

# PowerGood Technology Research Group

Industrial standard, MIL-grade, Board Mount DC/DC & AC/DC Power



# OUTLINE

- ▶ COMPANY PROFILE
- ▶ QUALITY ASSURANCE
- ▶ PRODUCTION MANAGEMENT
- ▶ PRODUCT INTRODUCTION

# ▶ COMPANY PROFILE

**Company:** PowerGood Technology Research Group Co., Ltd.

**Year of Establish:** Since 1989

**Brand:** PowerGood Industrial standard, MIL-grade, Board Mount DC/DC & AC/DC Power

**Business Type:** Designer and Manufacturer

**R&D Center & Manufacture Site:** Taichung City, Taiwan

**Product Type:** DC-DC & AC-DC Converter

**Certification:** CE, UL, ISO9001, RoHs, REACH

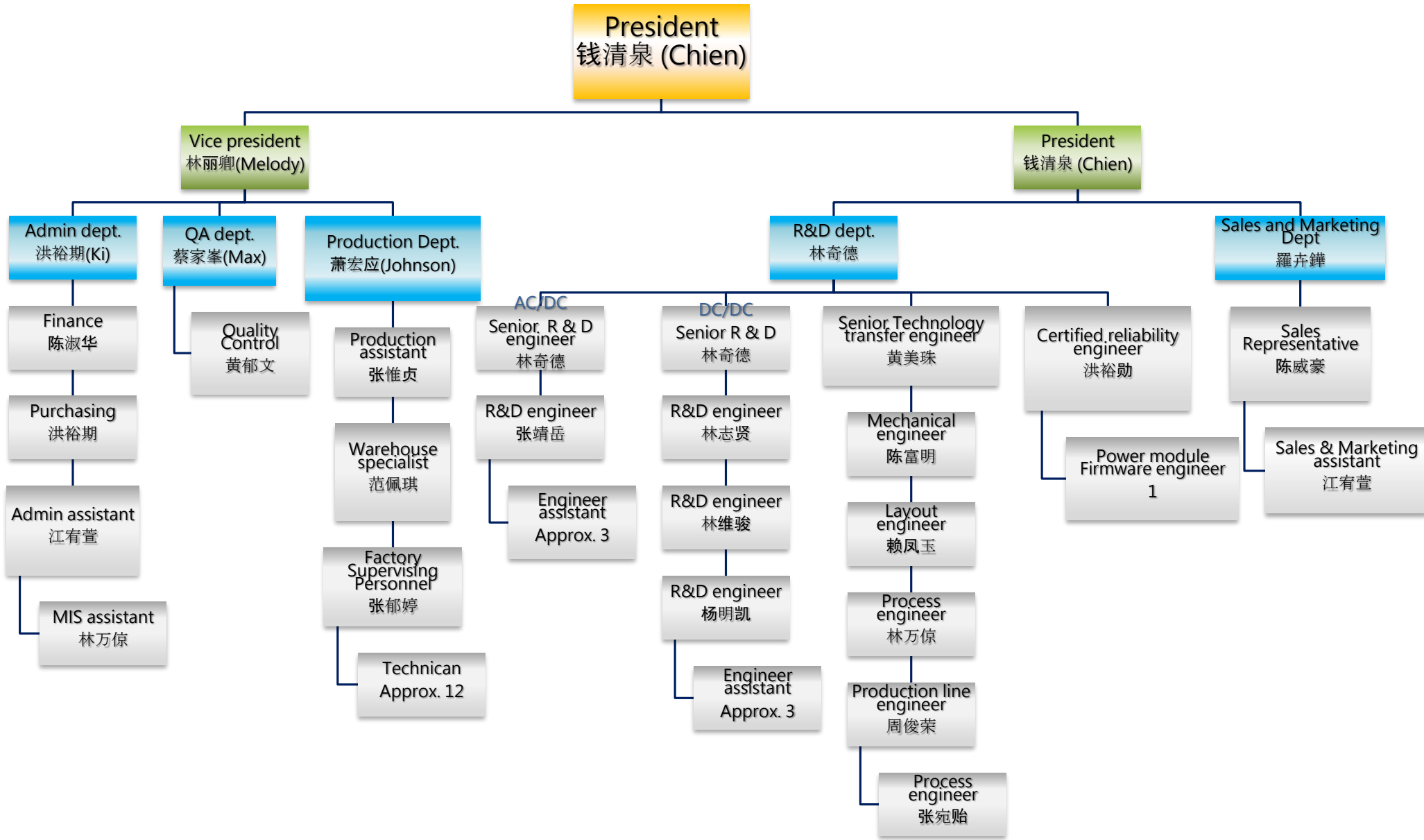
**Product Application:**

High End Industry, Automation, Telecom/Datacom,

Transportation/Railway, Aerospace, and so on.



# Company Structure



# RECORD & REFERENCE



**BOMBARDIER**  
the evolution of mobility

**ALSTOM**

**BAE SYSTEMS**

**PRODATA**  
SYSTEMS



**TERADYNE**  
Because Testing Matters

**EADS**



**EUROTECH**  
Imagine. Build. Succeed.



**Honeywell**

**SIEMENS**



**AIRBUS**  
AN EADS COMPANY

**COMMSCOPE**



**ASML**



# APPLICATION



**Defense COTS**



**Aerospace**



**Railway**



**Industrial  
Automation**

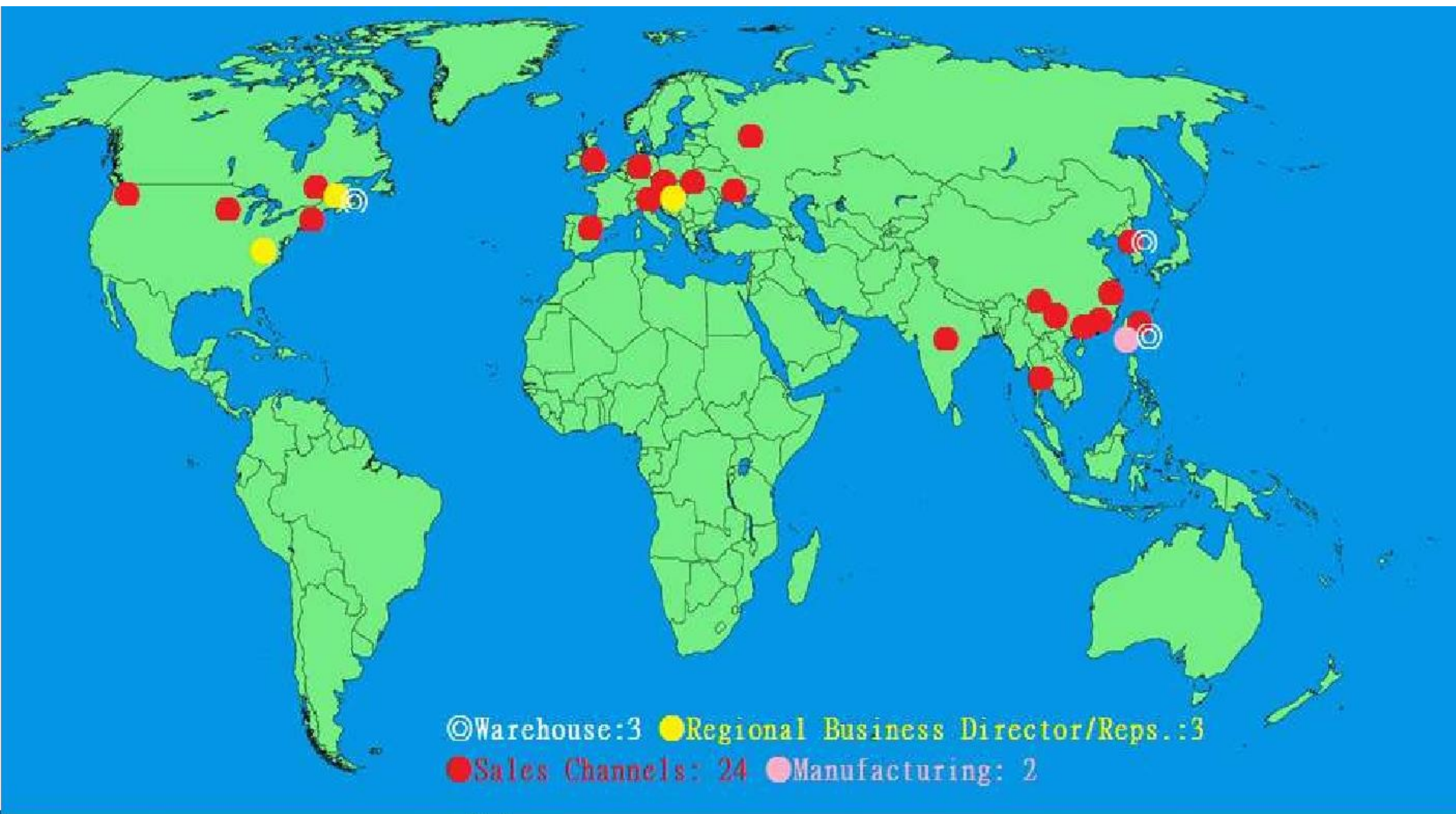


**Wireless network**



# Global Footprints

Worldwide capability and services



# ▶ QUALITY ASSURANCE

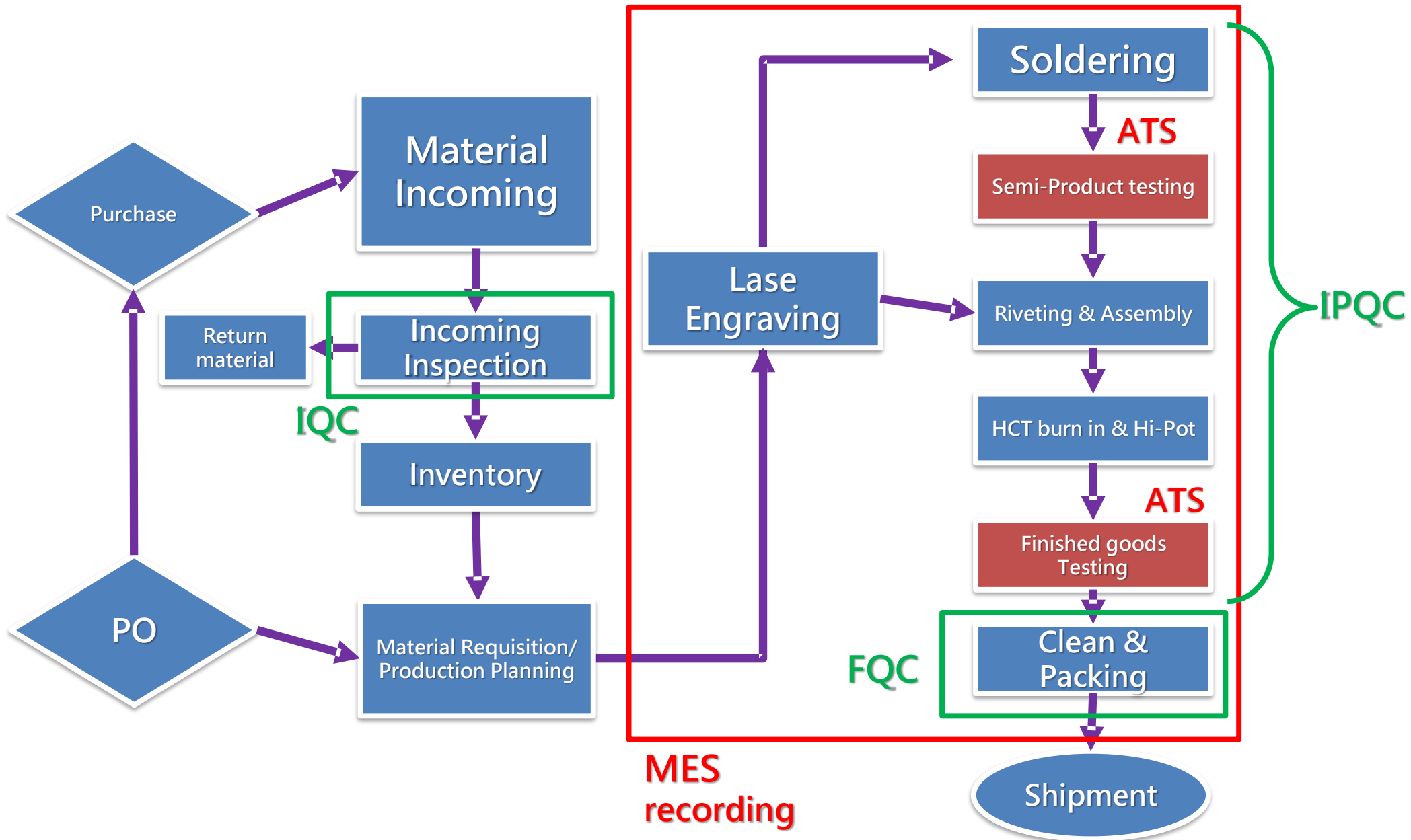
## Quality Certifications





# Quality Control

## QC Flow Chart



# Quality Control

## Inspection Standard

MIL-STD-105E : US military standard

AQL : 0.65%

### IQC

#### 1. Material Incoming Inspection

- ◇ Free material inspection
- ◇ Environmental friendly material

#### 2. Supplier Management

- ◇ New suppliers selection
- ◇ Monthly suppliers evaluation
- ◇ Supplier counselling

### IPQC

1. First Article Inspection
2. On-Site Voluntary Inspection
3. QA round check
4. Statistical process control

### FQC

1. Overall Appearance Check
2. Electrical property testing
  - ◇ Hi-pot
  - ◇ ATS
3. OQC



# Quality Improvement

**1. ISO9001 verification  
( Internal、 external audit )**

**2. UL verification  
(4 times per year for audit and verification)**

**3. In-Plant appliance calibration  
( Annual appliance calibration planning)**

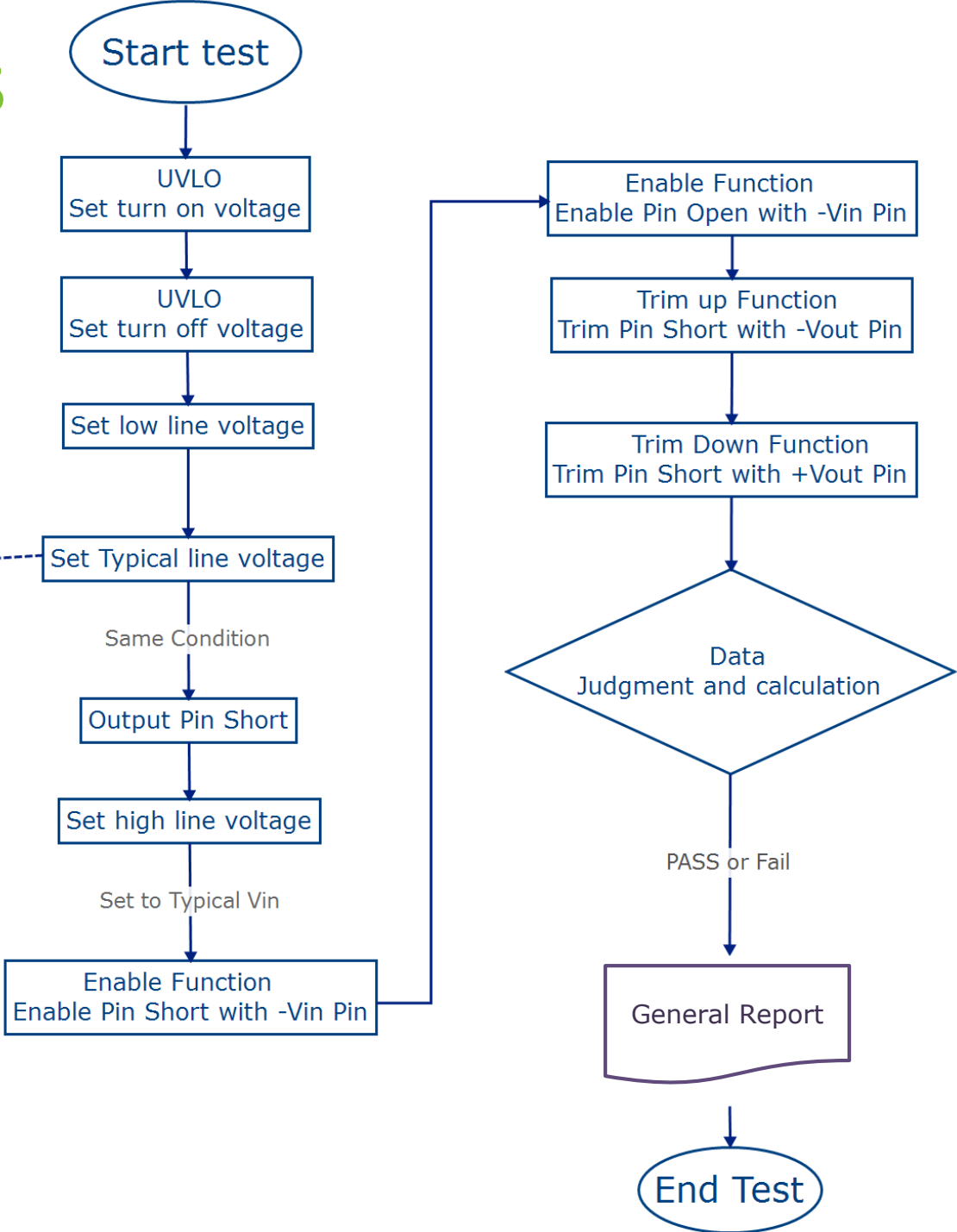
**4. New employee training (Video tape for production  
SOP、 Learning map)**

**5. Quality goals – First Pass Yield improvement  
( Continuous improvement)**

# Quality Systems

## ATS - Flow Chart

- Efficiency
- Ripple and Noise



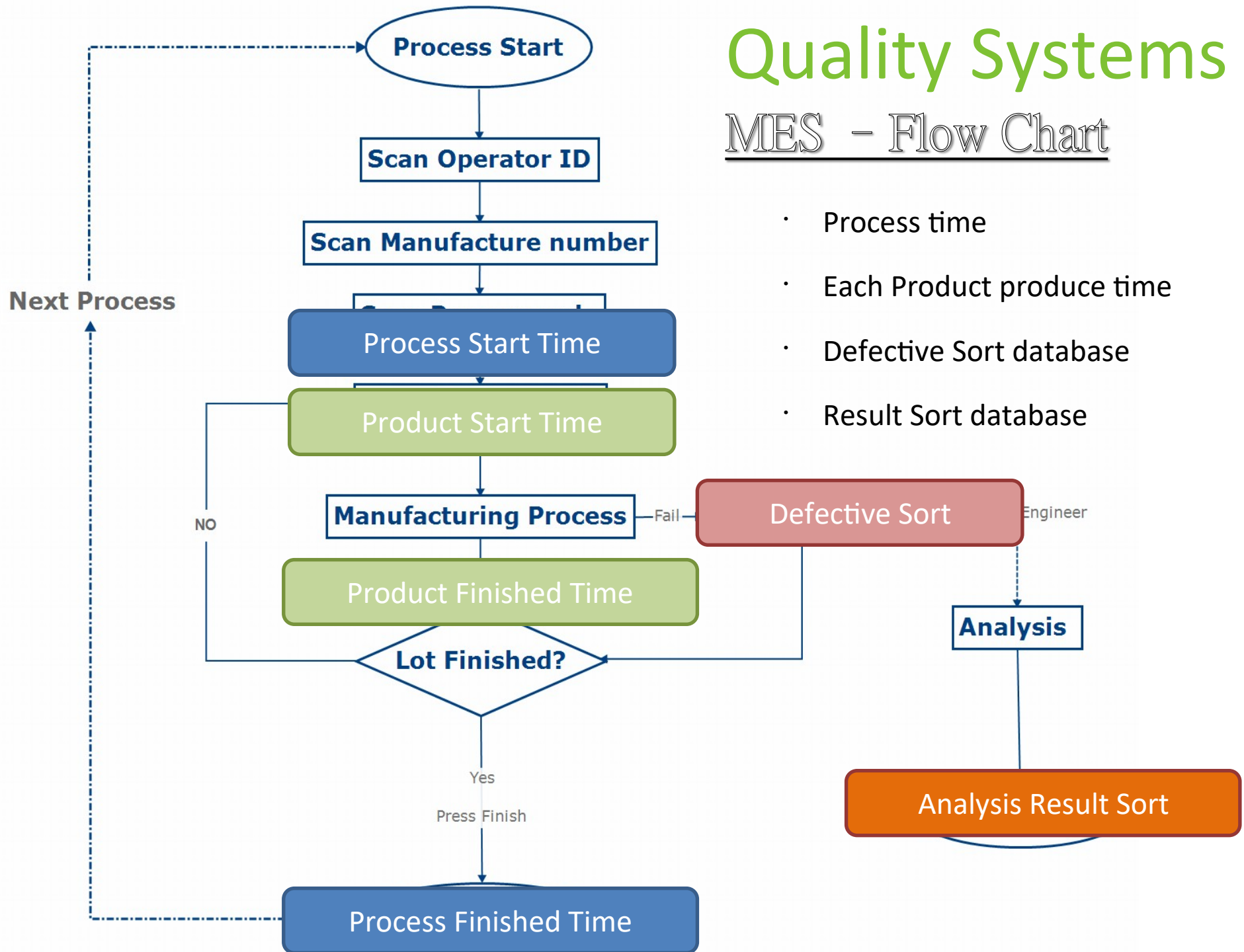


Powergood ATS									
	Model Name		████████████████████						
	Work order		181212-1-2						
	Date code		19060649						
	Manufacture order		5201-20190114003						
	Finishing/Semi-Finished Product		Finished Product						
	Operater ID		75						
	customer		████████████████████						
	Date		02/27/2019						
Test Name	Program Item	Power Supply		Load Iout	Criteria		Uint	Actual result	Remark
		Vin	Iin		L	U			
Output Voltage Accuracy	1	36	8	1.67	11.82	12.18	V	11.978	
UVLO_Turn-OFF Threshold	2	17.9	8	0.33	14.90	15.10	V	PASS	
UVLO_Turn-ON Threshold	3	15	8	0.33	17.80	17.94	V	PASS	
Typ Line Efficiency	4	36	8	3.33	87.00	92.00	%	87.87	
Output Ripple and Noise Voltage	5	36	8	3.33	0.00	180.00	mV	39.2	
Typ Line OCP	6	36	8	3.33	3.66	5.33	A	PASS	
Short circuit protection	7	36	8	3.33	0	30	mA	PASS	
Load Regulation	8	36	8	0.33   3.33	-0.5	0.5	%	0.0417	
Line Regulation	9	36	8	3.33	-0.3	0.3	%	0.0084	
Trim up	10	36	8	0.33	13.02	13.8	V	PASS	
Trim Down	11	36	8	0.33	11.4	10.2	V	PASS	
Enable Function	12	36	8	3.33	/		*	PASS	
Input Current(Standby)	13	36	8	3.33	0	5	mA	PASS	
Test Finish(Typ. Eff)	14	36	8	3.33	87	92	%	87.8564	
Hi-POT test	15				2KVDC/1Sec.		kV	PASS	
Fixture NO.	ESC-01	-	Scope	TEKTRONIX,DPO2014B		D-12			
DC Source	CHROMA,62006P-300-8,	C-11	DI/O	NI USB-6501		-			
DC Load	CHROMA,63640-80-60	B-14							
Software Version	Rev. 3.2								



# Quality Systems

## MES - Flow Chart

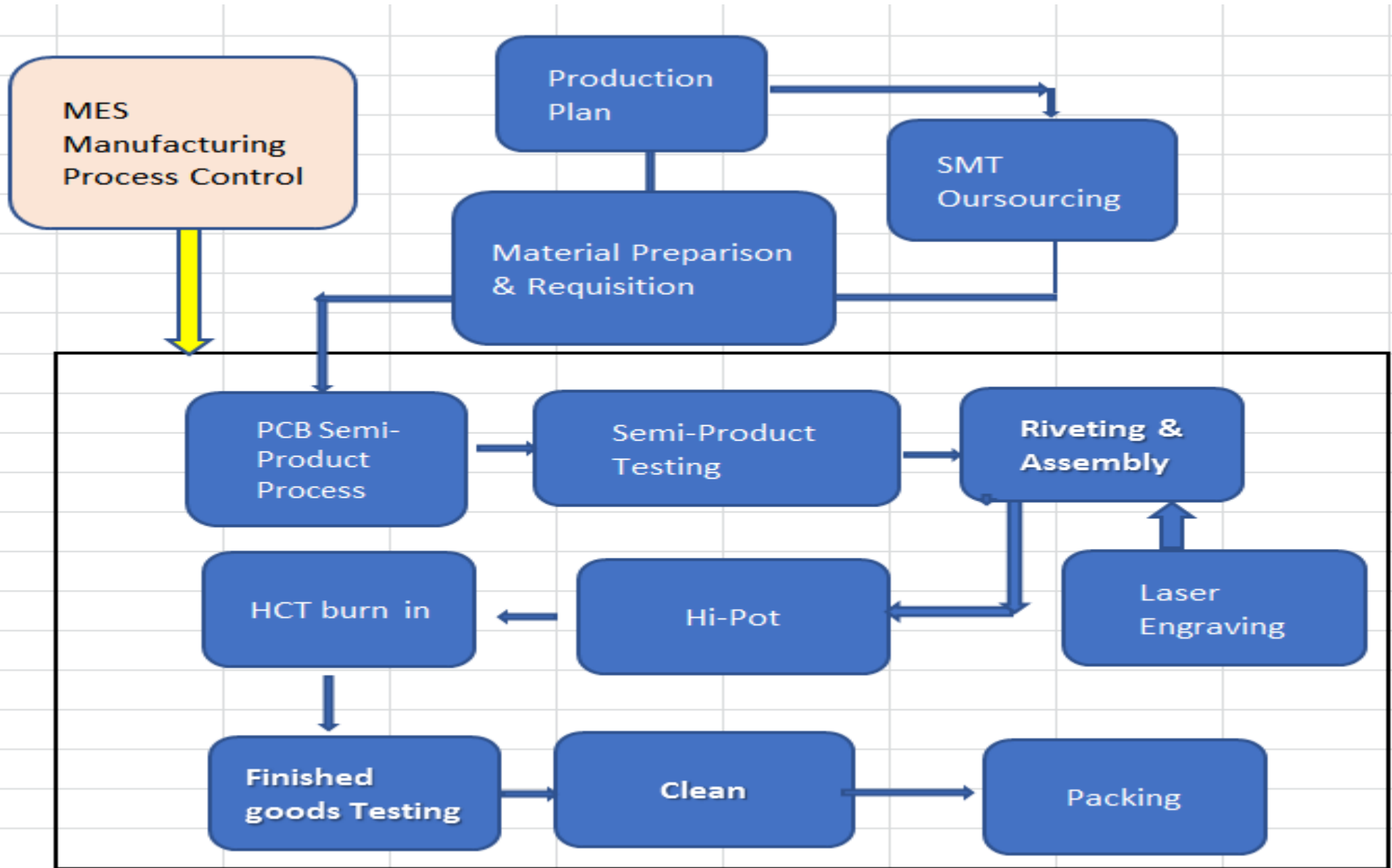


- Process time
- Each Product produce time
- Defective Sort database
- Result Sort database



# PRODUCTION MANAGEMENT

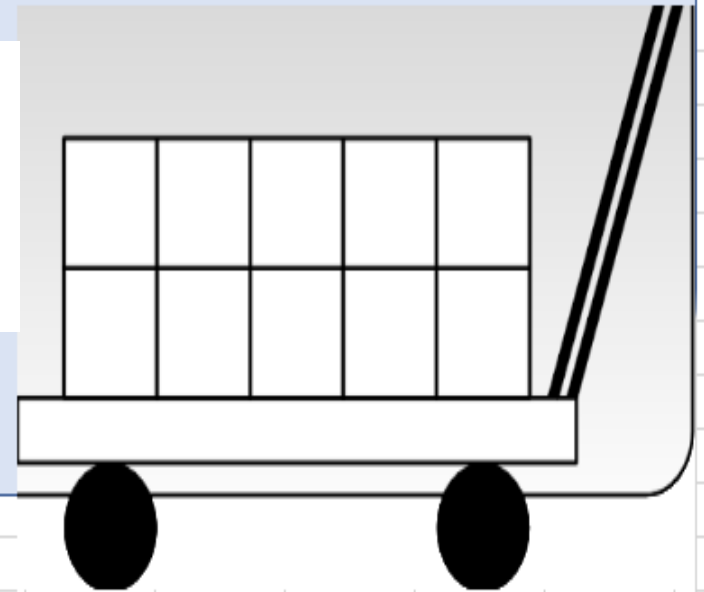
## Manufacturing Flow Chart



30 Operators



Capacity:  
30000pcs/month



# Products

AC / DC 25-250W↑

DC / DC  
Vin 1-600W↑

Package

ACE25

ACE60

ACQ100

ACH250

ACF700  
(Coming soon)

1 $\emptyset$  PFC (1.5KW)  
(Coming soon)

3 $\emptyset$  PFC (1.5KW)

018Vin

024Vin

036Vin

048Vin

110Vin

300Vin

600Vin

SIP7

DIP24

1x1

2x1

1.6x1

2x1.2

1/16  
Brick

1/4 Brick

1/8 Brick

1/2 Brick

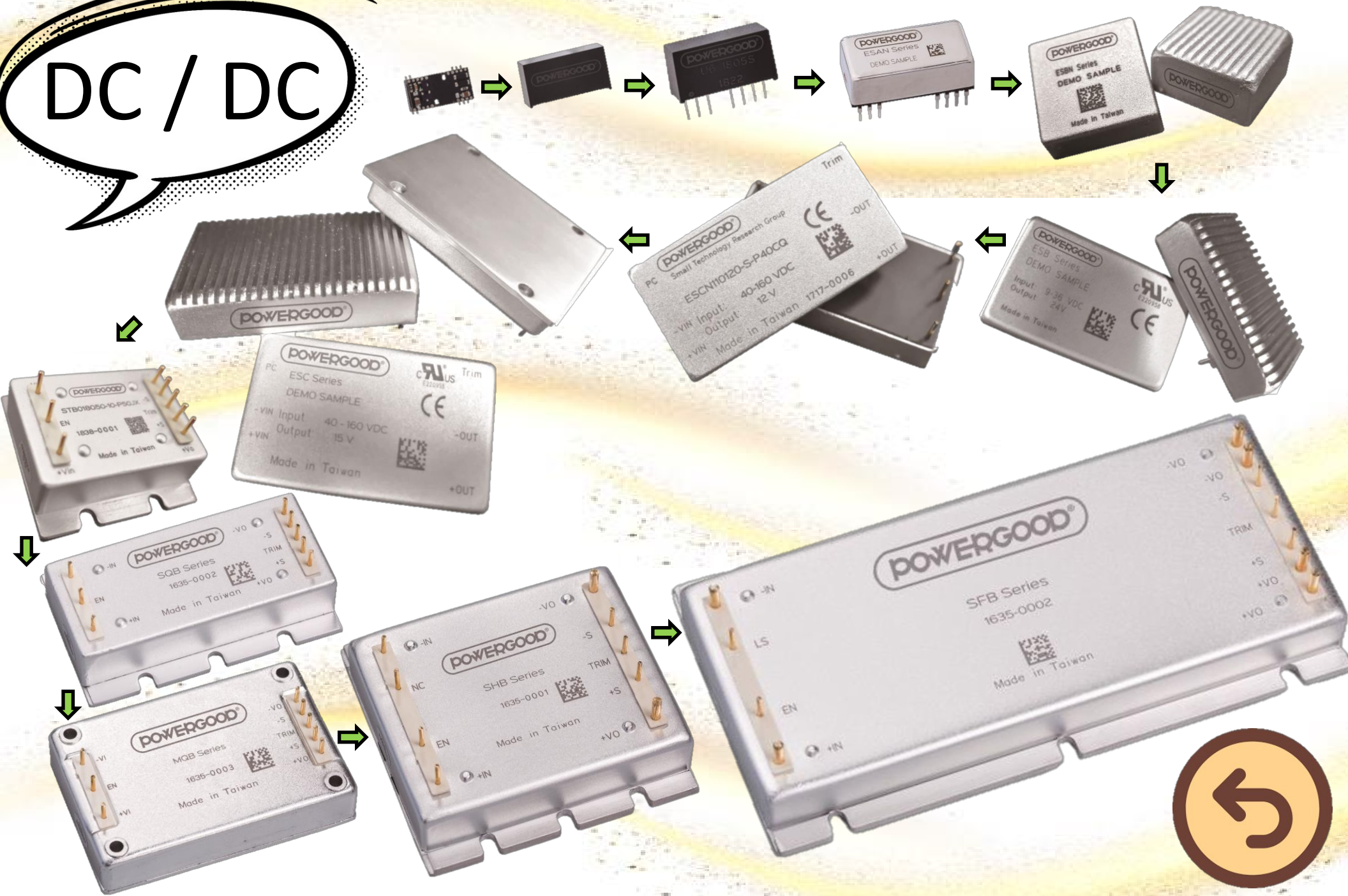
Full Brick



AC / DC



DC / DC





# Technology

## Design

## Manufacture

> **Single-ended topology**  
High reliability

01

05

> **95% SMD + Automation**  
Reliable solder welding

> **Wire wound transformer**  
Excellent EMC

02



> **MLCC**  
Long MTBF



03

06

> **MES / ATS**  
Traceability / Consistency

> **Single / Dual Layer**  
Terrific heat dissipation

04





Market

