Company Profile of 2016

友順科技股份有限公司

UNISONIC TECHNOLOGIES CO., LTD.

http://www.unisonic.com.tw
<table>
<thead>
<tr>
<th><strong>Founded:</strong></th>
<th>Jan 1990</th>
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</table>
| **Global Operations:** | **Taipei, Taiwan (HQ)**  
| | **China**  
| | **Japan**  
| | **Korea** |
| **Capital:** | US$ 10 millions (TWN) |
| **Employees:** | Headquarters: 230 persons, 50 R&D  
| | Worldwide: 2,200 persons, 200 R&D |
| **2013 Revenue:** | US$ 256 Million |
1990 - Unisonic Technologies Co., Ltd was established.

1993 - Hong Kong Office: Union Win Enterprise Co., Ltd. was established.
- Affiliated Company: YouWang Electronic Co., Ltd was established.

1995 - FuZhou Factory: FuShun Microelectronics Co., Ltd was established.

1996 - DanDong Factory: AnShun Microelectronics Co., Ltd was established.

1999 - ShenZhen Branch: Unisonic Technologies Co., Ltd was established.
- DaLian Branch: LianShun Electronics Co., Ltd was established.

2000 - Korea Branch: Unisonic Technologies Co., Ltd was established

2001 - WuXi Branch: YouLi Electronics Co., Ltd was established.
- FuZhou Factory: HeShun Microelectronics Co., Ltd was established.

2002 - XiaMen Branch: YuanShun Technologies Co., Ltd. Was established.
- UTC ISO9001:2000 Certification
- Beijing Branch: LianShun Electronics Co., Ltd was established.
2003 - GuangZhou Branch was established.

2004 - TienJing Branch: LianShun Electronics Co., Ltd was established.

2005 - SuZhou Branch, QingDao Branch was established.

2006 - FuShun Semiconductor Manufacturing, assembly line was established.


2011 - XiaMen wafer fab put into pilot run.

2012 - XiaMen wafer fab put Mass Production.

2013 - WuXi & Shenzhen design center was established.

2014 - XiAn & ChengDu design center was established.
Corporate Structure
Core Competencies

- IDM Provider
- Competitive Cost
- Short Lead-Time
- Turn-Key Solution
- High Quality
- Strong R&D

Customer's Satisfaction
Production Flow

Circuit Design

Wafer Foundry

Wafer Sorting

Assembly

Final Test (in house)

Final Test (outsourcing)

Taping?

Yes → Taping House

No → Warehouse & Outgoing
R&D Center

- **Location:**
  - Taipei Headquarters (UNISONIC TECHNOLOGIES CO., LTD.)
  - Da-Lien Lien-Shun Electronics CO., LTD
  - Wu-Xi Yu-Li Microelectronic CO., LTD
  - Xia-Men Yuan-Shun Technologies CO., LTD
    - Xia-Men Yuan-Shun Technologies CO., LTD
    - Xi-An Branch, Xia-Men Yuan-Shun Technologies CO., LTD
    - Cheng-Du Branch, Xia-Men Yuan-Shun Technologies CO., LTD

- **Staff:**
  - above 250 persons

- **Capability:**
  - Circuits Design (BCD/BiCMOS/CMOS/DMOS)
  - Pattern Layout
  - Process Development (CMOS 0.35um/Bipolar 0.8um…)
New Product Development Flow

Stage I
Floor Planning

Stage II
Circuit Designing

Stage III
Sampling Stage

Stage IV
Pilot Run

Stage V
Mass Producing Stage

Flowchart:
- Customer & Market Demand
  - Pre-layout Simulation
    - Place & Routh Chip Layout
      - Verification
        - Mask Tool & Wafer Process
          - Water Probing
            - Packing & Assembly

- Mass Production
  - Evaluation
    - Yield Rate
      - Trail Run
        - Customer Approval
          - Reliability Test
            - IC Test

Wafer Fabs

- **Fu Zhou Factory**
  - Fu Shun Microelectronics Co., Ltd.
  - 4”/6” with CMOS/Bipolar/BiCMOS
  - 50,000 for 4”, 50,000 for 6”/max

- **Xia Men Factory**
  - Jaysun Semiconductor Manufacturing CO., Ltd.
  - 6” CMOS/BiCMOS/DMOS
  - 0.35um process
  - 50,000 wafers/max
**FuZhou Factory:**
- Fushun Semiconductor Manufacturing Co., Ltd.
- 300M units produced per month
- CP/Assembly/Final Test
- THD/Leaded SMD/Leadless packages
- Process:
  * Die attach: Epoxy/Eutectic/Solder
  * Wire Bonding: Au/Cu/Al/Ag wire
  * Halogen free
  * ISO 9000/ISO 14000 Certification.
QRA System

Quality Reliability & Assurance

Quality Control

• IQC
  • Wafer
  • ICs
  • Visual
  • Mech.
  • Electrical
  • Taping
  • SPC

• IPQC
  • In Process Control
  • 1st Shot
  • Visual
  • Mech.
  • Electrical
  • Final QC
  • SPC & Cpk

• OQC
  • OQC
  • Visual
  • Mech.
  • Electrical
  • SPC

Quality Assurance

• QE
  • Reliability
  • FA
  • Calibration
  • Correlation
  • Customer Sample
  • SPC

• QS
  • ISO system
  • RoHS
  • DCC
  • Customer Audit
  • Support
  • Self Audit

• VQM
  • RMA
  • Supplier management
  • DCC
  • Qualification
  • Audit
Quality Assurance Flow

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</thead>
<tbody>
<tr>
<td>Design Stage</td>
<td>Prototype Manufacture</td>
<td>Characteristics Evaluation</td>
<td>Design Review</td>
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<tr>
<td>Prototype Manufacture Stage</td>
<td>Design Verification</td>
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<tr>
<td>Mass Production Stage</td>
<td>Order Reception</td>
<td>Material Purchasing</td>
<td>Production Plan</td>
<td>Shipping Plan</td>
<td>Inventory</td>
<td>Shipping</td>
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<tr>
<td>Sales Plan</td>
<td>Production Plan</td>
<td>Shipping Plan</td>
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<tr>
<td>Mass Production Stage</td>
<td>Wafer Process</td>
<td>Assembly Process</td>
<td>Final Inspection</td>
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<tr>
<td>Material Incoming</td>
<td>IPOC</td>
<td>QAT</td>
<td>QQC</td>
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<tr>
<td>Usage Stage</td>
<td>Acceptance by customer</td>
<td>Complaint Reception</td>
<td></td>
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<tr>
<td>Troubble</td>
<td>Complaint Reception</td>
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<tr>
<td>Response</td>
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<table>
<thead>
<tr>
<th>Test Item</th>
<th>Test Condition</th>
<th>Reference</th>
<th>S.S</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-Condition</td>
<td>Bake 125°C / 24 hrs</td>
<td>J-STD-020</td>
<td>180</td>
<td>0-Acc 1 Rej</td>
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<tr>
<td></td>
<td>Soak 60°C / 60% RH / 40 hrs</td>
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<td></td>
<td>IR Reflow 3 cycles</td>
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<tr>
<td>High Temp Storage Life Test (HSLT)</td>
<td>150°C, 168(500/1000) hrs</td>
<td>J-ESD22-A103</td>
<td>45</td>
<td>0-Acc 1 Rej</td>
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<tr>
<td>Pressure Cooker Test (PCT)</td>
<td>121°C, RH: 100%, 2 ATM, 96 (168) hrs</td>
<td>J-ESD22-A102</td>
<td>45</td>
<td>0-Acc 1 Rej</td>
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<tr>
<td>Temperature Cycle Test (TCT)</td>
<td>-65°C ~150°C / 30min, 100(500/1000) cycles</td>
<td>J-ESD22-A104</td>
<td>45</td>
<td>0-Acc 1 Rej</td>
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<tr>
<td>High Temp High Hum. Storage Test (HTHH)</td>
<td>85°C, 85% RH, 168(500 /1000) hrs</td>
<td>J-ESD22-A101</td>
<td>45</td>
<td>0-Acc 1 Rej</td>
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<tr>
<td>Soldering Heat Test (SHT)</td>
<td>260 ± 5°C, 10 sec</td>
<td>J-ESD22-B10</td>
<td>45</td>
<td>0-Acc 1 Rej</td>
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<tr>
<td>Solderability Test (SOT)</td>
<td>245 ± 5°C, 5 ± 0.5 sec</td>
<td>J-ESD22-B102</td>
<td>10</td>
<td>0-Acc 1 Rej</td>
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<tr>
<td>Electrostatic Discharge Test (ESD)</td>
<td>HBM Mode ≥ 2000 V</td>
<td>J-ESD22-A115 / A114</td>
<td>3</td>
<td>0-Acc 1 Rej</td>
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# Reliability Capability

<table>
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<tr>
<th>Test Item</th>
<th>Test Condition</th>
<th>Reference</th>
<th>S.S</th>
<th>Criteria</th>
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</thead>
<tbody>
<tr>
<td><strong>For IC -</strong></td>
<td><strong>High Temp Operation Life Test (HTOL)</strong></td>
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<tr>
<td></td>
<td>Vcc(Max) x 1.1 85 or 125°C 168 hrs</td>
<td>JESD22-A108</td>
<td>22</td>
<td>0-Acc 1 Rej</td>
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<tr>
<td><strong>For MOSFET/ HV BJT -</strong></td>
<td><strong>High Temperature Reverse Bias (HTRB)</strong></td>
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<tr>
<td></td>
<td>BV(Max) x 80% 125°C 168 hrs</td>
<td>JESD22-A108</td>
<td>45</td>
<td>0-Acc 1 Rej</td>
</tr>
<tr>
<td><strong>For TR or MOSFET -</strong></td>
<td><strong>High Temp High Hum. Reverse Bias Test (H3TRB)</strong></td>
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</tr>
<tr>
<td></td>
<td>85°C, 85% RH, BV(Max) x 80% (Max 100V) 168 hrs</td>
<td>JESD22-A101</td>
<td>45</td>
<td>0-Acc 1 Rej</td>
</tr>
</tbody>
</table>
Product Tree

Discrete

- IGBT
- BJT
- SCR
- TRIAC

- MOSFET
- JFET
- Diode
- TVS

IC

- PWM Controller
- Low-Dropout Regulator
- DC/DC Converter
- Li-Battery Protection
- Power Factor Corrector
- Reset / Supervisory IC
- LED Driver
- Voltage / Current Control
- Hall Sensor
- Logic Family
- Op Amp / Audio Amp
- Other (ASIC...
Product - IC

Power Management

- Linear Regulator
- Low Dropout Linear Regulator
- DDR Termination Regulator
- Shunt Reference Regulator
- Step Down DC-DC Converter and Controller
- Step-Up DC-DC Converter and Controller
- Voltage mode PWM Controller
- Current Mode PWM Controller
- Green Mode PWM Controller (SSR/PSR)
- Green Mode PWM Power Switcher (SSR/PSR)
- FET Bias Controller
- High-Speed MOSFET Driver
- AC-DC/DC-DC LED Lighting Driver
- Supervisory Circuit
- Voltage Detection and System Reset IC
- Power Switch
- Power Factor Control
- Li-Battery Protection or Charger IC
- FET Bias Controller
- Combo IC (CC+CV)
- Inverting DC-DC Converter

Amplifier / Comparator

- Audio Amplifier
- Audio Related Controller
- Operational Amplifier
- Voltage Comparator

Analog Switch

- Video Signal Switch
- Analog Multiplexers, Demultiplexer IC
Product - IC

Special Application IC
- Motor Controller IC
- Interface and Driver Circuit
- Telecommunication Circuit
- Darlington Driver
- Melody IC
- Alarm /Sound Generator IC
- Timer IC
- Remote Controller IC
- Mouse & Keyboard Controller
- Christmas Lamp Controller
- Television Circuit
- Leakage Current Detector
- Automotive IC
- A-D or D-A Converter
- Miscellaneous
- Radio and Cassette Recorder Circuit

Logic
- U74 HC/HCT Family
- U74 AC/ACT/AHC/AHCT Family
- U74 LV/LVC Family
- U74 AUP/AUC Family
- U74 CBT/CBLV Family
- High Voltage UCD40xx series

Hall IC
- Unipolar
- Bipolar
- Omnipolar
- Linear
- Single/Two Phase
Product - Discretes

**POWER MOSFET**
- Combo Power MOSFET
  - Trench: 12-100V
  - Planar: 60-600V
- Power MOSFET
  - Trench: 10-200V
  - Planar: 30-1000V
- Super Junction Power MOSFET
  - 500-1000V

**IGBT**
- Planar Punch Through IGBT
- Non-Punch Through IGBT(600V/1200V)
- Strobe Flash IGBT
- Trench PT IGBT
- Trench FS IGBT(600V/1200V)

**TRANSISTOR**
- Bipolar Transistor
- Darlington Transistor
- Dual Chip Bipolar/Digital Transistor
- Built-in Bias Resistor Transistor
- Digital Transistors Designation System
- Complex Bipolar Transistor

**JFET**
- JFET for Condenser MIC
- JFET for General Purpose Application
Product - Discretes

**DIODE**
- MOS Gated Barrier Rectifier (MGBR)
- Trench MOS Schottky (TG BR)
- Schottky Diode
- Bridge Diode
- Rectifier (SuperFast/UltraFast/HyperFast/Fast/General/Glass-passivated)
- Zener Diode/Dual Zener Diode
- Small Signal Schottky Diode
- Small Signal Switching Diode
- Current Regulator Diode
- Varactor Diode

**TVS**
- Transient Voltage Suppressors
- TVS-ESD Protection

**TRIAC/SCR**
- TRIAC: 400V-900V
- SCR: 40V-1000V

**Photocoupler**
- Low-Input-Current Transistor-Output Photocoupler
UTC Certification Award

ISO 9000:2008

ISO 14001:2004
Certification Award - Customer

- Sony PlayStation 2 100 Million Units
- ADDA Supplier Award
- ASUS Green Management
- ADDA Supplier Award
- MTI Best Supplier Award
- UNPO Long-term Support
- LG Green Program
By the Philosophy, “Quality First and Customer Orientation”, our challenge is to become a leading semiconductor company recognized by peers, trusted by customers. We will devote ourselves to create popular products and services, accordingly contributing to a better global society.

K. H. Kao
President & CEO
Thank You

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