



# POPPULA

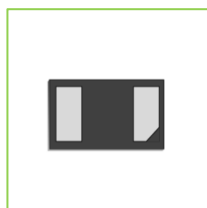
## PREMIUM QUALITY Semiconductor



DFN1006



DFN1006-3



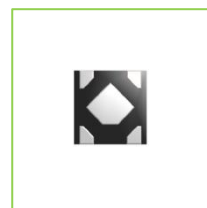
DFN1610



DFN2020



DFN2020-3L



DFN1010



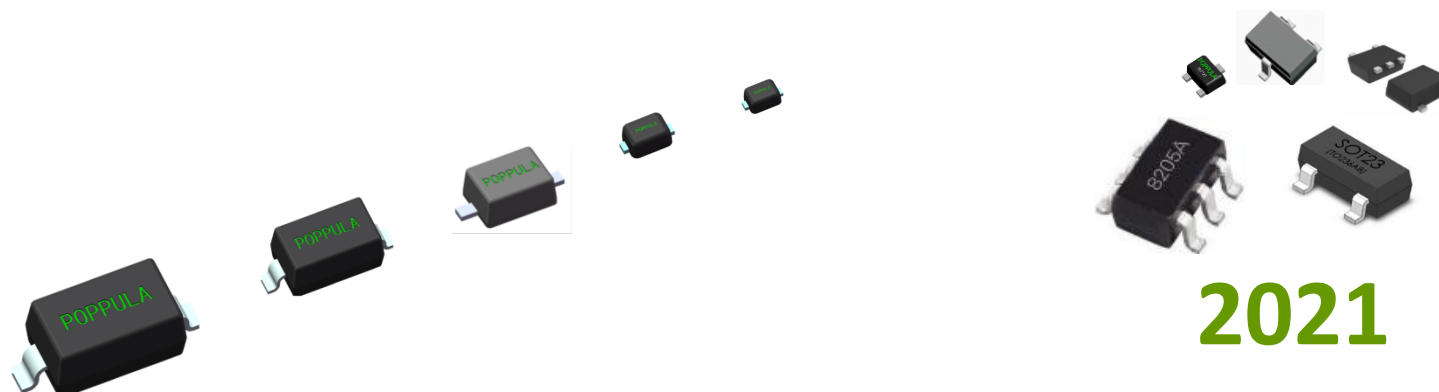
DFN2510



DFN1107-6L



DFN0603-2L



## 2021

## Content



- 公司简介Company Introduction



- 产品路线图Products & Roadmap



- 产线简介Production Line Introduction



- 质量认证, 信赖性&失效分析
- Quality Certifications, Rel & FA



- 产品应用Target Product Applications



## • 公司简介 Company Introduction



- **COMPANY** : Jiangsu Poppula Semiconductor Co., Ltd.
- **PRESIDENT** : Jian Jun Zhang
- **ESTABLISHED** : October 2011
- **CAPITAL** : USD 20.0 Million
- **CURRENT ASSETS** : USD 45.0 Million
- **SALES** : USD 450 Million (2020)

- **PRODUCT**  
: Semiconductors in **SOD , SOT & DFN** Packages
- **HEAD OFFICE**  
: No.399,Mianyang Rd,Xiangcheng,Suzhou Jiangsu Province
- **Manufacturing Site**  
: No.36,Huanghe Rd, Economy Development Zone, Suqian, Jiangsu Province

HOMEPAGE : [www.poppula.com](http://www.poppula.com)

Total Land Area : 120,000 Sq. meter



## Year 2021 Targets 2021年目标

Target Capacity : 2,000kk/month

Target Revenue : RMB40.0M

Planned NPI : DFN2510, DFN0603, DFN1107  
SOT563, SOT553, SOT523

2000KK

1000KK

800KK

365KK

105KK

45KK

Established

2011

2012-2013

2014-2015

2016-2017

2018-2019

2020

2021

SOD323F SOD923  
ESD

SOD123

GO GLOBAL

SAMSUNG

WILLSEMI

CYGWAYEN

SOD523 SOT23

SOD323

GOOD-ARK

M.C.C. Micro Commercial Components

PROTEK DEVICES

Littelfuse

Expertise Applied | Answers Delivered

QPS

Multi-chips/wires

IC

SOT723

DFN Series

SOT323

PANJIT

SEMICONDUCTOR

MI

Ys

▶

Quanta

KOSTAL

Automobil Elektrik

DFN2510

DFN0603-2L

DFN1006-3L

Skyworth

创维

TAIWAN SEMICONDUCTOR

HY

DFN1107-6L

SOT523

SOT553

SOT563

长晶科技

CHANGJING ELEC. TECH

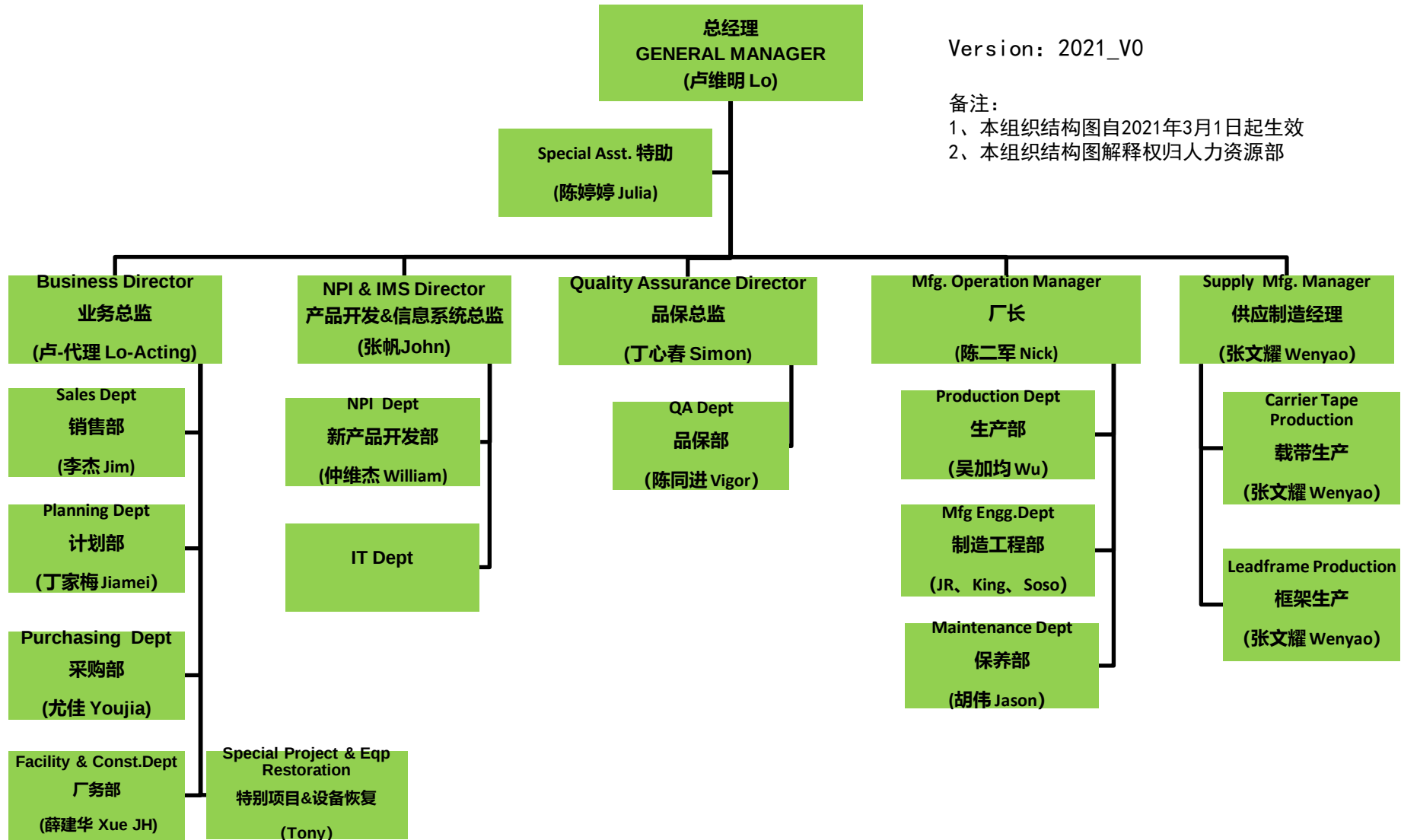
KEC

# 组织架构Management Organization

Version: 2021\_V0

备注:

- 1、本组织结构图自2021年3月1日起生效
- 2、本组织结构图解释权归人力资源部





- **产品路线图** Products & Roadmap

## Mass Productions (AEC-Q101)

# PACKAGE

### Flat Leads



### Gull Wing



### Multi-Leads Gull Wing



### Multi-Leads Flat



| PRODUCT          | TVS/ESD     | √              | √              | √              | √              |
|------------------|-------------|----------------|----------------|----------------|----------------|
|                  | Zener / SKY | √              | √              | √              | √              |
|                  | Switching   | √              | √              | √              | √              |
|                  | MOSFET      |                |                | √              | √              |
| MSL 1 (Optional) |             | √              | √              | √              | √              |
| Halogen Free     |             | √              | √              | √              | √              |
| RoHS Compliant   |             | √              | √              | √              | √              |
| Wire Type        |             | Au,Cu or Pd-Cu | Au,Cu or Pd-Cu | Au,Cu or Pd-Cu | Au,Cu or Pd-Cu |
| Leadframe        |             | Cu             | A42 or Cu      | Cu             | Cu             |
| Die Bonding      |             | Eutectic/Epoxy | Eutectic/Epoxy | Eutectic/Epoxy | Eutectic/Epoxy |

## Mass Productions (AEC-Q101)

### PACKAGE

#### QFN2020



QFN2020-3L



QFN2020-2L

#### QFN1010



#### DFN1610

#### DFN1006



DFN1006



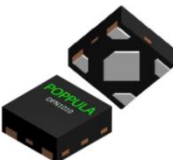
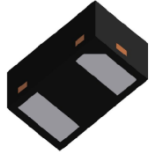
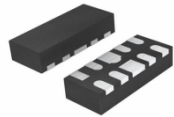
DFN1610

| PRODUCT          | TVS/ESD     | √               |                  | √               |
|------------------|-------------|-----------------|------------------|-----------------|
|                  | Zener / SKY | √               |                  | √               |
|                  | Switching   | √               |                  | √               |
|                  | MOS         | √               |                  |                 |
|                  | IC          |                 | √                |                 |
|                  |             |                 |                  |                 |
| MSL 1 (Optional) |             | √               | √                | √               |
| Halogen Free     |             | √               | √                | √               |
| RoHS Compliant   |             | √               | √                | √               |
|                  |             |                 |                  |                 |
| Wire Type        |             | Au, Cu or Pd-Cu | Au, Cu, or Pd-Cu | Au, Cu or Pd-Cu |
| Leadframe        |             | Cu              | Cu               | Cu or PPF       |
| Die Bonding      |             | Eutectic/Epoxy  | Eutectic/Epoxy   | Eutectic/Epoxy  |

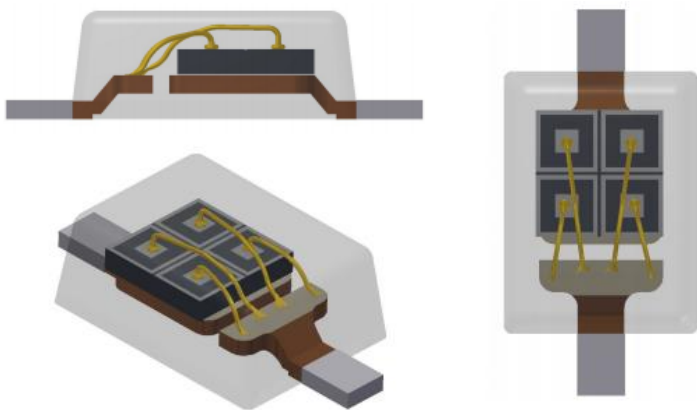


**POPPULA**  
PREMIUM QUALITY Semiconductor

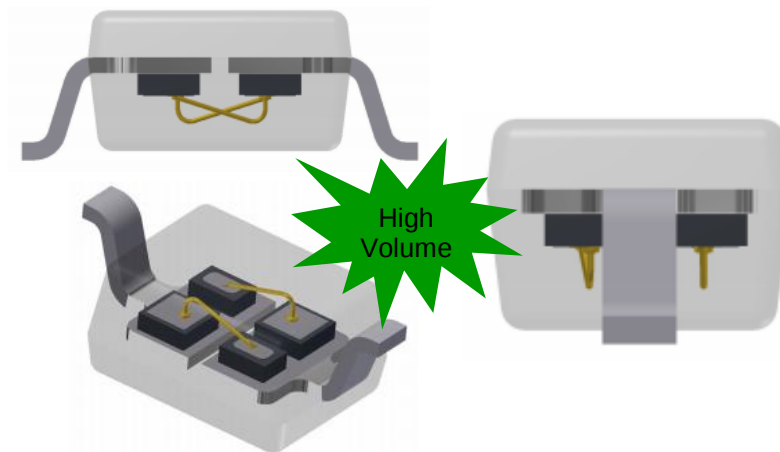
## 产品尺寸Product Portfolio & Dimensions

| SOD123                                                                              | SOD323                                                                              | SOD323F                                                                               | SOD523F                                                                               |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 3.7x1.6x1.15                                                                        | 2.6x1.3x1.0                                                                         | 2.5x1.25x0.65                                                                         | 1.6x0.8x0.64                                                                          |
|    |    |    |    |
| SOD923F                                                                             | SOT23                                                                               | SOT323                                                                                | SOT363                                                                                |
| 1.0x0.6x0.42                                                                        | 2.9x2.4x1.0                                                                         | 2.1x2.3x1.0                                                                           | 2.1x2.3x1.0                                                                           |
|    |    |    |    |
| SOT723                                                                              | DFN1010                                                                             | DFN2020-3L                                                                            | DFN2020-2L                                                                            |
| 1.2x1.2x0.47                                                                        | 1.0x1.0x0.5                                                                         | 2.0x2.0x0.55                                                                          | 2.0x2.0x0.55                                                                          |
|   |   |   |   |
| DFN1610                                                                             | DFN1006-2L                                                                          | DFN1006-3L                                                                            | DFN2510-10L                                                                           |
| 1.6x1.0x0.5                                                                         | 1x0.6x0.45                                                                          | 1x0.6x0.45                                                                            | 2.5x1x0.5                                                                             |
|  |  |  |  |

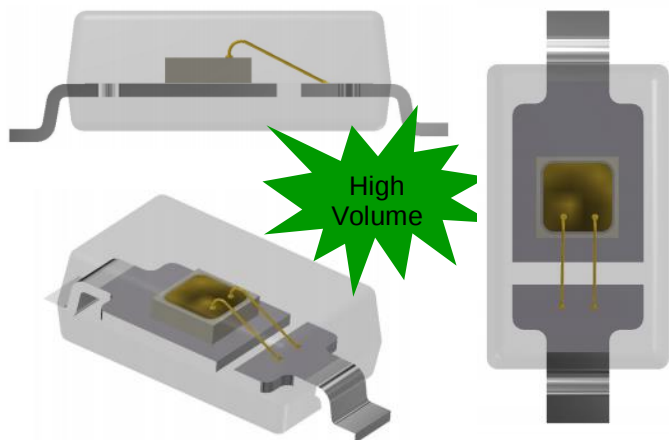
## Multi-wires Bonding Diagram



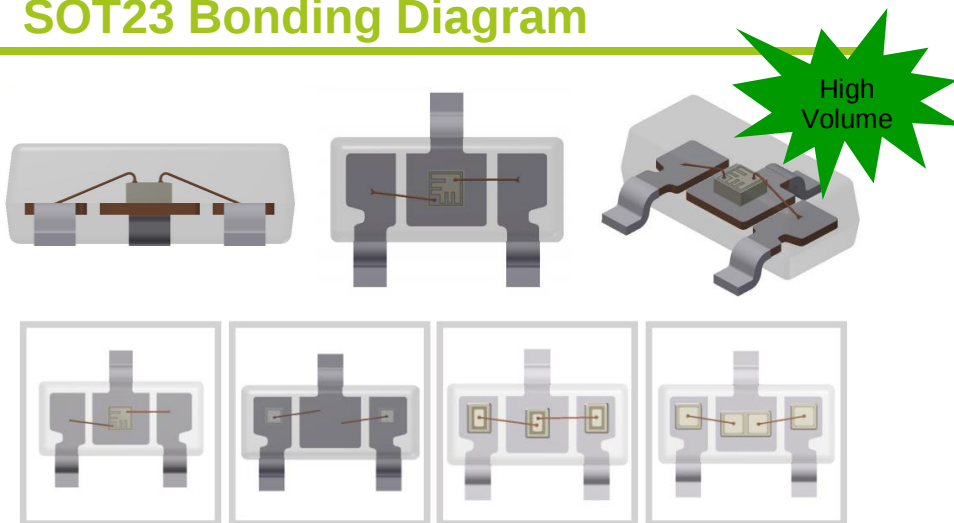
## Multi-chips Bonding Diagram



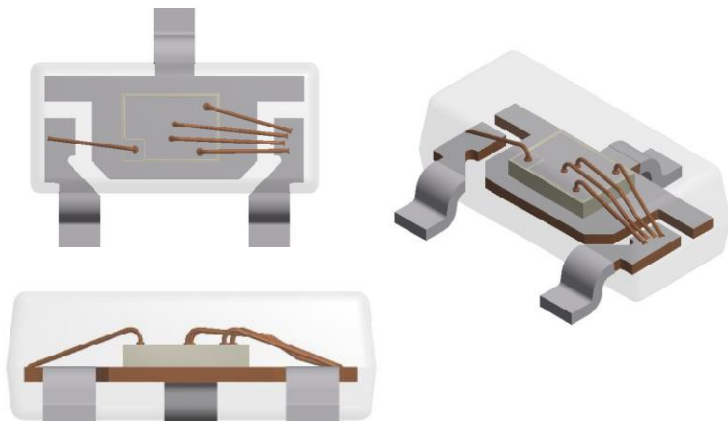
## Standard Bonding Diagram



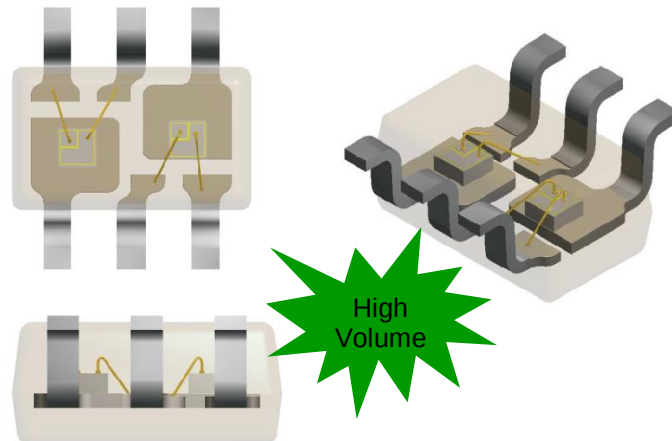
## SOT23 Bonding Diagram



SOT23 Large Pad Bonding Diagram



SOT363 Bonding Diagram



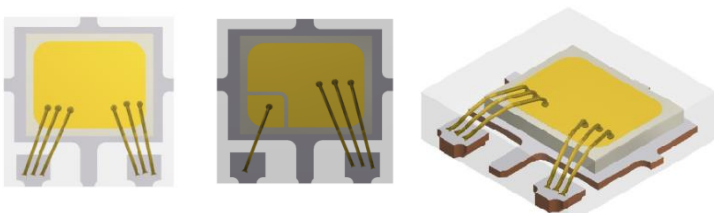
SOT323 Bonding Diagram



SOT723 Bonding Diagram

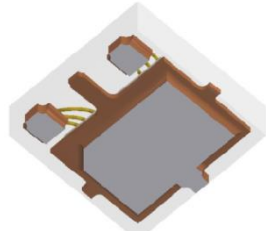


### QFN2020-3L Bonding Diagram

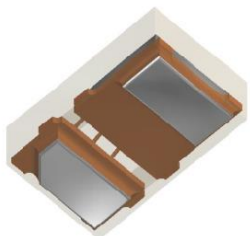
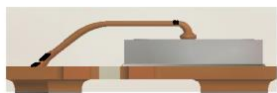
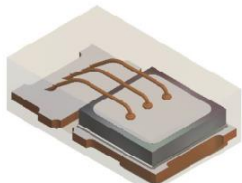
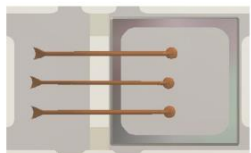


Diode

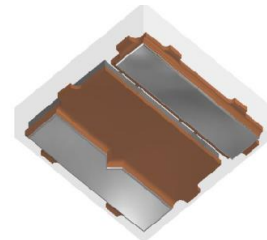
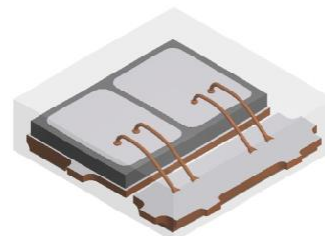
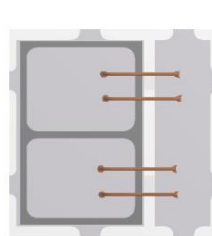
Mosfet



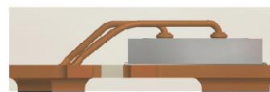
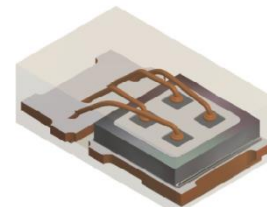
### DFN1610 Bonding Diagram



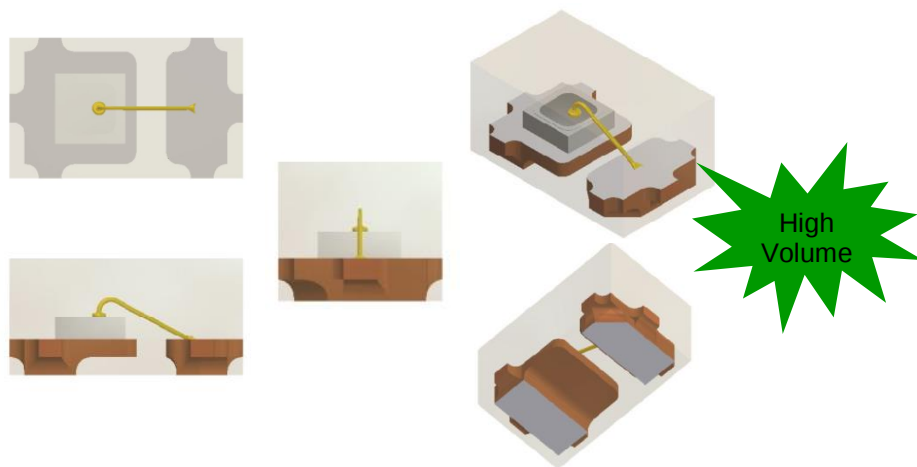
### QFN2020-2L Bonding Diagram



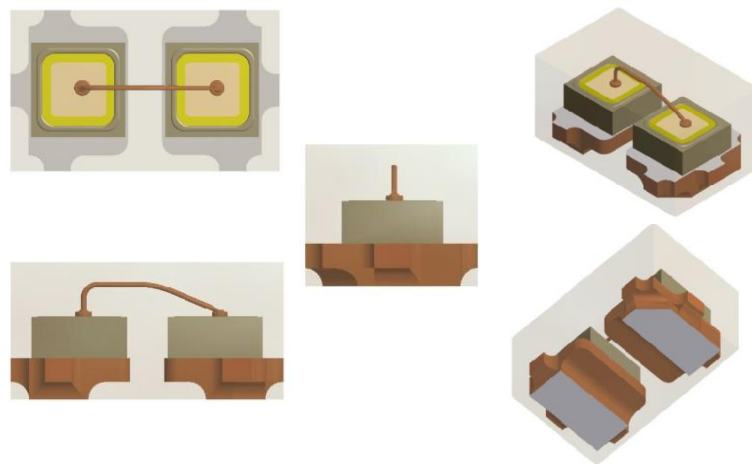
### DFN1610 Bonding Diagram



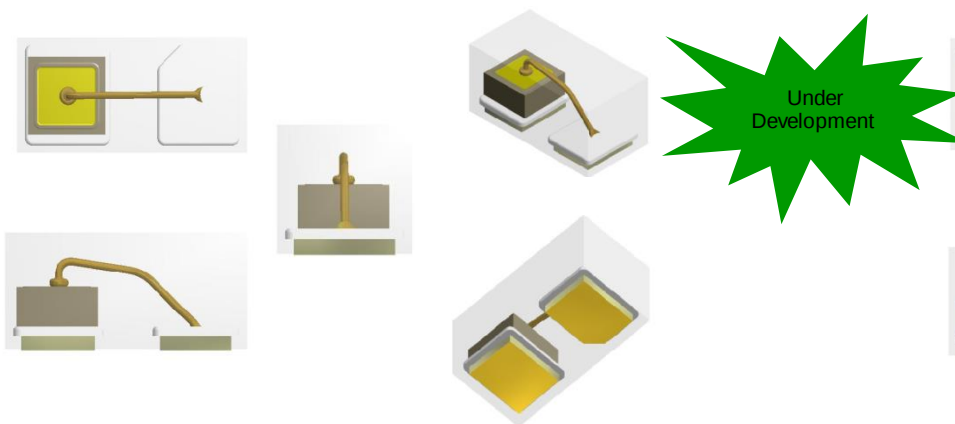
## DFN1006-2L Bonding Diagram



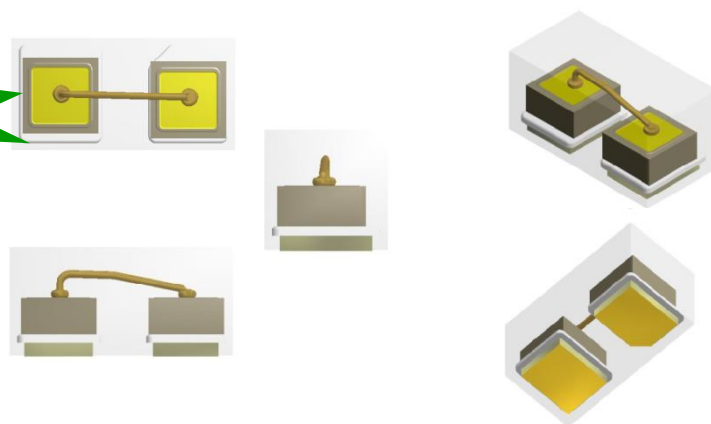
## DFN1006-2L Bonding Diagram



## DFN0603 Bonding Diagram

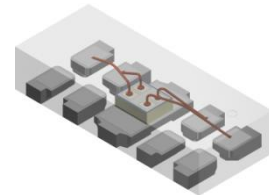
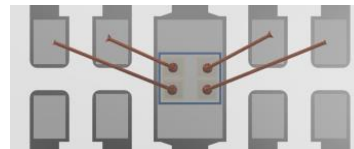
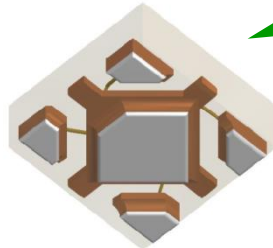
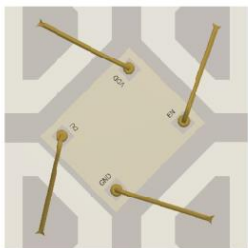


## DFN0603 Bonding Diagram



## QFN1010-4L Bonding Diagram

## DFN2510-10L Bonding Diagram





- **产线简介** Production Line Introduction

Wafer Saw - Disco



Die Attach - ASM



WB – ASM & KnS



Automold - TOWA



TMTT- TESEC & ASM



Auto Trim - ASM



Plating line - Allmerit



Laser Deflash-Delphi





- 质量认证, 信赖性&失效分析
- Quality Certifications, Rel & FA

**CERTIFIED**

**IATF16949  
ISO9001**



- MSL 1 (Optional)
- HF
- ROHS Compliant
- AEC-Q101 Compliant
- **AUTOMOTIVE GRADE**

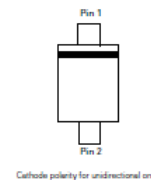
| TVS Diode Arrays (SPA® Diodes)<br>Lightning Surge Protection- AQ4023 Series |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|-----------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| AQ4023 Series 1.3pF, 12A Discrete TVS Diode                                 |  |  |  |  |



#### Description

The AQ4023 Series integrates low capacitance steering diodes with one or two avalanche breakdown diodes for unidirectional or bidirectional protection, respectively, to protect against ESD and lightning induced surge events. These components can safely absorb up to 12A per IEC 61000-4-5 2<sup>nd</sup> edition ( $t_r=8/20\mu s$ ) without performance degradation and a minimum  $\pm 30kV$  ESD per IEC 61000-4-2 International Standard. The low loading capacitance and high surge capability make it ideal for protecting telecommunication ports such as xDSL and other high voltage, high speed legacy interfaces.

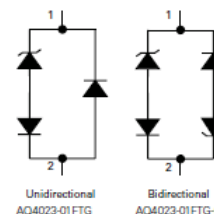
#### Pinout



#### Features

- ESD, IEC 61000-4-2,  $\pm 30kV$  contact,  $\pm 30kV$  air
- EFT, IEC 61000-4-4, 40A (5/50ns)
- Lightning, IEC 61000-4-5 2<sup>nd</sup> edition, 12A ( $t_r=8/20\mu s$ )
- Low capacitance of 1.3pF ( $@ V_r=0V$ )
- Low leakage current
- Unidirectional and bidirectional configuration
- Small SOD323 package fits 0805 footprints
- AEC-Q101 qualified
- Moisture Sensitivity Level (MSL -1)
- Halogen free, lead free and RoHS compliant

#### Functional Block Diagram



#### Applications

- xDSL Interfaces
- RS-232
- RS-485
- Power Ports
- Security Equipment
- Instrumentation
- Medical Equipment
- Computers and Peripherals
- CAN Bus protection
- Automotive applications



**HAST PC-304R8D**



**HTRB、HTGB**

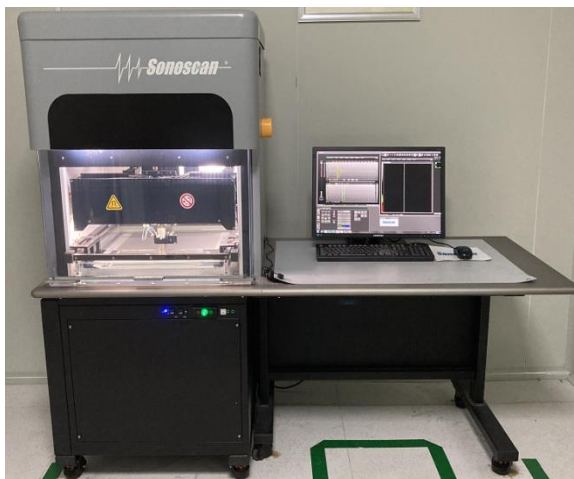
| Test Items | Definition                                    |                                     |
|------------|-----------------------------------------------|-------------------------------------|
| SSOP       | Steady State Operational                      | MIL-STD-750-1 M10<br>38 Condition B |
| ACLV       | Autoclave                                     | JESD22 A-102                        |
| HTSL       | High Temperature Storage                      | EIAJ ED-4701                        |
| RSH        | Resistance to Solder Heat                     | JESD22 B-106                        |
| TMCL       | Temperature Cycling<br>(Air to Air)           | JESD22 A-104                        |
| H3TRB      | High Humidity High Temperature Reverse Bias   | JESD22 A-101                        |
| HTRB       | High Temperature Reverse Bias                 | JESD22 A-108                        |
| HTHH       | High Temperature and High Humidity<br>Storage | EIAJ ED-4701                        |
| HAST       | Highly Accelerated Stress Test                | JESD22 A-110                        |
| IOL        | Intermittent Operation Life                   | MIL-STD-750 Method 1037             |
| ESD        | ESD Characterization                          | AEC Q-101-001,002 and<br>005        |
| SAT        | Ultrasonic Scanning Sonoscan D9600            | MSL 1 and MSL3 test                 |



X-Ray



Simulator test system



CSAT  
(Sonoscan)

## Definition

X-Ray

Decapsulation

Polishing

Reflow

Stereo Microscope (up to 800x)

Curve Tracer

ESD Simulator

Trr Tester

Precision Measuring Equipment

Wire Pull, Die & Ball Shear

XRF

EDX

CSAT (Sonoscan)

Hot Vf Characterization

Voltage Clamp Characterization (8/20u)

Ifsm Characterization (8.3mS)



- **终端产品应用Target Product Applications**



USB



HDMI



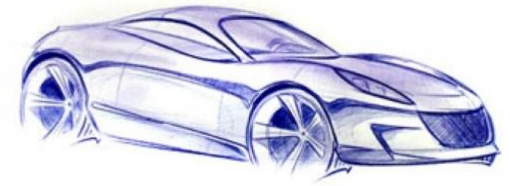
USB3.0



eSATA



Smart TV.



AUTOMOTIVE ELECTRONICS



TABLET



DATA LINES



COMPUTER



DIGITAL CAMERA



CELLULAR PHONES

**And More : Games consoles, Set top box, External HDD, Ultra-thin Notebook, Chargers, LED Lightings**



POPPULA

*Sincerely Thank You!!!*