



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 ft²(32,400 m²)
 - SuZhou- Cyntec Co., Ltd 318,000 ft² (28,600 m²)
 - SuZhou- Cyntec Electronics Co., Ltd
560,800 ft² (52,100 m²)



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



Delta Electronics, Inc.

Subsidiaries

Corporate

- Corporate R&D Center
- Automation
- Human Resources
- Corporate Communication
- Finance
- Global Logistics
- Central Procurement
- Auditing
- Legal & Intellectual Property
- New Business Development
- Investor Relations

Global Operations

- Delta China
- Delta Thailand
- Delta Americas
- Delta Brazil
- Delta India
- Delta European
- Delta Japan
- Delta Korea

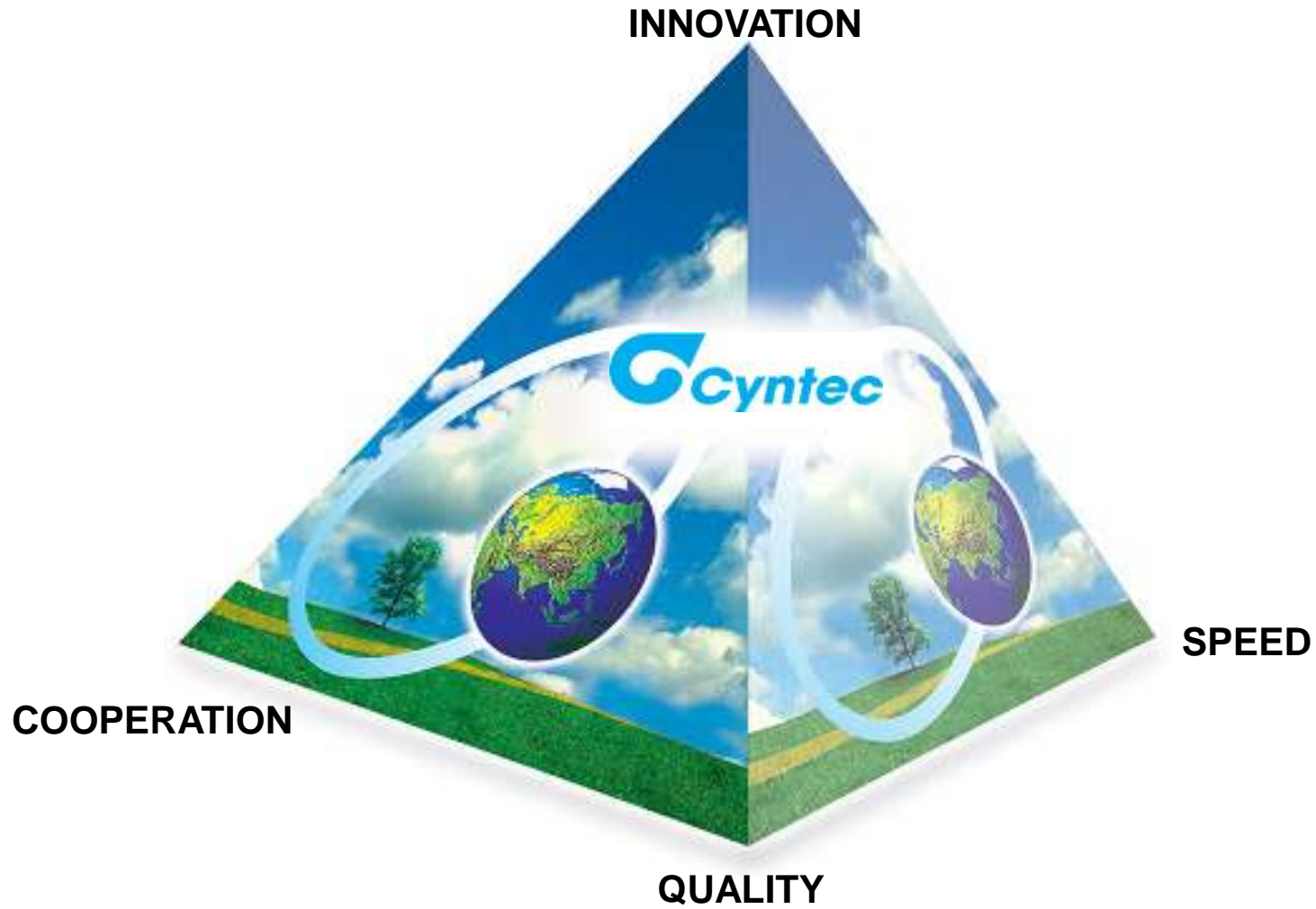
Business Group

- **Power Electronics**
 - Embedded Power Solutions Business Group (EPSBG)
 - Mobile Power Business Group (MPBG)
- **Components Business Group (CPBG)**
 - Fans & Thermal Management Business Group (FMBG)
- **Energy Management**
 - Power System Business Group (PSBG)
 - Industrial Automation Business Unit (IABU)
- **Smart Green Life**
 - Display Solutions Business Unit (DSBU)
 - Solid-State Lighting Business Unit (SLBU)
 - Voice Division(Voice)

- Delta Networks, Inc.
- **Cyntec Co., **
- DelSolar Co., Ltd.
- Delta Greentech (China) Co., Ltd.
- Delta Energy Systems
- Nero Energy Microelectronics



Corporate Culture

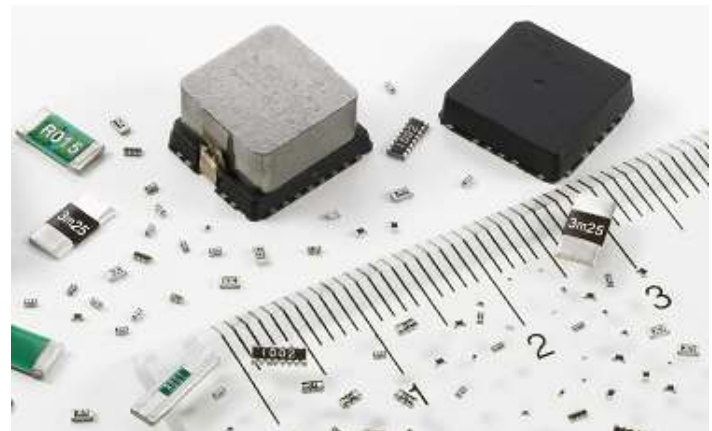


Cyntec Vision

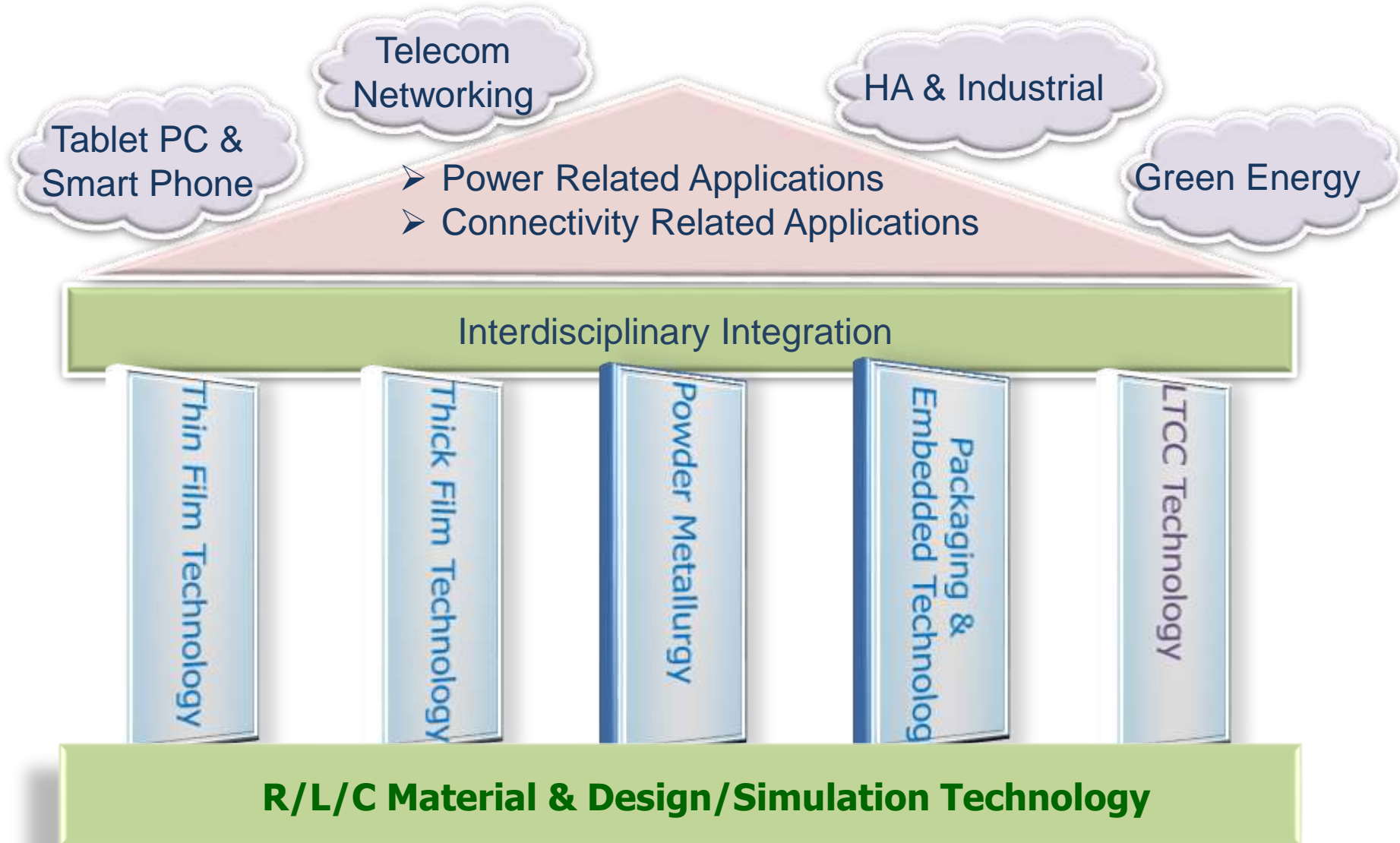
Making Things Smaller and Better

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



Molded/ Sealed/ Hot Pressed/
Assembly Choke



RJ45 & LAN Filters



Power Transformers



Chip Resistor
Resistor
Network

Current Sensing
Resistor



Pt-RTD Tem.
Sensor



Fuse



Thin film/ Wire-wound
Chip Inductors
BPF/Diplexer/
Balance Filter



Super Cap



Li-ion Battery



DC/DC Power Module



Fiber Optical
Transceivers



RF Modules



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

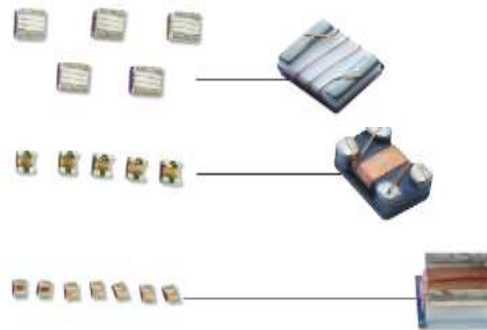
Production plant for:

- **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



"Making Things Smaller and Better"

Cyntec Wu Jiang Factory

Production plant for:

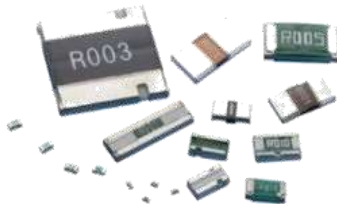
- **Chip Resistors**
- **RF Components**
- **Power Choke**



Molded/ Sealed/ Hot Pressed/
LTCC/ Assembled Choke



Chip Resistor /
Resistor Network



Current Sensing Resistor



Pt-RTD Tem. Sensor

Delta Tao Yuan V Factory

Production plant for:

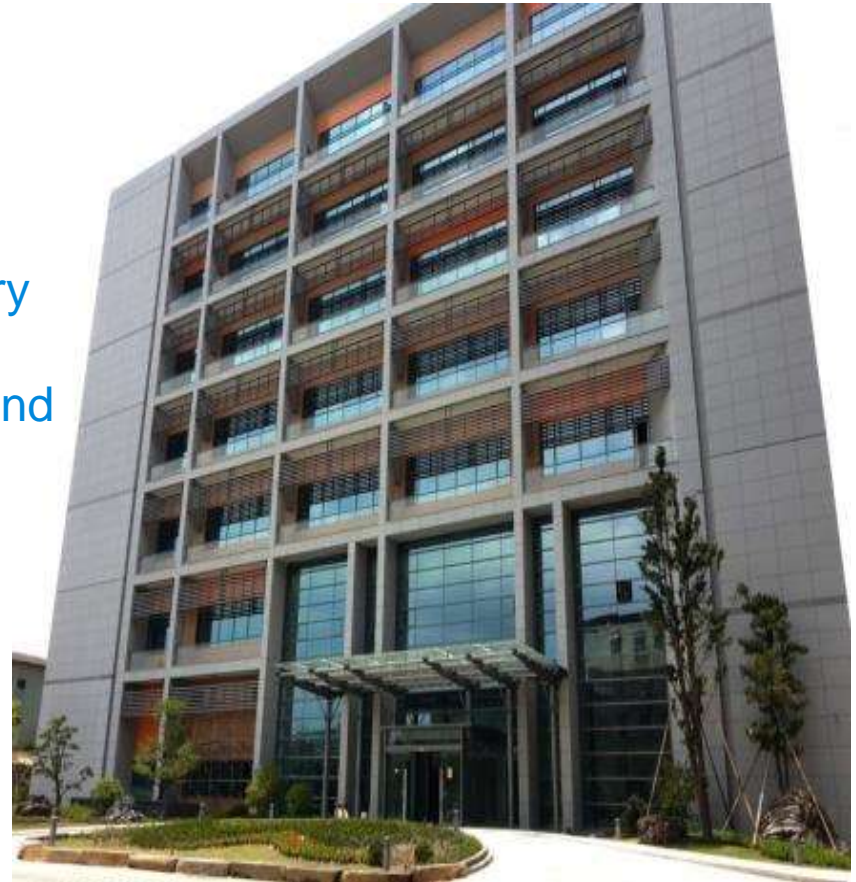
- **Lithium Ion Battery**
- **Super Capacitor**



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

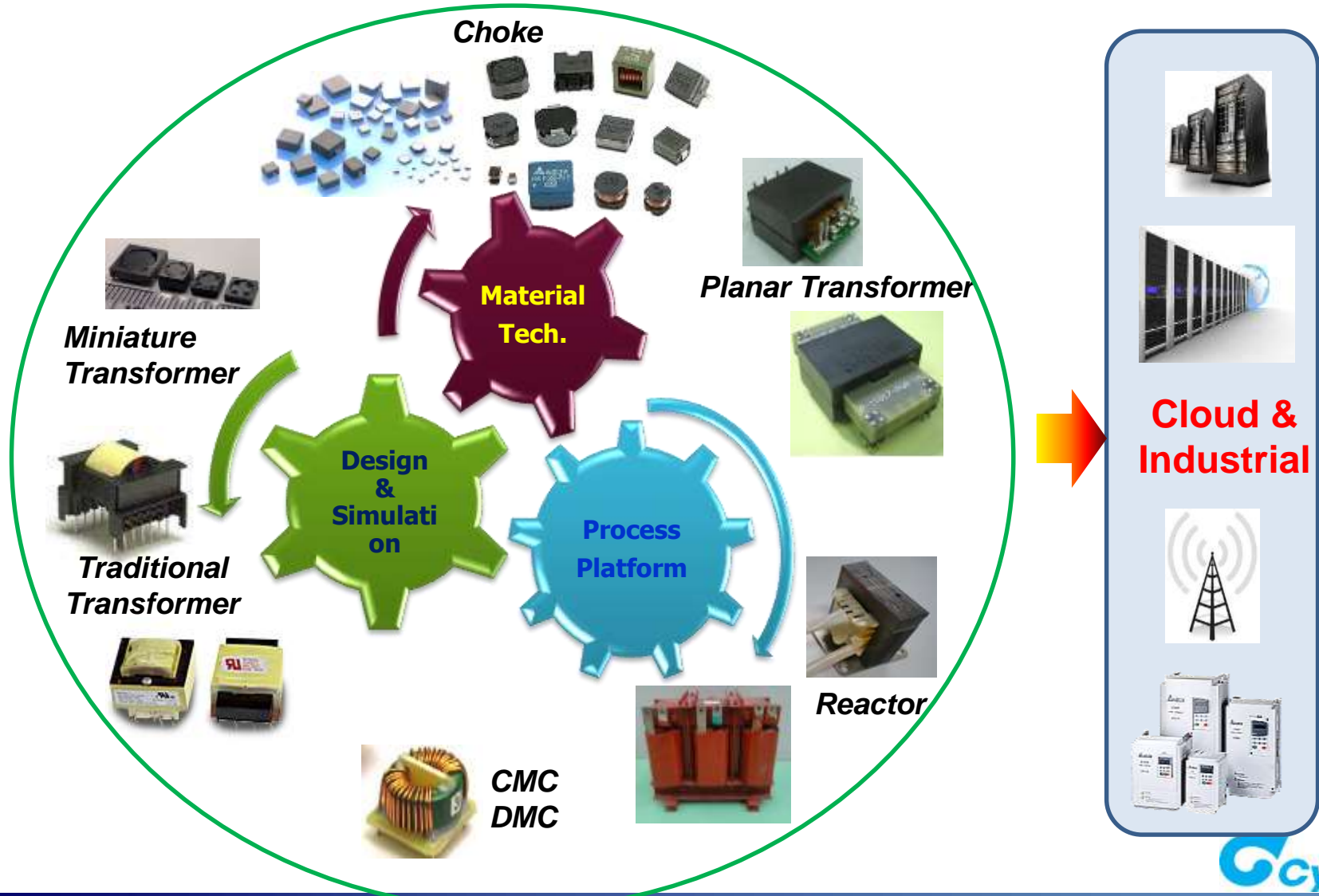


Focus Products and technology

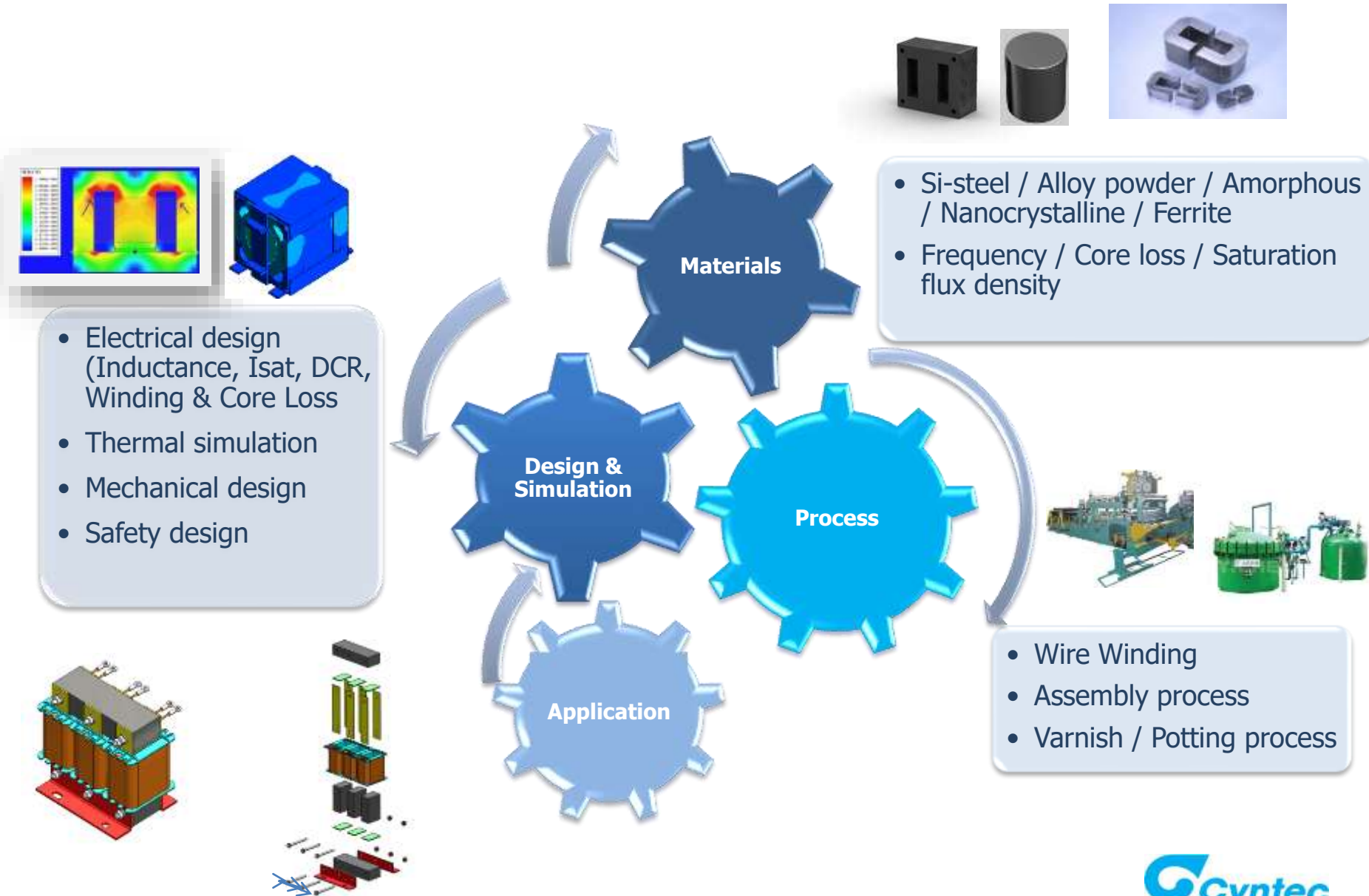


Introduction of CPBG products

- Solutions for Power Magnetics



R&D Capabilities for Reactors



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

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

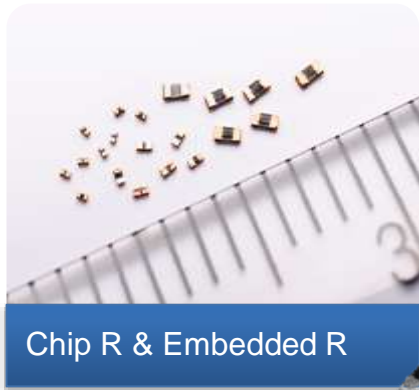


DC/DC Power
Module



RF Modules

Chip Resistor and Resistor Network



Chip R & Embedded R



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





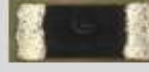







- Miniaturization: Down to 0201mm size
- High Precision: Tolerance to 0.05%
- Ultra-Low Profile: 0.15mm
- High Density: Down to 0201*4 array

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

For RoHS 6/6
lead-Free

The same dimension
and power rating with
commercial grade CR

2016

2017

2018

Application

AEC-Q200
(Small size)

Size: 0402

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



Size: 0201

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



Size: 01005

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



LED lighting
Infotainment
System
Audio/Video

AEC-Q200
(Anti-Sulfur)

Size: 0402

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

Size: 0201

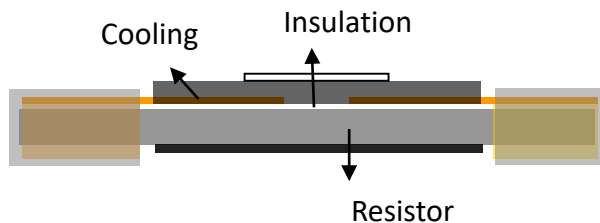
- > R value : 1Ω ~ 1MΩ
- > TCR < 100 ~ 200 ppm

Audio/Video
Body & Motor
Control
Tire Pressure
Monitoring System



Shunt Resistor (CSR)

➤ For high power products



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

Outline

Focus product portfolio

- Magnetic Inductor
- 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

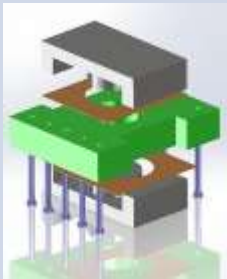
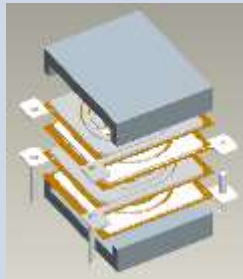
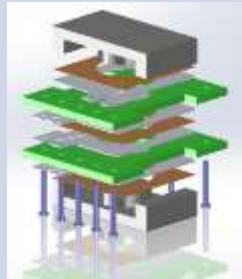


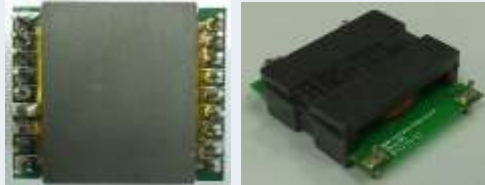


RF Modules

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"> • Low leakage inductance & Low power loss • High insulation voltage • Functional insulation (DC-DC) 	<ul style="list-style-type: none"> • Low DC resistance • High power capability • Functional insulation (DC-DC) 	<ul style="list-style-type: none"> • Suitable for high turn ratio windings • Balance in performance & cost • Functional insulation (DC-DC)

Outline

Focus product portfolio

- Magnetic Inductors
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- **Reactor**
- Power Module
- Wireless IoT Module / RF Module



Magnetic choke



Reactor



Chip Resistor /
Resistor Network



Power Transformers



DC/DC Power
Module



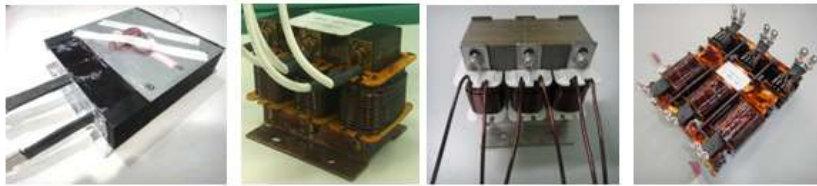
RF Modules

Reactor Solutions

• Reactors for Home Appliance / Low Power



• Reactors for Industrial



➤ Low-profile reactor

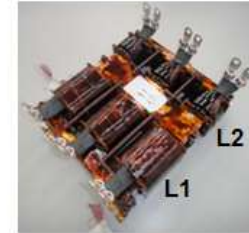


Suitable platforms for HA
& Air condition

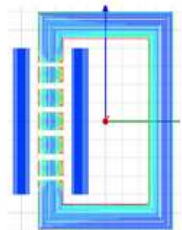
➤ Aluminum-wire reactor




➤ Composite materials / composite reactors



➤ Reactor with distributed air gap



					
Rating Current (Arms)	15	70	80	210	300
L (mH)	0.4	0.075	0.083	0.2	0.125
DCR (mOhm)	22	4	4	2.4	1
Insulation	class-H	class-H		class-H	class-H
Size (mm ³)	130 × 95 × 92	205 x 240 x 62		250 x 300 x 300	480 x 230 x 400

Outline

Focus product portfolio

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



Magnetic choke



Reactor



Chip Resistor /
Resistor Network



Power Transformers



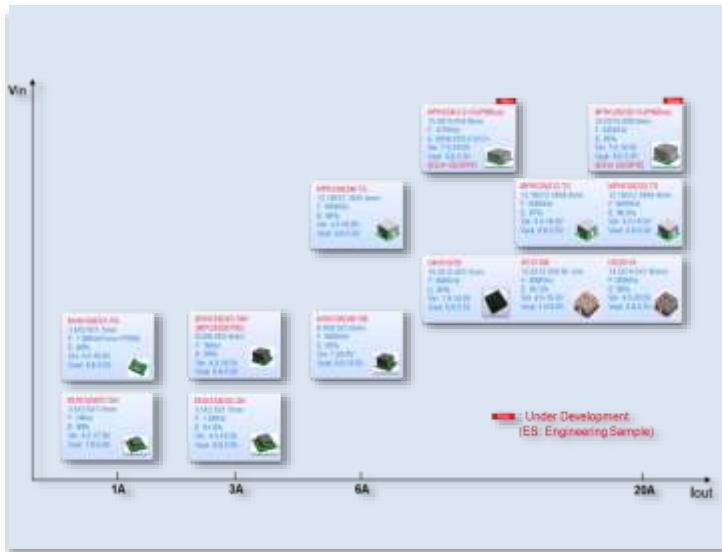
DC/DC Power
Module



RF Modules

Cooperation Model

Standard Product Solution

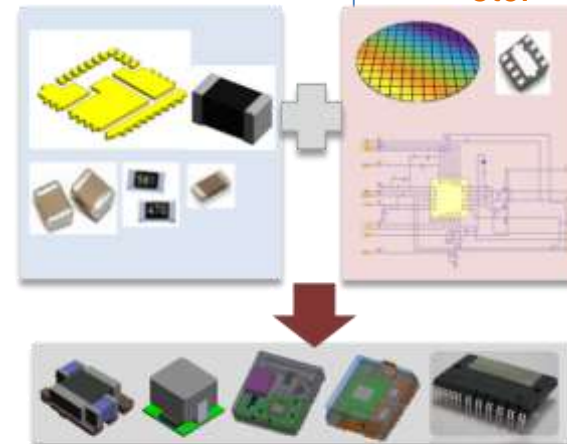


Cyttec provides standard products to meet up customer demand, and help customer from function confirmation, layout, testing, and application issue solving.

Customized Packaging Service

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

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



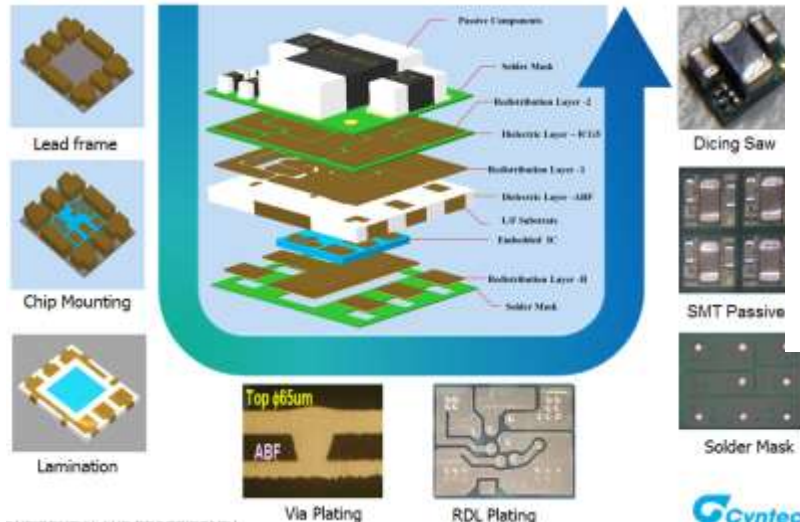
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Production Process and type



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



	μ POL	Open 3D	TwoCarrier Molding	SiP
				
	12/5V μ POL	12/5V POL	12/5V POL & Stack	PFC; D2D ; IPM
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)	43.3x30.7x3.5mm
Output current	<6A	3A~20A	10A~20A	20A~50A

Outline

Focus product portfolio

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



Magnetic choke



Reactor



Chip Resistor /
Resistor Network



Power Transformers

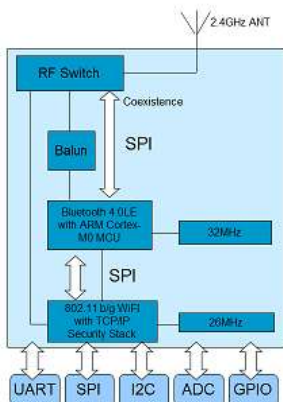


DC/DC Power
Module



RF Modules

Wireless IoT Module

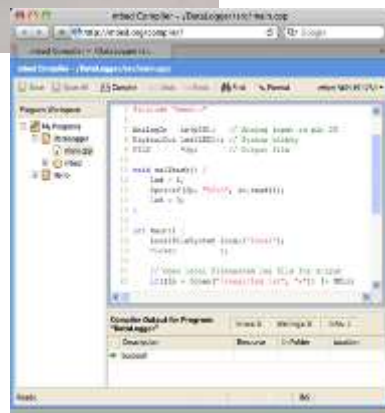
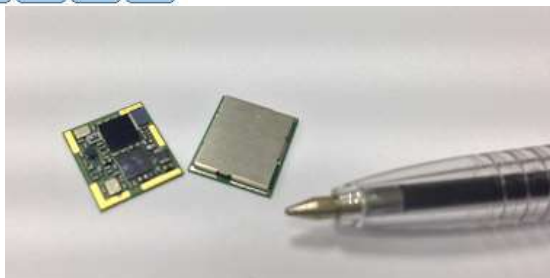


➤ IoT WPAN Module

- 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