



# LEADING PASSIVE SOLUTIONS

## — PRODUCT OVERVIEW —

### ► Power Solutions

- Power Inductor
- Wireless Power Transfer

### ► EMI Solutions

- Chip Bead
- Common Mode Choke

### ► RF Solutions

- RF Inductor
- Antenna
- LTCC Component

### ► Resistor

- Thin Film
- Thick Film
- Metal Alloy

### ► LAN Transformer

### ► Automotive Solutions

- AEC-Q200 Compliant



ESTABLISHED SINCE 1972



# Networking

## Power Inductor Solutions

5G



BKPx

### Features:

- ▶ Size range: 1.6\*0.8 ~ 2.5\*2 mm
- ▶ Multilayer (low profile)
- ▶ Monolithic ferrite core
- ▶ High current, low DCR

### Applications :

- ▶ Power module
- ▶ DC-DC power converter

## RF Inductor Solutions



BWSM

Spring Air Core inductor

### Features:

- ▶ Size range: 4\*6 mm
- ▶ High Q and ultra high current

### Applications :

- ▶ Base Station
- ▶ LNA & LNB
- ▶ Satellite

## RF Solutions - Antenna

BTEA



WiFi6

### Features:

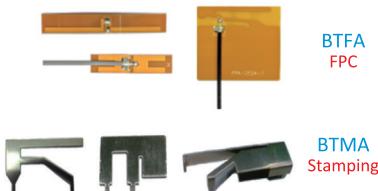
- ▶ Easy installation, low cost and light-weight
- ▶ Wide bandwidth and Omni-directional
- ▶ Customized specification available

### Applications :

- ▶ Bluetooth, wireless router, STB & home digital
- ▶ ISM band, Lora, Sigfox, LTE, NB-IOT, GPS, WiFi and car use



WiFi6



### Features:

- ▶ Small size, low-profile and light-weight
- ▶ Wide bandwidth and Omni-directional
- ▶ Support Dip-type, SMD and Co-axial cable connecting
- ▶ Customized specification available

### Applications :

- ▶ Bluetooth, wireless router, STB & home digital
- ▶ ISM band, Lora, Sigfox, LTE, NB-IOT, GPS, WiFi and car use

## RF Solutions - LTCC Component

5G



WiFi6

### Features:

- ▶ Size range: 1\*0.5 ~ 2.5\*2 mm
- ▶ Low insertion loss
- ▶ High attenuation

### Applications :

- ▶ Bluetooth, WLAN
- ▶ LTE, WiFi, GPS

## LAN Transformer

5G



WiFi6

### Type:

- ▶ Single port 100/1G/2.5G/5G/10G Base-T(SMD/DIP)
- ▶ Dual port 100/1G/2.5G/5G/10G Base-T(SMD/DIP)
- ▶ Quad port 1G/2.5G/5G/10G Base-T(DIP)

### Features :

- ▶ 802.3bz/802.3af/IEEE802.3at
- ▶ Ethernet & Power over Ethernet
- ▶ Better noise rejection

### Applications :

- ▶ RJ-45

## Thick Film - Anti-Sulfur Chip Resistor

BCTS  
GeneralBCSR  
High PrecisionBCSV  
High Voltage

### Features:

- ▶ Size range: 0.6\*0.3 ~ 6.3\*3.2 mm
- ▶ Anti-sulfur characteristic
- ▶ High reliability and stability
- ▶ Applied to all kinds of SMT process
- ▶ Sulfur resistant capability (ASTM-B-809-95 & EIA-977)

### Applications :

- ▶ Industrial facility
- ▶ Electricity/ Internet application
- ▶ High end computer and multi-media electronic product



# Computing

## Power Inductor Solutions

5G



BWVx

### Features :

- ▶ Size range: 2\*1.6 ~ 8\*8 mm
- ▶ Low profile < 1 mm
- ▶ Magnetic powder resin shielded
- ▶ Wide inductance range

### Applications :

- ▶ Smartphone, tablet and wearable devices
- ▶ STB, AP Router
- ▶ DC-DC power converter
- ▶ Game console



BPMx

### Features :

- ▶ Size range: 4\*4 ~ 10\*7 mm
- ▶ High speed, high current switch mode applications at lower inductance
- ▶ Gapped ferrite cores for maximum efficiency
- ▶ Customized specifications available

### Applications :

- ▶ Voltage regulator modules (VRMs) for server, microprocessor
- ▶ High frequency, high current switching power supplies



BMNx/BMMx

### Features :

- ▶ Size range: 4\*4 ~ 17\*17 mm
- ▶ High current & low DCR

### Applications :

- ▶ PMIC
- ▶ DC-DC power converter



BPED

### Features :

- ▶ Size range: 10\*3.8 mm
- ▶ Low profile
- ▶ No thermal aging
- ▶ High current saturation, no temperature dependency

### Applications :

- ▶ Data center & Server V-core
- ▶ FPGA, VGA GPU V-core



BFDI

BP3Y

### Features :

- ▶ Size range: 13\*12 ~ 30\*30 mm
- ▶ Operating temperature -40°C to 125°C
- ▶ Large current, high energy storage
- ▶ Low loss

### Applications :

- ▶ LCD monitor
- ▶ PDA
- ▶ DT & NB motherboard, graphic card, POL
- ▶ DC-DC power converter for infotainment, navigation system

## EMI Solutions - Bead

BBSY/BBNQ  
BPPY/BBFY

### Features :

- ▶ Size range: 0.6\*0.3 ~ 4.5\*3.2 mm
- ▶ Multilayer chip bead
- ▶ Monolithic ferrite core
- ▶ Diversified impedance curve

### Applications :

- ▶ High speed signal line
- ▶ For power line under 1GHz

## EMI Solutions - Common Mode Choke



BPPM

### Features :

- ▶ Size range: 7\*6 ~ 15\*13 mm
- ▶ Common mode choke for Power line
- ▶ High frequency
- ▶ Wide impedance range (70~30000)

### Applications :

- ▶ Modem, router, HUB, STB
- ▶ PC, LVDs, graphic card



# Computing

## Metal Alloy - 4 Terminal Resistor



**BC4C/BC4E/BC4H**  
Low-Resistance

### Features :

- ▶ Size range: 0.85\*1.6 ~ 1.6\*3.2 mm
- ▶ Tight tolerance (0.5%, 1%, 5% available)
- ▶ High-temperature performance (up to +170 °C)
- ▶ Low temperature coefficients (TCR, 50ppm/ °C available)
- ▶ High-current handling capability (BC4E>31.6A/BC4C>233A/BC4H>17A)
- ▶ A wide resistance range (1 to 25mΩ)
- ▶ High power density

### Applications :

- ▶ Various types of power supplies
- ▶ Current detection for CPU
- ▶ Test equipment
- ▶ LED driver
- ▶ Battery pack, DC-DC power converter

## Thick Film - Fully Lead-free Chip Resistor



**BCTF/BCCF**

**BCFH**  
High power

**BCFE**  
Super high power

**BCFW**  
Wide terminal

**BCFG**  
Anti-surge/  
Pulse proof

### Features :

- ▶ Size range: 1.6\*3.2 ~ 6.3\*3.2 mm
- ▶ Fully lead-free, RoHS compliant
- ▶ For general purpose
- ▶ Applied to all kinds of SMT process

### Applications :

- ▶ Computer, NB, motherboard, telecom
- ▶ Consumer electrical equipment, digital camera
- ▶ Battery charger, DC-DC power converter



# Mobile and Wearable Device

## Power Inductor Solutions



**BEBE**

### Features :

- ▶ Miniaturization: 1.4 \* 1.2 \* 0.8 mm
- ▶ High performance saturation current realized
- ▶ Low coil resistance

### Applications :

- ▶ Smartphone, wearable devices

## Wireless Power Transfer



**Tx Coil**  
WPC standard

**5G**



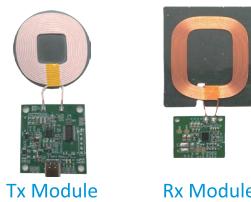
**Rx Coil**  
Customized

### Features :

- ▶ Maximum power up to 15W
- ▶ Qi compliant (Tx Coil)
- ▶ Slim type coil (Rx Coil)
- ▶ Higher transfer efficiency

### Applications :

- ▶ Smartphone, wearable devices
- ▶ Waterproof product
- ▶ Bluetooth earphone box



**Tx Module**



**Rx Module**

### Features :

- ▶ Support Apple & Samsung fast charging mode
- ▶ Support 15W max Rx Qi module
- ▶ Compliant with WPC 1.2X
- ▶ Fixed accurate 127.7KHz frequency

### Applications :

- ▶ Smartphone
- ▶ Portable, waterproof product
- ▶ Game console



# Mobile and Wearable Device

## RF Inductor Solutions



BWCS



BWLS

### Features :

- ▶ Size range: 0.5\*0.4 ~ 4\*3 mm
- ▶ RF choke in cellular bands
- ▶ High SRF, low DCR, superior Q value
- ▶ As band stop, low loss/ one-pole filter

### Applications :

- ▶ Smartphone
- ▶ Base station, WLAN
- ▶ Security system
- ▶ Cable modem, STB, CATV filter/tuner



BSCH



BSCQ

### Features :

- ▶ Size range: 0.6\*0.3 ~ 1.6\*0.8 mm
- ▶ Multilayer, ceramic core
- ▶ Excellent Q factor
- ▶ Tight tolerance

### Applications :

- ▶ RF matching circuit, choke
- ▶ Bluetooth, WLAN, UWB, radar detector



WiFi6



BSPQ

### Features :

- ▶ Miniaturization: 0.6\*0.3 mm
- ▶ Thin film
- ▶ Ag photolithography
- ▶ Higher Q factor > 20 @500MHz
- ▶ Tight tolerance

### Applications :

- ▶ Filter
- ▶ Smartphone
- ▶ Digital TV tuner
- ▶ Matching network, WLAN, Bluetooth

## RF Solutions - Antenna



BTCA

### Features :

- ▶ Size range: 1.6\*0.8 ~ 8\*1 mm
- ▶ Monolithic SMD, low-profile and light-weight
- ▶ Wide bandwidth
- ▶ Customized specification available

### Applications :

- ▶ Bluetooth, WLAN, home RF, GPS
- ▶ ISM band 2.4G application, 4G LTE, WiFi





# Automotive Solutions

## EMI Solutions - Common Mode Choke



AWCU

### Features :

- ▶ Size range: 3.3\*2.5 mm
- ▶ Common mode choke for Signal line
- ▶ IEC 62228-3 CLASS III
- ▶ Noise rejection

### Applications :

- ▶ Ethernet for Felix ray, CAN bus, CAN FD



APPM

### Features :

- ▶ Size range: 7\*6 ~ 15\*13 mm
- ▶ Common mode choke for Power line
- ▶ High frequency and high impedance

### Applications :

- ▶ Automotive power line & multimedia

## LAN Transformer



AXRT

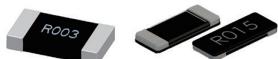
### Features :

- ▶ Wide operating temperature and excellent reliability
- ▶ IEEE802.3u (10/100 Base-T) or IEEE802.3ab (1000 Base-T)
- ▶ IEEE802.3af or IEEE802.3at
- ▶ 10/100/1000 Power over Ethernet

### Applications :

- ▶ Power train control module
- ▶ Battery management, ECU
- ▶ Infotainment, ADAS
- ▶ Safety, Air bag, ABS, TPMS, parking sensor
- ▶ Radar, CCD

## Metal Alloy - Metal Strip Current Sensor

ACRC/ACRE  
ACRH/ACRS

### Features :

- ▶ Size range: 2\*1.2 ~ 11\*6.8 mm
- ▶ AEC-Q200 compliant
- ▶ T.C.R  $\pm 25\text{ppm}$  / C available
- ▶ Wide resistance range (0 ~ 300m $\Omega$ )
- ▶ High surge power

### Applications :

- ▶ Computer, NB, motherboard
- ▶ Mobile phone, telecom
- ▶ Consumer charger, DC-DC power converter
- ▶ Electric vehicle

## Thin Film Resistor

ACTX  
Chip Resistor

### Features :

- ▶ Size range: 1\*0.5 ~ 3.05\*1.5 mm
- ▶ Small size and light weight
- ▶ High reliability and stability
- ▶ Lower assembly cost
- ▶ Applied to all kinds of SMT process

### Applications :

- ▶ Computer, NB, motherboard
- ▶ Mobile phone, telecom
- ▶ Consumer electrical equipment, digital camera
- ▶ Battery charger, DC-DC power converter
- ▶ Electric vehicle

## Thick Film Resistor

ACTA/ACTG/ACTH/ACTR  
ACHH/ACTW/ACTV/ACTS  
Chip ResistorACAD  
Array Resistor

### Features :

- ▶ Size range: 0.6\*0.3 ~ 6.3\*3.2 mm
- ▶ AEC-Q200 compliant
- ▶ Highly reliable electrode construction
- ▶ Compatible with all soldering processes
- ▶ Highly stable in auto-placement surface mounting application

### Applications :

- ▶ All general purpose
- ▶ Electric vehicle and industrial application



# Automotive Solutions

## Power Inductor Solutions



ADHE/ADMA

### Features :

- ▶ Size : 2.5\*2 mm
- ▶ Molding chip power inductor

### Applications :

- ▶ PMIC, infotainment



AMNx

### Features :

- ▶ Size range: 4\*4 ~ 7\*7 mm
- ▶ Molding choke
- ▶ High current and low DCR

### Applications :

- ▶ High efficiency DC-DC power converter



APMI

### Features :

- ▶ Size range: 4\*4 ~ 10\*8 mm
- ▶ High current
- ▶ Low DCR loss, high saturation current and low AC power loss

### Applications :

- ▶ DC-DC power converter
- ▶ Class-D audio power amplifier



APCT

### Features :

- ▶ Size range: 6\*6 ~ 13\*12 mm
- ▶ Ferrite core design, SMD type

### Applications :

- ▶ DC-DC power converter
- ▶ Class-D audio power amplifier



APCK

### Features :

- ▶ Size range: 8\*8 ~ 13\*11 mm
- ▶ High saturation current
- ▶ Low DCR

### Applications :

- ▶ Class-D audio power amplifier



AFSI

### Features :

- ▶ Size range: 9\*9 ~ 12\*11 mm
- ▶ Large current, low DCR, low loss
- ▶ High efficiency, wide frequency
- ▶ Light-weight design and space-saving, suitable for high density SMT

### Applications :

- ▶ PC, NB, LCD monitor, PDA
- ▶ Server system, motherboard, graphic card
- ▶ POL, DC-DC power converter, LED driver
- ▶ Motor control system, DC-DC power converter



AMDU

### Features :

- ▶ Size range: 10\*10 mm
- ▶ The optimal design realizes high quality sound and low distortion
- ▶ High current, low resistance
- ▶ Ultra-low buzz noise

### Applications :

- ▶ High efficiency DC-DC power converter
- ▶ Class-D audio power amplifier



AFDI

### Features :

- ▶ Size range: 12\*12 ~ 30\*30 mm
- ▶ Large current, low DCR, low temperature rise
- ▶ High temperature resistance, good mechanical strength

### Applications :

- ▶ LED driver
- ▶ Diesel injection driver
- ▶ DC-DC power converter
- ▶ Engine and transmission control unit
- ▶ Motor control system



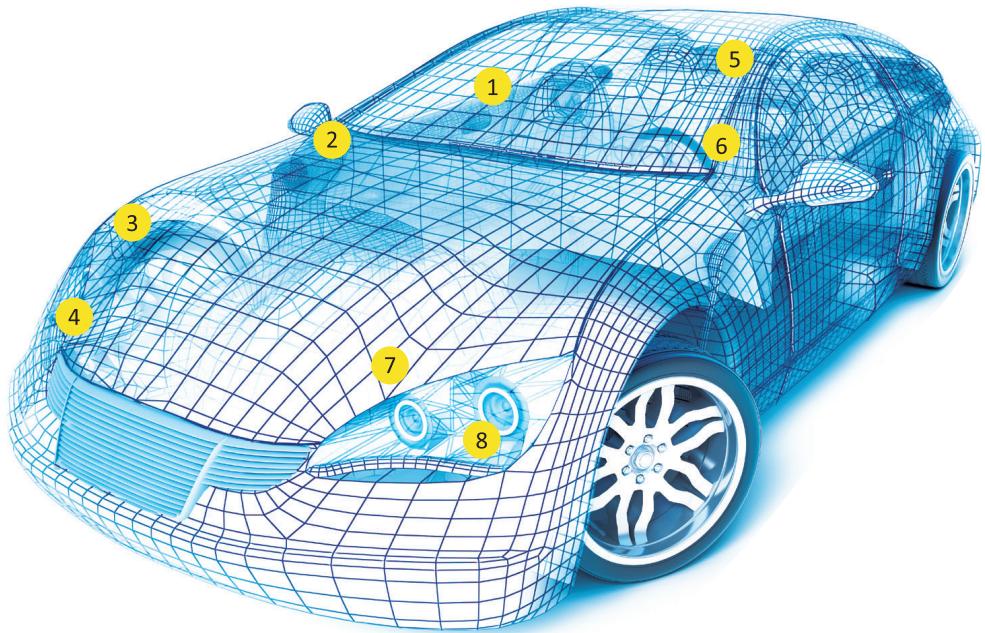
AMHS

### Features :

- ▶ Size: 13\*13 mm
- ▶ High current molding choke
- ▶ High current carrying capacity
- ▶ Excellent response to harmonic distortion

### Applications :

- ▶ Class D audio power amplifier
- ▶ High power DC-DC power converter
- ▶ Automobile audio/video/lighting
- ▶ TV audio amplifier



## 1 GPS/DVBT/BT/WiFi/ FM/GSM

- RF Inductor
- Antenna
- EMI/CMC

## 4 ADAS

- Power Inductor
- RF Inductor
- EMI/Bead
- EMI/CMC
- Current Sensor & Resistor
- LAN Transformer

## 7 ECU

- Power Inductor
- EMI/CMC
- LAN Transformer

## 2 Body Electronics

- Power Inductor
- RF Inductor
- EMI/Bead
- EMI/CMC
- Current Sensor & Resistor
- LAN Transformer

## 5 Ethernet Phy

- Power Inductor
- RF Inductor
- EMI/Bead
- EMI/CMC
- LAN Transformer

## 8 Lighting

- Power Inductor
- EMI/Bead
- EMI/CMC
- Current Sensor & Resistor

## 3 Powertrain

- Power Inductor
- RF Inductor
- EMI/Bead
- EMI/CMC
- Current Sensor & Resistor

## 6 Infotainment

- Power Inductor
- RF Inductor
- EMI/Bead
- EMI/CMC
- Current Sensor & Resistor
- LAN Transformer



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