Bourns® Automotive Product Focus

Automotive Components
Automotive Component Applications

**Comfort & Positioning**
- Window Lifts, Seat Positioning

**Instrumentation, Infotainment & Telematics**
- Dashboards, GPS, In-Car Cameras, In-Car Televisions

**Vehicle Lighting**
- HID, LED

**Vehicle Networks**
- CAN, Flexray, Ethernet, LIN

**Electrification of Powertrain**
- Fuel Pumps, Start Stop Module, High Power DC/DC Convertors, Battery Chargers

**Bourns Value Proposition**
- AEC-Q200 qualification – PPTC, inductors, resistors & MLVs
- TS 16949 quality system
- Application test lab
Automotive Board Level Components
AEC-Q200 qualified
Automotive Circuit Conditioning

**Applications**
- Start-stop
- Networking
- Electronic control Modules/ECU
- Infotainment, telematics, navigation, connected car
- DC/DC & AC/DC power supplies
- Lighting
- Body control
- Diagnostic tools
- Battery management
- Instrument cluster

**Features**
- AEC-Q200 qualified
- TS 16949 factory produced
- Automotive temperature capable
- High quality and reputation

**Types Available**
- Inductors
- Common mode filters
- Power resistors
- Metal alloy shunts
Inductors & Transformer

Applications
- Automotive (AEC-Q200 qualified)
- Battery chargers
- CD players
- Data communication
- DC/DC converters
- Global positioning systems
- Internet equipment
- LED drivers
- Local area networks
- Monitoring equipment
- Portable radios
- Portable tools
- SSD (Solid State Drives)
- Switch mode power supplies
- Test equipment
- Televisions
- Video conferencing equipment
- Telecommunications
- Wearables

Features
- Standard inductance values from 1.0 nH to 500 mH
- 14 models of chip inductors
- More than 110 models of surface mount power inductors
- More than 50 models of through-hole power inductors
- Available in a wide range of sizes
- Low profile down to 0.9 mm
- Operating temperature as high as 200 °C
- Sealed and open construction
- Saturation current up to 118 A
- AEC-Q200 qualified
- RoHS compliant*

Types Available

Power Inductors
- Non-shielded
- Semi-shielded
- Shielded
- High current toroids
- Dual chokes
- Flat wirewound

Chip Inductors
- Molded wirewound
- Multilayer ceramic
- Multilayer ferrite
- Open wirewound

Transformers
- Line matching
- Wideband
- ISDN
- xDSL
- LAN
- PoE/VoIP
- PoE/VoIP

Chip Beads
- High current
- High impedance

Current Sense, Pulse Power & High Power Resistors

Applications
- Automotive
- AC power supplies
- Battery controls
- Combiners
- Isolators
- Motor controllers
- LED lighting
- Renewable energy
- Smart meters
- Surge protection
- White goods
- Capacitor discharging
- Current sensing

Features
- Through-hole and surface mount
- 2-terminal / 4-terminal chip resistors
- 0.0005 ohms to 130k ohms
- 0.25 watts to 35 watts
- 0.5 % to 5 % tolerances
- Operating temperature up to +275 °C
- AEC-Q200 qualified (Metal Strip Chip, TO-220 and DPAK packaged resistors)
- Excellent surge performance
- RoHS compliant*

Types Available
- Bare metal open air shunts
- High surge withstand and UL1412 listed safety fusible wirewound resistors
- Shunt resistors
- Surface mount wirewound resistors
- Surface mount and through-hole TO-220 and DPAK packaged resistors
- Thick film chip resistors
- Metal strip chip resistors

Automotive Fixed Resistor Portfolio

**Metal Strip Chip**
- CRA Series
- CRE Series
- CRF Series
- 0805 – 2512
- 0,5 – 3W
- 1 – 100 mΩ
- CST 0612 Series (4 Terminal)

**High Power Thick Film**
- PWR163/263 Series
- PWR220/221 Series
- SMT DPAK/TO220
- 20 – 35 W
- 20 mΩ – 130 kΩ

**EB-welded Metal Strip**
- CSM Series
  - 7036, 8518, 6918
  - 36 – 50 W
  - 0,05 – 0,1 mΩ
- CSS Series
  - 2512, 3920, 5930
  - 4026 (4 Terminal)
  - 2 – 12 W
  - 0,2 – 5 mΩ

**Anti Sulfur Thick Film Chip**
- CRM-A Series
- CRS-A Series
- 0.125 – 2 W
- 0,05 mΩ to 1MΩ

- AEC-Q200 qualified
- Battery control management
- Capacitor discharging
- Climate controls
- Converters
- Current sensing
ChipGuard® ESD Suppressors

Applications
- Applications requiring IEC 61000-4-2
- IC supply lines
- MOSFET gate protection
- Digital control Lines
- USB 2.0
- HDMI
- DVI
- LVDS
- Ethernet ports
- RS232/485 ports
- Automotive electronics
- PDA
- Tablets

Features
- Bi-directional protection
- High reliability
- Fast response times (<1 ns)
- Multi-strike capabilities
- Low capacitance versions
- Low insertion Loss
- Low leakage

Types Available
- MLA Series- Multilayered Varistor Technology (0402, 0603, 0805)
- MLD Series-Multilayered Varistor Technology (0402, 0603)
- MLE Series-Multilayered Varistor Technology (0402, 0603)
- MLC Series-Variable Voltage Polymer Technology (0402, 0603, 1206)
- Automotive MLC Series-Variable Voltage Polymer Technology (0402, 0603)
- MLU/Low Cap MLC Series-Air Gap Technology (0402, 0603)

BDEC Power Magnetics
Bourns (Dongguan) Electronics Co., Ltd

The portfolio of Transtek magnetic components acquired by Bourns includes custom transformers, inductors and coils for a variety of applications such as electrical isolation and voltage conversion in power electronics circuitry.

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BDEC Overview
Bourns (Dongguan) Electronics Co., Ltd

• Assets acquired from Transtek in November 2016
  - Sales team located in US, China, Taiwan and Japan
  - Factory in Dongguan, China with 700+ personnel
  - 30-strong design team, including Electrical, Mechanical, Manufacturing and Test engineers
• Main focus: Highly customized products
  - To support customers designers with close collaboration, quick sampling and AEC level controls
  - Automotive products currently are >80% of the factory’s output
• AEC-Q200 test facility
• Combined with Bourns’ strong standard range of products, this offers a complete magnetics solution to customers
Multifuse® PPTC Resettable Fuses
Product Applications

- Communication Motherboard
- Body Computer
- Entertainment System
- Navigation System
- Air Conditioning
- Cooling Fan
- CAN Bus
- Seat Control
- Hybrid Battery
- Steering Column
Standard Multifuse® PPTC Resettable Fuses

- Polymer PTC resettable fuses for:
  - Overcurrent Protection
  - Overtemperature Protection
- 6 to 90 V operating voltages
- Hold currents from 50 mA to 11.0 A
- AEC-Q200-Rev C
- Agency listings/approvals - UL, CSA & TÜV
- High temperature polymers available with operating temperatures between −40 °C to +125 °C
- Built in TS-16949 facility
- RoHS compliant standard*; halogen free upon request**
- Designed to protect a wide range of cabin & under the hood electronics

** Bourns follows the prevailing definition of “halogen free” in the industry. Bourns considers a product to be “halogen free” if (a) the Bromine (Br) content is 900 ppm or less; (b) the Chlorine (Cl) content is 900 ppm or less; and (c) the total Bromine (Br) and Chlorine (Cl) content is 1500 ppm or less.
Multifuse® PPTC Resettable Fuses for DC Motor Protection

- Resettable fuses to protect DC motors in:
  - Window lift modules
  - Electric Seats
  - Central locking
  - Sun roofs & convertible roofs
  - Mirrors
- Devices are designed & tested to meet the requirements of each individual motor

- Dedicated DC motor test lab & technicians
- Devices available as:
  - Lead frame or non-lead frame package
  - High temperature or standard temperature polymers