

PULOM

Professional Special capacitors for power electronics solutions



<http://www.pulom-cap.com>

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PULOM, as a specialist in power electronics capacitors, is firmly at the forefront of the metallized film capacitor industry

PULOM's comprehensive range of standard products with the design and development facility, short delivery, and competitive prices offer a design engineer a flexible source for power electronics film capacitors requirements. PULOM has applied its capacitors to a variety of applications: Industry Inverters; UPS and SMPSs; Electric Vehicle Inverters; electrostatic precipitation; Industry induction heaters; Electric Welding Machine; Solar and wind Power.

With the power industry's rapid development, PULOM continuous improvement of technical and technological level, whether it is cost-effective, or the speed of delivery, as well as the production of specialty customers have a strong advantage.

At the same time, PULOM improve the product line so that customers have a wide range of choices to meet the power supply high-quality products、miniaturization、stability、long-life. Be able to fit a variety of DC filter、DC-Link、the power switch snubber line、clamping voltage、high current DC-coupled、high-frequency resonance、the ripple absorption, high pulse, the energy storage line, etc.

PULOM strong development and design capability, fast delivery, competitive prices, product design engineer for the power electronics industry to provide a flexible and multifaceted film capacitor solutions, products designed primarily for high-current, high-frequency, high-pressure situations IGBT / GTO snubber circuit, and high-frequency resonant DC link support, the high ripple processing of the DC bus, the high-frequency high-current DC-blocking, AC filter, high-voltage applications. The main application areas: high-frequency switching power supply, solar / wind power grid line, inverter, induction heating power, hybrid vehicles, inverter welding machine, UPS / EPS and other fields.

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Company Profile

Date of foundation: June 29,2009

Floor area:10000m²

Number of employees: 100

Capacity: 100000PCS/day

Normal production time: 20days

Product category:Power capacitors and components

Film Capacitor

Electrolytic capacitor

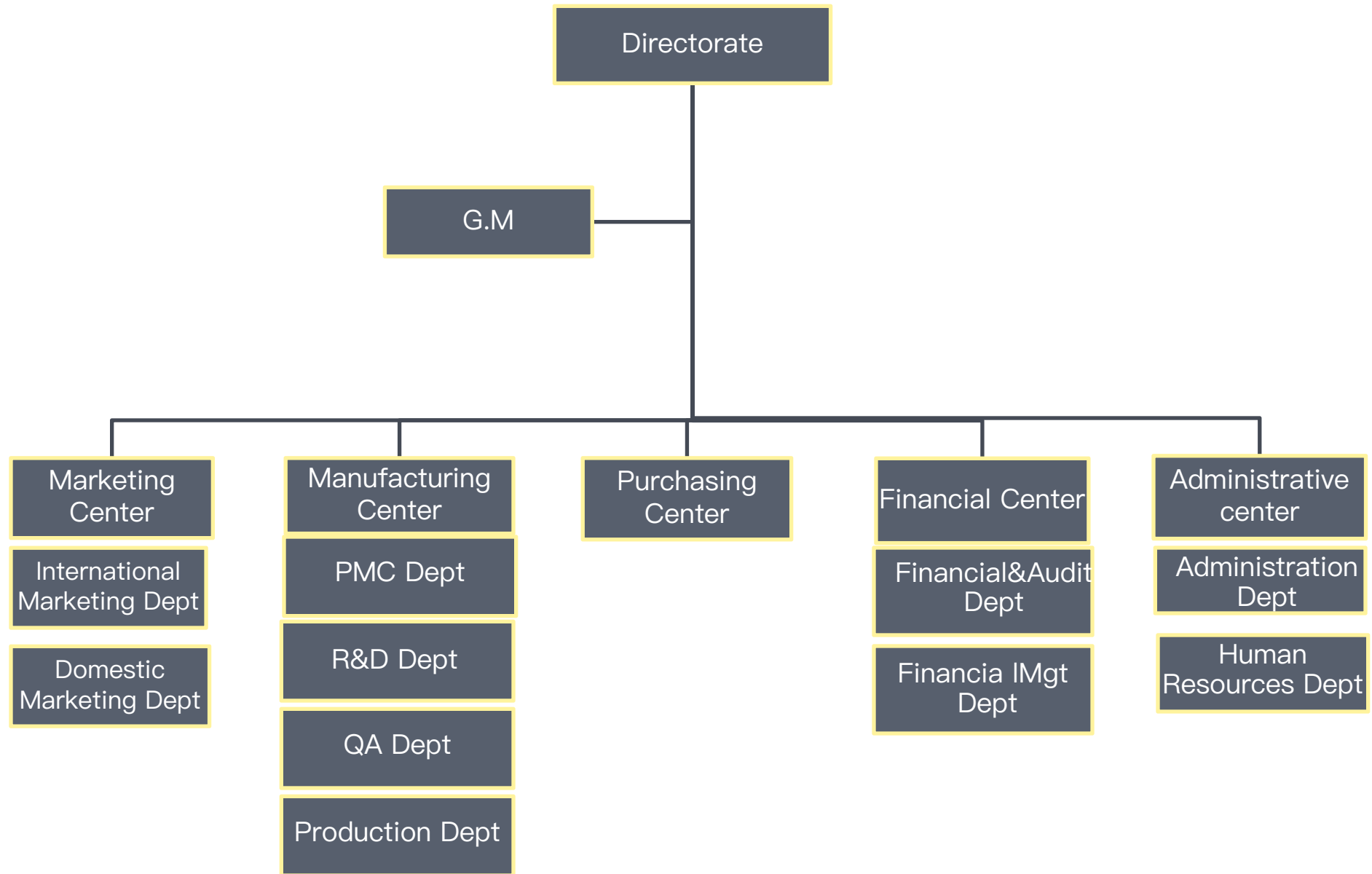
Special capacitor

Product usage

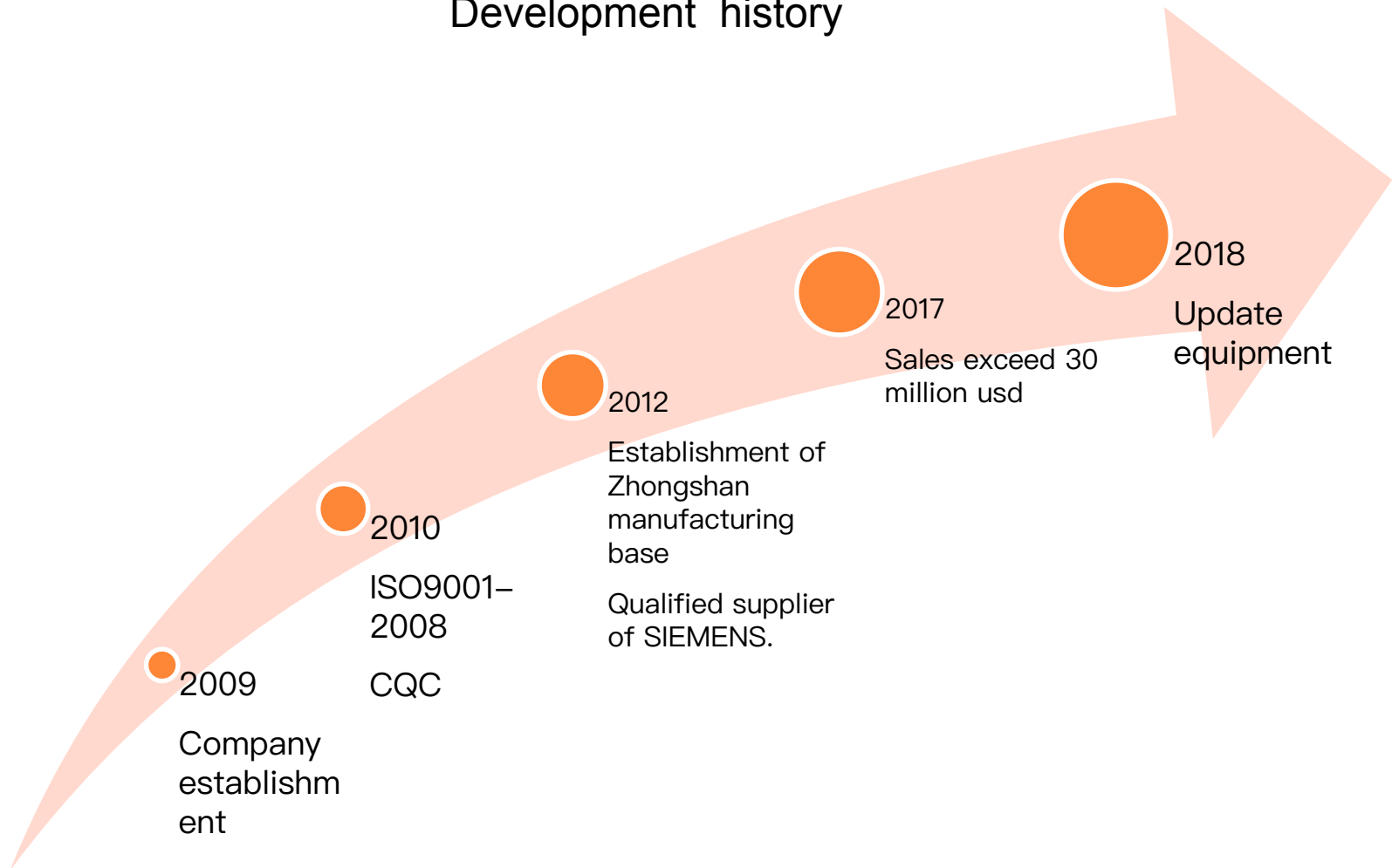
Annual sales volume: 60 million dollars

Main market: Asia, Europe, America

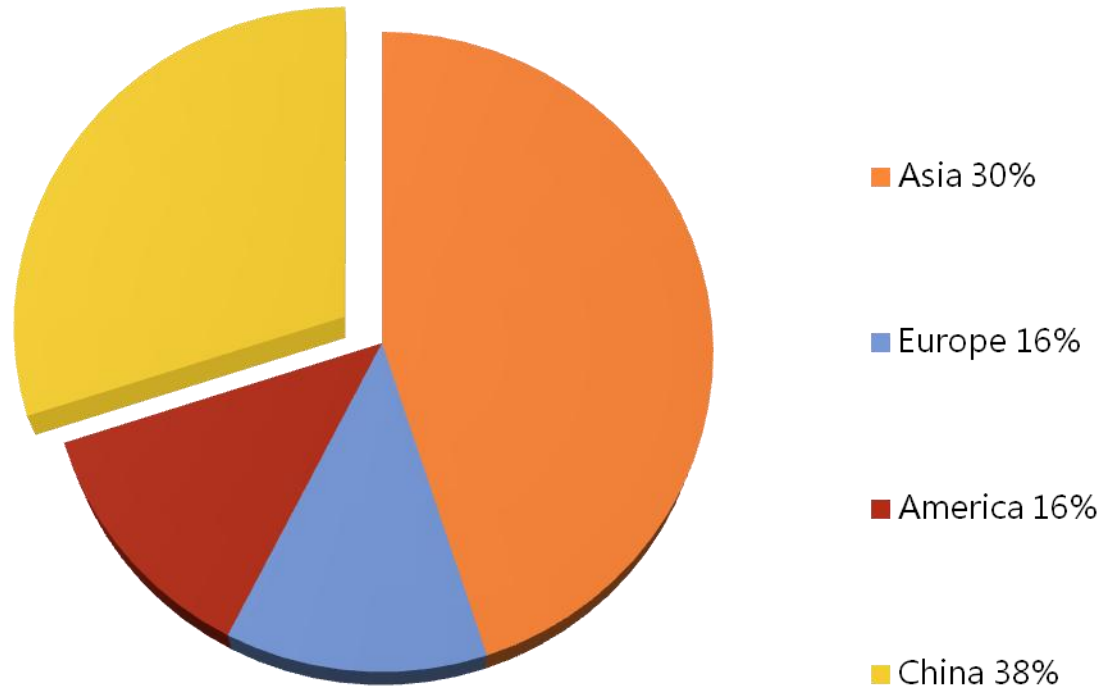
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Development history

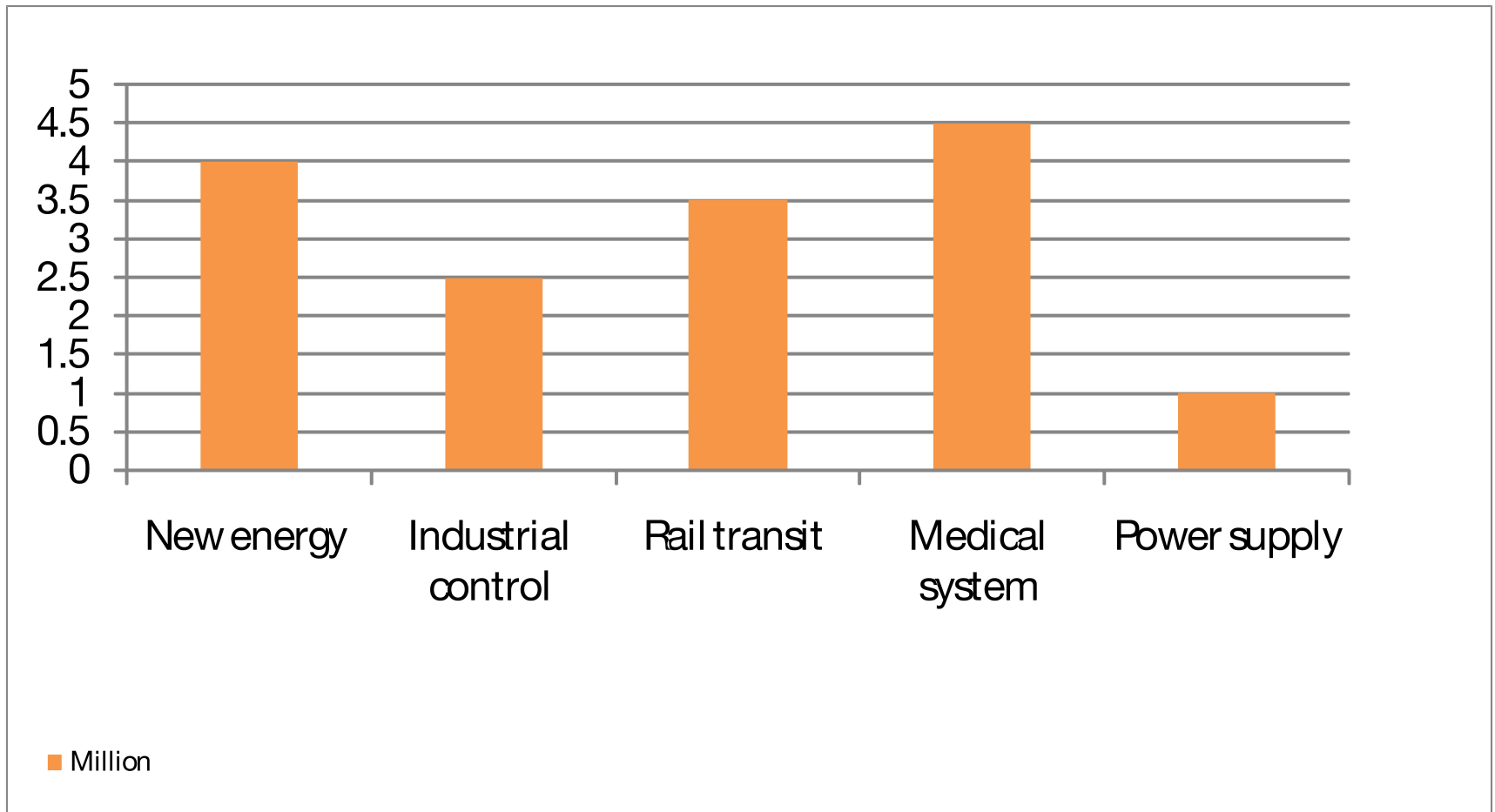


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Distribution of sales market

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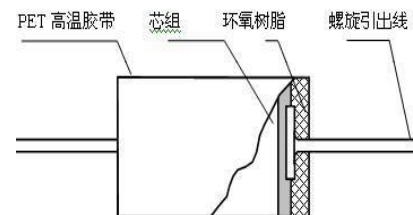
Product application distribution

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>> 生产流程 Production Process

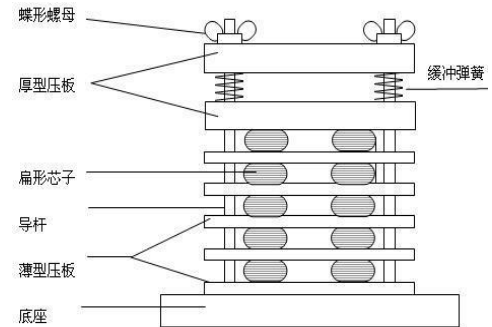


图 2-1 卷绕芯子图



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>> 生产流程 Production Process



椭圆电容芯成型工艺



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Film properties

性能	PPS	PET	PC	PP
ϵ (1kHz、25°C)	3	3.1	3	2.2
$\text{tg } \delta \times 10^{-3}$ (1kHz、25°C)	0.4	4.5	1	0.2
$\text{tg } \delta \times 10^{-3}$ (1kHz、100°C)	0.4	10	1.5	1.5
薄膜厚度 μm	2~10	1.5~20	2~20	3.5~23
抗电强度 $\text{V}/\mu\text{m}$	400	500	350	600
最高工作温度°C	150	125	125	105
吸收系数 10^{-2}	0.05	0.4	0.3	0.01
耐溶剂性	非常好	好	不好	非常好

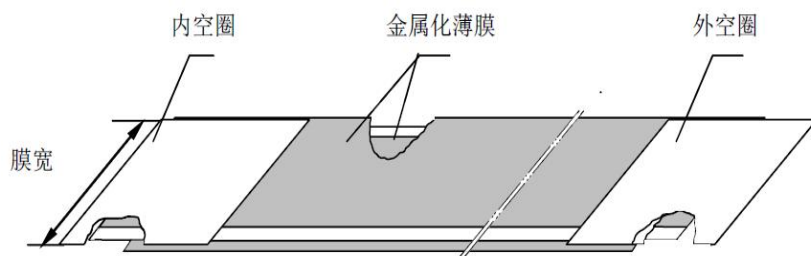


图 3-2 芯子展开示意图

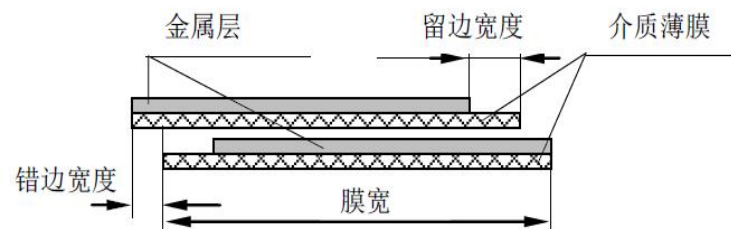


图 3-1 芯子卷绕示意图

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Temperature characteristic of thin film

表 1-2 各种薄膜电容量在工作温度范围的变化情况表

电容器类型	电容量变化范围	温度范围
PET	0~10%	-55℃~85℃
PP	±2%	-55℃~105℃
PC	-2~+1%	-55℃~125℃
PPS	±1%	-55℃~125℃

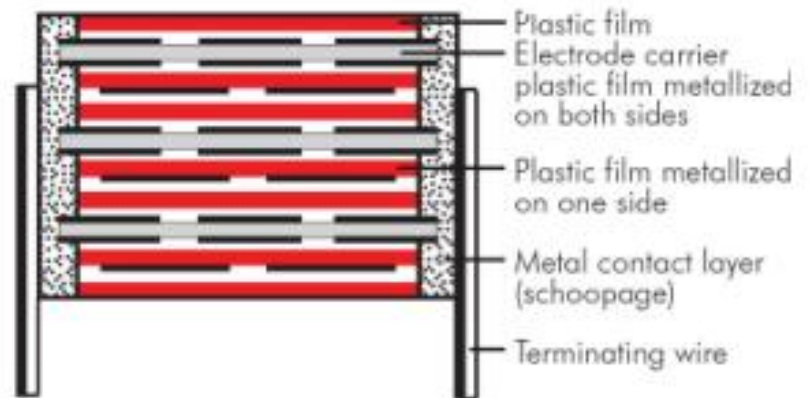
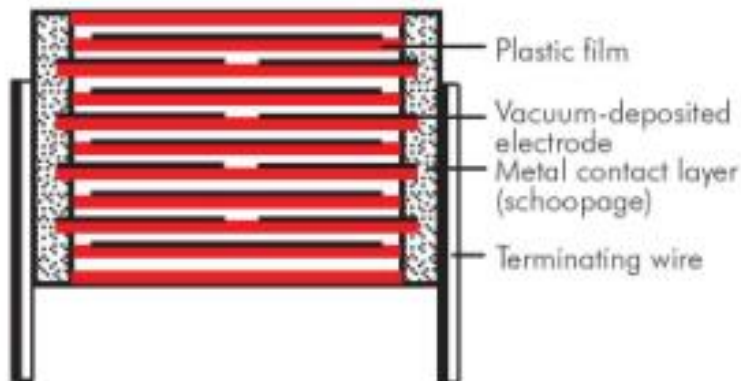
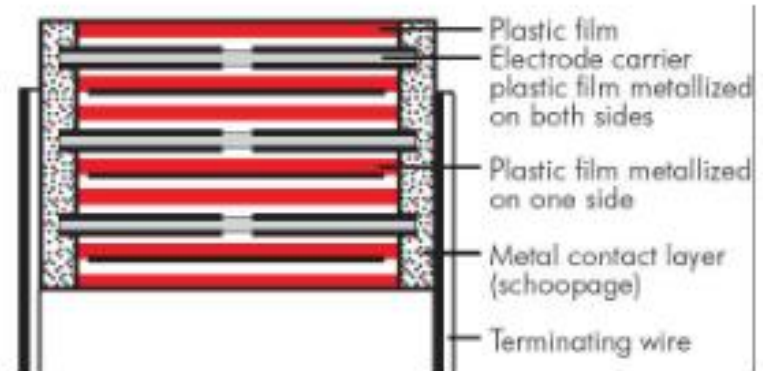
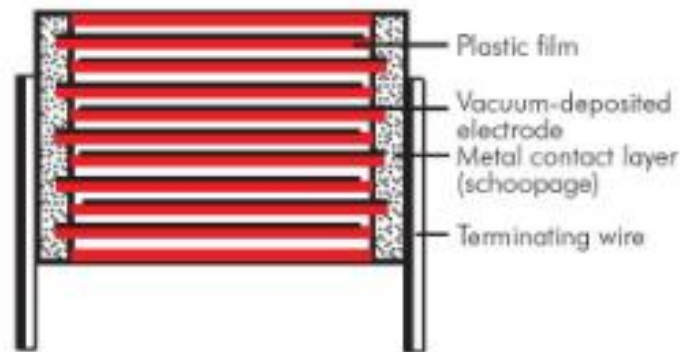
Physical properties of thin films

表 2-2 电容器介质薄膜承受力取值情况表

材料	承受力 (kg/cm ²)
聚丙烯薄膜	28
聚碳酸酯薄膜	23
聚酯薄膜	35

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>> 电容器内部结构

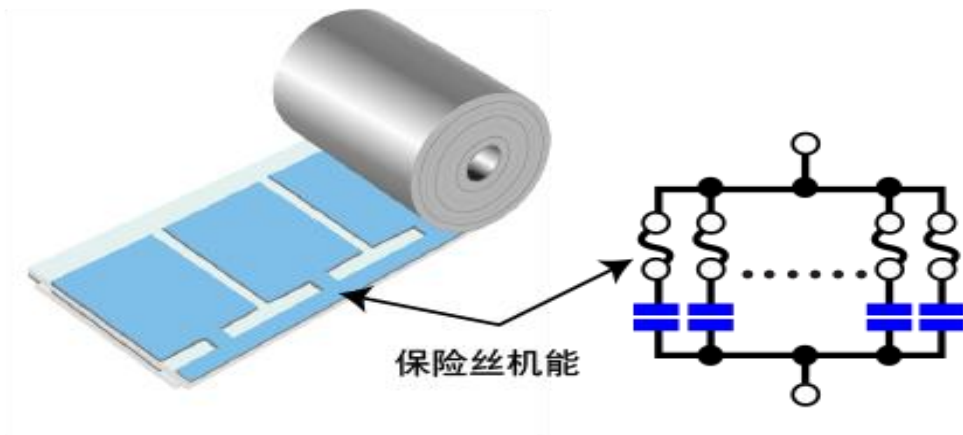


Product mix

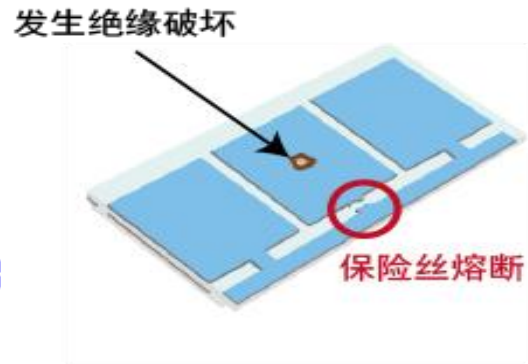
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【分割构造、带有保险丝机能（概念图）】

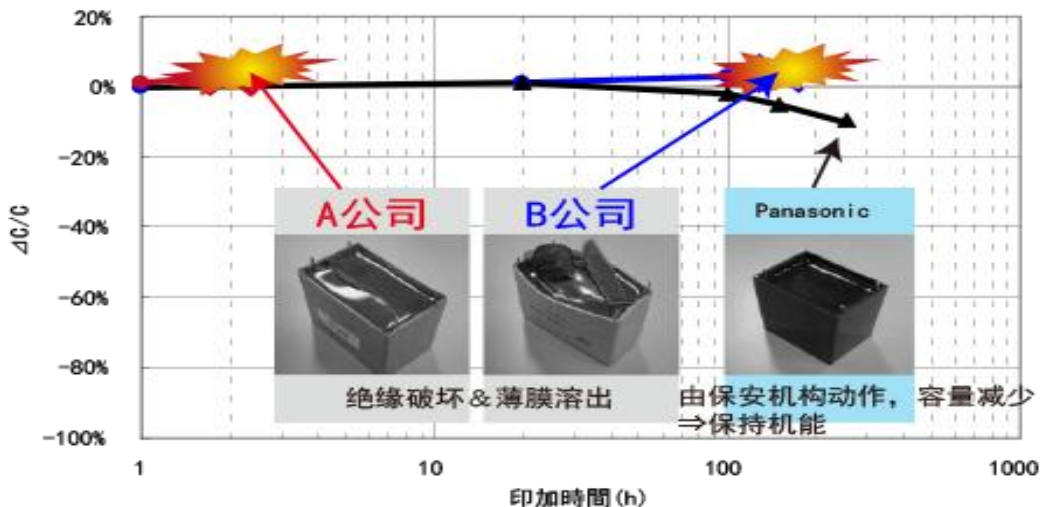


Internal insurance design

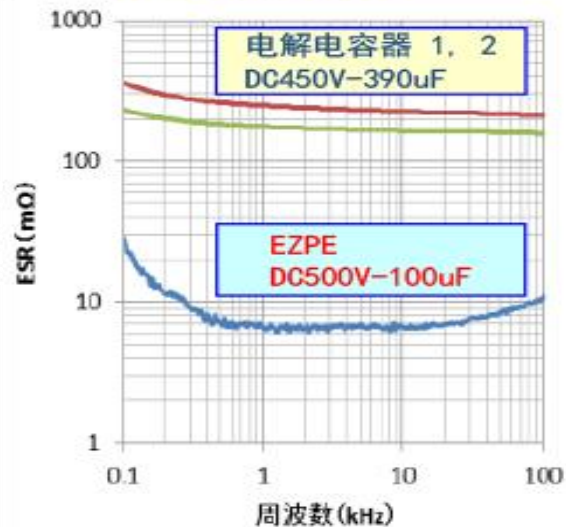


【高温负荷试验】

样本: DC700V-30uF
测试条件: DC900V at 115°C



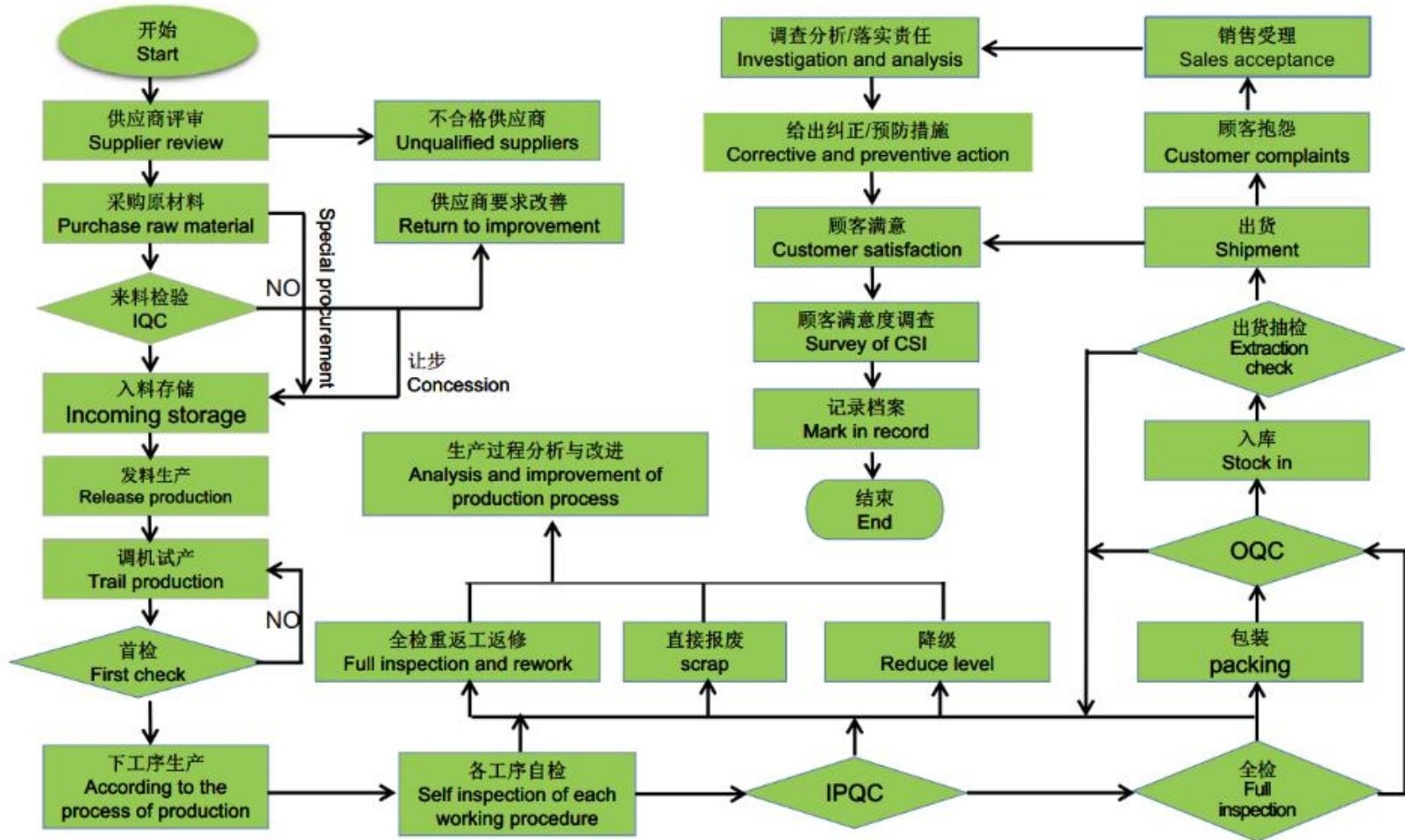
【ESR 频率特性】



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Quality control



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Quality control



Energizing process
Voltage test

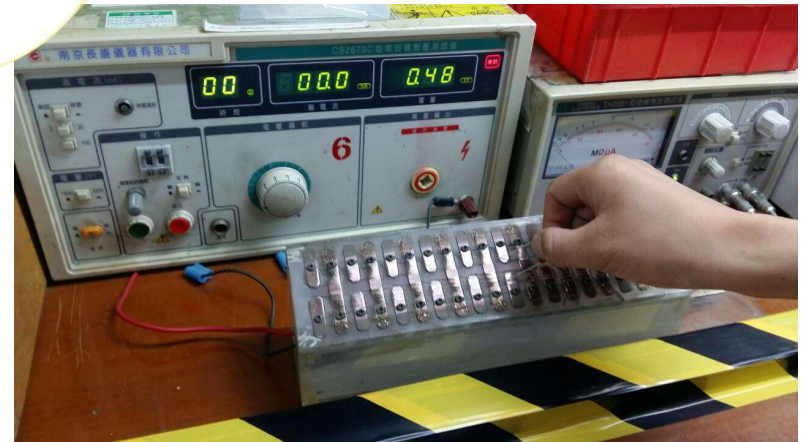


semi-manufactures Charge
discharge detection

Q A



Withstand voltage test for
sorting process



finished product charge
and discharge detection

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Laboratory



cyclic damp heat test



temperature shock test



Forward surge current test



ESD



Lightning shock

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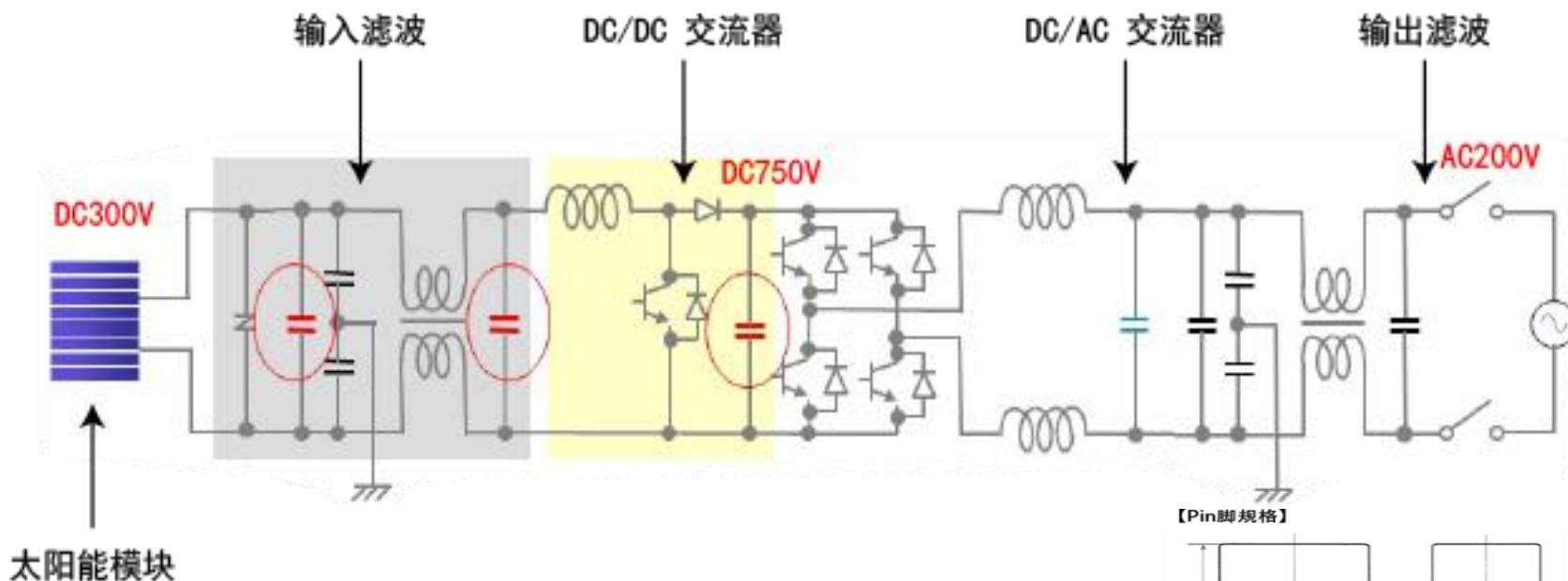
Production workshop



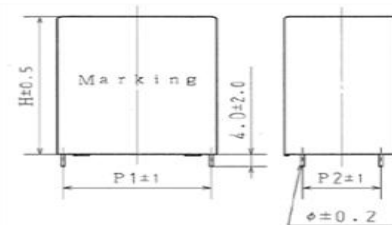
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Typical application circuit

使用回路例 (太阳能电源调节器回路)



【Pin脚规格】



※镀锡铜线 $\phi 1.2$

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Product classification

Low voltage AC power capacitor



Power compensation capacitor



High voltage AC capacitor

Power grid system

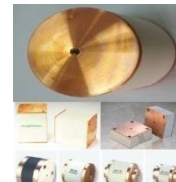
High voltage substation

- 1) Compensation
- 2) Fimulation
- 3) Filter
- 4) Low frequency sensing
- 5) High frequency sensing

Electronic capacitor



CF Type



High frequency resonance

Air conditioning,
Refrigerators,
Washing machine
Motor start

Induction heating
Communication
signal processing

Power electronic capacitor



DC Link capacitor
(Box Type)



DC Link capacitor
(Can Type)






AC Filter capacitor
(Can Type)

(HEV/PHEV/
EV/FCEV)
Energy storage system

Medical equipment
Military equipment

Solar power,
Wind power generation
UPS/EPS
converter

基础设施通用薄膜电容器

种类	PTC	PLA	PLB	PLL	PLL-D
图片					
用途	太阳能发电变频器等 (DC滤波, DC链路用)	微逆变器等 (DC滤波, DC链路用)	太阳能发电变频器等 (AC滤波用)	电车用变频器 (平滑用, 缓冲用, 滤波用)	产业用变频器 (平滑用, 缓冲用, 滤波用, 共振用)
介电质	PP	PP	PP	PP	PP
保险装置	内置保安机构	内置保安机构	内置保安机构	内置保安机构 (除了缓冲用的)	内置保安机构 (除了缓冲用的)
特点	长寿命、高安全性	长寿命、高安全性、高耐湿	长寿命、高安全性、高耐湿	高安全性 小形·大电流, 定制设计	高安全性 小形·大电流, 定制设计
额定电压	500 V.DC ~ 1300 V.DC	450 V.DC ~ 630 V.DC	250 V.AC	依要求定制	依要求定制
静电容量范围	10 μ F ~ 110 μ F	10 μ F ~ 66 μ F	12 μ F, 22 μ F, 36 μ F	依要求定制	依要求定制
类别温度	-40 $^{\circ}$ C ~ 85 $^{\circ}$ C	-40 $^{\circ}$ C ~ 85 $^{\circ}$ C	-40 $^{\circ}$ C ~ 85 $^{\circ}$ C	依要求定制	依要求定制

汽车用薄膜电容器

种类	PLC	PLL	PLL-D 定制品
图片			
用途	汽车杂音防止用	HEV/EV 变频器等 (平滑用)	HEV/EV 变频器等 (平滑用·缓冲用·滤波用)
介电质	PET	PP	PP
保险装置	无	内置保安机构	内置保安机构 (除了缓冲用的)
特点	高温保证 依要求设计	高安全性 小形·大电流	高安全性 小形·大电流, 依要求设计
额定电压	250 V.DC	450 V.DC	依要求设计
静电容量范围	0.47 μ F ~ 4.7 μ F	581 μ F	类别温度

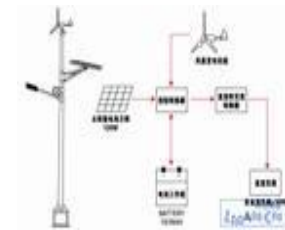
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Application



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Main customer



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PULOM

Main customer



山东省科学院激光研究所
Laser Research Institute of Shandong Academy of Sciences

<http://www.pulom-cap.com>

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Core competitiveness

Main materials

Toray, treofan.

Rich technical experience

More than 20 years experience in design and production of capacitor industry and more than 15 years of market application experience.

Rapid market response

20 days of production cycle, 3 million production capacity per month.

Flexible customization of non-standard products

To provide customers with high quality and cost-effective capacitor applications.

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Productivity and sales

Before 2025, the monthly productivity reached 2 million per month, with turnover exceeding RMB 80 million US dollars.

Market promotion

Expand foreign investment.

Quality assurance

Annual customer complaint was less than 5, and the pass rate of quality was more than 98%.

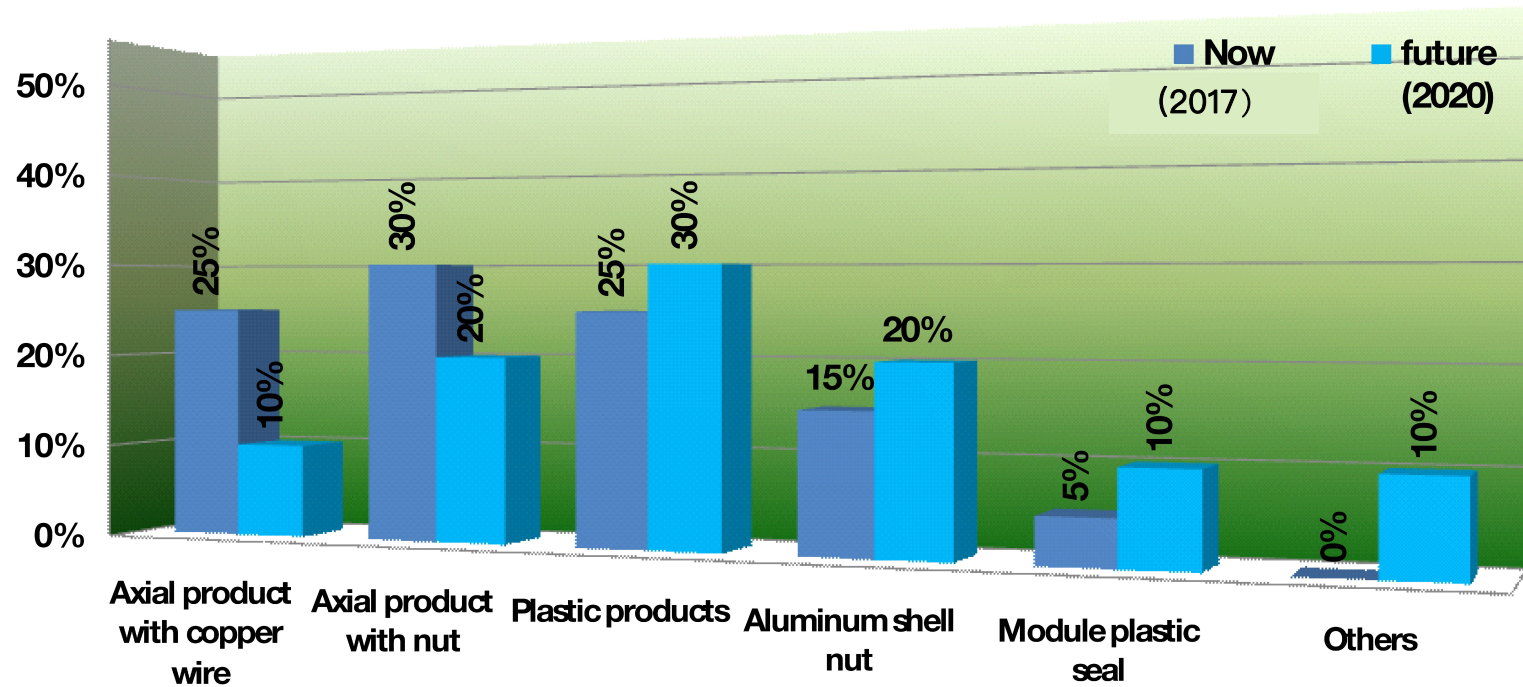
New product launch

10 kinds / years.

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Product structure



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Future development

scientific
research

1

Invest \$1 million to build automatic intelligent manufacturing workshop

2

Invest \$1 million, build precision instruments, and set up a high level laboratory.

3

Invest 1 million US dollars to build power and high current module capacitor production line

4

Invest \$500 thousand to build a trial production line in packaging.

5

Invest \$1 million for R & D of module capacitor devices

6

Building new high-end R & D institutions in collaboration with research institutes

7

Research and development of new capacitor materials with research institutes

8

The reliability testing platform is upgrading step by step from consumption, industry and automobile

9

Joint creation of Research Institute of integrated circuit sealing and application technology innovation

Equipment
upgrading

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