



乾坤  
科技



**Cyntec Company**

# Company Profile

- **Date Established: October 28, 1991**
- **Chairman & CEO: Steven Liu**
- **Space: Taiwan and Mainland China**
  - Taiwan- 360,000 ft<sup>2</sup>(32,400 m<sup>2</sup>)
  - SuZhou- Cyntec Co., Ltd 318,000 ft<sup>2</sup> (28,600 m<sup>2</sup>)
  - SuZhou- Cyntec Electronics Co., Ltd 560,800 ft<sup>2</sup> (52,100 m<sup>2</sup>)



Taiwan



Cyntec Co., Ltd



Cyntec Electronics Co., Ltd



# Production locations



**Wujiang Plant 1**  
Power Choke, Resistor, Pt-RTD Temperature Sensor



**Wujiang Plant 2**  
Power Choke, Optical Module



**Chenzhou Plant, Hunan**  
Reactor, Transformers,  
Networking & Telecom  
Components



**Taoyuan Plant(V)**  
Li-ion Battery & Ultra-capacitor

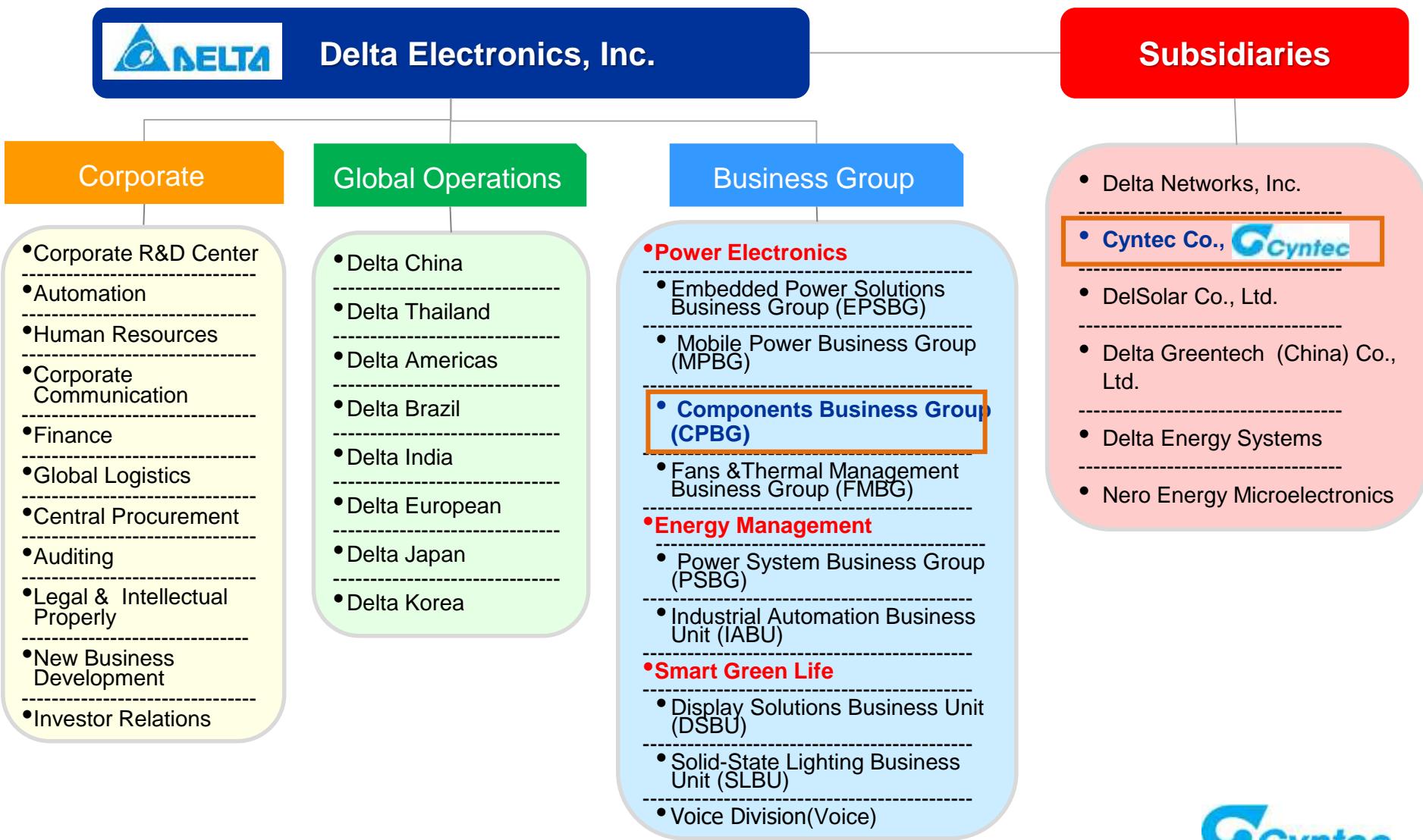


**Taoyuan Plant(II)**  
R&D Center of Magnetic Components, Networking & Telecom Components

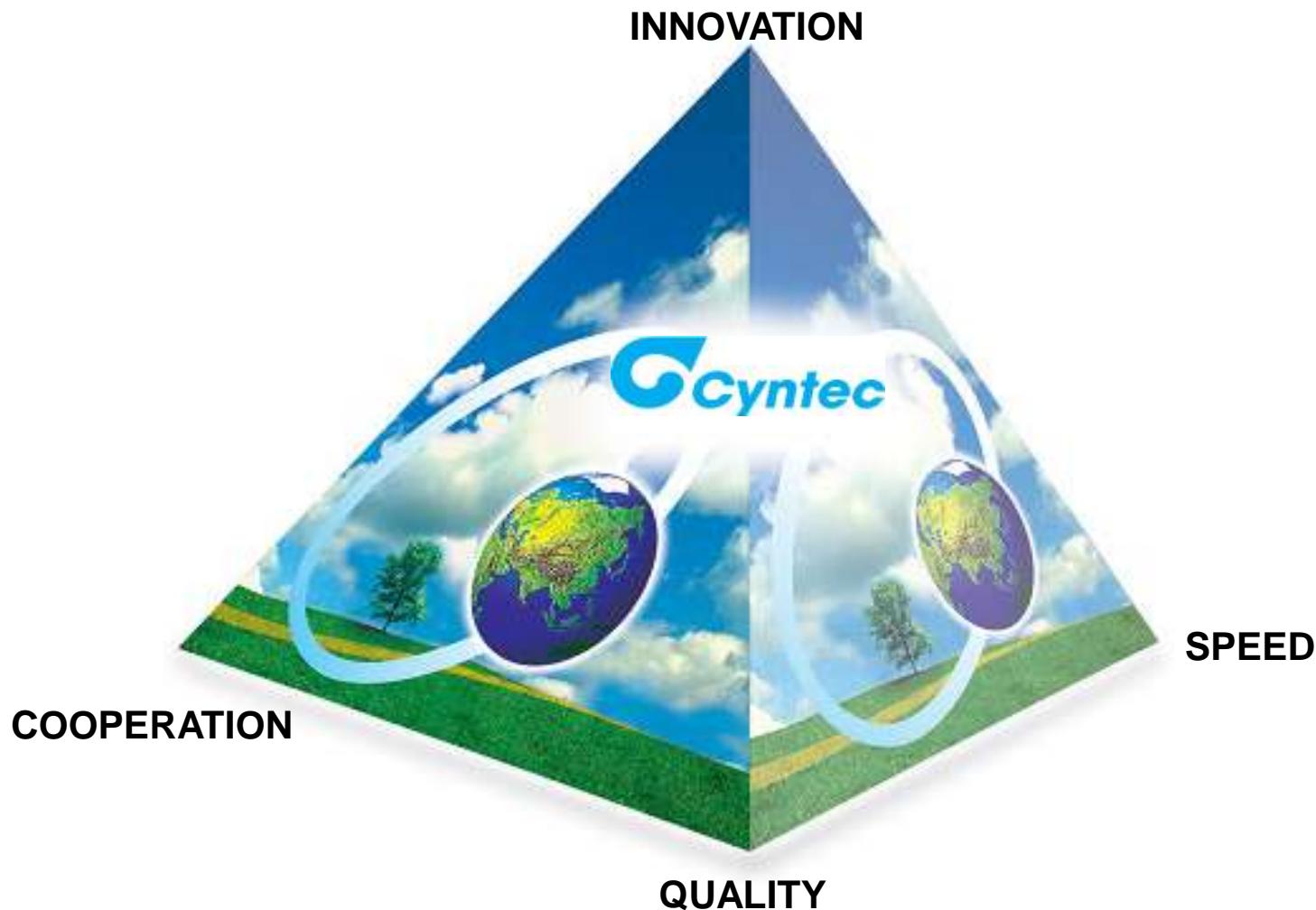


**Hsinchu Plant**  
Current Sensing Resistors,  
Power Modules, Chip  
Inductors, RF Components,  
Ultra-capacitor

# Delta Group Structure



# Corporate Culture

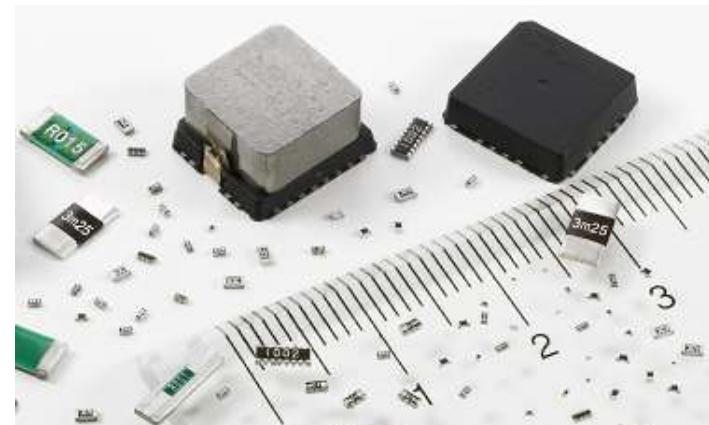


# Cyntec Vision

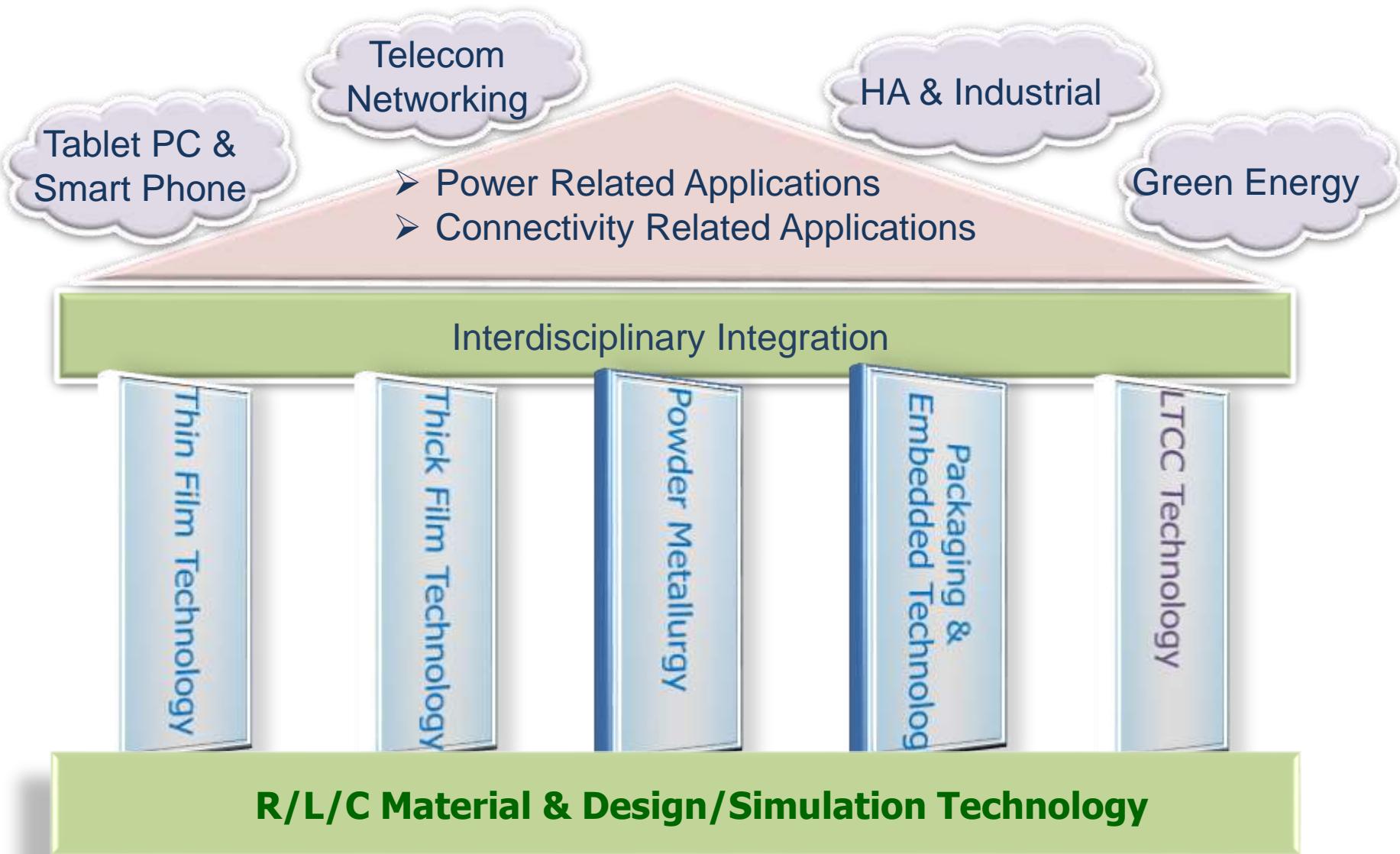
## Making Things Smaller and Better

**Cyntec is dedicated to continuously develop new materials and processing technologies to produce a wide variety of products which are**

- **Space-Saving**
- **Better Performing**
- **Environmentally-Friendly**

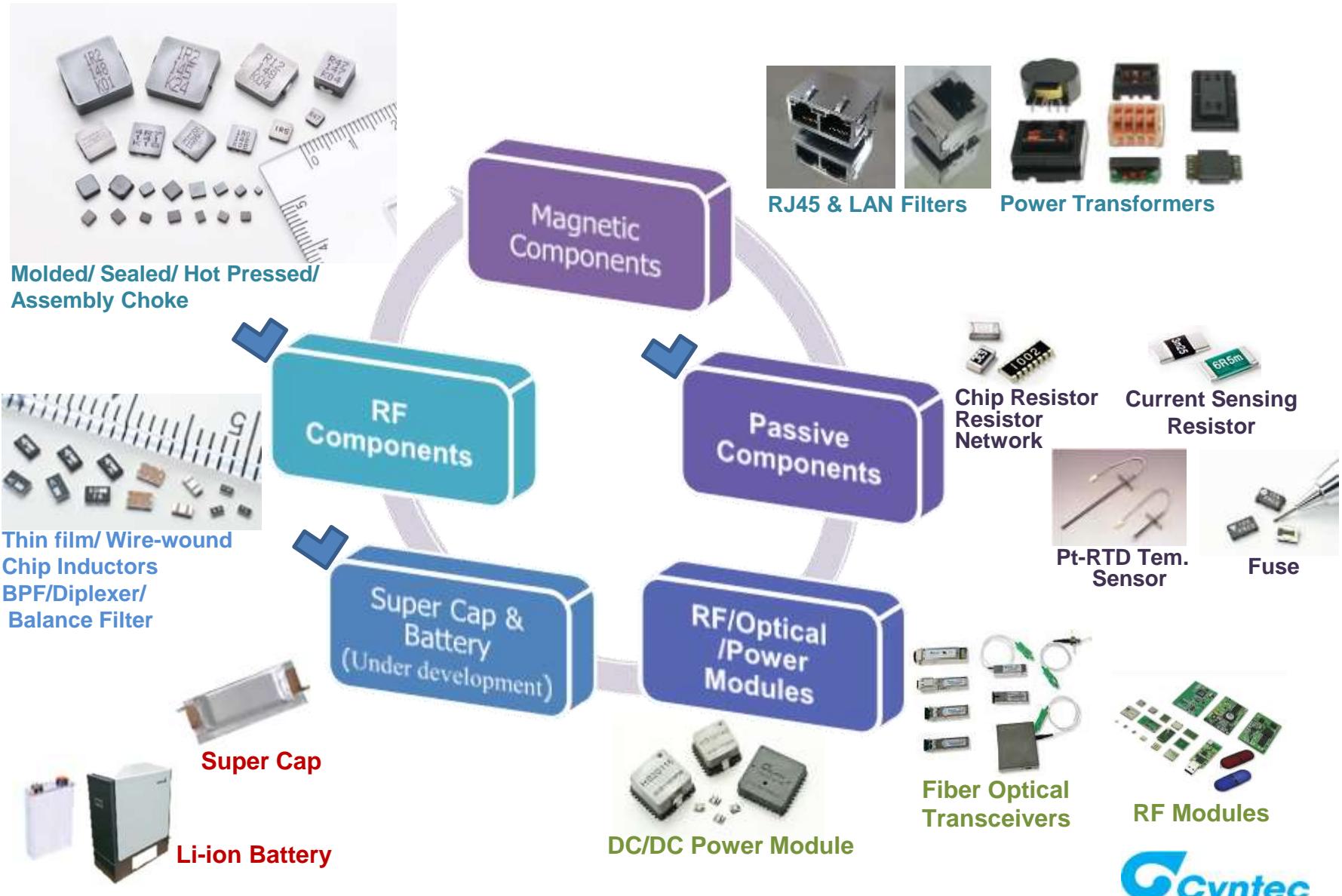


# Technology Platform



Notes: Under Development

# Product Portfolio



# Market Position

Intel, Qualcomm, Broadcom, TI, ST, On semi,, Nvidia, Maxim.....

Apple, Samsung, LG , HP, Lenovo, Xiaomi, Sony, Google, Amazon, Microsoft.

Client

Cloud



Ericsson, NSN, HP, DELL, Fujitsu, Cisco Google, Amazon, Lenovo, .....

## Monthly Capacity

## Market Share

Power Choke

>1 Billion PCS

60% in NB Market (Molded )  
40% in Smartphone (Sealed & Hot Pressed)  
20% in Server/Base station

Passive Component

>3 Billion PCS

70% in Smartphone (01005 CR)

# Cyntec Chen Zhou Factory

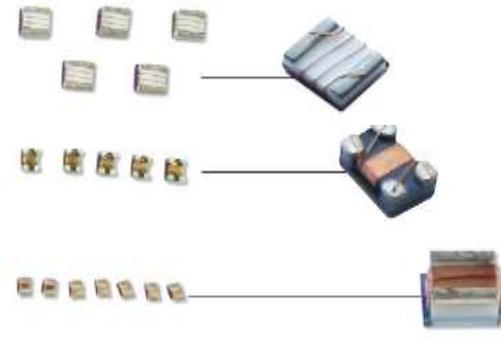
## Production plant for:

- **Inductive Choke**
- **Reactor**
- **Power Transformer**
- **Networking Component**
- **Inductors**

# Chen Zhou Plant products



**Power Inductors**



**Chip Inductors**



**Power Transformers**



**Planar Transformer &  
AC/DC Reactors**



**Networking Components**

# The Quality Certificate of CZ Plant



## ISO 9001



## ISO 14001



TS 16949



TL 9000



Sony GP



# OHSAS 18001



QC 080000 

# Cyntec Wu Jiang Factory



Molded/ Sealed/ Hot Pressed/  
LTCC/ Assembled Choke



Current Sensing Resistor

**Production plant for:**

- **Chip Resistors**
- **RF Components**
- **Power Choke**



Chip Resistor /  
Resistor Network



Pt-RTD Tem. Sensor

# Delta Tao Yuan V Factory

**Production plant for:**

- **Lithium Ion Battery**
- **Super Capacitor**



# Delta Tao-Yuan V Plant

## Energy Storage Device BD

- Location: Taoyuan, Taiwan
- Factory capacity: 200MWh/Year
- Fully automated production line
- Official opening: Q1, 2016
- Delta installed 1,160KWh Li-ion battery and 250KW PCS in containers for frequency regulation, peak-shaving, and black start demonstration



ISO 9001 Certificated in Y2016

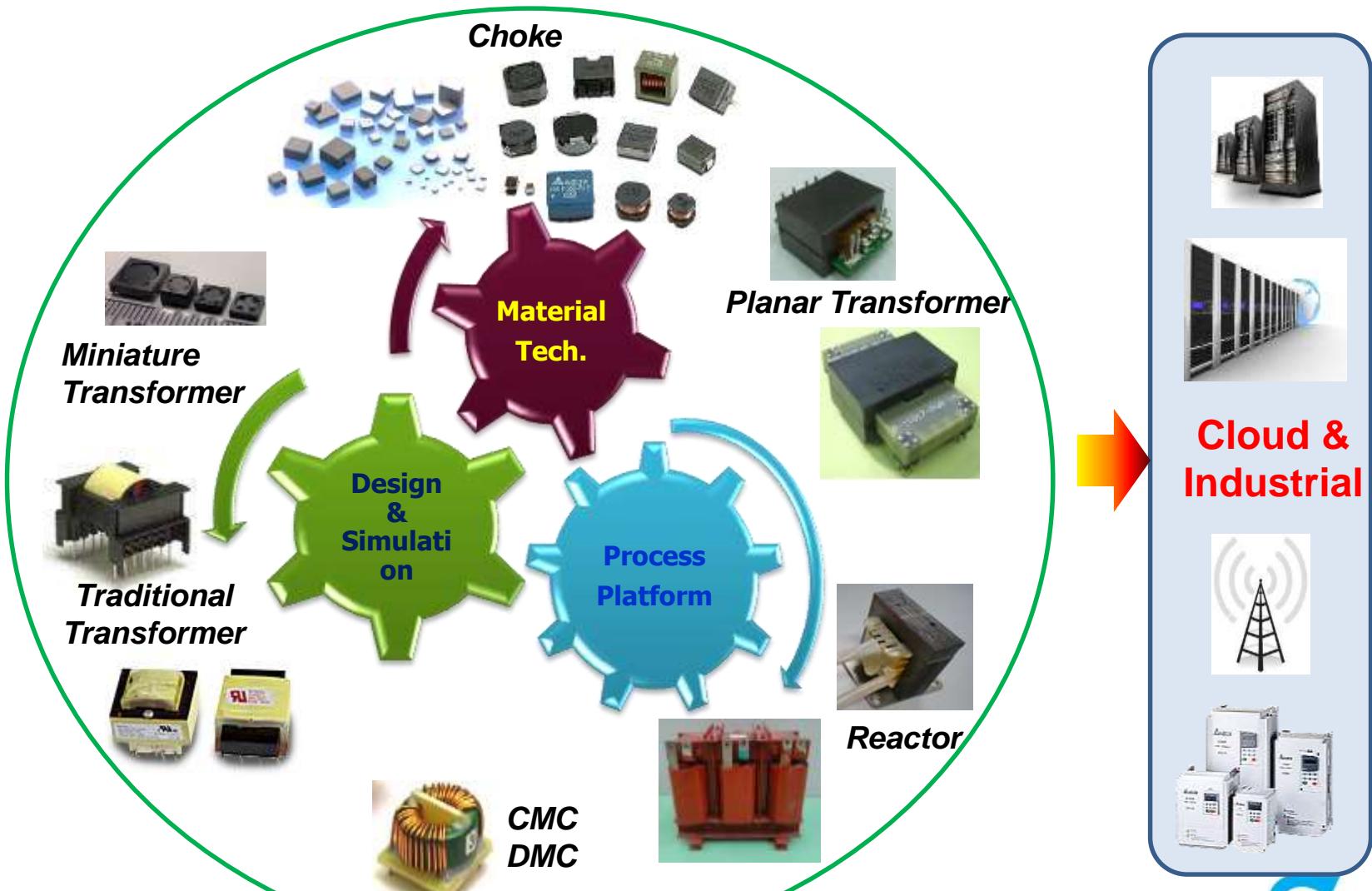


"Making Things Smaller and Better "

# Focus Products and technology

# Introduction of CPBG products

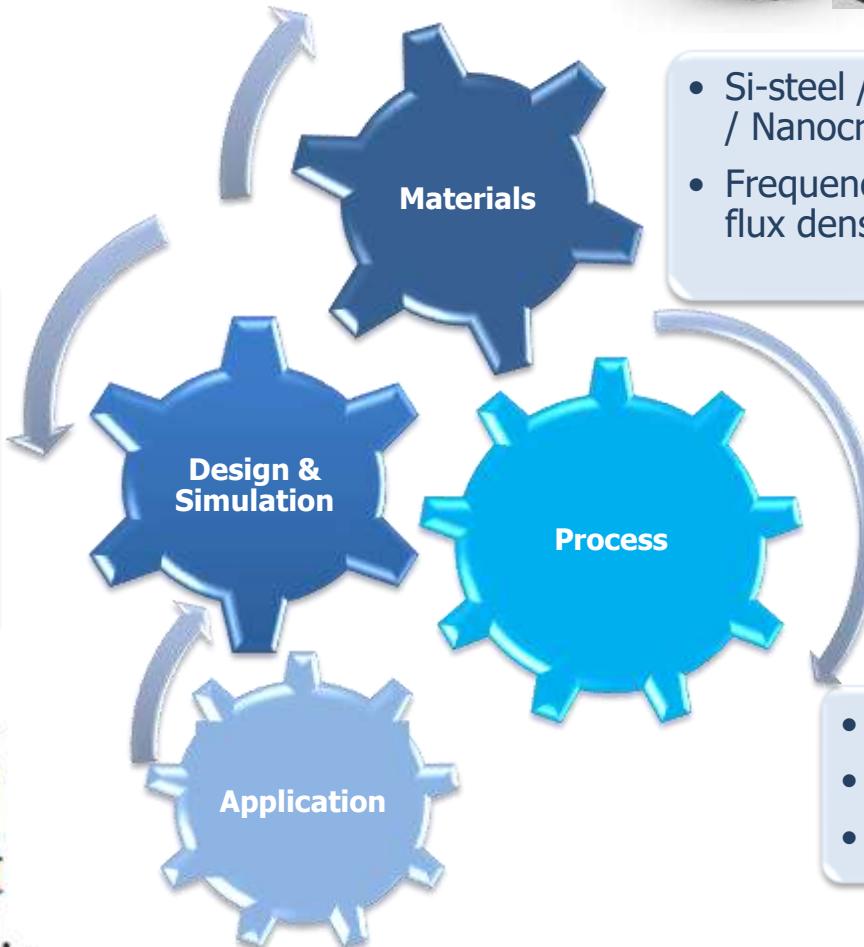
- Solutions for Power Magnetics



# R&D Capabilities for Reactors



- Electrical design (Inductance,  $I_{sat}$ , DCR, Winding & Core Loss)
- Thermal simulation
- Mechanical design
- Safety design



- Si-steel / Alloy powder / Amorphous / Nanocrystalline / Ferrite
- Frequency / Core loss / Saturation flux density

- Wire Winding
- Assembly process
- Varnish / Potting process

# Outline

## Focus product portfolio

- **Magnetic Inductors**
- Chip / Shunt resistor
- Planar Transformer
- Reactor
- Power Module
- Wireless IoT Module / RF Module



Magnetic choke



Reactor



Chip Resistor /  
Resistor Network



Power Transformers



DC/DC Power  
Module



RF Modules

# Magnetic Inductors



## Power Transformer

- Over 40 years of experiences in Magnetics design with global support capability.
- Wide inductance range from 47uH to 3900uH
- Cost-effective design
- Enhanced production capacity, product quality and automation manufacturing

## Chip Inductor

- Wire-wound ceramic construction provides high self-resonant frequency and superior Q value
- Dimension: 0402, 0603, 0805, 1008, 1210
- Miniature SMD type chip inductor
- Excellent solderability

## Power Transformer

- Offer customized design to meet customers requirement.
- Broad product range includes Switching, Power Transformers, Inverter Transformers



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Chip Resistor /  
Resistor Network



Power Transformers

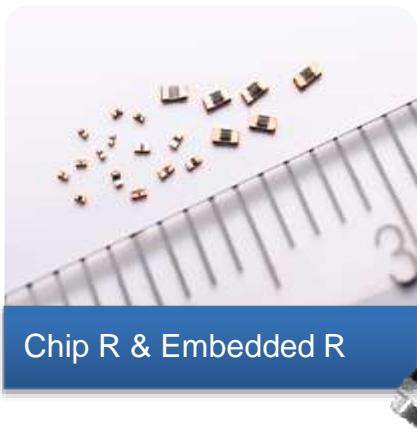


DC/DC Power  
Module



RF Modules

# Chip Resistor and Resistor Network



## ➤ Major Product

- Thin Film Chip Resistor: 0603 / 0402 / 0201 / 01005
- Thick Film: Chip Resistor: 0603 / 0402 / 0201 / 01005 / 03015(mm) / 0201(mm)
- Embedded Resistor: 0402 / 0201 / 01005
- Resistor Network: 0201\*4/ 0201\*2 /0402\*2

## ➤ Technology Platform: Thin & Thick Film

- Miniaturization: Down to 0201mm size
- High Precision: Tolerance to 0.05%
- Ultra-Low Profile: 0.15mm
- High Density: Down to 0201\*4 array

## ➤ Major Application

- Computer, Mobile/Handheld, Networking/Telecom, and others Electronic Devices, etc.

# General Chip R product family

## Total Lead Free Chip Resistor

Size (mm)	Normal SMD series	Embedded series
1.0x0.5	<p>0402              L = 1.0mm            W = 0.5mm            T = 0.35mm            P = 1/16W</p> <p>0201              L = 0.6mm            W = 0.3mm            T = 0.23mm            P = 1/20W</p> <p>01005              L = 0.4mm            W = 0.2mm            T = 0.13mm            P = 1/32W</p>	<p>0201              L = 1.0mm            W = 0.5mm            T = 0.15mm            P = 1/16W</p> <p>01005              L = 0.6mm            W = 0.3mm            T = 0.15mm            P = 1/20W</p> <p>Metric 03015              L = 0.3mm            W = 0.15mm            T = 0.13mm            P = 1/50W</p> <p>Metric 0201              L = 0.25mm            W = 0.125mm            T = 0.10mm            P = 1/60W</p>
0.6x0.3		
0.4x0.2		
0.3x0.15		
0.25x0.125		

The same dimension and power rating with commercial grade CR

2016

AEC-Q200  
(Small size)

**Size: 0402**

- R value : 1Ω ~1MΩ
- TCR<100~200 ppm
- Thickness: < 0.4 mm
- Power: 1/16W



2017

**Size: 0201**

- R value : 1Ω ~1MΩ
- TCR<100~200 ppm
- Thickness: < 0.3 mm
- Power: 1/20W



2018

**Size: 01005**

- R value : 1Ω ~1MΩ
- TCR<100~200 ppm
- Thickness: < 0.15 mm
- Power: 1/32W



Application

LED lighting  
Infotainment  
System  
Audio/Video

AEC-Q200  
(Anti-Sulfur)

**Size: 0402**

- R value : 1Ω ~1MΩ
- TCR<100~200 ppm

**Size: 0201**

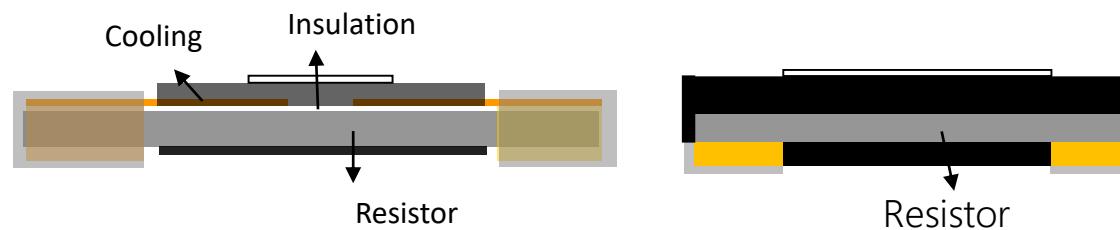
- R value : 1Ω ~1MΩ
- TCR<100~200 ppm

Audio/Video  
Body & Motor  
Control  
Tire Pressure  
Monitoring System

Cynotec

# Shunt Resistor (CSR)

- For high power products



	High Power Type	High Precision
Resistor layer	MnCu, MnCuSn	MnCu, MnCuSn
Carrier	FR4	Metal

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Magnetic choke



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Chip Resistor /  
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Power Transformers



DC/DC Power  
Module



RF Modules

# Planar Transformer

## ➤ Major Advantages:

- Low profile
- High power density
- High efficiency

Platform	PCB winding	Copper foil stack	Cu-foil + PCB (hybrid)
Structure			
Typical Samples			
Features	<ul style="list-style-type: none"><li>• Low leakage inductance &amp; Low power loss</li><li>• High insulation voltage</li><li>• Functional insulation (DC-DC)</li></ul>	<ul style="list-style-type: none"><li>• Low DC resistance</li><li>• High power capability</li><li>• Functional insulation (DC-DC)</li></ul>	<ul style="list-style-type: none"><li>• Suitable for high turn ratio windings</li><li>• Balance in performance &amp; cost</li><li>• Functional insulation (DC-DC)</li></ul>

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RF Modules

# Reactor Solutions

- Reactors for Home Appliance / Low Power



- Reactors for Industrial



- Low-profile reactor

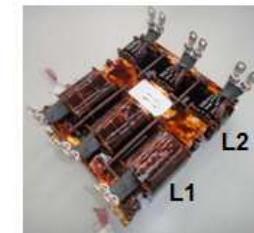


Suitable platforms for HA & Air condition

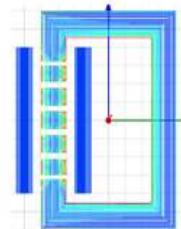
- Aluminum-wire reactor



- Composite materials / composite reactors



- Reactor with distributed air gap



<b>Rating Current (Arms)</b>	15	70	80	210
<b>L (mH)</b>	0.4	0.075	0.083	0.2
<b>DCR (mOhm)</b>	22	4	4	2.4
<b>Insulation</b>	class-H	class-H		class-H
<b>Size (mm<sup>3</sup>)</b>	130 x 95 x 92	205 x 240 x 62	250 x 300 x 300	480 x 230 x 400

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Chip Resistor /  
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Power Transformers



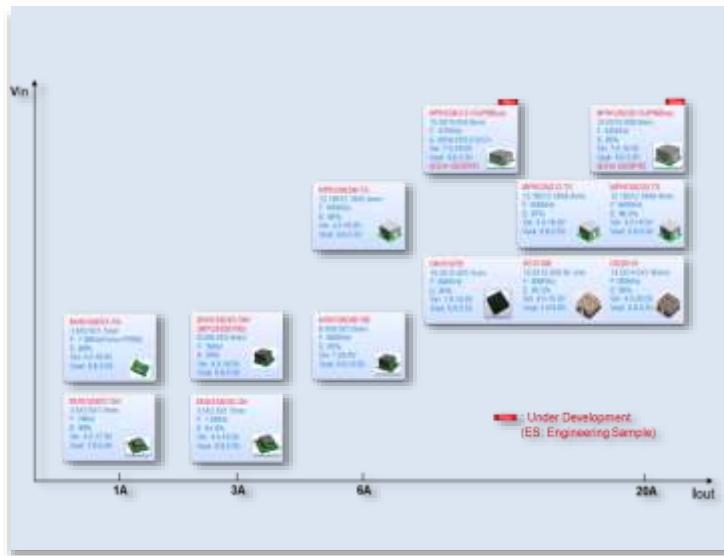
DC/DC Power  
Module



RF Modules

# Cooperation Model

## Standard Product Solution

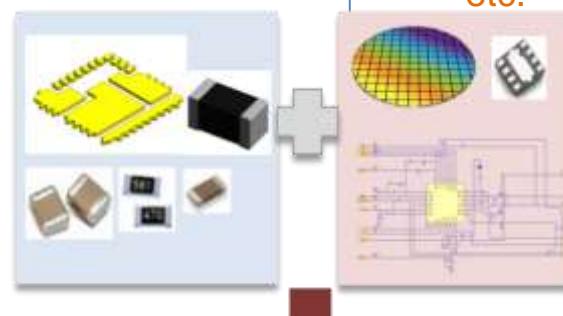


Cytneq provides standard products to meet up customer demand, and help customer from function confirmation, layout, testing, and application issue solving.

## Customized Packaging Service

Cytneq provides passive components, packaging platform, and testing/packing.

Customer provides IC, XYZ dimension target, pin-out, and testing requirement, etc.

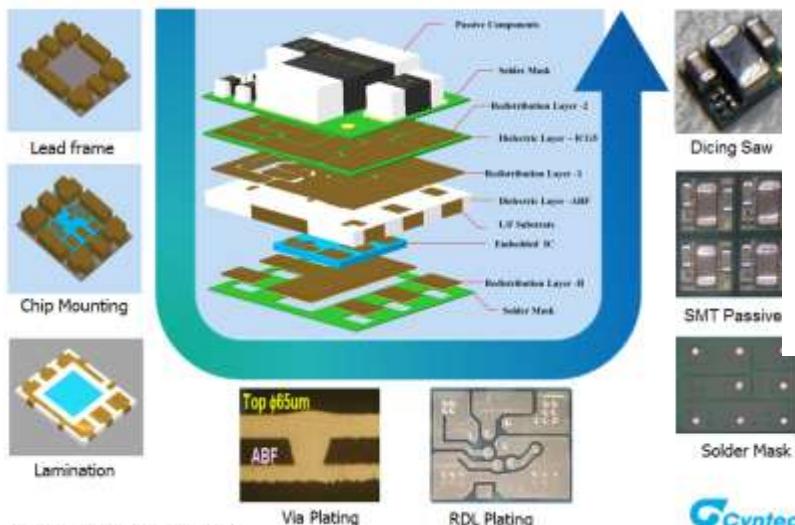


# Production Process and type



## Benefits:

1. High density integration power module
2. 600mA to 3A output current supporting
3. 5V / 12V input voltage supporting
4. High reliability performance (MSL2)
5. Up to 95% efficiency performance



	µPOL	Open 3D TwoCarrier Molding	SiP
Embedded	○		
SMT	○	○	○
Vacuum reflow			○
Die bond	○		○
Wire bond			○
Wire-bonding free	○		○
Molding			○
Dicing	○	○	○
3D package	○	○	○

## Package size(typical)

2.5x2.0x0.8mm  
2.9x2.3x1.1mm  
6.0x6.0x3.5mm

6.0x6.0x3.5mm  
15.0x15.0x8.0mm

12.0x12.0x6.05mm(10A)  
14.5x14.5x7.45mm(20A)  
15.0x15.0x3.7mm(10A)

43.3x30.7x3.6mm

## Output current

<6A

3A~20A

10A~20A

20A~50A



"Making Things Smaller and Better "

# Outline

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- **Wireless IoT Module / RF Module**



Magnetic choke



Reactor



Chip Resistor /  
Resistor Network



Power Transformers

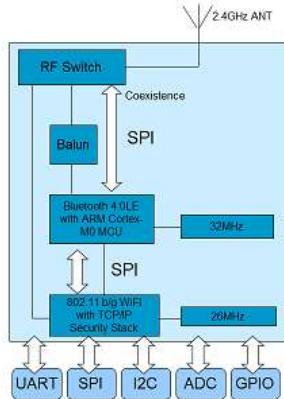


DC/DC Power  
Module



RF Modules

# Wireless IoT Module

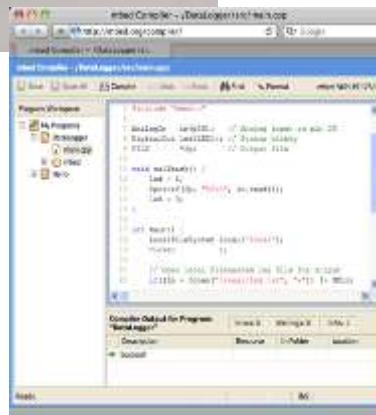
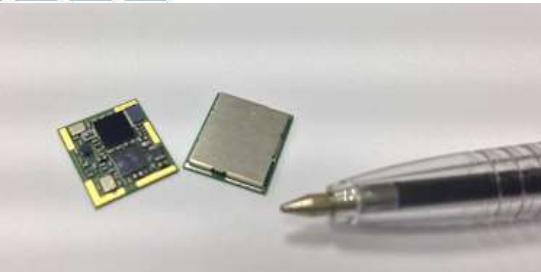


## ➤ IoT WPAN Module

- Size: 10.9 x 9.3mm
- Main Function: ARM Cortex-M0 with Bluetooth 4.0LE & WiFi 802.11 b/g/n
- Embedded operation system: ARM RTX/ARM mBed RTOS
- Software Development Tool: ARM IoT mBed IDE
- Arduino pin compatible evaluation board

## ➤ Focus on application

- Industrial/Office Automation



# **Cyntec Components .....**

## **Your Right Choice as a Strategic Partner**