

PRODUCT LINES 2020



www.aimtec.com

- Modular AC-DC
- DC-DC Switching Power Converters
- LED Drivers



www.alango.com

• Digital Signal Processing Technologies for Voice and Audio Applications:

- ADM - Adaptive Dual Microphone
- AEC - Acoustic Echo Cancelling
- AFR - Acoustic Feedback Reduction
- AVQ - Automatic Volume and eQualization Control
- AVQ-Me - AVQ for Music and Entertainment
- AWRN - Adaptive Wind Noise Reduction
- DRC - Dynamic Range Compression
- ISM - Intelligent Speech Mixer
- NS - Noise Suppression
- Mono to Stereo conversion - mono to stereo converter for speech and music
- MuRefiner - set of integrated DSP technologies for music and entertainment applications enhancing user audio experience
- PLC - Packet Loss Concealment - masks the effects of lost or discarded signal packets



www.ambiqmicro.com

- Ultra-low power Real-Time Clock (RTC)
- Ultra-low power microcontroller (MCU)



www.ams.com

- Audio
- Environmental Sensors
- Light Sensors
- Smart Light Management
- CMOS Imaging Sensors
- Magnetic Position Sensors
- Power Management
- Battery Management
- Sensor Interfaces
- ASICs
- Full Service Foundry



AHEAD OF WHAT'S POSSIBLE™

www.analog.com

- **Amplifiers and Linear**
 - ADC Drivers
 - Differential Amplifiers
 - Instrumentation Amplifiers
 - Linear Isolation Amplifiers
 - Operational Amplifiers (Op Amps)
 - RF Amplifiers
 - RF Power Detectors
 - Specialty Amplifiers
 - Variable Gain Amplifiers
 - Video Amplifiers and Analog Video Functions
- **Audio/Video Products**
- **Broadband Products**
- **Clock and Timing**
- **Data Converters**
 - A/D Converters
 - High Speed ADC ≥ 10 MSPS
 - Precision ADC < 20 MSPS
 - D/A Converters
 - High Speed DAC ≥ 30 MSPS
 - Precision DAC
- **High Speed Logic and Data Path Management**
- **Industrial Ethernet**
- **Interface and Isolation**
- **MEMS**
- **Optical**
- **Processors and DSP**
- **RF and Microwave**
- **Sensors**
- **Switches/Multiplexers**
- **Military/Space Qualified/Harsh Environment**
- **Wireless Sensor Networks**
 - SmartMesh IP
 - SmartMesh WirelessHART

Power Management

- **LDO Linear Regulators**
- **Switching Regulators**
- **μ Module Regulators**
- **PMIC and Multifunction**
- **Inductorless (Charge Pump) DC/DC**
- **Converters**
- **μ Module LED Drivers**
- **LED Driver IC**
- **Digital Power System Management**
- **Current Sources**
- **Energy Harvesting**
- **Supercapacitor Chargers**
- **Power Control**
- **μ Module Battery Chargers**
- **Battery Management**
- **Display and Lighting IC**
- **Hot Swap**
- **Isolated Gate Drivers**
- **Load Switches**
- **MOSFET Drivers**
- **μ Module Isolated Transceivers**
- **Power Monitors**
- **Sequencing**
- **Supervisory**
- **Switching Power Converters**
- **Ideal Diodes**
- **Power-over-Ethernet (PoE)**



www.antenna-m2m.com

- ceriiANT Standard Ceramic Chip Antennas
- flexiiANT Standard FPC Antennas with a Cable and UFL Connector
- gigaNOVA Standard SMD Antennas
- lamiiANT Standard SMD Antennas
- RADIONOVA RF Antenna Modules
- Custom Antenna Design
- Integration and Test Services, including OTA Pre Compliance



www.atpinc.com

- Memory Cards
 - Industrial SD cards
 - Industrial microSD cards
 - SecurStor-enabled SD & microSD cards
 - Industrial CompactFlash cards
 - Industrial CFast cards
 - Industrial Memory Solution
 - SSDs
- Managed NAND
- DRAM Module



www.attend.com.tw

- **MXM Connector**
- **M5/8/12/23 Circular Sensor Connector**
- **Sealed I/O Connector**
- **M.2(NGFF) Connector**
- **SO DIMM Socket**
- **Mini PCI Socket**
- **Flash Memory Card Socket**
- **SIM card socket**
- **Micro/Nano SIM Card Socket**
- **Smart Card Socket**
- **FPC Connector**
- **HDMI Connector**
- **RJ45 Connector**
- **USB/USB Combo connector**
- **SPDIF Jacket**
- **SFP/SFP+/QSFP**
- **SFP/SFP+/QSFP Transceiver**
- **RF Connector**
- **DC High Power**
- **Cable**
 - Rugged Waterproof Cable
 - M5/M8/M12/M13 to wire Harness
 - LAN Cable
 - RF cable assembly
 - FPC/FFC Cable
 - USB Cable
- Wire Harness
- HDMI cable
- SATA cable
- Industrial
- High Frequency
- Automation



www.bourns.com

- **Automotive**
- **Circuit Protection Solutions**
 - TBU® High-Speed Protectors: High-Speed Electronic Switching
 - Mini-Breakers: Integrated Bimetal/PTC Thermal Cut-Off (TCO)
- **Connectors and Switches**
- **Customized Packaging**
- **Magnetics**
 - Customized Magnetics Solution
- **Precision Variable Resistors**
- **Resistive Products**
- **Sensors and Controls**
 - Programmable High Precision Position Sensors: Minimizes Gearing
- **Surge Protective and Outside Plant Products**



www.confidex.com

- Hard tags and washable special labels for returnable transit items
- Single-use labels for logistics applications.
- Durable hard tags for challenging industrial applications.
- NFC tags and labels for industrial, authentication and communication applications.
- Small-sized, versatile hard tags for managing IT and enterprise assets.
- Durable, top performing all-purpose hard tags for logistics and transportation applications.
- Other UHF products
- Bluetooth® Beacons for Smart Industries



www.countrymate.com.hk



www.interpoint.com



www.dptel.com



www.digilent.com



www.ecsense.cn/en/index.php



www.ecsxtal.com



www.epsondevice.com/en



www.espressif.com



www.everspin.com



www.fingerprints.com



www.fujitsu.com



www.gd-r.com



GOOD SKY ELECTRIC CO., LTD.

www.goodsky.com.tw



www.hwdz.com.cn



www.knowles.com



www.microchip.com

- BLE Modules

- BLE Dual Mode Modules

- Space Qualified DC-DC Converters and EMI Filters
- High Reliability DC-DC Converters and EMI Filters

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|---|---|---|---|--|
| <ul style="list-style-type: none"> • Time Frequency Products - High Stability Crystal Oscillator - Clock Modules - IEEE/PTP 1588 Clock Chip - RTC - Buffer - PLL | <ul style="list-style-type: none"> - Timing Device - Timing Card - Clock Board - Circulator - Isolator | <ul style="list-style-type: none"> • Applications - Telecom - Communication networks-Base station, 3G/4G/5G - LTE and small Cell - Microwave equipment - Trucking communication | <ul style="list-style-type: none"> - GPON - Access point - Network Router - Power grid - Industrial control - Instrumentation | <ul style="list-style-type: none"> - Private networks - Medical - Aerospace |
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| <ul style="list-style-type: none"> • FPGA Development Board • Instrumentation • Microcontroller Development Board | <ul style="list-style-type: none"> • JTAG Programmer • Peripheral Modules (Pmod) • Software – LabView Home |
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- **Gas sensors** - Toxic Gas and Oxygen Gas
- **Smart Gas Sensor** - Single Toxic gas, with housing, Selftesting
- **Gas Sensor Module** - Sensor + Circuit Board, Single Gas, Double Gas, More Gas combination on one board
- **Gas Detection Device** - RS485, 4-20mA, Bluetooth, Wifi, NBloT, 4G, Lora output with Housing
- **Gas Generator** - Formaldehyde Generator

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| <ul style="list-style-type: none"> • Crystal Oscillator • Clock Oscillator • Ceramic and Surface Acoustic Wave Resonator • Crystal and Ceramic Filter | <ul style="list-style-type: none"> • Voltage Controlled Crystal Oscillator • Voltage Controlled Oscillator • TCXO |
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| <ul style="list-style-type: none"> • Quartz Crystal Products: Crystal, Oscillators, Real Time Clock Module, Filters/Automotive Grade • Sensing Products: Gyro, Inertial, Pressure, Temperature Sensing Crystal • Sensing System Products: Inertial Measurement Unit (IMU), Inclinometers, Accelerometers | <ul style="list-style-type: none"> • Semiconductor: - Microcontroller Products: 4/8/16/32 Bit MCU - Display Controllers, LCD Driver IC - Camera Interface IC - USB Hub Controller, Bus Switch IC - USB/ATA Interface IC - Thermal-Head Drivers |
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| <ul style="list-style-type: none"> • SoCs – 32-Bit Wi-Fi MCU , 32-Bit Wi-Fi + BT/BLE MCU • Modules – WiFi, WiFi + BT/BLE • Generic and Application specific development kits • SDKs – IoT Development Framework, Arduino, AT, HomeKit, Audio & Mesh | <ul style="list-style-type: none"> • Production Testing and Manufacturing Tools • Service – Schematic and Layout Review, RF Review, Pre-programmed and pre-provisioned modules, Design & Certification |
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| <ul style="list-style-type: none"> • Toggle MRAM • Parallel Products • Serial Products | <ul style="list-style-type: none"> • Spin-transfer Torque MRAM • ST-DDR Products | <ul style="list-style-type: none"> • nvNITRO Solutions • NVMe Storage Accelerator Series |
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- FPC sensors, development tools, software, and its algorithms

- FRAM Memory
- ASSP/SOC (Graphic Controller/Imaging Processor)

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| <ul style="list-style-type: none"> • General Purpose relay • Power relay | <ul style="list-style-type: none"> • Automotive relay • High Voltage DC relay | <ul style="list-style-type: none"> • Magnetic Latching relay • High Pressure direct current relay |
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| <ul style="list-style-type: none"> • Electromechanical Relays • MOS Relay • Reed Relay | <ul style="list-style-type: none"> • Solid State Relay • Reed Sensors • Relay Sockets/Holders |  <p>An ISO 9001 & 14001 Company</p> | <ul style="list-style-type: none"> • Switch • Relay • Terminal Block | <ul style="list-style-type: none"> • Connector • Resettable Fuse |
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| <ul style="list-style-type: none"> • Bi-polar transistors • Field Effect transistors • Schottky Diode | <ul style="list-style-type: none"> • Fast Recovery Diode • SCR • Insulated gate Bipolar | <ul style="list-style-type: none"> • Discharge Tube/SPD • LED Lighting Driver • Intelligent Power |
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- MEMS Microphones
- Smart Mic
- Balanced Armature Receivers

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| <ul style="list-style-type: none"> • 8/16/32-bit PIC® Microcontrollers • 8/32-bit AVR Microcontrollers • 32-bit ARM Core Microcontrollers • dsPIC® Digital Signal Controllers • Touch and Gesture Sensing Solutions | <ul style="list-style-type: none"> • Analog and Interface Products • Embedded Wireless Products for WiFi, Zigbee, Sub 1 GHz, Bluetooth Low Energy • EEPROM, FLASH Memory • Clock and Timing Products | <ul style="list-style-type: none"> • Embedded Security Products • LED Driver Products • Automotive Grade Products • USB and Ethernet Solutions • Computing Solutions |
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www.longsys.com

- IoT WiFi Data Module

- SiP WiFi Solution



www.meridianinno.com

Based on a unique, patented CMOS compatible process, Meridian's line of low cost thermal sensors will be offered in a proprietary Wafer Level Vacuum Package.

- SenXor™ - Patented CMOS Hybrid thermal sensing architecture & proprietary Wafer Level Vacuum Package (WLVP)
- Bobcat Module - High-Definition, Cost-Effective and Compact Thermal Imaging Camera Module
- MI48A2 TiP - MI48A2 Thermal Image Processor
- Bobcat EVK - MI0801 Camera Module USB Evaluation Kit
- Raspberry Pi HAT Kit - MI0801 Camera Module Raspberry Pi Evaluation Kit
- X-PRO - Smart Phone Thermal Camera Attachment. A low cost adapter for your Android or iPhone that contains both a visual and thermal sensor.



www.microsemi.com

- Power Discretes & Modules
- FPGA & SoC
- Audio & Voice
- Circuit Protection
- Drivers, Interfaces, and PCIe Switches

- Ethernet and PoE Solutions
- Optical Networking
- RF, Microwave & Millimeter wave
- Timing & Synchronization



www.mitsubishielectric.com.sg

- **Power Modules**
 - DIPIPMs
 - Intelligent Power Modules (IPMs)
 - IGBT Modules
 - HVIGBT Modules/HVIPM
 - Power MOSFET Modules
 - Diode Modules
 - PFC Modules
 - Thyristor Modules

- **High Frequency Devices**
 - GaN High Frequency Devices
 - GaAs High Frequency Devices
 - Silicon RF Devices
- **Optical Devices**
 - Optical Fiber Communication Devices
 - Laser Diodes for Industry and Display

- **TFT-LCD Modules**
 - Standard Format
 - Wide Format
 - Specialty Format



www.mobiletek.cn

- M2M Modules

- GNSS Modules

- SMART Modules



www.mornsun-power.com

- AC/DC converter
- DC/DC converter

- Adapter
- Isolation transmitter

- IGBT driver
- LED driver



www.nowSpeak.com

- Automatic Speech Recognition (ASR)
- Natural Sounding Text-To-Speech (TTS)
- Highest Quality Compressed Pre-Recorded Prompt (PRP) Technologies



www.nxp.com

- **Identification and Security**
 - Secure Car Access and Immobilizers, NFC and Reader ICs, MIFARE ICs, Smart Label and Tag ICs, Security Controller ICs, Authentication Solutions
- **Interfaces**
 - I2C, LCD Drivers, Signal Conditioners, UARTs, USB Interface, Voltage Level Translators
- **Microcontroller and Processors**
 - ARM Processors, Power Architecture Processors, 8/16/32 bit MCU/MPUs
- **Media and Audio Processing**
 - Audio Amplifiers, Media Processors, Data Converters, IF Demodulators, Multi-Standard Digital Radio, Silicon Tuners
- **Power Management**
 - Wireless Charging ICs and Power Receivers/Transmitters, AC-DC Solutions, Battery Management, Lighting Driver/Controller ICs, Linear/Switching Regulators, Load Switches, PMICs, POE

- **Wireless Connectivity**
 - Sub-1 GHz Wireless Solutions, 2.4 GHz Wireless Solutions
- **RF**
 - RF Power Transistors, Amplifiers, MW Solutions, LP Tx/Rx, Mixers, PLLs and Oscillators, Tuners
- **Sensors**
 - 6-Axis Sensors, Accelerometers, Gyroscopes, Angular/Pressure/Rotational/Temperature/Capacitive/Touch/ 6-Axis Sensors
- **Signal Chain**
 - Analog Switches/Watch Motor Drivers, Bridges, Clocks with LCD Drivers, Comparators, High-Speed Multiplexer, Memory Data Switches, RTC



www.power.com

- **AC-DC**
 - Product Family:-
 - InnoSwitch
 - LinkSwitch
 - TOPSwitch
 - TinySwitch

- **LED Drivers**
 - Typologies:-
 - Buck
 - Buck-Boost
 - Tapped-Duck
 - Boost
 - Flyback and Resonant (LLC)

- Product Family:-
- Hiper
- LYTSwitch
- LinkSwitch
- QSpeed
- TinySwitch

- **IGBT**
 - All IGBT products are characterized by leading technology, high functionality, high quality and reliability and a best-in-class price-performance ratio.



www.pyreos.com

- ezPyro Digital SMD Sensors for touchless gesture recognition and motion detection
- ezPyro Digital SMD Sensors for gas and flame detections

- Line Array Components for spectrometry applications
- TO Can Packaged Sensors for gas and flame detections



all around you

www.qorvo.com

- **Highly Integrated Core RF Solutions for Mobile Applications**
 - Discrete Filters/Duplexers
 - Multiplexers
 - Diversity Modules
 - Carrier Aggregation

- Qorvo RF Flex™ family - flexible RF front-end architectures
- Qorvo RF Fusion™ family - multiple, high-performance modules focusing on differentiated performance



www.qualcomm.com

- Bluetooth Chipsets for audio applications (Headset, Speakers, Soundbars)
- Bluetooth Chipsets for HID/gaming applications
- Bluetooth Low Energy (BLE) Chipsets with Bluetooth Mesh technology
- Dual Mode Bluetooth Chipsets for M2M and IoT applications
- WiFi Chipsets

- IoT Gateway Solutions
- SoC Solutions for automotive applications
- Snapdragon APQ SoC
- Location-Based Chipsets



- Power Resistor
- Precision Resistor
- High Temperature Resistor for applications up to 300 degree Celsius
- Low Ohm Resistor
- High Pulse Rate Resistor
- High Voltage Resistor up to 6000V
- Customized Resistor
- High Value Chip Resistor up to 10 Tera-Ohm
- Trimmable and Standard Chip Resistor
- Non-Magnetic Resistor



- **ICs**
 - Memory
 - Amplifiers and Linear
 - Power Management
 - Clocks and Timers
 - Switch and Multiplexer and Logic
 - Data Converter
 - Sensors and MEMS
 - Digital Power (Powervation)
 - Display Drivers
 - Motor/Actuator Drivers
 - Interface
 - Communication LSI (LAPIS)
 - Audio and Video
 - Speech Synthesis LSI (LAPIS)
 - Microcontrollers (LAPIS)
- **Discrete Semiconductors**
 - Transistors
 - Diodes
- **Power Devices**
 - SiC Power Devices
 - IGBT
 - IPM
- **Opto Electronics**
 - LED
 - LED Displays
 - Laser Diodes
 - Optical Sensors
 - IrDA Infrared Communication
 - Remote Control Receiver
- **Passive Components**
 - Resistors
 - Tantalum Capacitors
- **Modules (Sub Systems)**
 - Power Modules
 - Wireless Communication Modules
 - Contact Image Sensor Heads
 - Printheads
 - Batteryless Radio Module (EnOcean)
- **Commercial Products**
 - Intel Chipset



- **DRAM**
 - Server DRAM
 - Mobile DRAM
 - Consumer DRAM
 - Graphic DRAM
- **Flash Storage**
 - V-NAND Technology
 - Client SSD
 - Enterprise SSD
 - eMMC
 - UFS
- **MCP (Multi-Chip Package)**
 - eMMC-Based MCP
 - e-POP
- **Display Solution**
 - AMOLED
 - TFT Panel
- **Security Solutions**
 - NFC
 - Smart Card
 - SIM Card



- Multi-Layer Chip Capacitor (MLCC), Chip Inductor, Chip Resistor, Tantalum Capacitor (Polymer), Filter
- High Density Interconnection (HDI), FPCB, Ball Grid Array (BGA), FCBGA
- Camera Module, WiFi Module, Wireless Power Transfer Module



- Gas sensors, VOC sensors
- Automotive air quality sensors & air classification modules
- Temperature & Humidity sensors
- Ultrasound flow sensors
- Time to digital converter chip
- Pressure sensors



- Thick Film Resistors
- Thin Film Resistors
- Current Sensing Resistors
- Chip Resistor Array
- Metal Film and Metal Oxide Resistors
- Carbon Film and Carbon Comp Resistors
- Wirewound Resistors
- Single Layer Varistors (MOVs)
- Multi-Layer Varistors
- High Frequency Inductors
- SMD Power Inductors
- Ferrite Beads



- **High Reliability Power Electronic Solutions for Markets Including Space, Aerospace and Defense:-**
 - Rectification: Power Rectifiers, Schottky Rectifiers, Silicon Carbide Rectifiers, High Voltage/Bridges/Diode Assemblies
 - Control: Voltage Regulators, Motor Controllers/Drivers, Power Converters, Power Factor Correction, Solid State Power Management
 - Space Level Solutions: Diode Arrays, Space Diodes: JANTXV/JANS QPL
 - Switching: Discrete IGBTs/MOSFETs, IGBT/MOSFET Modules, Power Assemblies
 - Protect and Isolation: TVS, Zeners, Lightning Strike Protection
 - Die Products: Schottky Rectifier Die, Silicon Rectifier Die, etc.



- **Wireless Modules:**
 - GSM/GPRS Module
 - GSM/GPRS+GNSS Module
 - WCDMA/HSPA/HSPA+ Module
 - CDMA 1X/EV-DO Module
 - LTE Module
 - GPS Module
 - GPS/GLONASS Module
 - GPS/BEIDOU Module
 - GNSS Module with Antenna
- **Trackers/DTU Routing/Gateway Device**



- Bluetooth Data Module
- Bluetooth Audio Module
- NFC Module
- WiFi Module
- Bluetooth + WiFi Combo Module



- Multi-Layer Ceramic Capacitors: Automotive Grade, Array, Dipped Radial, Mid-High Voltage (Disk with Lead Wire), Ultra-High Voltage, High Voltage
- Inductors: For High Frequency, Decoupling, Power and Transponder Coils
- Transformers: For Switching Power Supplier, Choke Coil for PFC, Step up Transformers and Pulse Transformer for LAN
- Ferrites: For Switching Power Supplies, Telecommunication, Coils, EMI Suppression, High Power, Ultrasonic Applied Equipment
- Magnetic Sheets: For Noise Suppression and RFID
- Chip Varistors
- RF and SAW Components and Modules
- Magnet
- Amorphous Silicon Solar Cells
- Wireless or Contactless Charging Coil (WPC)
- DC-DC Converter: ALD Series (For LCD Panel with LED Backlight)
- DC-AC Inverter: CXA Series (For CCFL Backlight of LCD Panel)