CPS Promotion WPT Solution

01 Company Introduction

02 Wireless Charging

Company Introduction

Your Partner for Analog & Mix Signal IC

Convenient power

Fast growing, global supplier of high performance, cost effective

Wireless Charging , Power Management and Interface Solutions

Innovative differentiated patented technology

> 80M pcs IC shipments

> 300MU shipped through IP licensing

Beijing/Tianjin
- IC Engineering
- Operations
- IP Development

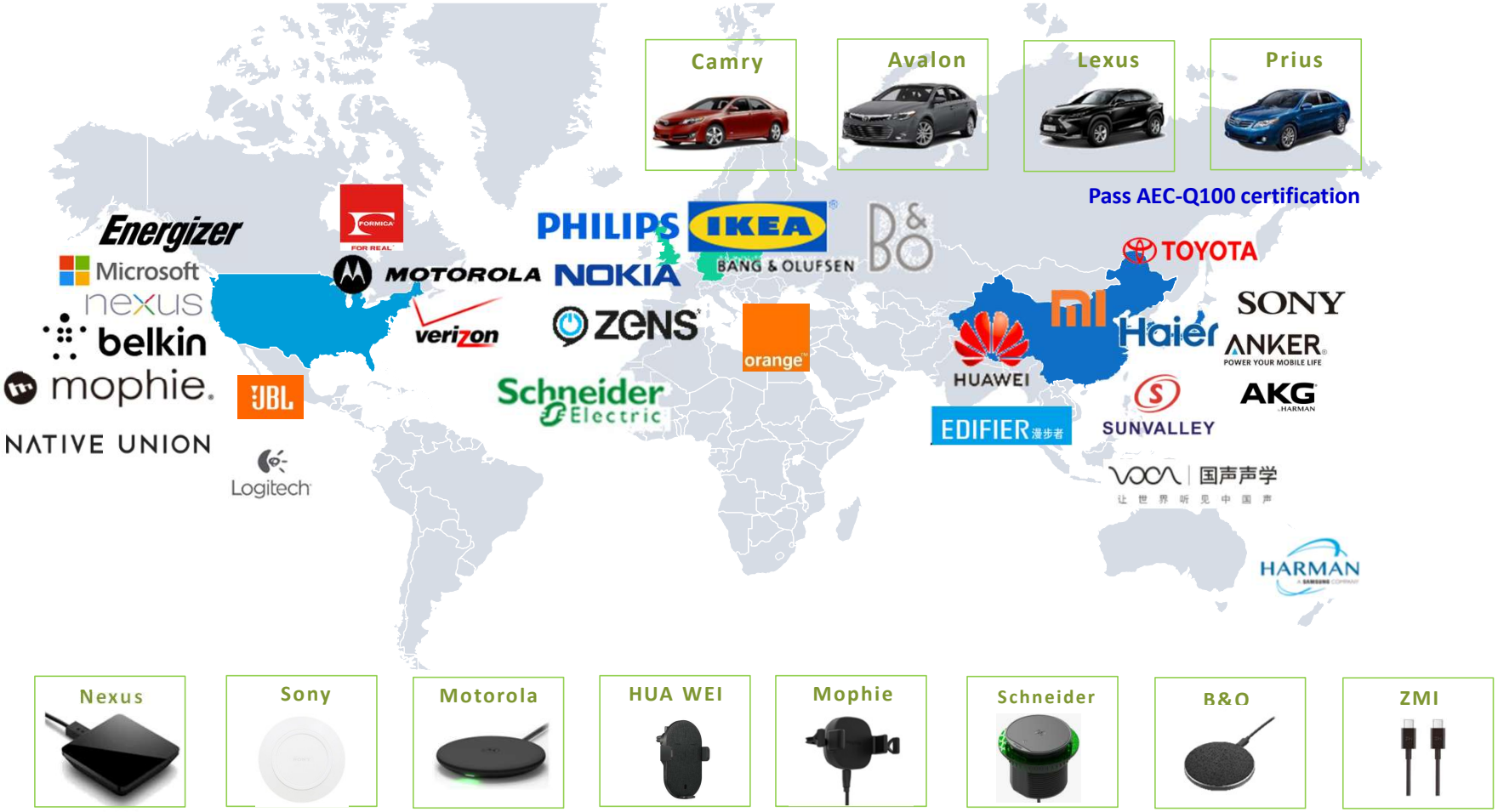
Chengdu - HQ
- IC Engineering
- System Engineering
- Operations

Shenzhen
- Sales
- FAE
- Local AE

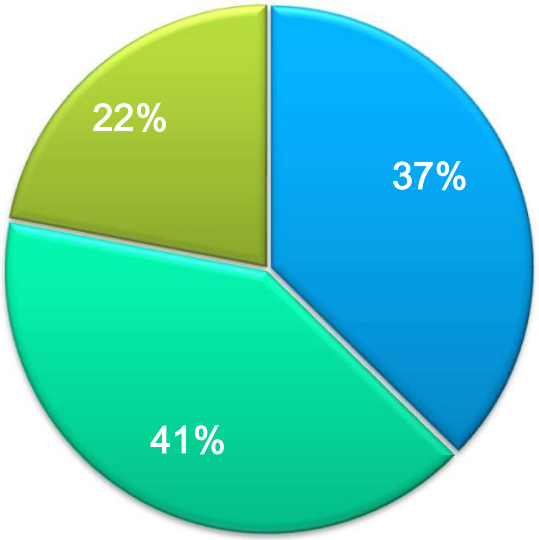
Hong Kong
- Co-founder, WPC
- Technologies Innovation

Silicon Valley
- IP Development
- Process & Device
- Overseas Sales

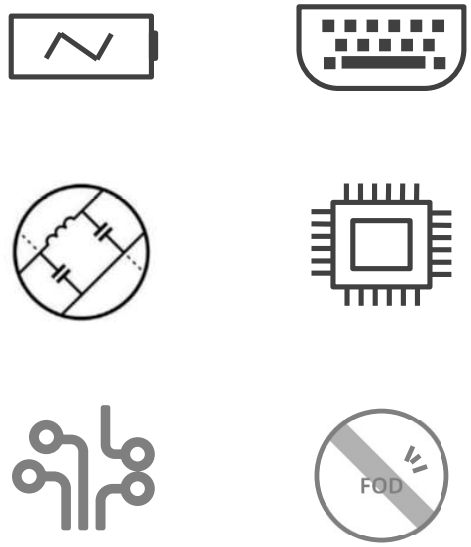
CPS successful footprint around the world



179 Patents & Applications



- Wireless Charging
- Interface
- Analog & Power



Qi technically essential patents：

US 8,290,463	Universal demodulation and modulation for data communication in wireless power transfer
US 8,554,165	
US 8,299,753	Inductive battery charger system with primary transformer windings formed in a multi-layer structure
US 8,519,668	

CPS Leadership in Standardization and WPC Alliance

The Co-Founder and Board Member of WPC

The Co-Chair of SWG

The Co-Chair of Steering Board

The Co-Chair or Promotion Group

Foundry Partners

DB HiTek

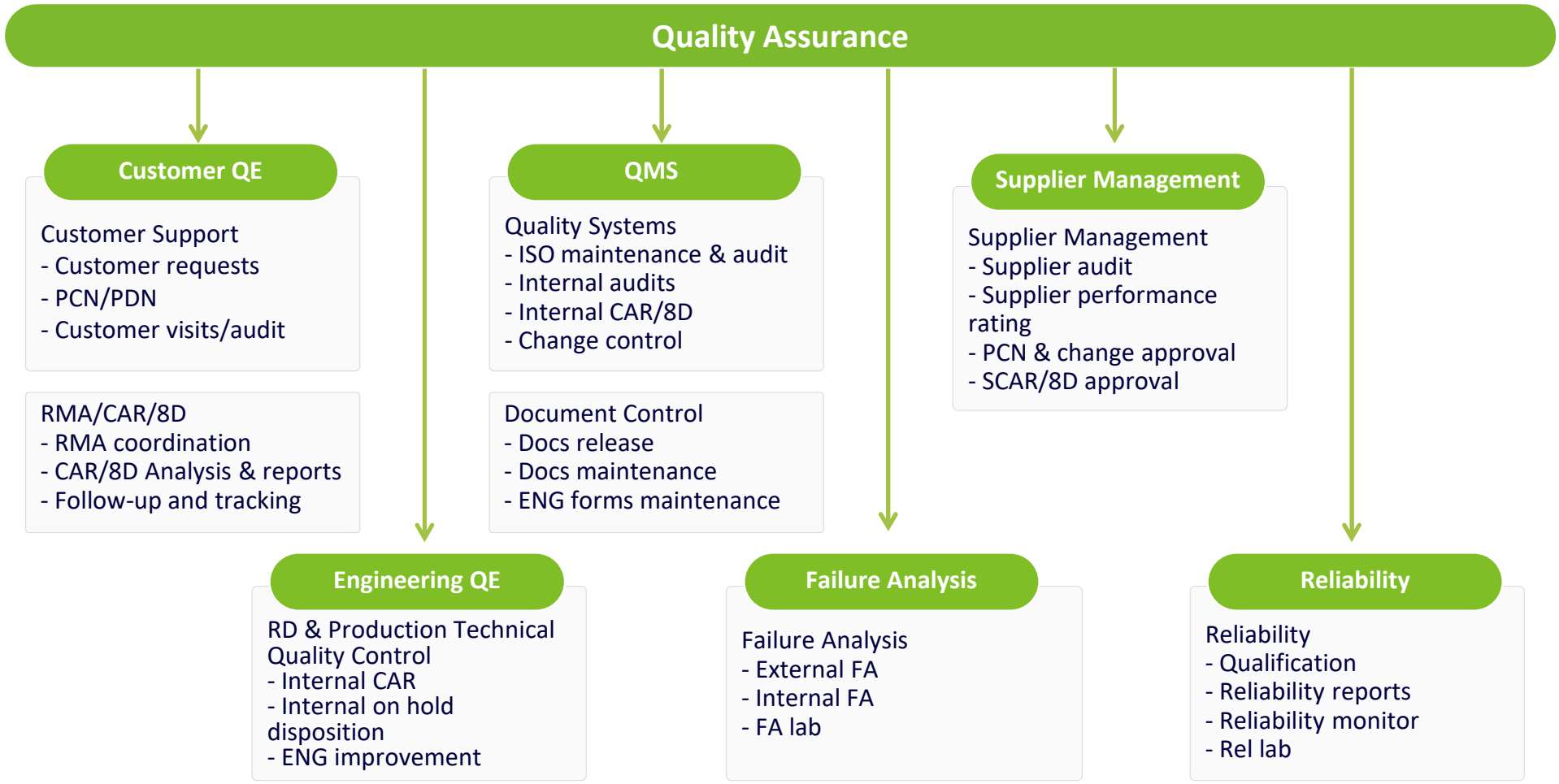
tsmc

VIS

MagnaChip

World top level BCD process foundry

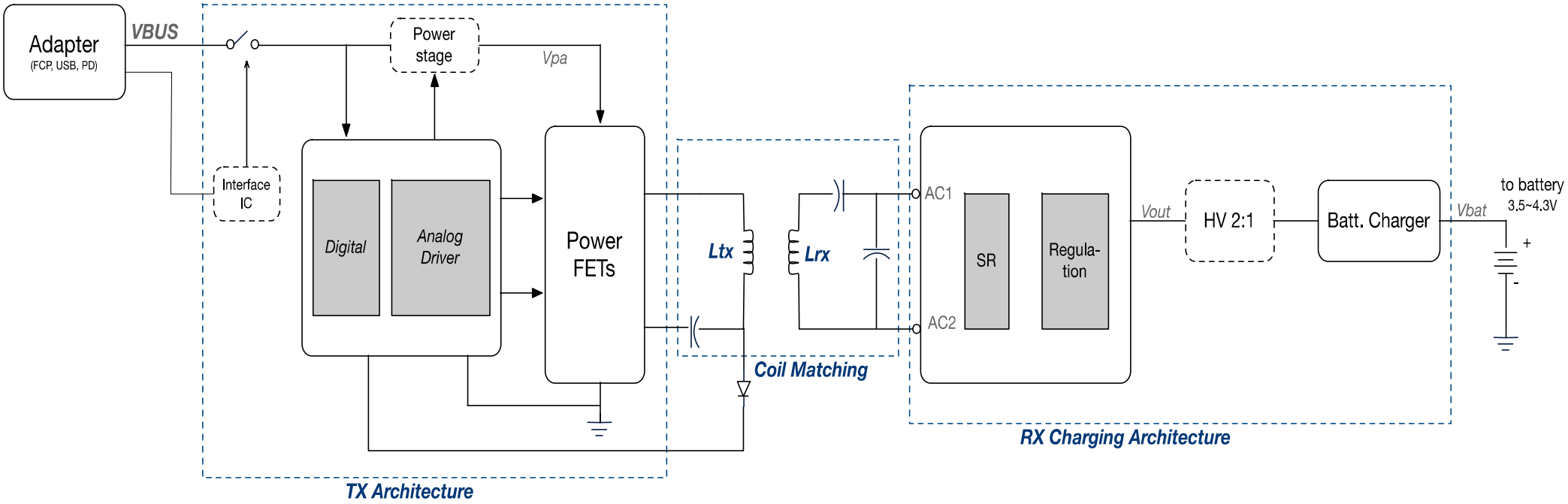
Quality Assurance Functional Organization



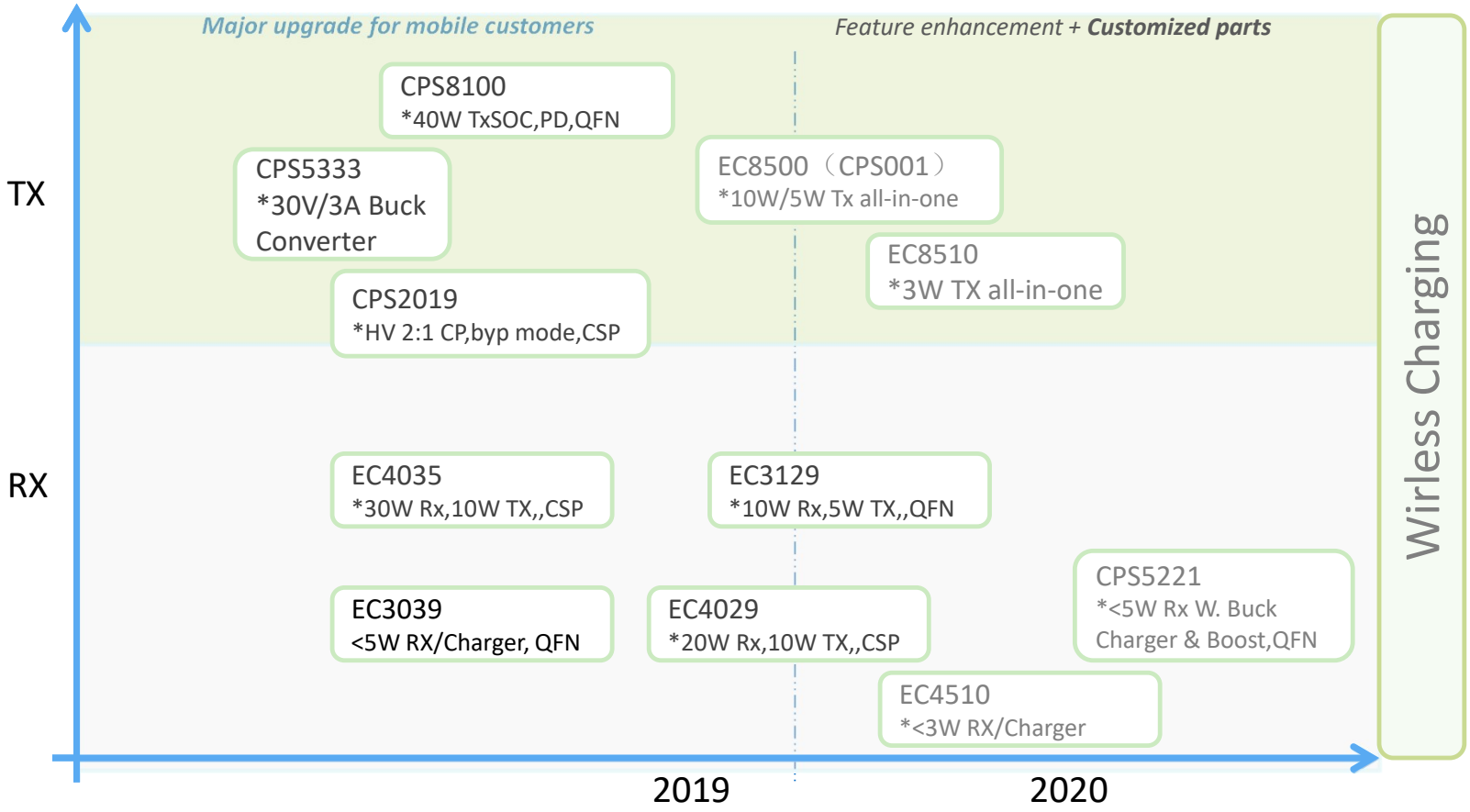
Wireless Charging

Your Partner for Analog & Mix Signal IC

Wireless Charging System



WPT Products Roadmap



CPS offers wireless charging solution Chipsets, which simplifies product-design as well as integration.

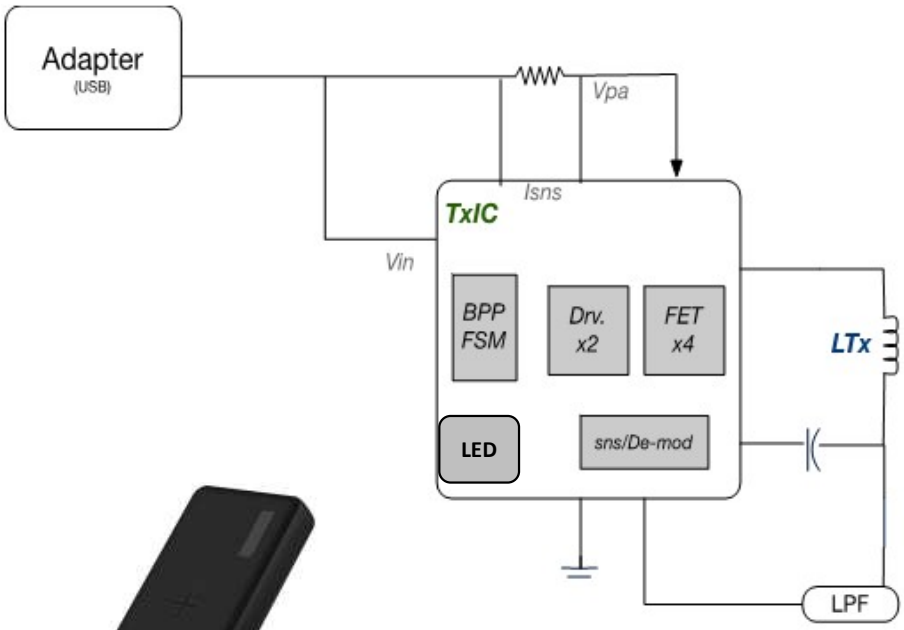
Wireless Charging TX

	IC code	Output Power	Protocol	Frequency
1 Coil	CPS8510	3W	Qi Compatible	VF
	CPS8500	5W	BPP	VF
	CPS8500	10W	BPP+PPDE	VF
	EC8013A	15W	EPP	VF
	CPS8100	15W	EPP	FF
	CPS8100	30W	EPP	FF
2 Coils	CPS8100	15W	EPP	FF
	EC8020A	5W	BPP	VF
3 Coils	EC8034A	15W	EPP	FF

VF: Variable Frequency
FF: Fixed Frequency

5W BPP — CPS8500 1 Chip Solution

- Input Support DC5V (USB/DC Jack)
- Support WPC 1.2.4 BPP 5W in standalone application
- Power transmitter design coil: A11/A28 (Single coil)
- Efficiency: 78%@BPP
- Support LED Indicator
- Integrated full-bridge driver w. Low RDSON HS/LS: 20mΩ
- Voltage and current mode demodulation
- Standalone work support
- Support I2C(slave) interface
- Low Power Mode
- OVP/OCP/ OTP/FOD protection
- QFN-20 2.5mm x 3.5mm, for easy SMT assembly

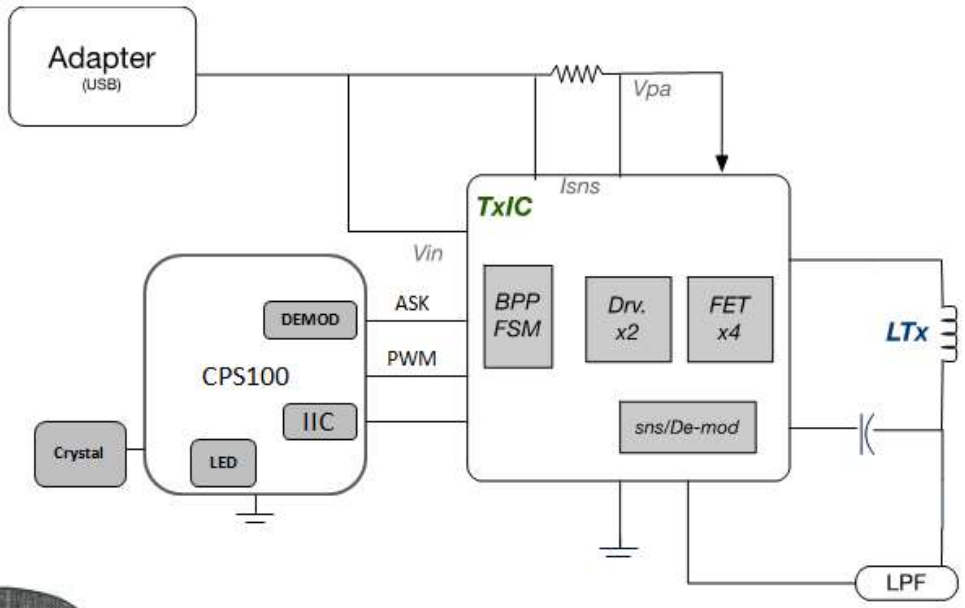


Wireless Charging Powerbank

10W BPP+PPDE — CPS8500 + CPS1001

- Support power input of DC5V/DC9V/QC2.0
- Support WPC 1.2.4 BPP 5W / PPDE/ SFC
- Power interface Support USB/DC Jack
- Power transmitter design coil: A11/A28 (Single coil)
- Efficiency: 80%@PPDE
- Charging height: 3-8mm
- Charging area 16*16mm
- Support driver strength / Dead time adjustable
- Voltage and current sensing & demodulation.
- OVP/OCP/ OTP/FOD protection
- CPS1001 Packages: TSSOP20

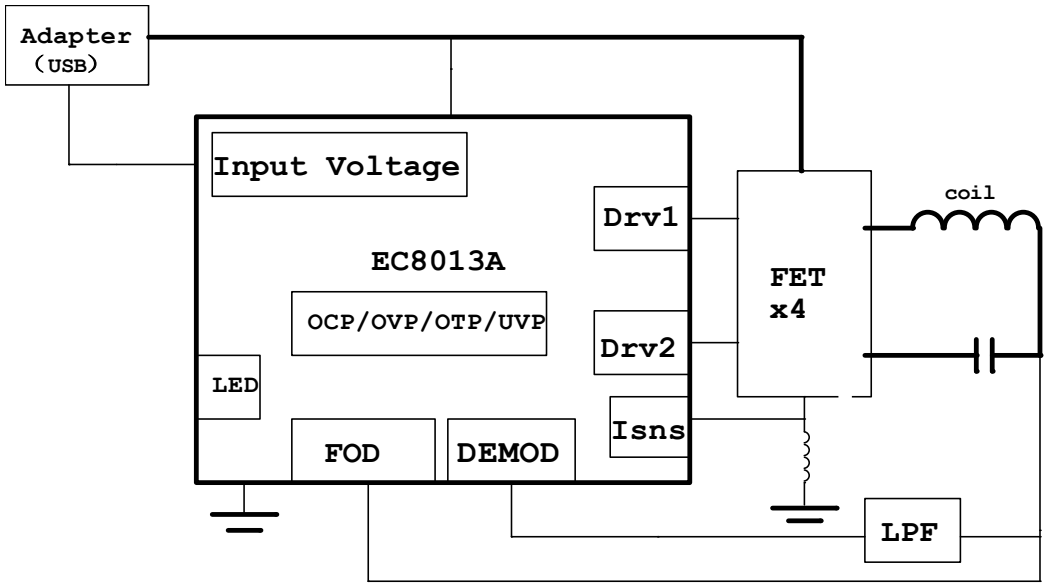
  CPS8500 Packages: QFN-20 2.5mm x 3.5mm



Wireless Charging Pad

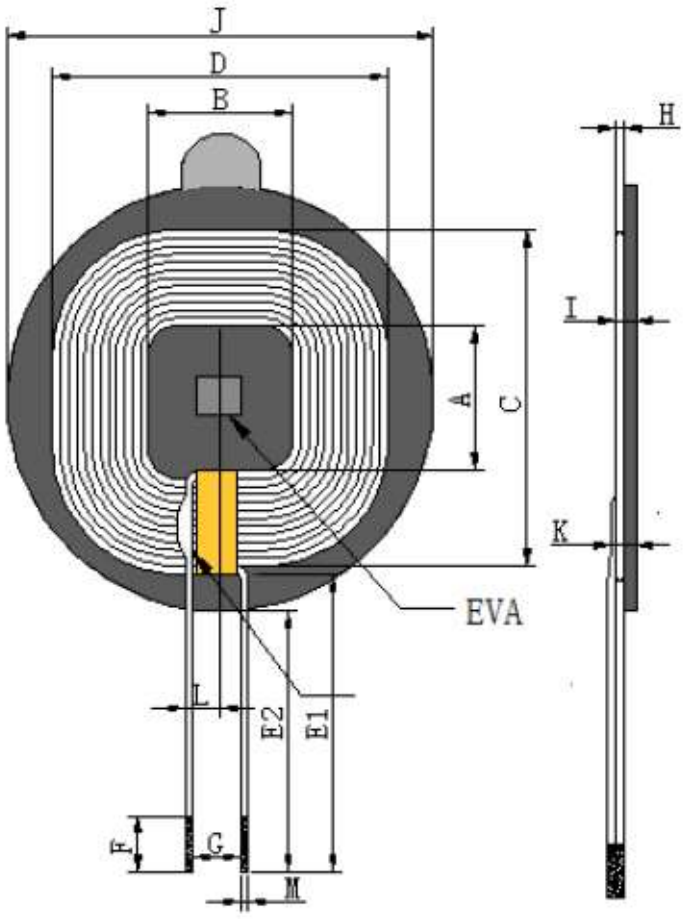
15W EPP VF (1 Coil) — EC8013A

- Input Support DC5V/9V/12V/QC2.0
- Support WPC 1.2.4 EPP 15W / PPDE/GFC(optional)
- Power interface Support USB/DC Jack
- Power transmitter design coil: MP-A2
- Efficiency 82%@15W
- Charging height 3-8mm
- Charging area 16*16mm
- Support driver strength / Dead time adjustable
- Voltage and current sensing & demodulation.
- OCP/OVP/OTP/FOD protection
- QFN48 6mm x 6mm



Wireless Charging Pad

MP-A2 Coil Study



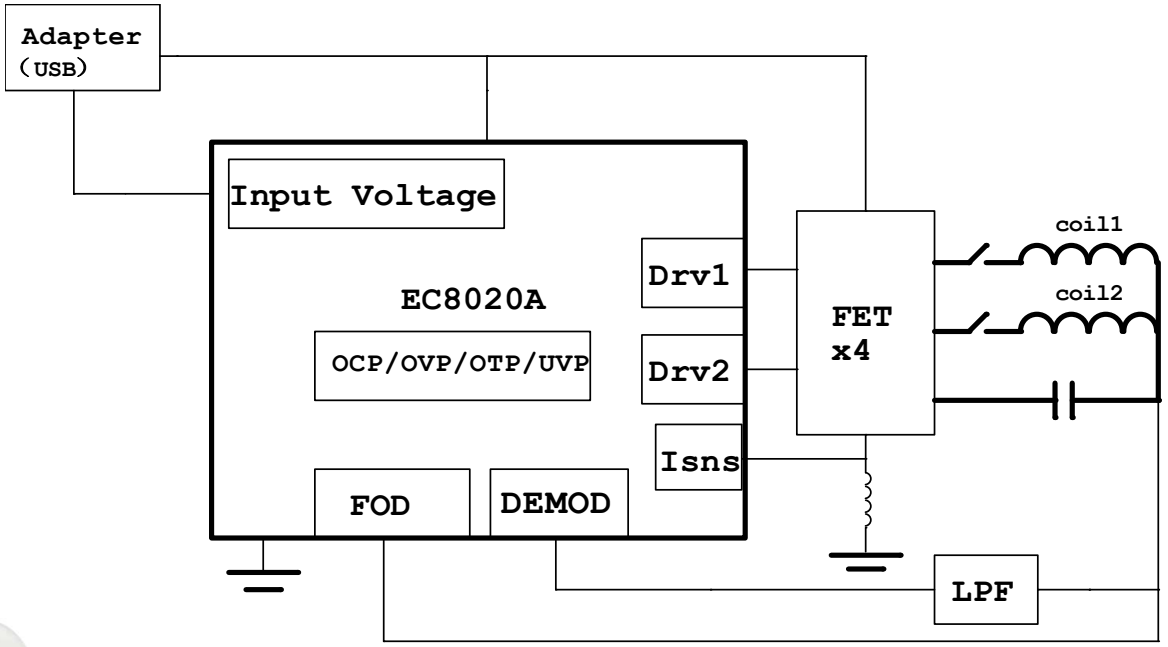
A	19±1
B	19±0.5
C	48±1.0
D	48±1.0
E1	14 ref
E2	12±2
F	4 Max
G	10 ref
H	1.2±0.2
I	3.2Max
J	52±1
K	4.0 Max
L	5.0±1.5
M	1.8 Max

Design parameters

ITEM	SPECIFICATION	TEST FREQUENCY
L	10uH±10%	100KHz/1.0V
Q	95.0(ref)	100KHz/1.0V
DCR	65mΩ Max	100KHz/1.0V

5W BPP+PPDE VF (2 Coils) — EC8020A

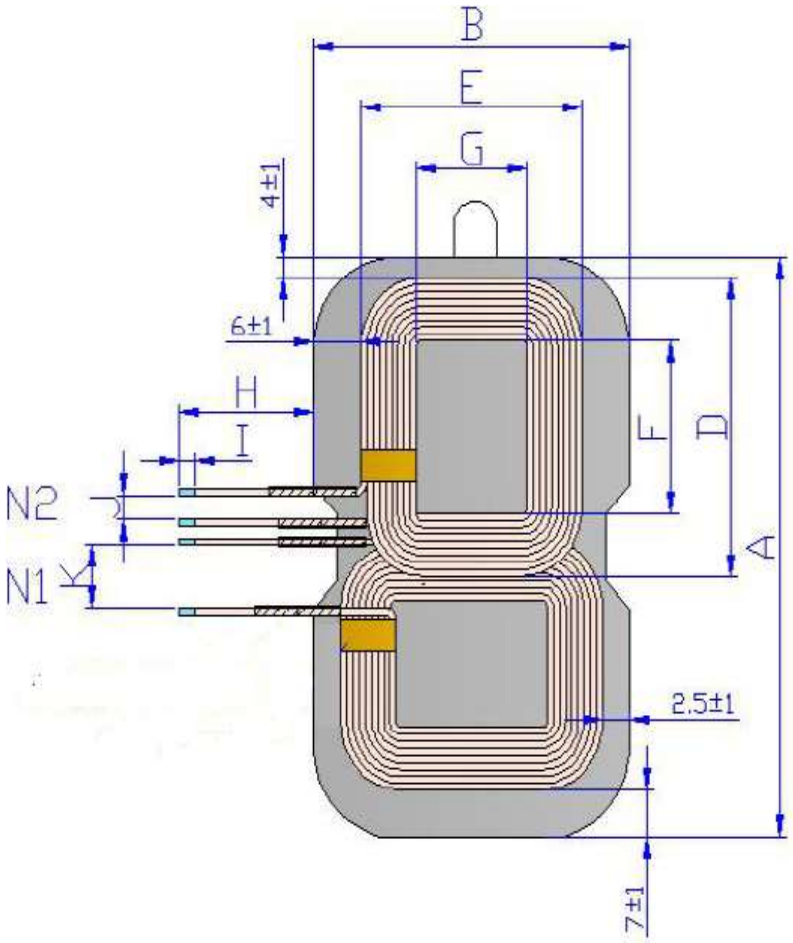
- Input Support DC5V (USB/DC Jack)
- Support WPC 1.2.4 BPP 5W
- Power transmitter design coil: A28a
- Charging efficiency 75%
- Charging height 3-8mm
- Support driver strength / Dead time adjustable
- Voltage and current sensing & demodulation.
- OCP/OVP/OTP/FOD protection
- QFN48 6mm x 6mm



Wireless Charging stand

A28a Dual Coil Study

Coil stack-up: A28 Coil



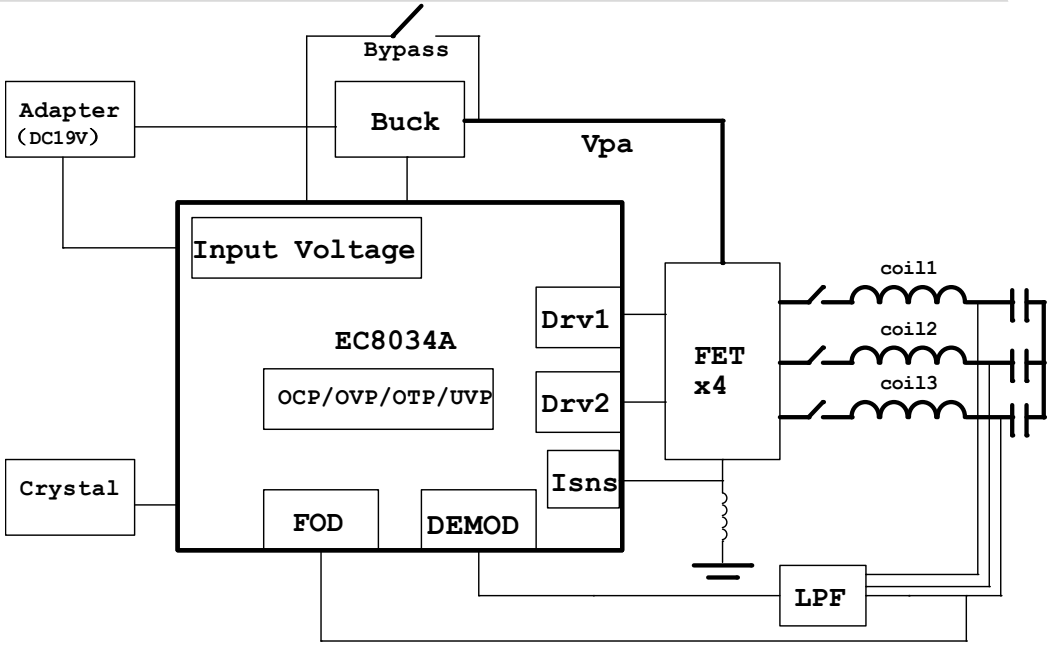
A	94±1
B	52.5±1
C	4MAX
D	48±1
E	39.5±1
F	28±1
G	19.5±1
H	20±1
I	2.5±1
J	4 Ref
K	9 Ref

Design parameters

ITEM	SPECIFICATION	TEST FREQUENCY
L	6.9uH±10%	100KHz/1.0V
DCR	55mΩ Max	100KHz/1.0V

10W EPP FF (3 Coils) — EC8034A

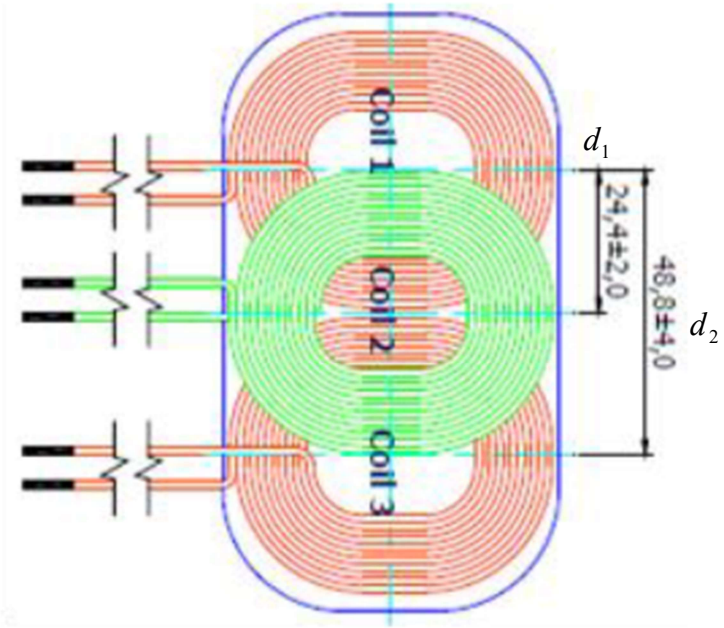
- Input Support DC19V (USB/Dc Jack)
- Support WPC 1.2.4 EPP 10W / PPDE/AFC/GFC(optional)
- Power transmitter design coil: MP-A9/MP-A23
- Charging efficiency 78%
- Charging height 3-8mm
- Support driver strength / Dead time adjustable
- Voltage and current sensing & demodulation.
- OCP/OVP/OTP/FOD protection
- QFN48 6mm x 6mm



Apple store charging stand
Three-coil

MP-A9 and MP-A23 Three Coil Study

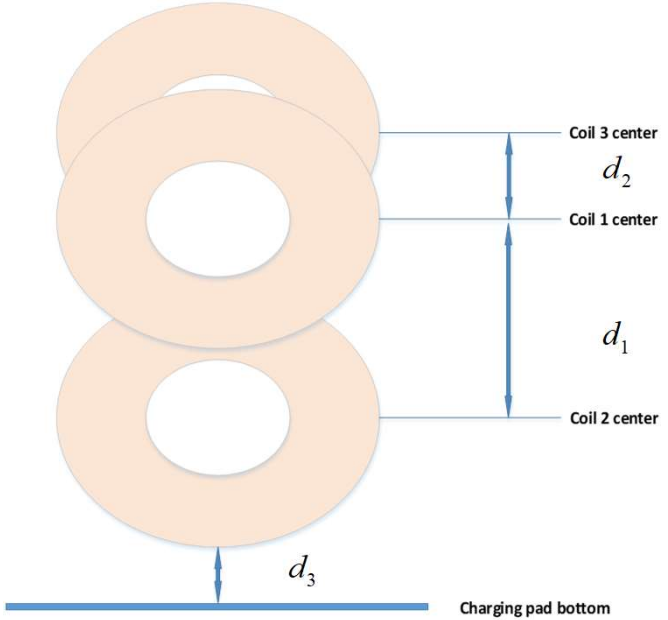
Coil stack-up: MP-A9 Coil



MP-A9 Coil for charging pad

Parameter	Symbol	Value
Coil2 center-Coil1 center	d_1	24.4 mm
Coil3 center-Coil1 center	d_2	48.8 mm

Coil stack-up: MP-A23 Coil

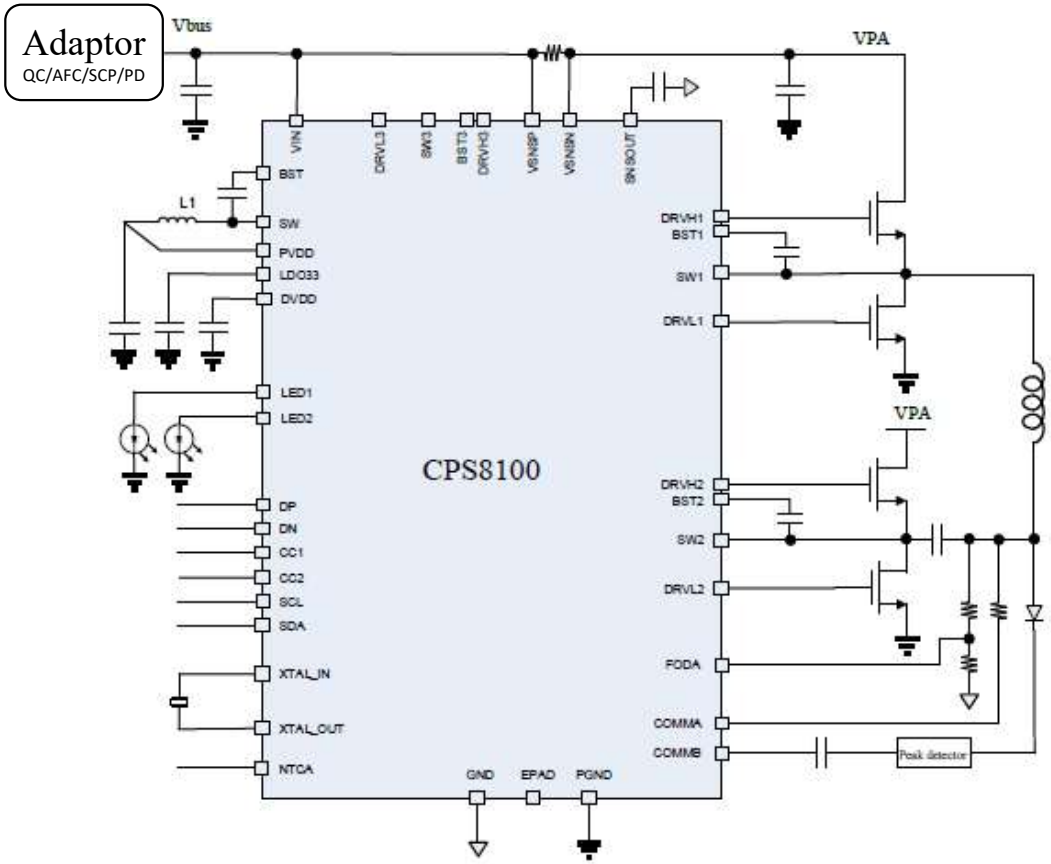


MP-A23 Coil for charging stand

Parameter	Symbol	Value
Coil2 center-Coil1 center	d_1	37.4 mm
Coil3 center-Coil1 center	d_2	14.5 mm
Coil2 bottom-pad bottom	d_3	14.2 mm

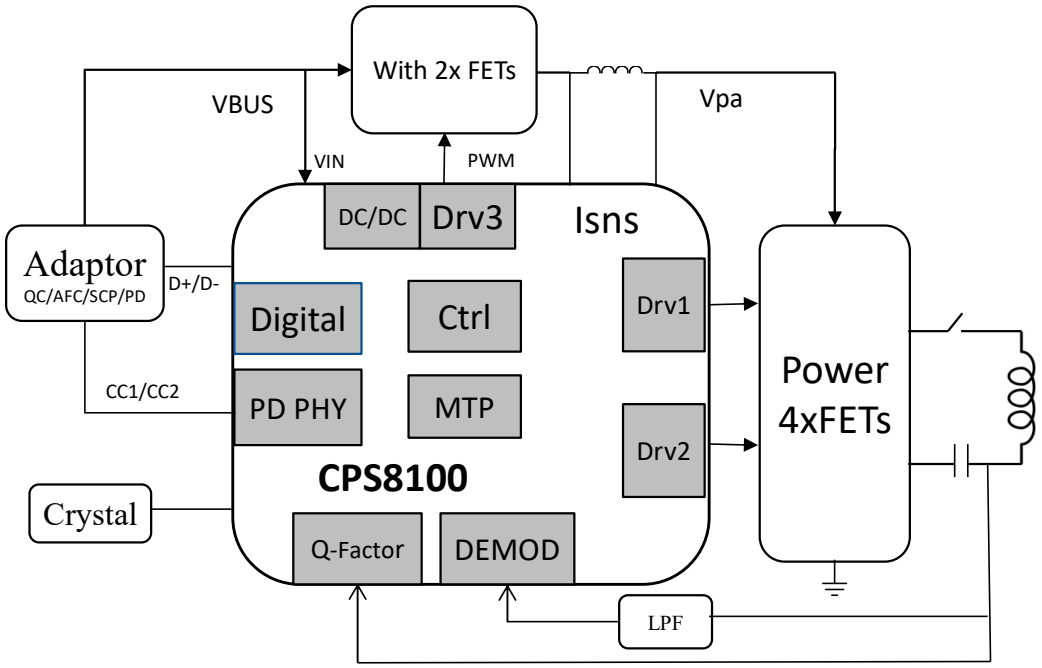
CPS8100 — Solution Advantages

- Adapter ✅
  - Integrated USB-PD/AFC/PD protocol (PD3.0 certified). High-Voltage on CC1/2 pin → **solution saving**
- Integrated DC-DC controller – no external BUCK needed ✅
  - Integrated Boost/Buck controller with bypass mode → **solution saving**
- Flexibility and MP Ramping Benefits ✅
  - MTP memory for Firmware development flexibility
  - Firmware update through USB port



15W EPP FF (1 Coil)– CPS8100

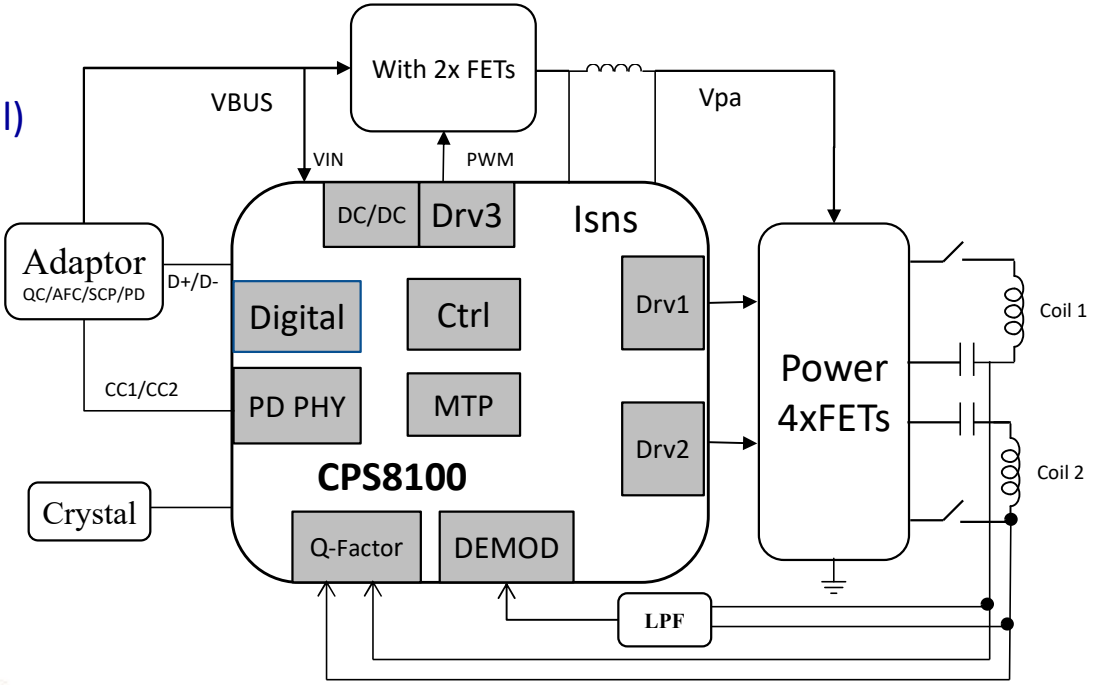
- Input Support DC5V/9V/12V/15V/QC/PD
- Support WPC 1.2.4 EPP 15W / PPDE/AFC/GFC(optional)
- Support wireless transmission 30W customized scheme
- Power transmitter design coil: MP-A11/MP-A20(Single coil)
- Efficiency: 81%@EPP
- Charging height: 3-8mm
- Charging area 16*16mm
- Support driver strength / Dead time adjustable
- Voltage and current sensing & demodulation.
- OVP/OCP/ OTP/FOD protection
- Packages QFN48 6mm x 6mm
- operating temperature range of 0 ~ 85℃



Wireless Charging Pad

15W EPP FF (2 Coils)– CPS8100

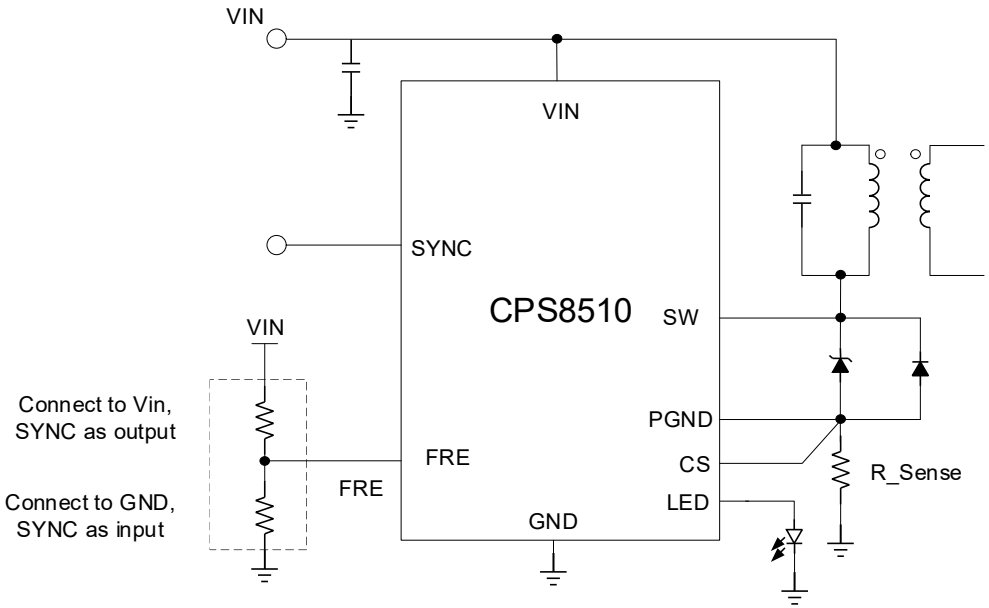
- Input Support DC5V/9V/12V/15V/QC/PD
- Support WPC 1.2.4 EPP 15W/PPDE/AFC/GFC(optional)
- Power transmitter design coil: MP-A20
- Charging efficiency 79%
- Charging height 3-8mm
- Charging area 16*16mm(each coil)
- Support driver strength / Dead time adjustable
- Voltage and current sensing & demodulation.
- OCP/OVP/OTP/FOD protection
- QFN48 6mm x 6mm

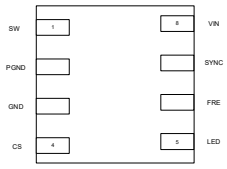


Wireless Charging stand

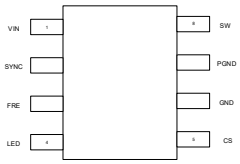
CPS8510 — Low Power Wireless Transmitter

- VIN Input voltage: 3V-5.5V
- Ultra Simple Component
- Support Private Protocol
- Integrated FOD and Demodulation
- Frequency setting and SYNC
- LED Indicator
- TSOT23-8 and QFN8 2mmx2mm



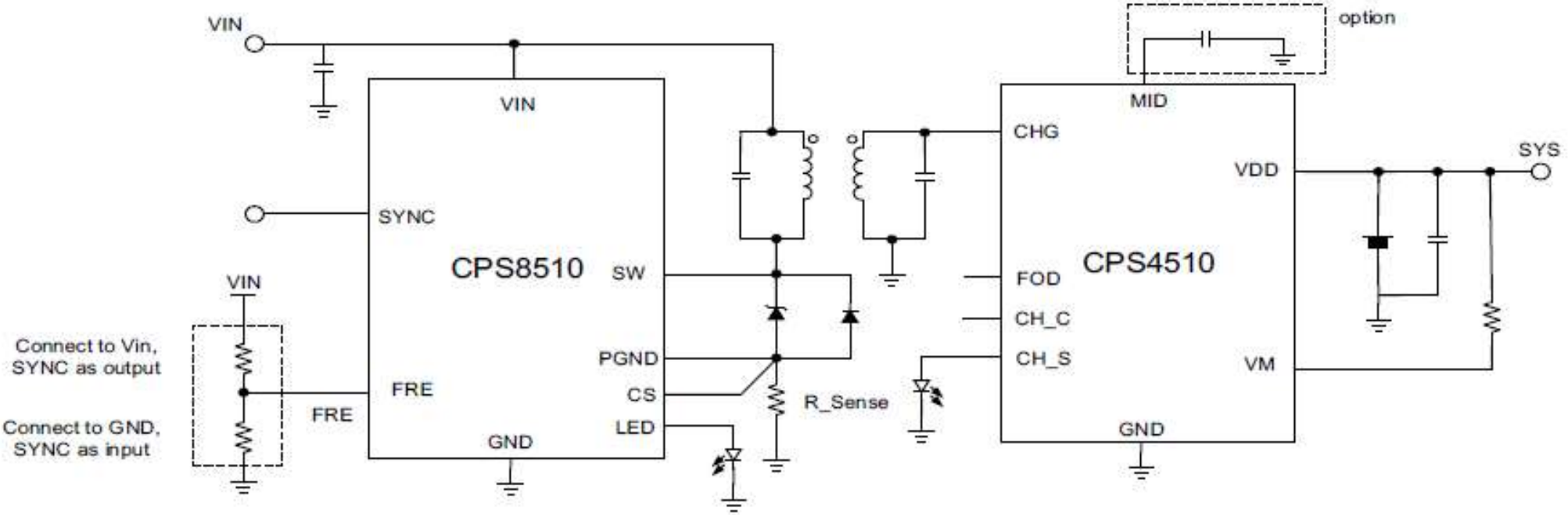


QFN 2mmx2mm



TSOT23-8

CPS8510 — Proposed WPT Solution for Toothbrush

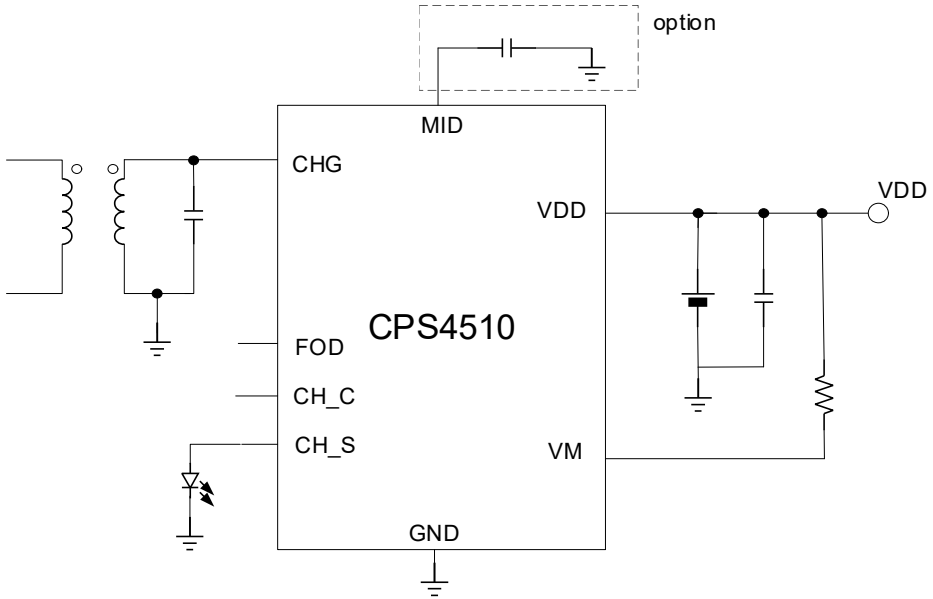


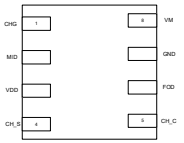
Wireless Charging RX

	Package	Power	Protocol	Description
CPS4510	TSOT23-8 and QFN8 2x2mm	3W	Qi Comp	Toothbrush and TWS
CPS3039	QFN 3mmx 4mm	5W	BPP	TWS with Linear Charger
CPS3129	QFN48 6mm x 6mm	10W RX+5W TX	BPP	TWS
CPS4029	WLCSP 52	20W RX+10W TX	EPP	P2P IDT 9221
CPS4035	WLCSP 53	30W RX+10W TX	EPP	P2P IDT 9415

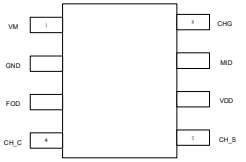
CPS4510 — Low Power Wireless Receiver + Charger

- Qi Compatible ,CHG Input voltage: 4V-18V
- Maximum VDD output Voltage: 4.5V
- IOUT: 500mA
- Integrated Rectifier and Linear Charger
- Support Private Protocol, Qi Compatible
- FOD adjustable w. external resistor
- Integrated Battery Protection
- Power Save for battery application
  - Low Power Mode <5uA
  - Standby Mode < 1uA
- LED Indicator
- TSOT23-8 and QFN8 2mmx2mm





QFN 2mmx2mm

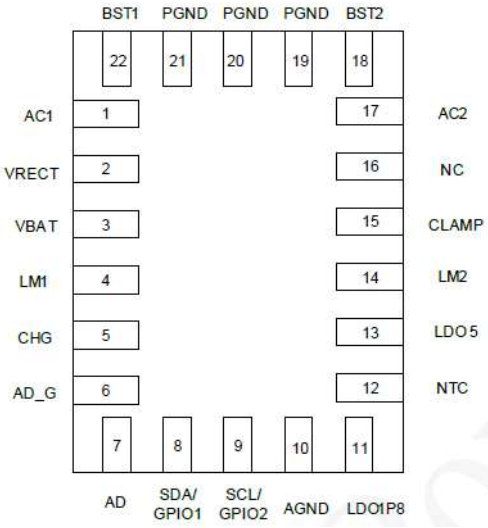


TSOT23-8

CPS3039-Low wireless power receiver with integrated charger

- Fully Integrated with Wireless Receiver and Charger, WPC 1.2.4 Compliant
- Less peripheral components, Small PCB layout area
- Integrated MCU, with configurable memory space
- JEITA Compatible Charger
- Ultra Low Leakage Current w/o transmitter, 2uA
- Adaptor Charger Supported
- Less peripheral components, Small PCB layout area
- Low temperature rise
- Flexible application and high system stability
- Support OCPOVP/OTP protection
- Support HW adjustment RP gain and RP offset
- Operation temperature: 0 ~ 85 ˚C

Packages

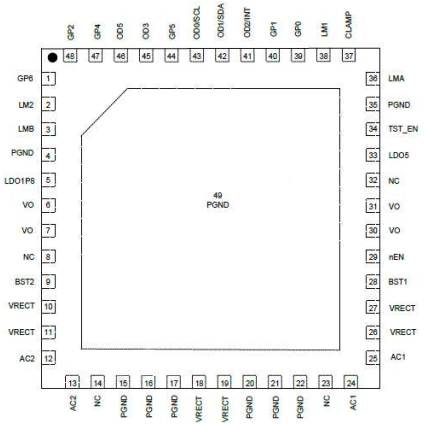


QFN 3mm x 4mm

CPS3129 — 10W Highly Integrated Wireless Receiver

- WPC 1.2.4 compliant wireless power receiver
- Rx mode support 10W output power
- TX mode support 5W output power
- Ultra-low dropout linear (LDO) regulator
- Embedded ARM core and on-chip MTP to maximize the system design flexibility
- Fully synchronous rectifier with low RDS(ON)
- Dedicated remote temperature sensing
- Support I2C interface for system configuration and user programmability
- Fully and programmable protection, OCP/OVP/OTP
- Junction temperature: -40 ~ 125 ˚C

Packages

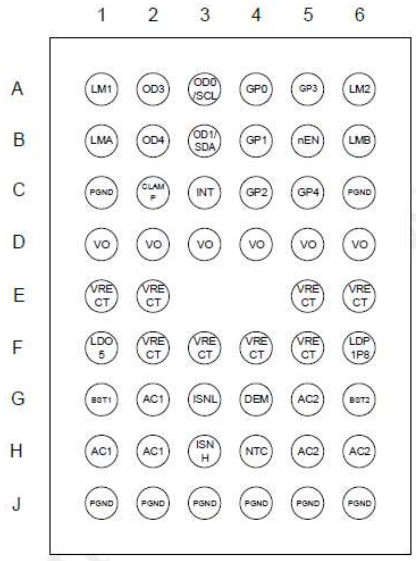


QFN48 6mm x 6mm

CPS4029 — 20W Highly Integrated Wireless Receiver

- WPC 1.2.4 compliant wireless power receiver
- Rx mode support 20W output power and 4.5V ~ 22V output
- TX mode support 10W output power
- Ultra-low dropout linear (LDO) regulator with programmable output voltage with 10mV step
- Embedded ARM core and on-chip MTP to maximize the system design flexibility
- Fully synchronous rectifier with low RDS(ON)
- Dedicated remote temperature sensing
- Support I2C interface for system configuration and user programmability
- Fully and programmable protection, OCP/OVP/OTP
- Junction temperature: -40 ~ 125 ˚C

Packages

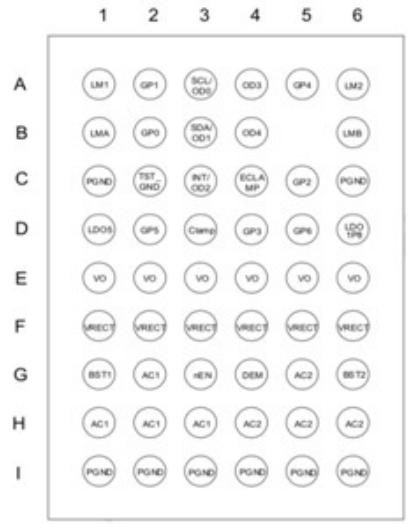


WLCSP-52
2.8mm x 4mm

CPS4035 — 30W wireless power receiver + 10W transmitter

- WPC 1.2.4 compliant wireless power receiver
- Rx mode support 30W output power (40W max) and 4.5V ~ 22V output voltage
- TX mode support 10W output power
- Ultra-low dropout linear (LDO) regulator with programmable output voltage with 10mV/step
- Embedded ARM core and on-chip MTP to maximize the system design flexibility
- Fully synchronous rectifier with low RDS(ON)
- Dedicated remote temperature sensing
- Support I2C interface for system configuration and user programmability
- Fully and programmable protection, OCP/OVP/OTP
- Junction temperature: -40 ~ 125 ˚C

Packages



WLCSP-53
2.8mm x 4mm

Thank You!