cooperated with OPPO to create mobile phone fast charging



- 2020** 在湖南长沙投资建设工业园
Established industrial park in Changsha, Hunan
- 2019** 扩展高速连接器业务
Expanded High-speed connector business
- 2018** 搬迁新工厂, 布局精密零组件业务
Relocated to new factory, started precise components module business
- 2017** 销售收入过亿
Revenue more than 15 million USD
- 2016** 通过IATF16949体系认证
Certified by IATF16949
- 2015** 通过ISO14001体系认证
Certified by ISO14001
- 2014** 荣获高新技术企业, 布局天线业务
Became National high-tech technology enterprise, started antenna business

2005-2013 业务稳定成长 Stable growth 2014-now 业务相关多元化扩展 Business diversification and expansion

企业荣誉 Honors



国家高新技术企业
National high-tech enterprise



深圳市高新技术企业
Shenzhen high-tech enterprise



意大利工业协会推荐产品
Recommended products of the Italian industrial association



深圳连接器行业协会副会长单位
Shenzhen connector industry association vice president unit



中国制造网-认证供应商
Made in China-certified supplier



最具潜力的深圳品牌
The most potential Shenzhen brand



第三届民企盛典-匠心名企
The 3rd private enterprise ceremony

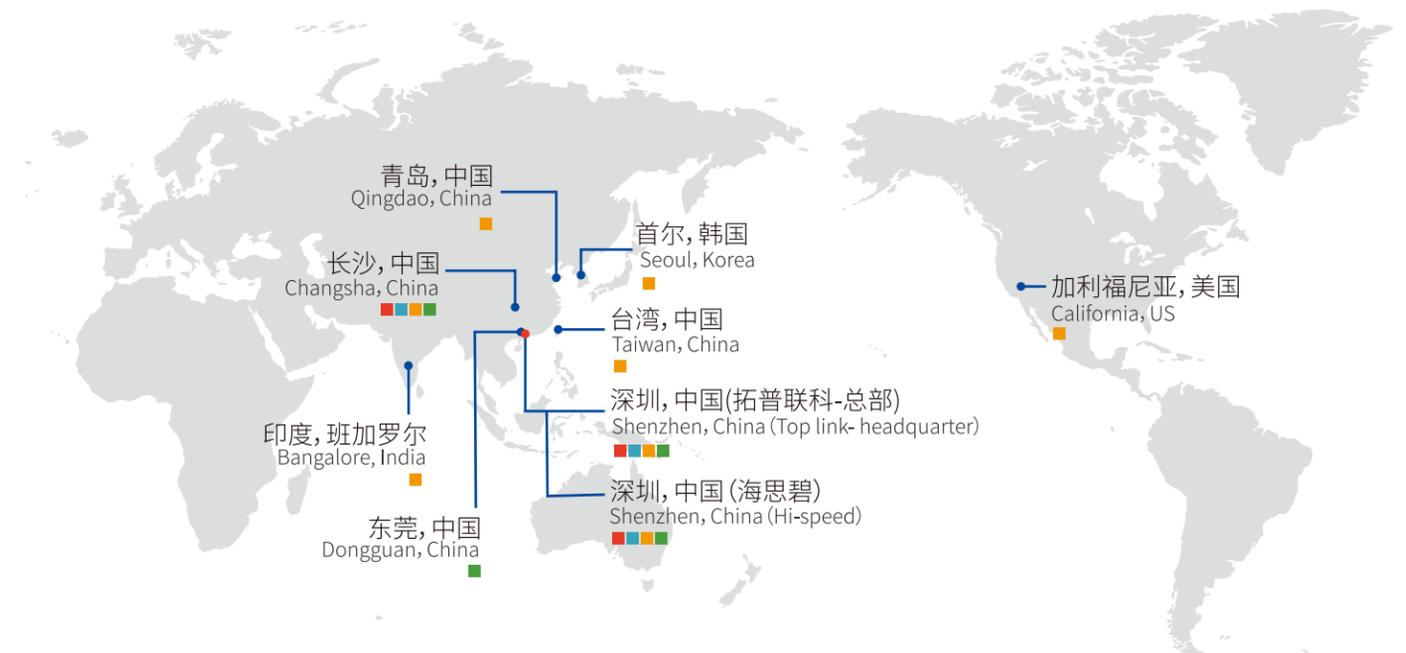


创新中国-创新产品奖
Innovative China-innovative product award



环球卓越成就奖
Global excellence award

全球布局 Global Footprint



为全球客户提供本地化服务

Provide localized services to global customers

■ 工程能力/项目管理
Engineering/Project management

■ 研发中心
R & D Center

■ 客户营销
Sales

■ 运营/供应链
Operation/Supply chain

市场客户

Market



拓普联科创立 15 年来,客户遍布亚洲、欧洲、美洲等国家和地区,始终以引领客户需求为导向,为全球客户提供系统的解决方案和无差别的优质服务,收获了良好的口碑。

Since Top-links established 15 years ago, the customers has spread widely in Asia, Europe, America and other countries and regions, we take the customer requirements as the guidelines, provide systematic solutions and high-quality services and won a good reputation.

研发能力

R&D Capability

公司在技术创新领域进行持续加大投入,整合国内外研发资源,通过引进、消化、吸收、再创新的方式,形成自己的创新机制。拓普联科的研发工程师们满怀着对科技革新的使命感,在智能电子的各个领域不断探索着与众不同的解决方案,为客户量身设计最完美的产品。

Depending on many years' technology accumulation & synchronously development experiences with many well-known customers, combining with international advanced technical tool, design software & laboratory, we have always maintained a technological advantage in the industry, and we are committed to providing customers with highly customized interdisciplinary precision components system solutions to help customers achieve products faster and better, and create new value growth impetus for each customer and stakeholder.

公司注重知识产权,目前已获得专利百余项,居于业内领先水平。

We pay much attention to intellectual property and have already obtained more than 100 patents, which is in a leading position in the industry.

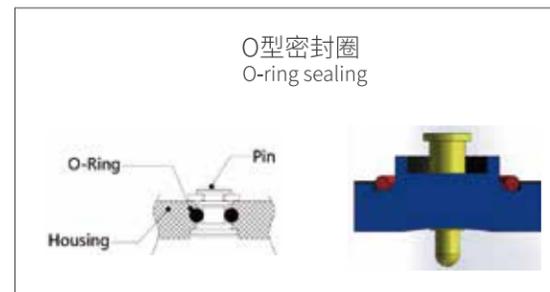
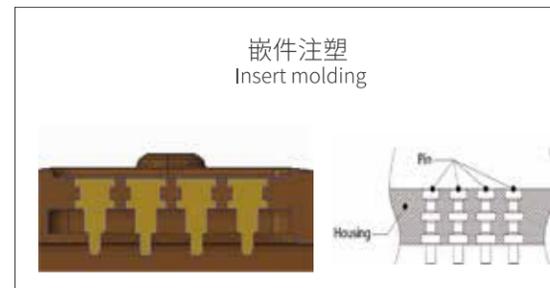
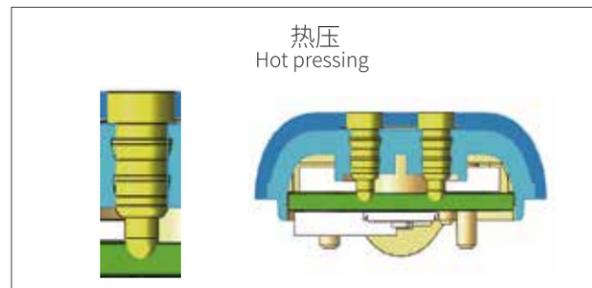


防水方案

Waterproof solution

通过热压、嵌件注塑、点胶、O型密封圈等方法, Pogo pin防水等级可达到 IPX7以上。

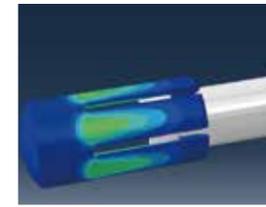
Pogo pin waterproof grade can reach IPX7 or higher through hot pressing, insert molding, gluing, O-ring sealing and other methods.



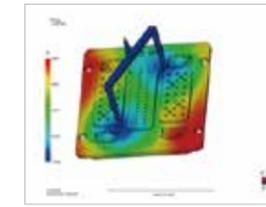
仿真分析

Simulation analysis

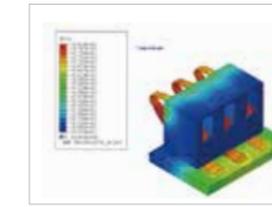
熟练运用仿真分析技术,优化设计,获得最佳方案,节约开发时间。
Using simulation analysis technology to optimize design, achieve the best solution and save R&D time.



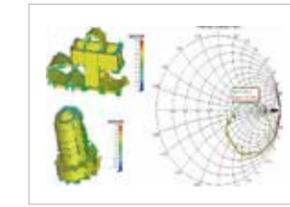
机械性能仿真
Mechanical performance simulation



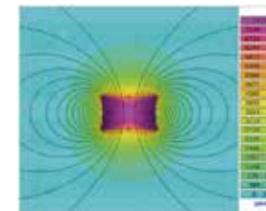
模流仿真
Mold flow simulation



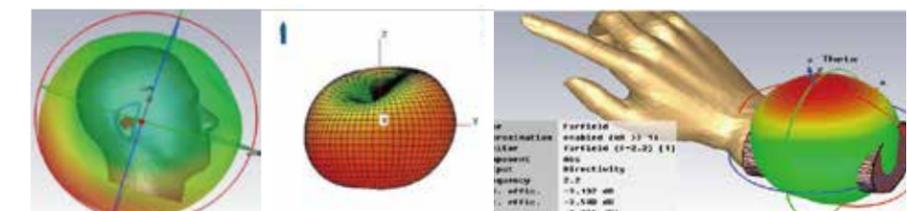
温升仿真
Temperature rise simulation



高频仿真
High frequency simulation



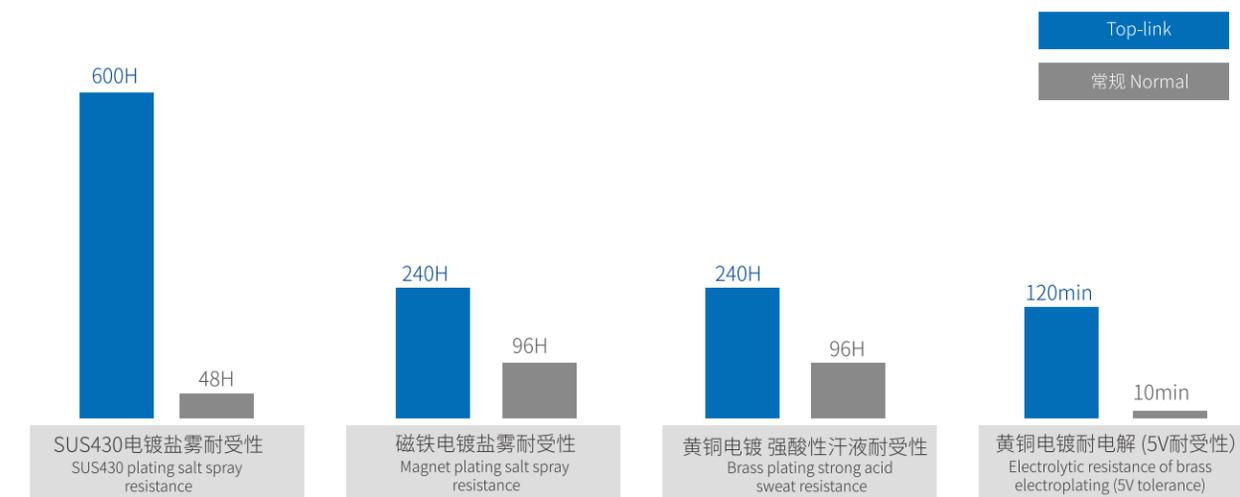
磁场仿真
Magnetic field simulation



天线仿真
Antenna simulation

耐腐蚀性的开发

Development of corrosion resistance



实验验证能力

Experimental and Verification Capability

实验室由广州赛宝认证中心(广州工信部电子第五所)严格按照 ISO/IEC 17025 标准建设,在实验验证、仪器设备、检验技术能力等方面,达到业内超一流的水平。

The laboratory is constructed by Guangzhou Saibao Certification Center (the 5th Electronic Institute of Guangzhou Ministry of Industry and Information Technology) in strict accordance with ISO/IEC 17025 standards, and achieved the industry's top level in terms of experimental verification, equipment, and inspection technical capabilities.

环境测试

Environmental testing



恒温恒湿箱
TEMP&HUMI tester



混合气体试验箱
Mixed gas test chamber



热冲击试验箱
Cold and thermal shock chamber



盐雾试验机
Salt mist machine

电气性能测试

Electrical performance test



瞬断检测仪
Instantaneous detector



力和电阻测试仪
Force and resistance tester



绝缘耐压测试仪
Insulation withstand voltage tester



等离子溅射仪
Plasma splashing instrument

机械性能测试

Mechanical performance test



纸带耐磨试验机
Paper tape wear teater



按键寿命测试机
Key life testing machine



剥离试验机
Peeling tester



维氏硬度计
Vickers hardness tester

精密检测

Precision inspection



影像测量仪
Image measuring instrument
精密模具工件、结构件的测量
测量范围: 400x500x200mm(XYZ)
放大倍率: 40X ~ 240X
Measurement of precise mold parts and structural parts
Measuring range : 400x500x200mm(XYZ)
Enlargement factor : 40X ~ 240X



三坐标测量仪
Three coordinate measuring instrument
精密模具工件、结构件的测量
测量范围: 500x700x500mm(XYZ)
Measurement of precision mold parts and structural parts
Measuring range : 500x700x500mm(XYZ)



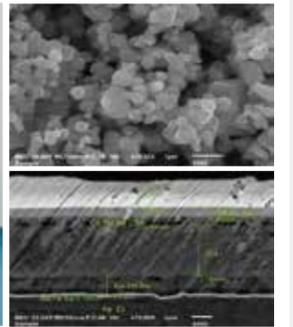
基恩士超景深显微镜
Keyence super depth of field microscope

样品表面观察分析和测量
超高速图像拼接20000 x 20000 Pixel
放大倍率: 20X ~ 200X
Observation, analysis and measurement of sample surface
3D Synthesis of 200 Super depth of Field Images
Magnification: 20X ~ 200X

扫描电子显微镜

Scanning electron microscope

成分分析 (5-92元素)、镀层测量
分辨率: 3nm
放大倍率: 5X ~ 300,000X
Composition analysis (5-92 elements), coating measurement
Resolution: 3nm
Magnification: 5X ~ 300,000X



天线检验检测

Antenna inspection



多探头 OTA 测试

Multi-detector OTA test

支持多种通信制式 配合第三方测试仪器及不同软件模块。
高精度,快速测试(GSM/LTE TRP测试时间2分钟, TIS测试时间7分钟)。
Support multiple communication Cooperate with third-party test instruments and different software modules.
Fast and High Precision(The only one gets CTIA certification in ChinaGSM/LTE TRP Test ~2mins and TIS Test~7mins.)

人头

Image measuring instrument

用于评估移动电话、无线耳机设备、智能眼镜/护目镜、新一代虚拟现实 (VR) 耳机和其他面部和头戴设备的OTA性能的拟人头面部模型频率范围
HEAD-P10:0.3-3GHz
Anthropomorphic head model frequency range head-p10: 0.3-3ghz for evaluating OTA performance of mobile phones, wireless earphone, smart glasses / goggles, new generation virtual reality (VR) headphones, and other facial and headwear devices



生产制造

Manufacturing Capability

公司推行精益生产,打造零缺陷产品,以“制造产品如同制造艺术品”的态度,满足客户的最高品质要求。

Based on the attitude of 'manufacturing products like works of art', Top-link pursues the lean production and provides the products with zero defects to satisfy the customers' highest quality requirements.

制造组装车间配备多台高速组合机床,100余台数控车床及凸轮机,Pogo Pin 实现月产能5,000-6,000万件,充分满足客户对Pogo pin产品品质及产能规模的需求。

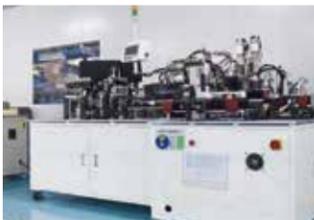
Our manufacturing and assembly workshop is equipped with many high-speed combined machine tools, more than 100 CNC lathes and cam machines. Pogo Pin achieves a monthly production capacity of 50-60 million pieces, which fully meets customers' quality and production capacity needs for Pogo pin product.

公司具备模具自主开发能力及注塑能力,可根据不同产品需求,快速设计、制造柔性自动化生产检测设备,为客户提供一站式定制化服务。

Our company has independent mold development and insert molding capabilities. According to different product needs, we can quickly design and manufacture flexible automated production & testing equipment to provide customers with one-stop customized services.

拓普联科打造了在价值链高度垂直整合的精密加工与智能制造的平台,为客户提供全方位服务。

Top-link has created precise machining and intelligent manufacturing platform in the value chain which is highly vertically integrated in order to provide customers full services.



全自动Pogo pin组装测试机
Automatic Pogo pin assembly & testing machine



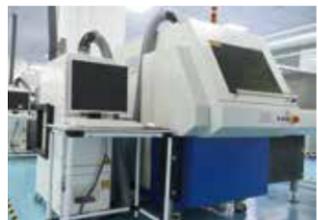
半自动铆压(灵活、柔性生产)
Semi-automatic riveting (flexible and flexible production)



全自动组装生产设备-精密组件
Fully automatic assembly production line- precise components assy



全自动激光焊接
Fully automatic laser welding



LPKF 3轴镭射机
LPKF 3-axis laser machine



RF自动测试
RF automatic test



高精度旋转式组合车床
high precise combination lathes

高度灵活的机加工
Highly flexible machining

- 24个工位,可随时调改适应个别生产需求
- 双循环加工,可同时生产两个以上不同的产品
- 24 stations, can be adjusted at any time to adapt to individual production needs
- Double cycle processing, can produce more than two different products at the same time

高精度
High precision

- 径向尺寸:±0.005mm ·Radial dimension: ±0.005mm
- 轴向尺寸:±0.01mm ·Axial size: ±0.01mm

高量产低耗能
High mass production and low energy consumption

- 高产能:150~190k/天/台(传统车床的30~40倍)
- 低能耗:同产能耗降低到1/8~1/6
- High productivity: 150~190k/day/unit (30~40 times of traditional lathe)
- Low energy consumption: the energy consumption of the same production capacity is reduced to 1/8~1/6



慢走丝-日本西部机 MB50
Wire walking - western Japan machine MB50



CNC - 瑞士夏米尔 HSM500
CNC - Swiss charmilles HSM500



电火花-瑞士夏米尔 FORM20
Electric spark- Swiss charmilles FORM20



卧式注塑
Horizontal injection molding



双色注塑
Two-color injection molding



立式注塑
Vertical injection molding



微型注塑
Micro injection molding

品质管理 Quality Management

质量方针 : 迅速为客户提供高品质的产品和服务!

通过对质量信息全过程的追溯, 实时监控质量及时预警, 全面应用统计技术, 保证产品质量的可靠性。

Quality policy: quickly provide customers with high-quality products and services.

Traceability of the whole process quality information, making full use of the statistical techniques, to ensure the reliability of product quality.



IATF16949



ISO9001



ISO14001



OHSAS18001



全自动在线测试 Automatic online testing

Top-link具备行业领先的PogoPin 在线动态阻抗检测技术, 确保交付的产品100%可信赖。
The on-line dynamic resistance testing in the field of Pogo pin ensures the 100% reliability of products.

X-Ray透视仪 X-Ray fluoroscopic inspection tester

放大倍率: 几何倍率80X; 系统倍率800X
内腔行程: 200*200mm (XY)
Enlargement Factor: Geometric Multiplier 80X; System Multiplier 800X
Inner Chamber Size: 200*200mm (XY)



CCD自动测试设备
CCD Automatic tester



六轴电阻&力测试机
6-axis resistance & force testing machine



ROHS 测试仪
ROHS tester



膜厚仪
Film thickness meter

Pogo Pin介绍

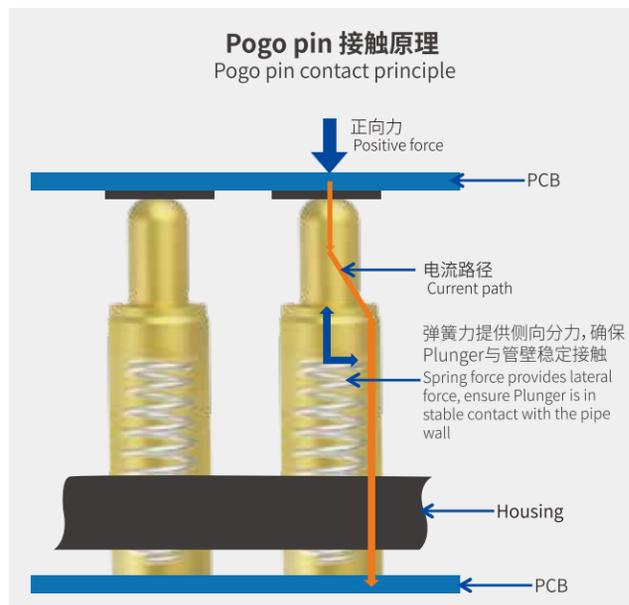
Pogo Pin Introduction

Pogo pin 又称为弹簧针、顶针、弹针、充电针、伸缩弹性针、探针等，广泛应用于手机、电脑、打印机、GPS 定位、通讯设备、医疗设备、航空设备、智能手表、智能手环等电子消费类及智能穿戴类产品。

Pogo pin, also known as spring pin, thimble, spring pin, charging pin, elastic retractable pin, probe pin, etc., which is widely used in mobile phones, computers, printers, GPS positioning, communication equipment, medical equipment, aviation equipment, smart watch, smart bracelet and other consumer electronics product and intelligent wearable devices.

Pogo pin 弹簧针是一种特殊连接器，基本结构有一个针管，一个针头和一个弹簧构成。针管管口处收口，将针头保持在针管内，靠弹簧提供接触力使针头与对接零件之间建立电连接。在不同的应用场景中，让产品降低重量减少体积，让产品更加精致美观。

Pogo pin is a special connector. The basic structure consists of a needle tube, a needle and a spring. The needle is closed at the nozzle of the needle tube, keep the needle inside, and the contact force is provided by the spring, establish electric connection between the needle and the docking parts. In different applied situations, reduce the weight and volume of the product, and make the appearance of the product more exquisite.

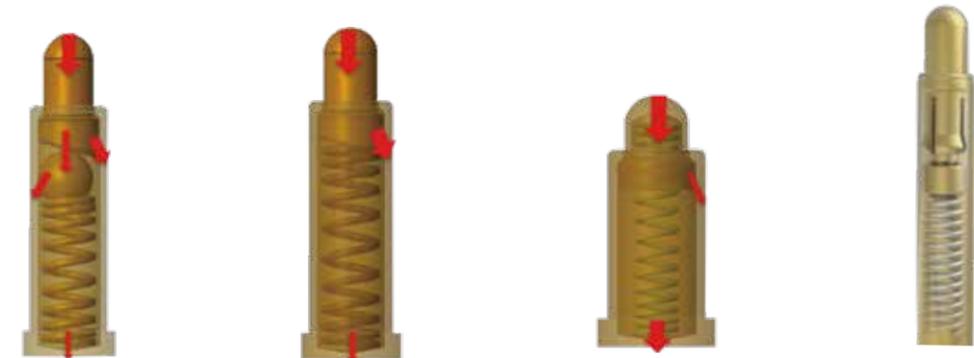


特点
Characteristics

- 使用寿命：使用次数可达10,000次
·Long service time: 10,000 times
- 免开模，方便客户定制
·No tooling fee, easy to customize
- 弹力可准确衡量和调整
·Adjustable and measurable spring force
- 间距小
·Fine pitch
- 提供客户多样性的生产模式：SMT自动生产，插件...
·Flexible manufacturing ways: SMT, plug-in...
- 节省空间：并给设计师更有弹性的配置结构
·Save space: help mechanical engineer easily allocate components on PCB
- 更好的高频解决方案
·Good performance on RF solution
- 符合RoHS和HF(连接器)要求
·RoHS and Halogen Free

Pogo pin常见内部结构

Common internal structure of pogo pin

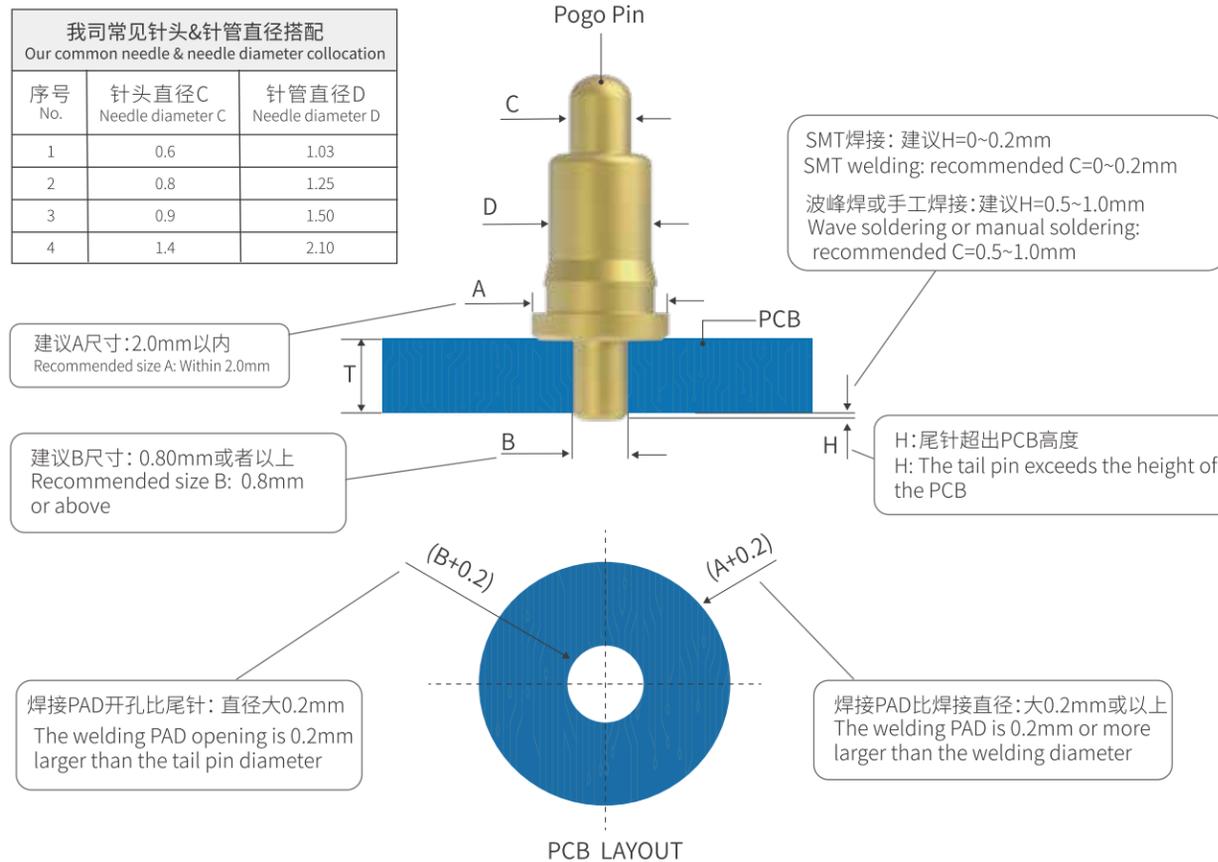
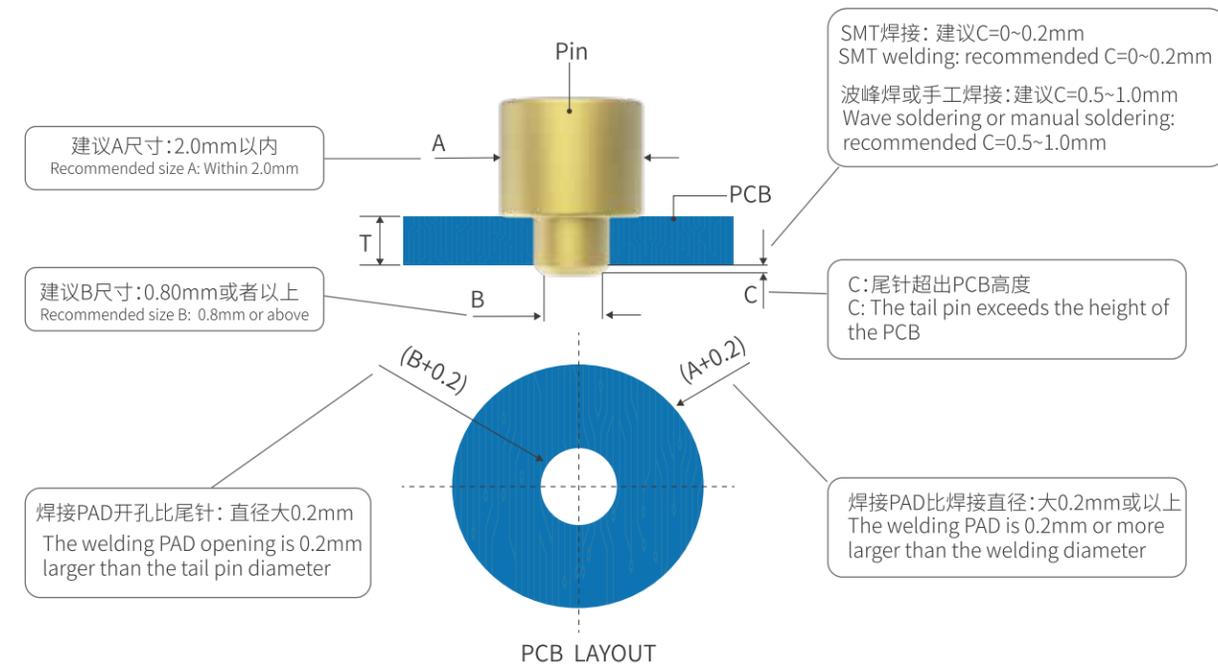


球珠结构 Ball beads structure 斜面结构 Sloping structure 打孔结构 Perforated structure 爪型结构 Claw structure

结构 structure	球珠结构 Ball beads structure	斜面结构 Sloping structure	打孔结构 Perforated structure	爪型结构 Claw structure
接触阻抗 Contact impedance	≤10mΩ	≤30mΩ	≤50mΩ	≤5mΩ
使用寿命 Long service time	10000次+	10000次+	10000次+	500次+
建议工作电流 Recommended working current	10A max	10A max	10A max	10A max
接触稳定性 Contact stability	★★★★★	★★★	★★	★★★★★
加工成本 Processing cost	★★★	★★	★★	★★★★
主要应用领域 Main application areas	主要用于充电和对振动冲击有一定要求场景 Mainly used for charging and condition with certain requirements for vibration and shock	主要用于消费类电子产品充电或者信号传输 Mainly used for charging or signal transmission of Consumer electronics	主要用于传输信号或者接地，天线等 Mainly used for signal transmission or grounding, antenna, etc.	主要用于高频，防瞬断，高可靠性测试要求场景，如基站，军工，车载等 Mainly used in high-frequency, anti-instantaneous, the situation which high-reliability is required, such as base stations, military industries, vehicles.
备注 Remarks	珠子增加内部触点，接触更稳定，需求针管空间越多 The beads increase the internal contacts, the contact is more stable, and the more needle space is required	目前市面最常用结构 The most commonly used structure on the market	空间更小，但接触不太稳定，电流容易走弹簧，不建议作为充电用途 The space is smaller, but the contact is not stable, the current is easy to run through the spring, and it is not recommended for charging	针头与针管多触点，增加接触稳定性 The needle and the needle tube have multiple contacts to increase the contact stability

Pin & PCB 设计建议

Pogo pin & PCB Design Suggestions



Pogo pin常见类型

Common types of pogo pin

平底式

Flat bottom type

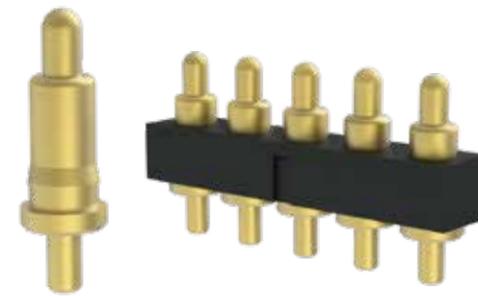
- 结构简单紧凑, 节省空间, 适合SMT焊接, 可单Pin贴片;
- 应用于板与板之间的连接;
- 底面可以作为功能接触面, 实现产品免焊接。
- The structure is simple and compact, space saving, suitable for SMT welding, and can be single pin mounted;
- It is applied to the connection between plates;
- The bottom surface can be used as the functional contact surface to realize the product without welding.



穿孔式

Perforated type

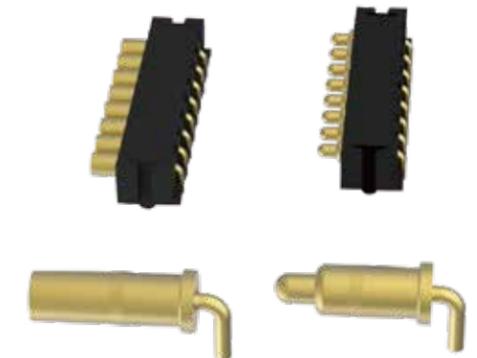
- 定位效果佳, 适合SMT/DIP焊接, 可单Pin贴片, 应用于板与板之间的连接;
- 焊接强度高;
- 可充分利用PCB空间, 降低产品板上高度。
- Accurate positioning, suitable for SMT / Dip welding, can be single pin mounted, used for the connection between plates;
- High welding strength;
- Making full use of PCB space and reducing the height of product board.



折弯式

Bending type

- 侧放式的设计大大减少产品的厚度, 节省高度空间;
- 针管尾部折弯, 提供设计人员在空间的利用上更多选择;
- 尾针和定位柱的设计更利于产品焊接定位;
- 产品结构外形基于客户空间深度定制。
- The side placed design greatly reduces the thickness of the product and saves the height space;
- The tail of the pin tube is bent to provide designers with more choices in space utilization;
- The design of tail pin and positioning column is more conducive to product welding positioning;
- The product structure and shape are customized based on space.





侧接式
Side connecting type

- 侧放式的设计大大减少产品的厚度, 节省高度空间;
 - 适用于当前超薄产品的电池/讯号连接部分;
 - 定位柱的设计更利于产品精确定位;
 - 产品外形基于客户空间深度定制。
- The side placed design greatly reduces the thickness of the product and saves the height space;
- It is suitable for the battery / signal connection part of current ultra-thin products;
- The design of positioning column is more conducive to accurate positioning of products;
- The product shape is customized based on space.

双头Pin
Double pin

- 免焊接, 客户使用方便;
 - 两头弹性连接, 便于互换和拆解, 降低维修成本;
 - 产品结构外形基于客户空间深度定制。
- It can be used easily without welding;
- Elastic connection at both ends, easy to exchange and disassemble, and reduce maintenance cost;
- The product structure and shape are customized based on space.



复合式
Composited type

- 满足特殊场景(柔性连接), 利于客户产品实现;
 - 产品结构外形基于客户空间深度定制。
- Meet special condition(flexible connection) to realize customers' products;
- The product structure and shape are customized based on space.

其它类型
Other types

- 低电阻, 高接触稳定性;
 - 适合大电流, 高可靠连接场景;
 - 产品结构外形基于客户空间深度定制。
- Low resistance and high contact stability;
- Suitable for high current and high reliable connection scenarios;
- The product structure and shape are customized based on space.



Pogo pin 应用
Pogo pin application



TWS耳机
TWS headset



智能穿戴设备
Intelligent wearable device



共享充电宝
Sharing power bank



手机
Mobile



智能音箱充电连接
Smart speaker charging



电子烟
Electronic cigarettes



监控摄像头
IP cameras



VR/AR
VR/AR

实心Pin连接器

Solid Pin Connector

我们提供各式结构高精度实心 pin 车件及连接器,与 Pogo pin 配套使用,广泛应用于 TWS 耳机、手表手环等智能穿戴领域,充分满足客户不同客户对外观、装配、耐腐蚀等方面的要求。

We provide all kinds of high-precise solid pin milled pieces and connectors, which are used together with pogo pin. They are widely used in intelligent wearable fields such as TWS headsets, watch/bracelet, fully meet the requirements of customers on appearance, assembly and corrosion resistance.

特点:

- 高耐盐雾1000 H+
- 高耐汗液 240 H+
- 满足生物相容性要求(如镍释放测试)

Characteristic:

- High salt spray resistance 1,000 H+
- High Perspiration resistance 240H+
- Meet the requirements of biocompatibility (such as nickel release test)

实心Pin类型

Solid pin type

实心 Pin 依照焊接类型可分为平底式、插板式及焊线式 3 类; Pin 可单独出货,也可以与塑胶组成实心 pin 连接器出货。

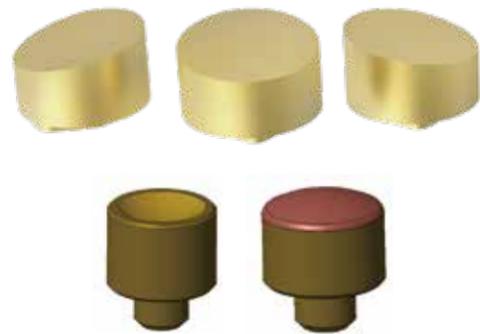
According to the welding type, solid pin can be divided into 3 types: flat bottom type, plug-in plate type and welding wire type; Pin can be shipped separately, or it can be combined with plastic to form solid pin connector for shipment.

内凹面及凸弧面接触面

Contact surface of inner concave surface and convex arc surface

实心PIN可以弧面设计,使耳机、手环等产品的设计更具自由度。

The solid pin can be designed with curved surface, which makes the design of earphone, smart bracelet and other products more flexible.



平面接触面

Flat contact surface

平面接触面应用最多,加工与管控相对容易。

Flat contact surface is the most widely used, and it is relatively easy to process and control.



实心Pin连接器 Category	常用材料 Common material	选材主要考量因素 Main considerations of material selection
实心针常用 铜材类 Common copper types of solid pin	<ul style="list-style-type: none"> ·铅黄铜:C3604;C3602 ·无铅黄铜:C6801 ·无铅锡青铜:C5191 C5210 ·有铅锡青铜:C5440 ·铍铜C17300 ·碲铜C14500 ·Lead brass:C3604;C3602; ·Lead-free brass:C6801; ·Lead-free tin bronze:C5191 C5210 ·Leaded tin bronze:C5440 ·Beryllium copper:C17300 ·Telluride copper:C14500 	<ul style="list-style-type: none"> ·硬度&切削加工性 ·导电率 ·降服强度 ·延展性 ·成本 ·抗腐蚀性, 环保性能等
实心针常用 不锈钢类 Common stainless steel types of solid pin	<ul style="list-style-type: none"> ·SUS316LF ·SUS303 ·SUS904L(高耐盐雾,高耐汗性) ·SUS430(具有磁性,可与磁铁相互吸引) ·哈氏合金C276, C-22, Hastelloy alloy X (高耐盐雾,高耐汗性) ·SUS316LF ·SUS303 ·SUS904L (High salt spray / perspiration resistance) ·SUS430 (Magnetic, have the power to attract magnet) ·Hastelloy(High salt spray / perspiration resistance) 	<ul style="list-style-type: none"> ·Hardness & machinability ·Conductivity ·Yield strength ·Ductility ·Cost ·Corrosion resistance, environmental performance, etc.

精密组件

Precise Components

我们拥有专业研发技术和垂直整合能力,可提供从概念构思到批量生产的定制精密组件,涉及产品跨学科、跨领域,为全球智能手机、智能手表、耳机、智能家居设备制造商及汽车行业的客户服务,协同客户解决技术和工艺难题,让产品实现更容易。

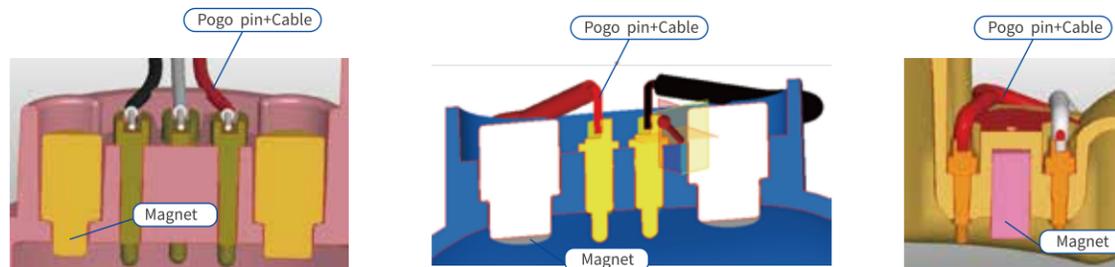
We have professional R&D technology and vertical integration capabilities. We can provide customized precise components from concept idea to mass production, involving products that are interdisciplinary and cross-field. We serve manufacturers in smart phones, smart watches, headsets, smart home equipment and the automotive industry overseas and abroad. Cooperating with customers to solve technical and process problems, making product realization easier.

充电端组件

Charging terminal components

产品组成: 塑胶外壳+Pogo pin+磁铁+Cable
Product composition: plastic shell+Pogo pin+Magnet+Cable

应用领域: TWS耳机
Application field: TWS headset



- 产品特性:
- 模块化, 客户整体结构实现更简单
 - 资源整合, 一站式采购
 - 节省空间, 与PCB柔性连接
 - 降低不良成品报废成本
 - IP67防水和导通功能100%检测

- Product features:
- Modularization, the overall structure of customers is simpler
 - Resource integration, one-stop purchase
 - Space saving, flexible connection with PCB
 - Reduce the cost of scrapping bad products
 - 100% inspection of IP67 waterproof and conduction function

磁吸组件 -TWS

Magnetic components - TWS

产品组成: Housing+Pogo pin/pin+磁铁+铁件
Product composition: Housing+Pogo pin/pin+Magnet+Iron

应用领域: TWS耳机
Application field: TWS headset

- 产品特性:
- 模块化, 客户整体结构实现更简单
 - 磁性连接, 自动对位, 良好手感
 - 资源整合, 一站式采购
 - 节省空间, 与PCB柔性连接
 - 防水实现和功能100%检测



- Product features:
- Modularization, the overall structure is simpler
 - Magnetic connection, automatic alignment, good touch feeling
 - Resource integration, one-stop purchase
 - Space saving, flexible connection with PCB
 - 100% inspection of waterproof and function

磁吸组件-机器人

Magnetic components —robots

产品组成: Housing+Pogo pin/pin+磁铁+防水胶垫
Product composition: Housing+Pogo pin/pin+Magnet+Waterproof rubber pad

应用领域: 机器人, 大电流充电设备
Application field: robots, high-current charging equipment



- 产品特性:
- 大电流, 单pin10A以上
 - 磁性连接, 自动对位, 良好手感
 - IP67防水 (产品本身和配合界面双防水)
 - 使用寿命: 10,000次以上

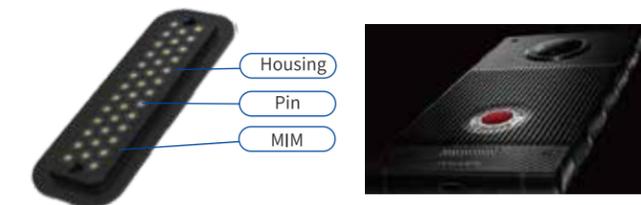
- Product features:
- High current, single pin 10A or more
 - Magnetic connection, automatic alignment, good touch feeling
 - IP67 waterproof (the product itself and the mating interface are both waterproof)
 - Long service time: more than 10,000 times

高频高速MIM组件

High frequency and high speed MIM components

产品组成: Housing+Pin+MIM
Product composition: Housing+Pin+MIM

应用领域: 手机/平板电脑, 通讯设备
Application field: mobile phones/tablets, communication equipment



- 产品特性:
- 传输USB3.0, HDMI高频讯号
 - 电流2A以上
 - 外观超薄, 强度高 (MIM外壳)
 - 抗干扰能力强
 - MIM双色PVD工艺

- Product features:
- Transmit USB3.0, HDMI high frequency signal
 - Current above 2A
 - Ultra-thin appearance and high strength (MIM shell)
 - Anti-interference ability
 - MIM two-tone color PVD process

射频组件

RF module

产品组成: 塑胶件+针头+针管+弹簧
Product composition: Plastic parts + Needle + Needle tube + Spring

应用领域: 基站, 射频模组
Application field: base station, RF module



- 产品特性:
- 高接触稳定性, 防军工级振动冲击
 - 低接触阻抗: 5毫欧以下
 - 径向和轴向相差大, 射频抗干扰能力强
 - 免焊接, 拆卸容易, 互换性强

- Product features:
- High contact stability, anti-military vibration and shock
 - Low contact impedance: less than 5 mΩ
 - Large difference between radial and axial direction, strong radio frequency anti-interference ability
 - Easy disassembly and strong interchangeability without welding

天线

Antenna

依托强大的研发实力与制造能力,拓普联科致力于为耳机、笔记本、IOT 产品、可穿戴等移动终端产品提供定制化的整体天线解决方案。

Relying on R & D and manufacturing capability, Top-link is committed to providing customized integrated antenna solutions for mobile terminal products such as headsets, laptops, IOT products and wearable devices.

特点:

- 高灵敏度
- 高度集成
- 可靠性强
- 可焊接性强
- 最大程度的节省空间
- 自动化测试
- LDS同步开发

Characteristic :

- High sensitivity
- High integration
- Strong reliability
- Strong weldability
- Space saving
- Automatic testing
- Synchronous development of LDS

天线类型

Antenna type

LDS天线

LDS antenna

采用LDS工艺的中壳天线,使中壳在结构上和天线进行集成,减少了额外的天线支架,同时使得天线性能满足客户要求。

The structure of the middle shell antenna with LDS technology is integrated with the antenna, which reduces the additional antenna bracket and makes the antenna performance meet the requirements of customers.



FPC天线(软性印刷回路基板)

FPC antenna (Printed circuit board antenna)

用内置型天线在容易形成图案、易燃性强的印刷电路板(PCB)上印刷了天线图案。FPC天线的成本低廉,性能几乎与LDS相同,但不能用于狭窄的缝隙或曲折严重的部位。

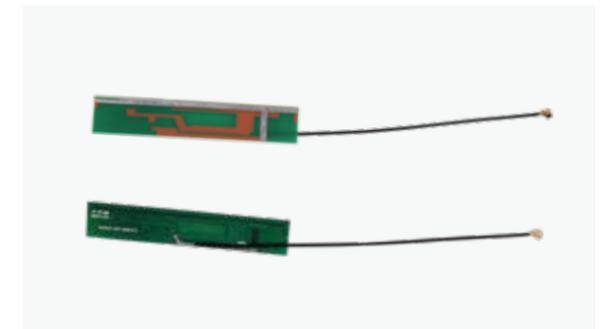
The antenna pattern is printed on printed circuit board (PCB) which is easy to form patterns and has strong flammability. The cost of FPC antenna is low, and its performance is almost the same as that of LDS, but it couldn't be used in narrow gaps or parts with serious twists and turns.

PCB天线

PCB antenna

PCB天线将电路板的一部分放在主板掉落的地方,在PCB上体现了天线模式,布置零件或连接电缆制成的天线。

The PCB antenna places a part of the circuit board where the motherboard is dropped, which reflects the antenna mode on the PCB. The antenna is made by arranging parts or connecting cables.



天线应用场景

Antenna application

TWS耳机

TWS headset

配置FPC或LDS天线的无线耳机,可以使用蓝牙天线连接手机或终端,畅享音乐、通话等功能,丰富客户的多元体验。

Wireless headset with FPC or LDS antenna can use Bluetooth antenna to connect mobile phone or terminal, enjoy music, tele-communicating and other functions, enrich customers' diversified experience.



智能手表 Intelligent watch

采用FPC或LDS工艺的智能手表天线模组的智能手表,可以实现2G/3G/4G通话、数据传输,蓝牙、Wi-Fi及GPS定位等功能。

The smart watch antenna module with FPC or LDS technology can realize 2G / 3G / 4G telecommunication, data transmission, Bluetooth, Wi-Fi and GPS positioning functions.

采用LDS工艺的手表天线,最大程度的利用了有限的空间,使天线在苛刻条件下满足客户要求。

The watch antenna with LDS technology makes the most of the limited space, which makes the antenna meet the requirements of customers under harsh conditions.



笔记本 PC

采用FPC/LDS/PCB天线工艺的SPK BOX+天线+MIC模组,使用该模组的笔记本电脑可以实现全频段覆盖,可以实现2G/3G/4G、Wi-Fi、BT、通话和数据传输功能。

The SPK box + antenna + mic module with FPC / LDS / PCB antenna technology can realize full band coverage with 2G / 3G / 4G, Wi-Fi, BT, telecommunication and data transmission functions.

采用该工艺的天线,使该模组在声学和天线得以集成,天线性满足客户要求,又减少了额外天线支架。

The antenna made by this technology can integrate the acoustic and antenna of the module, meet the requirements of customers and reduce the additional antenna bracket.

工业手机 Industrial mobile phone

采用LDS工艺或FPC工艺的中壳天线模组的工业手机,可以实现全频段覆盖,2G/3G/4G通话、数据传输、蓝牙及GPS定位等功能。

The industrial mobile phones with LDS and FPC technology can realize full band coverage with 2G / 3G / 4G tele-communicating, data transmission, bluetooth and GPS positioning functions.



精密五金注塑 Precise Metal Injection Molding

公司拥有专业研发技术和垂直整合能力,可提供从概念构思到批量生产的定制精密五金注塑件,为全球多家设备制造商(智能手机,智能手表,耳机,智能家居等)及其他行业的客户服务。

With professional R & D technology and vertical integration capability, the company can provide customized precise metal injection molding parts from concept conception to mass production, serving customers in many equipment manufacturers (smart phones, smart watches, headphones, smart home, etc.) and other industries around the world.

特点:

- 具有薄、匀、轻、强的特点
- 精度高
- 外观光滑美观

Characteristic :

- Thin, uniform, light and strong
- High precision
- The appearance is smooth

金属嵌入式成型件 Insert molding

产品类型:3C产品(如Pogo Pin连接器、高频连接器)等
Product type: 3C products (such as Pogo pin connector, high frequency connector)

产品特性:精度高、耐高温等

Product features: high precision, high temperature resistance, etc.

规格:2.5MM~150MM;精度可达到+/-0.02MM;孔径精度可达到+/-0.01MM

Specification: 2.5mm ~ 150mm; accuracy can reach +/- 0.02mm; aperture accuracy can reach +/- 0.01mm



注塑成型 Injection molding

产品类型:3C产品(如Pogo Pin连接器、智能手表、TWS耳机、智能家居产品)等
Product type: 3C products (such as Pogo pin connector, smart watch, TWS headset, home automation product)

规格:2.5MM~150MM;精度可达到+/-0.02MM;孔径精度可达到+/-0.01MM

Specification: 2.5mm ~ 150mm; accuracy can reach +/- 0.02mm; aperture accuracy can reach +/- 0.01mm

产品特性:精度高、外观要求高、耐高温等

Product features: high precision, extremely demanding on appearance quality, high temperature resistance

五金件 Metal product

产品类型: JACK、BTB、FPC、BATTY等各种手机电脑结构件及各种连接器五金件

Product type: JACK, BTB, FPC, BATTY and other mobile phone computer structural parts and various connector Metal

产品特性:精密型腔模、精冲模、端子、弹片、铁壳、屏蔽罩
Product features: precise cavity mold, fine blanking die, terminal, shrapnel, iron shell, shield cover

规格:0.08-0.6MM厚铜料、不锈钢、铁料, 铝材等;精度 +/-0.03;超高速冲压SPM300-1000/分钟

Specification: 0.08-0.6mm thick copper, stainless steel, iron, aluminum, etc.; accuracy +/- 0.03; Ultra high speed stamping SPM300-1000 / min



冷镦件、五金拉伸件、CNC件

Cold heading parts, Stretching metal pieces, CNC parts

产品特性:

- 大量减少工装数量, 加工形状复杂的零件不需要复杂的工装, 适用于新产品的研制和改型;
- 加工质量稳定、加工精度高、重复精度高;
- 多品种、小批量生产情况下生产效率较高, 由于使用最佳切削量而大大缩短了切削时间;
- 可加工常规方法难于加工的复杂型面。

Product features:

- The number of tooling is reduced greatly, and complex tooling is not needed to process parts with complex shapes. suitable for the development and modification of new products;
- Stable machining quality, high machining precision and high repeat precision;
- High efficiency, the cutting time is greatly shortened due to the application of the optimum cutting quantity;
- It can be used to machine complex surfaces which are difficult to be processed by conventional methods.



MIM件

MIM parts

产品特性:

- 可成形各种复杂形状
- 表面光洁度好、尺寸精度高
- 材料适用范围广, 制品致密度高(可达95%~99%), 性能优异
- 产品质量稳定, 生产效率高, 可实现自动化、大批量、规模化生产

Product features:

- Various complex shapes can be formed;
- The surface is smooth and the measurement is accuracy;
- The material is wide applied, high density (up to 95% - 99%) and excellent performance;
- Stable quality and high production efficiency, realize automated and large-scale production.



接触类弹片 Spring Clip

公司可开发不同规格弹片, 用于天线连接和充电连接, 依托强大的研发实力与制造能力, 满足客户的多样化需求。

The company can develop different specifications of Spring Clip for antenna connection and charging connection, relying on strong R&D and manufacturing capabilities to meet the diverse needs of customers.

特点:

- 低成本: 成本比Pogo pin低80%以上;
- 高产能: 日产能500K/模;
- 节省空间;
- 低接触阻值: 10毫欧以下

Characteristics:

- Low cost: The cost is 80% lower than Pogo pin
- High production capacity: 500K/mold per day
- Save space
- Low contact resistance: less than 10 milliohms

天线弹片

Antenna spring clip

应用领域: 天线连接, 接地

Application field: antenna connection, grounding

常用材料: C5240-SH; C17200

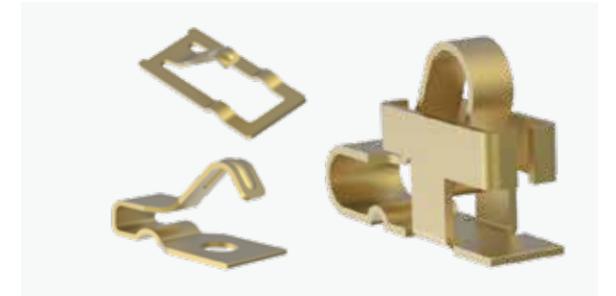
Common materials: C5240-SH; C17200

特点:

- 空间小
- 成本低
- 结构定制化

Product features:

- Small space
- Low cost
- Customized structure



电池弹片

Battery spring clip

应用领域: 电池弹片, 充电设备

Application field: battery spring clip, charging devices

常用材料: C5240-SH; C17200

Common materials: C5240-SH; C17200

特点:

- 低成本, 大批量生产;
- 小间距;
- 低接触阻值: 10毫欧以下;

Product features:

- Low cost, produce in enormous quantities
- Short-space
- Low contact resistance: less than 10 milliohms

连接器及线束

Connector & Cable Assy

公司目前主要设计并制造磁吸式充电线,可在最严苛环境中、最极端使用情形下可靠地传输数据、电力和信号。磁吸式充电线包括公端组件以及与公端组件同轴的母端组件,利用磁性原理达到吸附的效果。磁吸线使用简便,在它的上面固定有磁铁,另一端也固定有磁性物质,只要将两端靠近,就可以实现对吸充电。

We mainly design and manufacture magnetic charging lines at present, which can transmit data, power and signals reliably under the most severe environment and extreme conditions. The magnetic charging line consists of a male terminal assembly and according the principle of magnetism to achieve the effect of adsorption. The magnetic line is easy to use. It is fixed with a magnet on the top and a magnetic material at the other end. As long as the two ends are close to each other, charging can be realized.

磁吸式充电线

Magnetic charging cable

磁铁式定位: 利用磁铁自动吸附,对位,甚至防呆
Magnet type positioning: use magnet to automatically attract, align and fool-proofing

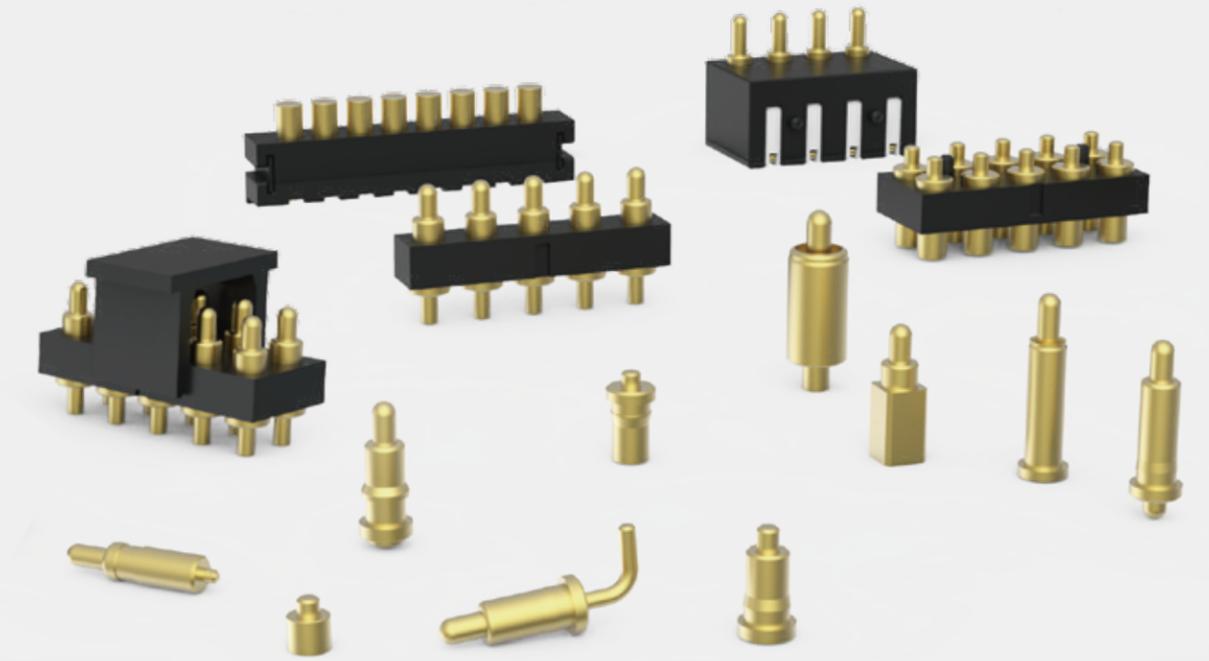
防摔: 吸附接口移除方便,不容易带动本机
Anti-fallen: the suction interface is easy to remove, and it is not easy to drive the machine

使用寿命: 10,000次以上
Long service time: more than 10,000 times

防水设计: IP67以上
Waterproof design: IP67 or above

充电时间快: 承受大电流传输1A-10A设计
Quick charging: bear high current transmission 1A-10A

客制化: 外形款式多样化,满足与主机产品外形匹配,提升产品档次、打造卖点
Customization: the shape and style are diversified to meet the requirements, matching with the appearance of host products, and improve the product grade and create new selling points



产品目录 >>
Product Catalogue