

Electronics Suppliers in China

How to select them and how to manage them ?



1 China Electronic Industry

2 Electronics Sourcing Challenges


3 Selecting Electronics Suppliers

4 Manage Electronics Suppliers

5 Specific Key Challenge Areas

China Electronic Industry

China Electronic Industry



A red map of China is positioned on the left side of the slide. Three red arrows originate from different parts of the map: one points to the 'Pure EMS, Contract Manufacturing' box, another points to the 'Design and Manufacturing' box, and a third points to the 'Industrial' box.

Pure EMS, Contract Manufacturing

Consumer Goods:
IT and networking,
audio/video,
domotic, gadgets ...

Design and Manufacturing

Industrial:
Power supplies, servers,
controllers, displays
and user interfaces,
instruments, sensors ...

China Electronic Industry Highlight



- Integrated supply chain
 - Design
 - Electronics assembly
 - PCB and components
 - Production & test equipment
- Two main hubs:
 - Yangzi River Delta: JS-SH-ZH
 - Pearl River Delta: GD
- Applications:
 - Consumer Electronics
 - Industrial and Control
 - Telecom and IT
 - Automotive
 - Medical



Typical Factory Profiles



Top Tier:

- Multiple sites and very large companies
- Focus on high volume (Consumer electronics and big industrial)
- Strong capabilities for PBA and full assembly
- Strong management, processes and QA



Mid Tier:

- One or two sites per EMS. Various sizes.
- Focus either on large volume w/ specialized lines or on high mix low volume business
- Good SMT/PTH capabilities.
- Wide range on Mgmt and process. Some very well managed



Bottom Tier:

- Small companies (1 or 2 SMT lines)
- No special focus. Often extension of PCB or plastic injection Co.
- Poor design capabilities, limited sourcing capabilities
- Limited assembly capabilities for EMS
- Many companies loosely managed or with old equipment

Range of Capabilities for Electronic Assembly

- **Scope of Manufacturing Activities:**

- Sourcing
 - Electronic components
 - Enclosure, wires ...
- SMT assembly
- DIP/PTH assembly
- Testing
 - SPI, AOI, ICT, FT
- Conformance coating, ...
- System Assembly
- Technical s.a. ODM

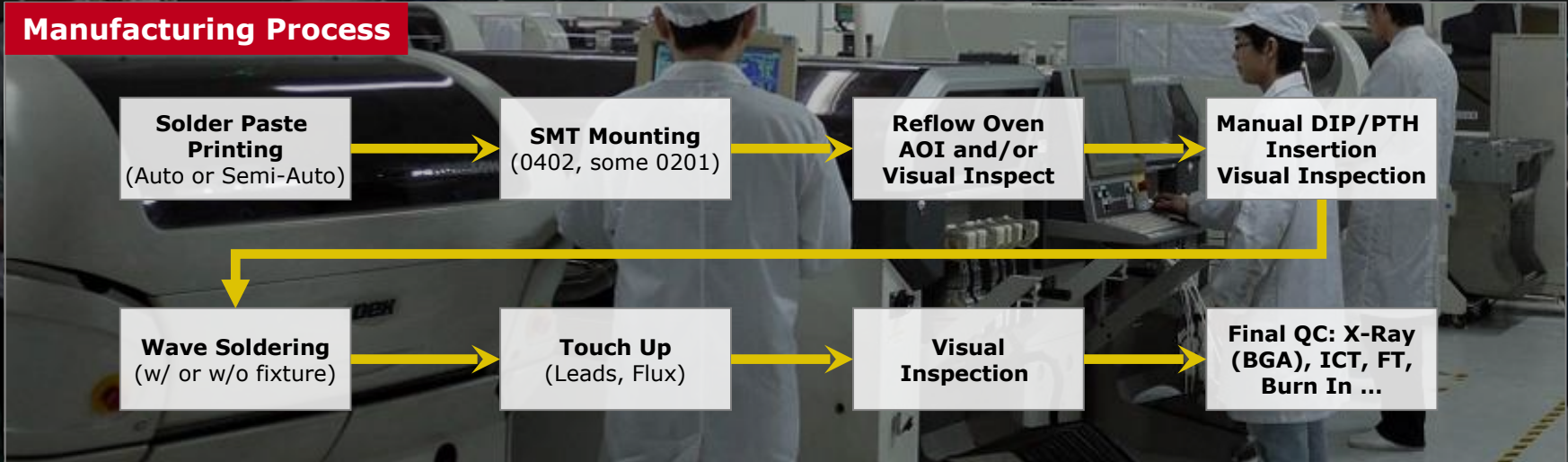
- **Certifications include:**

- ISO 9001,
- ISO 14001
- TS 16949
- RoHS

- **Specific Quality Processes:**

- QC records and analysis
- Bar-code control process
- Full traceability

Typical PBA Assembly Process



- Sourcing: most companies outsource PCB manufacturing
- SMT Assembly: automated except for solder past printing that is sometimes only semi-automated
- DIP/PTH Assembly: manual insertion, wave soldering often uses special protection jigs
- Testing: All companies have capabilities for ICT and FT. Many have AOI capabilities and X-Ray test capabilities (for BGA).

Key Advantages for China electronic industry

- PBA cost mainly BOM related but only large suppliers have strong cost advantages on the BOM.
- China still has strong cost advantages:
 - DIP/PTH manual insertion
 - Testing of PBA and Systems, especially is testing requires many interventions
 - System assembly using PBAs and plastic or metal enclosure
 - Customized packing
 - Lower setup costs
- All these steps require skilled labor and China offers good value.

Sourcing

SMT Assembly

DIP/PTH Assembly

PBA Program and Tests

System Assembly

System Function Tests

Lower Setup Costs

Electronics Sourcing Challenges

Identify

Qualify

Quality

Long Haul Operations

Cultural Difference

Selecting Electronics Suppliers

How to get the right match for long term success?

7 Steps to Effective Sourcing

- | | | |
|---|---------------------|---|
| 1 | Prepare: | Product selection, team, target setting, executive commitment. |
| 2 | Identify: | Large number of leads, phone contact, selective short listing. |
| 3 | Qualify: | On site qualification, samples, final short list of 2 or 3 at least |
| 4 | Get Pricing: | Adapt RFQ for Chinese supplier, pro-active follow-up |
| 5 | First Order: | First order requires significant time investment. |
| 6 | Inspect: | Systematic QC for product, operational follow-up included |
| 7 | Develop: | More products, wider scope, process improvement |

Business/Sourcing Strategy Alignment

Selection of Supplier

1

Prepare:

2

Business
Strategy

Key Supplier
Selection Criteria

Assessment and
Selection Plan

3

Intended Markets
and Geography

Technical Aspects

Clarify Sourcing
Objectives

4

Product Strategy
and Positioning

Commercial Aspects

Allows Resource Planning

5

Industrial Strategy

Supply Chain
Requirements

Define Evaluation
Milestones; "Go/No Go"
Steps

6

Resources and
Internal Processes

Organizational Aspects

Define Ideal Supplier
Profile and Scenario

7

Business Priorities

Geographical Location

Future Evolutions and
Trends

Identify

Selection Process

1

2

Identify

3

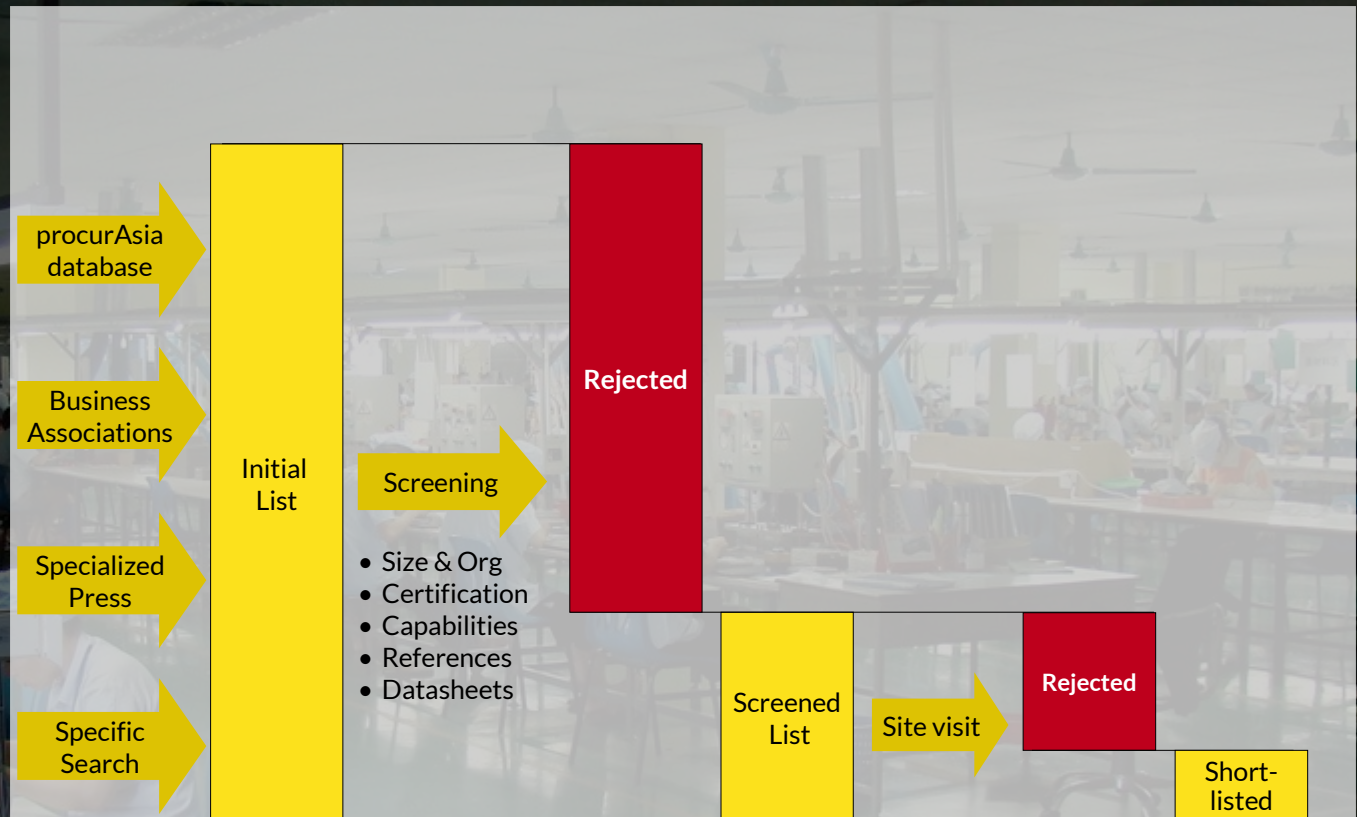
Qualify

4

5

6

7



Selection: Two steps

1

2

3

4

5

6

7

2. Identify/Screen

Qualification is time consuming and expensive. Screening out allows to focus on good potential suppliers

Objective: Identify many suppliers
Screen out low chance ones

Focus: Avoid false rejection
Time and resource efficiency

Means: Desktop research/Phone

Tools: Targeted questionnaires
Red flags

3. Qualify/Short List

Single most important step in supplier selection process. Miss one detail here and many troubles will follow

Objective: Understand real suppliers ability
Select a limited number

Focus: Identify any possible problem
Details and depth

Means: On site visits, Samples

Tools: Audit questionnaires
Evaluation forms and tables

What to look for onsite?

Abilities

3



What to look for onsite?

1

2

3

4

5

6

7

Consistency



What to look for onsite?

1

2

3

4

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6

7

Consistency



What to look for onsite?

1

2

3

4

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6

7

Management



Specific selection criteria for Electronics Suppliers

Design and Product Validation

Procurement of components and parts

Production and QC

Account management

Logistics

Specific selection criteria for Electronic Manufacturing Service Co (EMS)

Procurement

- Abilities to cost effectively source wide range of components
- Abilities to manage forecast/inventory balancing

Production capabilities

- Specific technologies (s.a. BGA, COB, size of SMD)
- Testing capabilities and testing instruments
- Additional capabilities s.a. assembly, coating ...
- Speed and mix aligned with supplier setup, Level of automation

Logistics

- Packing, labeling,

Processes

- QC process, traceability capabilities
- Yield management

Specific selection criteria for Electronic Products and Equipment Manufacturer

Same as EMS, as well as following

Design capabilities

- Required in house capabilities and infrastructure to design product according to industry standards

Product validating capabilities

- How supplier validates the advertised performances of the product?
- How supplier validates compliance with required standards and regulations?

Product Life Cycle Management

- How supplier manages introduction of new products, variants, end of life in terms of documentation, product validation ...

Additional selection criteria for Consumer Product Manufacturers

Industrial Design

- Look and feel, ergonomics, trends

Compliance

- Safety of use, local regulations for plugs, power, EMC . . .

Innovation

- Innovation for look and feel as well as for technology

IPR

- IPR issue for technology and industrial design
- License and royalties for software

Services

- Practical implementation of warranty and after sales support
- Documentation, user manual . . .

Additional selection criteria for Industrial Electronic Manufacturers

Compliance

- Compliance to specific industry standards (e.g. Modbus, IEEE . . .)

Support capabilities

- Life time of the product and long support for the product (15 – 25 yrs)
- Customization for integration into buyer's system
- Control interface, firmware and API

Innovation

- Use of latest technology, integration in architectures used in industry

IPR

Services

- Availability of high level support (3LS)
- User manual, maintenance manual,

Manage Electronics Suppliers

What actions are required to secure long term success?

Quality Management

1

2

3

4

5

6

Inspect

7

You get what you
Inspect
not what you
Expect

Quality from Buyer's Perspective Western Business



1

- Western buyers implicitly outsource QA and QC to suppliers

2

- Technical requirements specified in contract
- Operational requirements mostly understood as industry practices

3

- Suppliers takes all necessary measures to perform QA and QC required for the product.

4

- Will analyze requirement, put in place appropriate QA system, track and monitor results, take corrective and preventive actions, etc.

5

- Drive the strategy and execution of specifications

6

Inspect

- Buyer plays no role in this.

7

Quality from Buyer's Perspective

China Business



1

- In China, most suppliers are not ready to take this implicit QA and QC outsourcing job.

2

- Some because they still have the “Customer will come to us in case of problem” approach to quality

3

- Some are more advanced but lack the systems, skills to reliably handle advanced QA

4

- Some do simply not understand some of the expectations

5

- Buyer needs to “re-insource” that function, e.g. explicitly address quality assurance issues at the supplier's to:

6

Inspect

- Make any expectation explicit to the supplier

- Validate real capabilities of specific supplier

- Work out solutions with supplier when possible

- Fill the gap by itself or with third parties when needed

7

Quality Management vs. Quality Inspections

1

During Supplier
Assessment

2

3

4

5

6

Inspect

7

During Supplier
Selection and Negotiations

During Operation with
Selected Suppliers

Supplier Development

1

2

3

4

5

6

7

Develop

Get more
from your suppliers
Develop
their capabilities

Specific Key Challenge Areas

Areas requiring special attention throughout sourcing process

Key Challenge Areas for Electronics

Areas requiring special attention through sourcing process

Design and Compliance

Component Sourcing and Stock Mgmt

Quality Management and Traceability

After Sales Services

Cost Improvement



Design and Compliance

Product Validation

Product Certification

Product Life Cycle

Component sourcing and stock management

The background image shows a cleanroom environment in a factory. Several workers wearing white cleanroom suits and hairnets are seated at long assembly tables. They are working on electronic components, possibly circuit boards. The floor is green with yellow and black safety stripes. In the background, there are shelves with various components and equipment. The overall scene is a typical high-tech manufacturing environment.

Purchasing Power

Components Selection

Stock Management

Quality management and traceability

The background image shows a factory floor with several workers in cleanroom attire (white lab coats, hairnets, and face masks) working at assembly stations. The floor is green with yellow and black safety stripes. The overall scene is dimly lit, with the text overlays providing the primary visual information.

Routine Quality Plan

Quality Data Usage

Level of traceability

After sales services

The background image shows a factory floor with several workers in white lab coats and blue caps. They are working on electronic components, possibly circuit boards, on a production line. The floor is green with yellow and black safety stripes. There are shelves and equipment in the background.

Warranty

Repairs and Support

**Practical
Implementation**

A photograph of a factory floor. In the foreground, a worker in a white lab coat and blue hairnet is seated at a workstation, working on a green printed circuit board (PCB). Other workers in similar attire are visible in the background, also working at stations. The floor is green with yellow and black safety stripes. The image is overlaid with semi-transparent red rectangles containing white text.

Cost Improvement

Cost Reduction Abilities

Process & Saving Share

OEM vs ODM

Conclusion

A photograph of a factory floor, likely an electronics assembly plant. In the foreground, a worker in a yellow cleanroom suit and hood is seated at a workstation, working on a green printed circuit board (PCB). Behind them, several other workers in blue cleanroom suits and hoods are also seated at similar workstations, focused on their tasks. A supervisor or manager in a white lab coat and cap stands on the left side of the frame, observing the production line. The background shows more workers and the industrial structure of the factory, including overhead lighting and equipment. The overall scene depicts a busy, organized manufacturing environment.

China electronics industry very developed

Good Opportunity for both large and mid size buyers

Effective China sourcing requires skills, method and consistency



Q&A

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Service Overview

China Industrial Sourcing Assistance Services

Sourcing Assistance

Supplier Identification
& Short Listing

On-Site
Pre-Qualification

Price Benchmarking
or RFQ Management

Supplier Management

Quality Management

Operational Follow-up

Supplier
Development

Other Services

Strategic Consulting

China Sourcing Training

Reduce Purchasing Cost

Ensure Quality and Service Level

procurAsia Areas of Competence: Industrial - Cleantech - High Tech



procurAsia is specialized in sourcing of industrial and cleantech equipment as well as professional electronic products in China.

Machinery (Sub)Systems: Material Handling, Access Control, Water Treatment ...

Renewable Energy/Energy Efficiency : thermal solar, wind generators, PV, LED Lighting.

Water Treatment Systems: waste water and water purification (MBR, RO, UF ...)

Power Generation/Emergency Power: Diesel Generators, APS/UPS/EPS

Industrial Cabinets: Control System, Power Distribution.

Building equipment: ventilation, lighting, pumps, façade panels...

Visualization/Digital Signage: LED displays, LED Advertisement signs, LCD Servers.

Electronic Sub-systems, such as power supply, telecom and networking systems ...

Electronic Assembly (PBA) Outsourcing: Single and Multi-Layer,
Cabling and Cable Harnesses

