

FLEXIBLE BACK-UP PIN

For SMT / SMD PCB



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PRODUCT GUIDE

Product Name: Flexible Back-up Pin (FBUP)

Duration (Product Life Spec.)

- Samsung Electronics: 6 month
- LG Electronics: 6 month
- Actual Duration: Over than 1.5 year

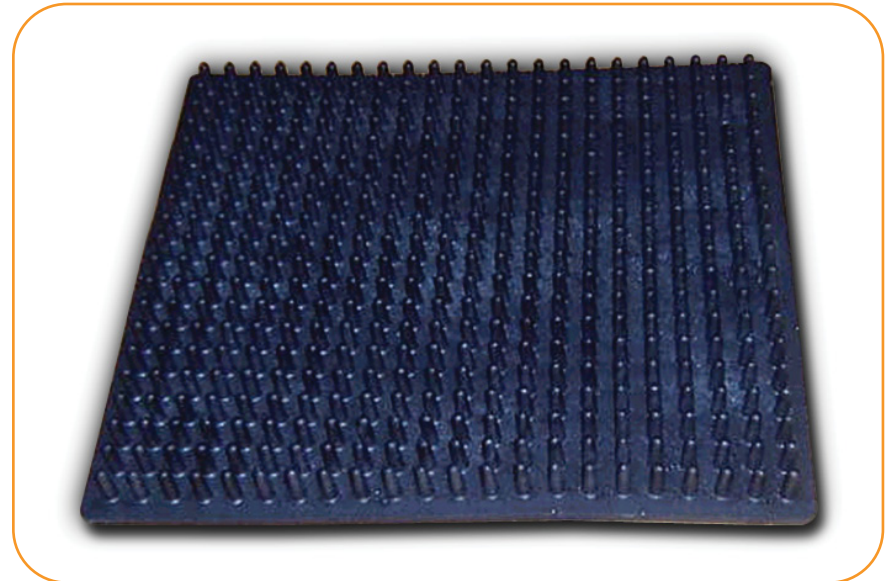
Features of Flexible Back-up Pin

- Setting Time is able to ZERO in case of PCB model change
- Improve PCB Quality Level (Using Flexible Soft Materials)
- Reduce Manufacturing Cost (Not Needed Unique Block by PCB Models)

Demerits of Current Supporting Method Using Back-up Pin and/or Block (Metal Plate)

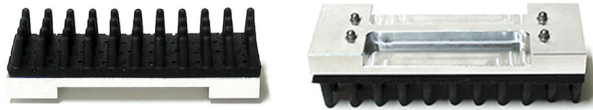
- Setting Time is needed in case of PCB model change
- PCB Quality
- Manufacturing Cost

Original size Flexible Pins



| | |
|---------------------------------------|--|
| Size (mm) | 260 * 240 * H20.65 (Flexible Pin only) |
| Pin array | 22pins * 20pins = total 440pins |
| ESD (NOKIA Specification) | 10**7 ~ 10**9 |
| Major Customer | Nokia/Dongguan China |
| Compressive load of single pin | 10gram |

FBUP-General Type for Panasert



| | |
|----------------------------------|----------------------------------|
| Size (mm) | X127 * Y44 * H3.2/H42.2 |
| Pin array | X1 1pins * Y4pins (total 44pins) |
| ESD (NOKIA Specification) | 10**7 ~ 10**9 |
| Base Material | al |
| Base Fix | Pins (Dia. 3.9mm * 4) |
| Major Customer | Panasinic TV Plant (Mexico) |

FBUP-Fuji CP6 series



| | |
|----------------------------------|---|
| Size (mm) | X382 * Y90 * H39.2 |
| Pin array | X33pins * Y8pins (total 264pins) |
| ESD (NOKIA Specification) | 10**7 ~ 10**9 |
| Base Material | al |
| Base Fix | Bolting on the Machine table |
| Major Customer | Nokia/Masan, Korea, HyunBo/Cheonan, Korea |

FBUP-General Type for TechWin



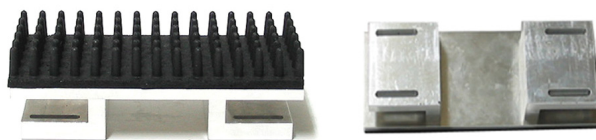
| | |
|----------------------------------|---|
| Size (mm) | X127 * Y44 * H132~H56 |
| Pin array | X11pins * Y4pins (total 44pins) |
| ESD (NOKIA Specification) | 10**7 ~ 10**9 |
| Base Material | Urethane (ESD safe) |
| Base Fix | Magnetic |
| Major Customer | Samsung Electronics (Korea & overseas plants) |

FBUP-Fuji CP7 series



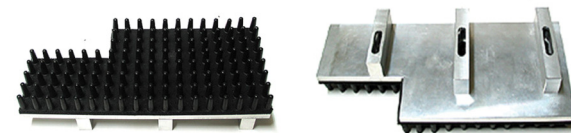
| | |
|----------------------------------|---|
| Size (mm) | X345 * Y90 * H26.2/H37.1 |
| Pin array | X29pins * Y8pins (total 232pins) |
| ESD (NOKIA Specification) | 10**7 ~ 10**9 |
| Base Material | al |
| Base Fix | Bolting on the Machine table |
| Major Customer | Nokia/Masan, Korea, HyunBo/Cheonan, Korea |

FBUP-Fuji NXT



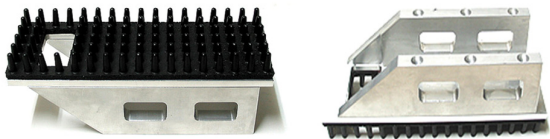
| | |
|----------------------------------|---------------------------------|
| Size (mm) | X170 * Y70 * H52.2 |
| Pin array | X15pins * Y6pins (total 90pins) |
| ESD (NOKIA Specification) | 10**7 ~ 10**9 |
| Base Material | al |
| Base Fix | Bolting on the Machine table |
| Major Customer | Nokia/Masan, Korea |

FBUP-Fuji GP series



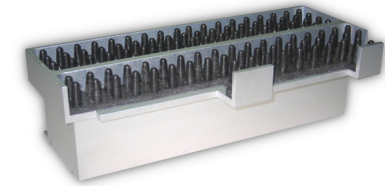
| | |
|----------------------------------|----------------------------------|
| Size (mm) | X200 * Y90 * H44.2 |
| Pin array | X17pins * Y8pins (total 136pins) |
| ESD (NOKIA Specification) | 10**7 ~ 10**9 |
| Base Material | al |
| Base Fix | Bolting on the Machine table |
| Major Customer | Nokia/Masan, Korea |

FBUP-Siemens HS series



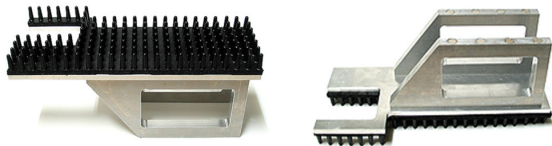
| | |
|----------------------------------|--|
| Size (mm) | X200 * Y90 * H74.2 |
| Pin array | X17pins * Y8pins (total 136pins) |
| ESD (NOKIA Specification) | 10**7 ~ 10**9 |
| Base Material | al |
| Base Fix | Magnetic |
| Major Customer | Nokia/Masan Korea, Deaho MMI/Masan Korea |

FBUP-KME CM202 series



| | |
|----------------------------------|--------------------------------|
| Size (mm) | OEM design |
| Pin array | OEM design |
| ESD (NOKIA Specification) | 10**7 ~ 10**9 |
| Base Material | al |
| Base Fix | Pin (OEM design) |
| Major Customer | LG Electronics/Pyungtaek Korea |

FBUP- Mirae series



| | |
|----------------------------------|----------------------------------|
| Size (mm) | X268 * Y105 * H105 |
| Pin array | X21pins * Y9pins (total 189pins) |
| ESD (NOKIA Specification) | 10**7 ~ 10**9 |
| Base Material | al |
| Base Fix | Magnetic |
| Major Customer | E-Pro/Pyungtaek Korea |

FBUP-KME CM88 series



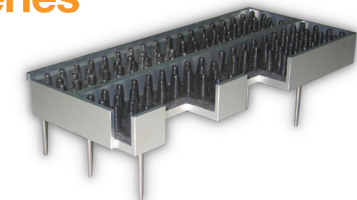
| | |
|----------------------------------|--------------------------------|
| Size (mm) | OEM design |
| Pin array | OEM design |
| ESD (NOKIA Specification) | 10**7 ~ 10**9 |
| Base Material | al |
| Base Fix | Pin (OEM design) |
| Major Customer | LG Electronics/Pyungtaek Korea |

FBUP- KME CM402 series



| | |
|----------------------------------|--|
| Size (mm) | X235 * Y55 * H51.2 |
| Pin array | X20pins * Y5pins (total 100pins) |
| ESD (NOKIA Specification) | 10**7 ~ 10**9 |
| Base Material | Urethane (ESD safe) |
| Base Fix | Magnetic |
| Major Customer | Bosung Electronics(LG)/Pyungtaek Korea |

FBUP-KME CM20 series



| | |
|----------------------------------|--------------------------------|
| Size (mm) | OEM design |
| Pin array | OEM design |
| ESD (NOKIA Specification) | 10**7 ~ 10**9 |
| Base Material | al |
| Base Fix | Pin (OEM design) |
| Major Customer | LG Electronics/Pyungtaek Korea |

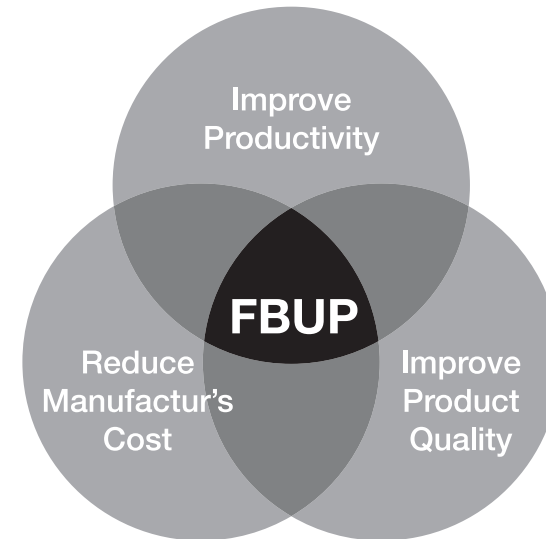
MAJOR CUSTOMER (as of Nov. 2005)

- Samsung Electronics Co., Ltd / Visual Display Division (Suwon Korea, Mexico, Malaysia, Slovakia, China Plant)
- LG Electronics Co., Ltd / Telecommunication Division (Pyungtaek Korea, Brazil, China Plant)
- NOKIA TMC / Masan Korea
- NOKIA Capital Telecommunication Ltd. (NOKIA Dongguan China)
- NOKIA / Mexico
- PANASONIC / Mexico
- JABIL / Mexico / U.S
- SONY / Mexico
- BOSE / Mexico & U.S
- DAEHO MMI (Nokia TMC) / Masan Korea
- Bosung Electronics Co., Ltd(LG) / Pyungtaek Korea

POTENTIAL CUSTOMER (as of Nov. 2005)

- LG Electronics Co., Ltd / Digital Information Display Div.
- NOKIA Global Plants / Finland, India, Mexico... etc
- FLEXTRONICS / Mexico
- JABIL / China
- Surface Mount Technology Co., Ltd. / Dongguan China
- Benchmark Thailand
- SCI / Thailand
- FORTH / Thailand
- CELLITICA / Thailand

PRICING REFERENCE



CASE 1

In the case of replace current Back-up Pin by Flexible Back-up Pin

Samsung Electronics Co., Ltd
Visual Display Div. Suwon Plant

CASE 2

In the case of replace current Block (Metal Plate) by Flexible Back-up Pin

LG Electronics Co., Ltd
Telecommunication Div. Pyungtaek Plant

CASE 3

In the case of replace current Back-up Pin by Flexible Back-up Pin

E-Pro., Ltd
Hynics DDR Pyungtaek Plant

INNOVATION EFFECT


CASE 1

In the case of replace current Back-up Pin by Flexible Back-up Pin Company:

Samsung Electronics Co., Ltd / Visual Display Div. Suwon Plant

Innovation Effect

- Setting Time at Model Change: Zero was 30 min. per 1 line.
- PCB Quality Improvement: NG 0%
- Innovation Effect:
 - SMT 4 Line, 3pcs application per 1 line
 - Innovation Value: Yearly about 220mill, KRW

| DETAILS | | | |
|--|--|--|----------------------------------|
| | METAL BACK-UP PIN | FLEXIBLE BACK-UP PIN | IMPROVEMENT |
| Image | n.a (Metal Jig) | General Type  | |
| Quality | Non Analysis | Non Analysis | Non Analysis |
| Jig Cost | Non Analysis | Non Analysis | Non Analysis |
| Productivity | Setup time when model change: 30min / 3lines | Setup time: 0(zero) *1) Point yearly: 40mill. Point *2) Value yearly: 216mill. KRW | Reduction 216mill. KRW/YR |
| *1) Point yearly = $[(20\text{min}-0\text{min}) * 60\text{sec} * \text{monthly } 500 \text{ times} * 12 \text{ months}] / 0.18 \text{ (C/T)} = 40\text{mill. Point}$ | | | |
| *2) Value yearly = Point yearly * cost 4.5 KRW * outsource cost 1.2 KRW = 216mill. KRW | | | |
| Innovation Value yearly (6 sigma Analysis from customer company) | | | 216mill. KRW (~ 2 bill. USD) |

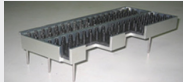
CASE 2

In the case of replace current Block (Metal Plate) by Flexible Back-up Pin Company:

LG Electronics Co., Ltd / Telecommunication Div. Cheongju Plant

Innovation Effect

- Setting Time at Model Change: Zero was 20 min. per 1 line.
- PCB Quality Improvement: Reduce NG Rate 39.5 %
- Innovation Effect:
 - SMT 16 Line, 3pcs application per 1 line
 - Innovation Value: Yearly about 300mill, KRW

| DETAILS | | | |
|---|--|---|---|
| | METAL PLATE (METAL JIG) | FLEXIBLE BACK-UP PIN | IMPROVEMENT |
| Image | n.a (Metal Jig) |  | |
| Quality | DPU(Defect Per Unit) 2493.02 | DPU(Defect Per Unit) 986.37 | Reduce 39.5% |
| Jig Manufacturing Cost(mill.KRW) | 107 mill KRW (YR04) (16line, 18models jig) | 35 mill KRW (YR05) (16line, 6month durability) | Reduction 72 mill, KRW/YR |
| Productivity | Setup time when model change: 867 hours/YR (20min * 2,600 times/YR) | Setup time: 0(zero) Reduce: 233 mill. KRW (104,000 board * 2,244 KRW) | Reduction 233 mill, KRW/YR (867 hours/YR) |
| Innovation Value yearly (6 sigma Analysis from customer company) | | | 305 mill.KRW (~ 3 bill.USD) |

INNOVATION EFFECT

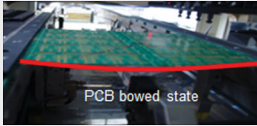


CASE 3

In the case of replace current Block (Metal Plate) by Flexible Back-up Pin Company:

E-Pro Co., Ltd / HYNICS DDR, Pyungtaek Plant

Innovation Effect

- Setting Time at Model Change: Zero was 30 min. per 1 line.
- PCB Quality Improvement: Reduce NG Rate 80%
- Innovation Effect:
 - Miss Mount Quality: from 960ppm to 192ppm
 - Non Mount Quality: from 549ppm to 0ppm

| DETAILS | | | |
|--------------|---|--|---|
| | METAL BACK-UP PIN MAR., 2005 | FLEXIBLE BACK-UP PIN APR., 2005 | IMPROVEMENT |
| Image |  |  |  |
| Quality | 1) Mounting Error (tossed, distorted, turned etc ..., : 960 ppm 2) Missing Component : 549 ppm | 1) Mounting Error (tossed, distorted, turned etc ...,) : 192 ppm 2) Missing Component : 0(zero) ppm | Reduce 1) 80% 2) 100% |
| Cost | | | Under Analysis |
| Productivity | | Setup time: 0(zero) | Under Analysis |
| | Innovation | | 80% Quality Improvement |

PATENT

- **Patent No.:** 0333693, Korea
- **Patent Registration Date:** 07 Nov., 2003
- **Patent Registration Country:** S.Korea

PRICING REFERENCE

- **PRODUCT NAME:** Flexible Back-up Pin (Original Size)
- **PRODUCT DESCRIPTION:**
 SIZE: 260mm * 240mm * H20.65mm
 PIN ARRAY: 22pins * 20pins (total pin q'ty: 440pins)
 ESD SPECIFICATION(NOKIA SPECIFICATION): 10**7 ~ 10**9
- **IN CASE OF KOREA & CHINA MARKET INFORMATION (NOKIA TEST RESULT)**
 ESD TEST RESULT BY NOKIA (MASAN KOREA, DONGGUAN CHINA)
 - NOKIA SPECIFICATION: ESD 10***7 ~ 10**9
 - AMS PRODUCT: spec passed (OK)
 PRICING RANGE
 - AMS PRODUCT: US \$1.50 per pin (unit pin cost)
- **SHIPPING DELIVERY:** Within 1 week in U.S. after receipt of official PO