MIP

Marketing Innovative Products

2018/01

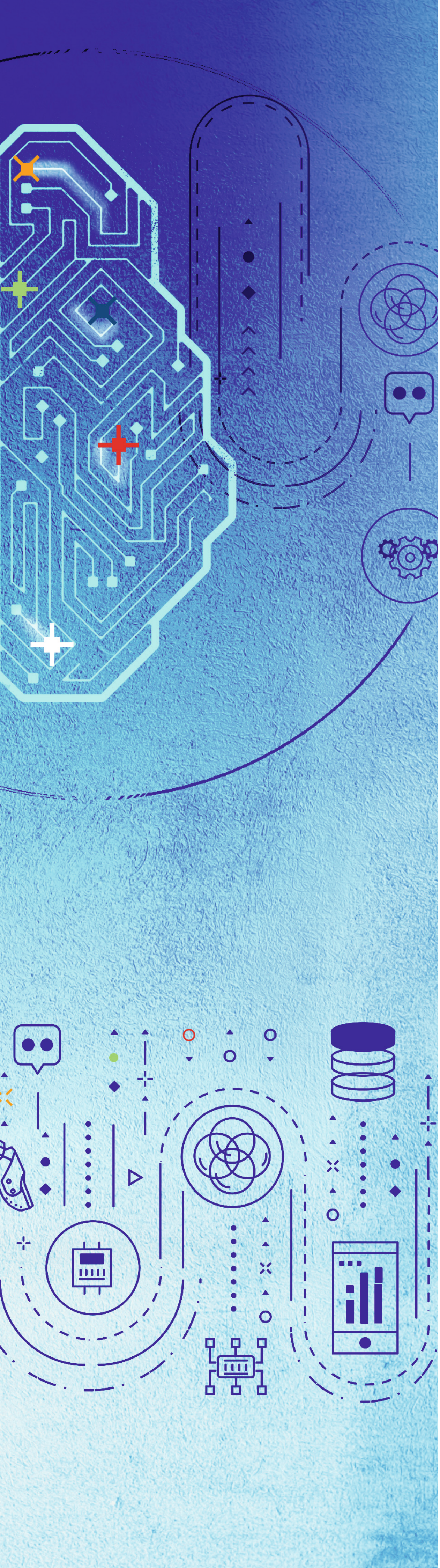
CYBER PHYSICAL SYSTEMS

ARTIFICIAL INTELLIGENCE

HIGH SPEED INTERFACE

HUMAN MACHINE INTERFACE

EBV Elektronik
An Avnet Company



The New MIP Web App – Innovation Whenever, Wherever

Technology and digital transformation are accelerating our world, and instant access to information is becoming a standard. The MIP presents a snapshot of this ever-changing environment helping you to easily filter the most innovative and disruptive electronic components out of the flood of information available. In order to provide an even better experience and complement the focused knowledge of the MIP with digital features and a bridge to the vast number of new parts available we have developed the new MIP Web App.

Access the simplistic app via any browser on any device from mobile devices to PCs without the need to download anything! You can now create a user account or log in using your existing myEBV account to save NPIs to favorites, search parts and articles or even create and easily share lists of multiple NPIs using the NPI collection feature.

Enter the digital MIP now and boost your projects with the expertise they deserve: mip.ebv.com

Intelligent machines and self-teaching computers are opening up new market opportunities in the electronics industry. Market analyst TrendForce predicts that global revenues from chip sales will increase by 3.1 percent a year between 2018 and 2022. It is not just the demand for processors that is rising, however; applications of artificial intelligence (AI) are also driving new solutions in electronics fields such as sensor technology, hardware accelerators, and digital storage media. Market research organization marketsandmarkets, for example, forecasts a rise from 2.35 billion dollars in 2017 to 9.68 billion dollars by 2023 – among other reasons as a result of Big Data, the Internet of Things, and applications relating to the Artificial Intelligence. The creation of AI-based services is also increasing demand for higher-performance network infrastructures, data centers, and server systems. Therefore, AI is a vital market for the electronics industry as well. With our semiconductor solutions, experienced experts and extensive partner network, we will be glad to support you develop exciting new products. Read more about AI in our TQ: www.ebv.com/tq

mip.ebv.com

CONTENTS BY PRODUCT GROUPS

AMPLIFIERS

ANALOG MULTIPURPOSE & OTHER

COMMUNICATION

DISCRETE

KITS AND TOOLS

MICROCONTROLLERS

OPTOELECTRONICS

POWER MANAGEMENT

PROCESSOR

PROGRAMMABLE LOGIC

RF AND MICROWAVE

SENSORS AND TRANSDUCERS

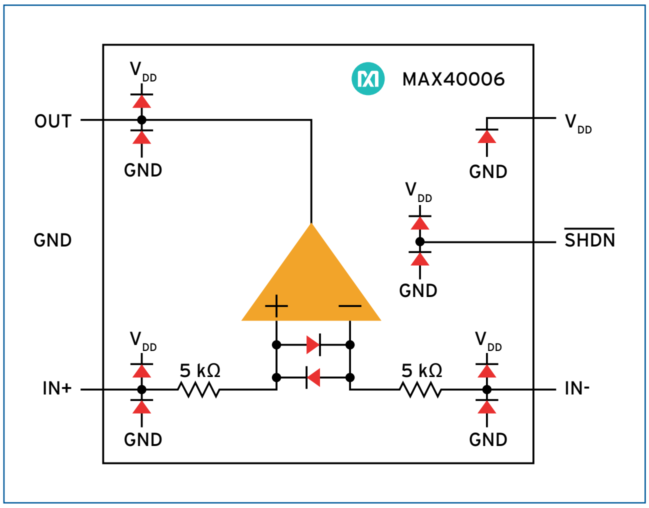
WIRELESS AND GPS MODULES

CONTENTS BY MANUFACTURERS

€ 0.72 | **100-up price**
MAX40006ANT+

MAX40006

Micropower, Rail-to-Rail, 300kHz Op Amp with Shutdown in a Tiny, 6-Bump WLP



MAX40006

The MAX40006 op amp features a maximized ratio of gain bandwidth (GBW) to supply current and is ideal for battery-powered applications such as handsets, tablets, notebooks, and portable medical equipment. This CMOS op amp features an ultra-low input-bias current of 1pA, rail-to-rail input, and output, low supply current of 4.5μA, and operates from a single 1.7V to 5.5V supply. For additional power conservation, the IC also features a low-power shutdown mode that reduces supply current to 0.1μA and puts the amplifier's outputs in a high-impedance state.

- **300kHz GBW**
- **Ultra-Low 4.5μA Supply Current**
- **Single 1.7V to 5.5V Supply Voltage Range**
- **Unity-Gain Stable**

FEATURES

- 300kHz GBW
- Ultra-Low 4.5μA Supply Current
- Single 1.7V to 5.5V Supply Voltage Range
- Ultra-Low 1pA Input Bias Current
- Rail-to-Rail Input and Output Voltage Ranges
- Low ±200μV Input Offset Voltage
- Low 0.1μA Shutdown Current
- High-Impedance Output During Shutdown
- Unity-Gain Stable
- Available in Tiny, 0.73mm x 1.07mm, 6-Bump WLP and SOT-23 Packages
- -40°C to +125°C Temperature Range

KEY APPLICATIONS

- Electronic Toys
- Portable Media Players
- Portable Medical Devices
- Tablet/Notebook Computers
- Wearable Fitness Devices

MARKET SEGMENT

- Healthcare & Wearables
- Smart Consumer & Building

SUB MARKET

- Medical Instruments
- Audio and Video
- Personal Health, Sport & Fitness
- Home Appliances

TECHNOLOGY SEGMENT

- Analog & Power

€ 0.67 1000-up price ST25DV64K-IER6S3

€ 0.73 1000-up price ST25DV64K-JFR6D3

€ 0.67 1000-up price ST25DV64K-IER6T3

€ 29.00 1-up price ST25DV-DISCOVERY KIT

ST25DV64

NFC/RFID Tag NFC Forum Type V with I^{2}C Interface, Fast Transfer Mode and Energy Harvesting

NFC/RFID Tag Type V with I^{2}C Interface, Energy Harvesting, and more

The ST25DV device is a Dynamic NFC/RFID tag IC with a dual interface, fast transfer mode, energy harvesting, configurable interrupt capability, RF management and low power mode (2).It embeds an EEPROM memory and a dedicated memory buffer for fast data transfer. It can be operated from an I^{2}C interface or by a 13.56 MHz RFID reader or a NFC phone. The I^{2}C two-wire interface behaves as a slave in the I^{2}C protocol. The contactless interface is compatible with ISO/IEC 15693 standard and NFC Forum type 5 tag.

- **Two-wire I^{2}C serial interface supports 1MHz protocol**
- **Single supply voltage: 1.8V to 5.5V**
- **Custom Fast read access up to 53 Kbit/s**
- **MemoryUp to 64-kbits of EEPROM (depending on version)**

FEATURES

- Two-wire I^{2}C serial interface supports 1MHz protocol
- Single supply voltage: 1.8V to 5.5V
- Multiple byte write programing (up to 256 bytes)
- Contactless interface based on ISO/IEC 15693 and NFC Forum Type 5 tag
- Supports all ISO/IEC 15693 modulations, coding, subcarrier modes and data rates
- Fast read access up to 53 Kbit/s
- Single and multiple blocks read (1) and write(1) (up to 4)
- Internal tuning capacitance: 28.5 pF
- Memory up to 64-kbits of EEPROM (depending on version)
- I^{2}C interface accesses bytes
- RF interface accesses blocks of 4 bytes
- Write time I^{2}C: 5ms typ. for 1 to 4 bytes
- From RF: typical 5ms for 1 block
- Data retention: 40 years
- Write cycles endurance: 1 million write cycles at 25° C
- 600k write cycles at 85° C
- Fast Transfer Mode between I^{2}C and RF interfaces
- Half-duplex 256-byte dedicated buffer
- Energy harvesting
- Analog output pin for powering external components
- Data protection
- User memory: 1 to 4 configurable areas, protectable in read and/or write by three 64-bit passwords in RF and one 64-bit password in I^{2}C
- System configuration: protectable in write by a 64-bit password in RF and a 64-bit password in I^{2}C
- GPO Interruption pin configurable on multiple RF events (field change, memory write, activity, Fast Transfer end, user set/reset/pulse)
- Open Drain or CMOS output (depending on version)
- Low power mode
- Input pin to trigger low power mode
- RF management, RF command interpreter enabled/disabled from I^{2}C host controller
- Temperature range from - 40 to 85° C
- Package 8-pin and 12-pin packages.
- ECOPACK2®(RoHS compliant)

KEY APPLICATIONS

- Fast data transfer
- Firmware update in the field

MARKET SEGMENT

- Smart Consumer & Building
- Industrial
- Communication & Infrastructure

SUB MARKET

- Home & Building Security (Alarms, Access Control)
- Embedded Computing & Storage
- Wireless Infrastructure

TECHNOLOGY SEGMENT

- Security & Identification

€ 9.67 100-up price AFBR-395025RZ

€ 11.20 100-up price AFBR-395050RZ

€ 20.27 100-up price AFBR-395000RZ

€ 15.99 100-up price AFBR-395075RZ

AFBR-3950xxRZ

DC to 50 MBd Galvanic Isolation Fiber Optic Short Link

Different packages for AFBR-3905xx

The Broadcom Fiber Optic (FO) Short Link AFBR-3950xxRZ are cost-effective galvanic isolation devices capable of suppressing up to 50 kV/ 40 kV/ 27 kV/ 15 kV of transient peak voltage on a single PCB. Based on 650nm fiber optic technology, the devices are suitable for applications such as inverters/drives, power electronics, or medical equipment. The integrated receiver output of the AFBR-3950xxRZ is compatible with TTL logic families and operates with any type of signal from DC up to 50 MBd. The devices offer creepage and clearance distances with a minimum of 101.16/ 75.76/ 50.36/ 24.96 mm.

- **Data transmission at signal rates of DC to 50 MBaud**
- **DC coupled transmitter and receiver with CMOS/TTL output**
- **Transient voltage suppression of up to 40 kV per IEC 60664-1**
- **3.3V or 5V power supply**

FEATURES

- Data transmission at signal rates of DC to 50 MBaud
- DC coupled transmitter and receiver with CMOS/TTL output for easy design - no data encoding or digitizing circuitry required
- High-noise immunity through receiver IC with integrated photodiode
- Transient voltage suppression of up to 40 kV per IEC 60664-1
- Laser class 1 per IEC-60825: Amendment 2001
- Housing Material UL-V0 with CTI ≥ 600
- 3.3V or 5V power supply
- RoHS compliant

KEY APPLICATIONS

- Drives/Inverters
- On-board Galvanic Insulation
- Medium Voltage Power Distributions
- Medical/X-ray Equipment
- Regulated Distribution Transformers
- Smart Grid On-board Insulation

MARKET SEGMENT

- Industrial
- Healthcare & Wearables

SUB MARKET

- Factory Automation (PLCs, I/O, Sensors & Actuators)
- Robotics
- Medical Instruments
- Elevators, Escalators, Moving Walkways

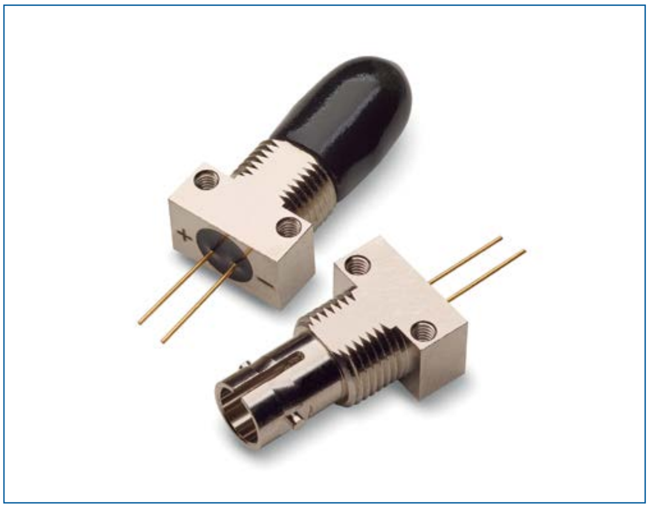
TECHNOLOGY SEGMENT

- High End Processing

€ 334.70 | **10-up price AFBR-POC406L**

AFBR-POC406L

Optical Power Converter 6VDC, ST Port



The AFBR-POC406L belongs to the Broadcom Power Components product family and converts optical power to electrical power for applications requiring complete electrical isolation in highly demanding industrial environments and applications.

The device is an excellent choice for powering electronic circuitry where electrical-wired solutions are not feasible due to high voltage, electromagnetic inductance or strong magnetic fields.

- **Typical output: AFBR-POCx04L: 3.7 V**
  AFBR-POCx06L: 5.6 V
- **Optimized for efficient coupling with most common MM fibers**
- **Photovoltaic power device for typical 3/5 VDC applications**
- **Converts optical power to electrical power**

FEATURES

- RoHS-compliant
- Power-over-Fiber (PoF) component providing 100% galvanic isolation
- Supplies up to 600mW of electrical power over the full operating range
- Operating temperature range of -40°C to +85°C
- ST port optimized for efficient coupling to MM fibers with commonly available NA
- Easy heat sink mounting for thermal control
- Threaded ST port for easy panel mount
- AFBR-POCxxxL multi-junction compound semiconductor device providing operating voltages for typical 3 VDC or 5 VDC applications (depending on the chip structure selected)

KEY APPLICATIONS

- High Voltage current sensors and Transducers
- E-field and H-field probes
- Wireless transmitters

MARKET SEGMENT

- Automotive
- Industrial

SUB MARKET

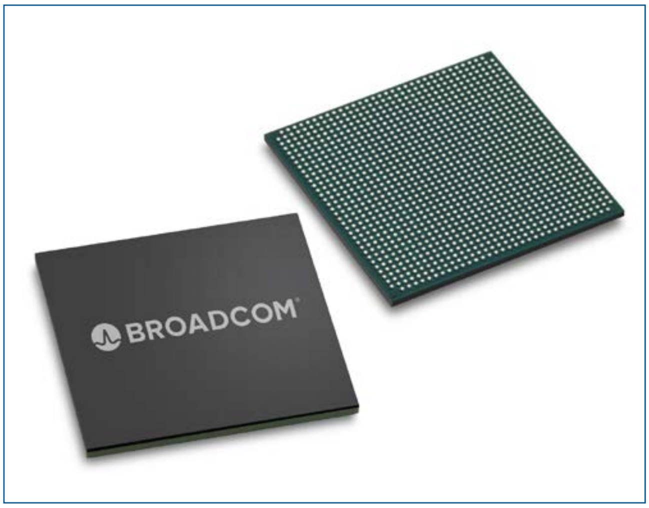
- ADAS, Automotive Infotainment & Cluster
- Automotive Power Train and Chassis
- Commercial, Construction and Agricultural Vehicles
- Connected Car, Body Electronics and Automotive Lighting
- Elevators, Escalators, Moving Walkways
- Embedded Computing & Storage
- Factory Automation (PLCs, I/O, Sensors & Actuators)
- Robotics

TECHNOLOGY SEGMENT

- High End Processing

BCM53156

Multi-port GE Switch Series with Integrated PHYs and 10GE Uplinks



BCM5315x Package

Broadcom's BCM53156/53157/53158 is a family of highly integrated Gigabit Ethernet switches designed for high-end and cost-effective 1GE and above applications. The switch family supports eight 10/100/1000Base-T ports (with integrated GPHYs), one QSGMII port and additional one, or two, high-speed 2.5GE SGMII, or 10GE XFI/SFI ports.

The BCM53156/53157/53158 are optimally designed for Gigabit-Ethernet SMB, industrial and service provider applications that take advantage of high speed uplinks connectivity of 2.5GE/10GE speeds.

- **Eight 10/100/1000Base-T port with Integrated GPHYs**
- **Two 1000FX/2500FX (SGMII+) or 10000FX XFI/SFI ports**
- **One QSGMII port**
- **Integr. ARM-Cortex M7 CPU for cost-effective applications**

FEATURES

- Support for cascading mode that enables the creation of a unified, single CPU, managed 16- 26 port switch.
- Support high-end QoS capabilities with hierarchical scheduling, eight egress buffer queues per port each with its own shaper, WRED and Tail-drop congestion avoidance, and dual-leakybucket ingress rate-limiters (also known as policers).
- Advanced Compact Filter Processor (CFP), also known as an access-list engine that can classify L1-L4 headers.
- Support for Virtual Switching Instances (VSI) for explicit segregation of bridging domains with advanced VLAN translation and encapsulation (for example, Mac-in-Mac).
- Port-Extender support per 802.1BR for design of modular chassis devices or pizza box platforms with remote port extensions.
- Advanced Time Sensitive Networking (TSN) protocol support such as 802.1AS to enable scheduled traffic transmission across an entire network domain.
- Power-saving green technology per IEEE 802.3az Energy Efficient Ethernet.
- Can be delivered with unmanaged software, Web-Managed software or two different Managed SDK software (RoboSwitch SDK and Network Switch SDK).
- Supports both commercial and industrial temperature grades.

KEY APPLICATIONS

- Unmanaged and Web-Managed SMB switches
- Industrial (Automation, Robotics, Transportation, etc)
- Enterprise Port Extender and security appliances
- Home-Gateways and MDUs

MARKET SEGMENT

- Industrial
- Communication & Infrastructure

SUB MARKET

- Broadcast
- Telecom and Networking
- Embedded Vision
- Human Machine Interface
- Robotics
- Surveillance, Parking & Traffic Control

TECHNOLOGY SEGMENT

- High End Processing

SAMSUNG

€ 66.30 | 100-up price
SIP-005AYS001

SIP-005AYS001

Samsung ARTIK 520 Bluetooth WIFI ZigBee Thread Module

Artik 520 Module

Samsung ARTIK Smart IoT platform brings hardware modules and cloud services together with an ecosystem of tools and partners to speed up your time-to-market.

The ARTIK 520 offers target devices with a great combination of computing power and storage capacity for its size. Multiple wireless options include Wi-Fi®, Bluetooth® 4.1, Bluetooth Smart, ZigBee® and Thread.

- **Dual Cortex®-A7 with Wi-Fi, Bluetooth, ZigBee, Thread**
- **Security with hardware secure element and Secure OS**
- **512 MB RAM, 4 GB flash (eMMC)**
- **Small footprint modules: 30 mm x 25 mm**

FEATURES

- Power efficient dual Cortex®-A7 with Wi-Fi, Bluetooth, ZigBee, Thread
- Leverages Samsung ePoP technology to offer small footprint modules: 30 mm x 25 mm
- 512 MB RAM, 4 GB flash (eMMC)
- Enterprise class security with hardware secure element and Secure OS
- Fedora Linux®package with connectivity, graphics, power management and security libraries

KEY APPLICATIONS

- Smart home gateway
- Building Automation zone controllers
- Lighting controllers
- Security panels

MARKET SEGMENT

- Communication & Infrastructure
- Industrial
- Smart Consumer & Building

SUB MARKET

- Wireless Infrastructure
- Factory Automation (PLCs, I/O, Sensors & Actuators)
- Robotics
- Home & Building Control and Automation
- Toys, games and entertainment
- Home Appliances

TECHNOLOGY SEGMENT

- Analog & Power

SAMSUNG

€ 55.50 | **100-up price**
SIP-007AFS001

SIP-007AFS001

Samsung ARTIK 710 Bluetooth WIFI ZigBee Thread Module

Samsung ARTIK 710 Module Image

Samsung ARTIK Smart IoT platform brings hardware modules and cloud services together with an ecosystem of tools and partners to speed up your time-to-market. ARTIK 710 gives you eight cores to serve effectively as a gateway for a large building or a factory and also run local analytics to improve latency and responsiveness. It also provides multiple connectivity solutions to communicate with your things, and has a high-end multimedia processor to handle video and audio processing.

- **High performance, 8-core, 64-bit Cortex® A-53 processor**
- **ARM MALI™ GPU for multimedia, graphics applications**
- **1GB RAM, 4GB flash (eMMC)**
- **Fedora Linux package with multimedia**

FEATURES

- High performance, 8-core, 64-bit Cortex®A-53 processor with Wi-Fi®, Bluetooth®, ZigBee®, Thread
- ARM MALI™ GPU for multimedia, graphics applications
- 1GB RAM, 4GB flash (eMMC)
- Enterprise-class security with hardware secure element and Secure OS
- Fedora Linux package with multimedia, connectivity, graphics, power management and security libraries

KEY APPLICATIONS

- Factory automation
- Smart home gateway
- Building Automation controllers
- Multimedia applications

MARKET SEGMENT

- Communication & Infrastructure
- Industrial
- Smart Consumer & Building

SUB MARKET

- Wireless Infrastructure
- Factory Automation (PLCs, I/O, Sensors & Actuators)
- Robotics
- Home & Building Control and Automation
- Toys, games and entertainment
- Home Appliances

TECHNOLOGY SEGMENT

- Analog & Power

PESDxIVN2x-x

ESD protection for in-vehicle networks

SOT323 package

PESDxIVN – the ideal choice to safe-guard network transceivers. Nexperia's new generation of in-vehicle network (IVN) protection diodes offer a higher surge current, greater ESD robustness and a significant improvement in ESD clamping performance. As electronic content in cars grows, more and increasingly complex networking solutions are required. Nexperia's new PESDxIVN series uses the latest generation of automotive qualified protection technology and is ready for the next generation of automotive qualified leadless (DFN) packages.

- **High ESD robustness up to 30 kV and high surge currents**
- **Excellent ESD clamping behavior**
- **Low device capacitance**
- **Drop in replacement of legacy devices PESDxCAN and PESDxLIN**

FEATURES

- High ESD robustness up to 30 kV and high surge currents up to 3.5 A (8/20 µs)
- Excellent ESD clamping behavior
- Low device capacitance
- AEC-Q101 qualified
- Easy drop-in replacements of legacy devices in SOT23, SOT323 and SOD323

KEY APPLICATIONS

- ESD protection for cars

MARKET SEGMENT

- Automotive

SUB MARKET

- Connected Car, Body Electronics and Automotive Lighting
- ADAS, Automotive Infotainment & Cluster

TECHNOLOGY SEGMENT

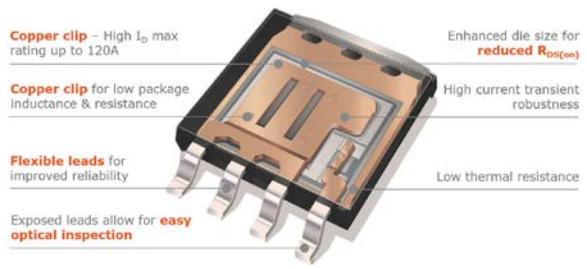
- Analog & Power

€ 0.54 1000-up price
BUK7J1R4-40H

Trench 9 40V – LFPAK56

Automotive Trench 9 MOSFETs designed for performance and endurance

Nexperia's latest automotive Power MOSFET portfolio delivers improved performance and reliability due to a unique combination of Trench 9 superjunction technology, and LFPAK packaging capability. The family includes six standard level products from 1.4–3.5mΩ, $R_{DS(on)}$ capability improved from 3mΩ to 1.4mΩ and enhanced I_D max up to 120A.



Trench 9 40V – LFPAK56

- **Improved power density, same footprint, low $R_{DS(on)}$ (1.4mΩ)**
- **Exceptional repetitive avalanche performance, improved SOA**
- **Improved efficiency and switching performance**
- **Replacement for DPAK and D2PAK, up to 81% space efficiency**

FEATURES

- Fully automotive qualified to AEC-Q101:
  - 175 °C rating suitable for thermally demanding environments
- Trench 9 Superjunction technology:
  - Reduced cell pitch enables enhanced power density and efficiency with lower $R_{DS(on)}$ in the same footprint
  - Improved SOA and avalanche capability compared to standard TrenchMOS
  - Tight Vlimits enable easy paralleling of MOSFETs
- LFPAK Gull Wing leads:
  - High Board Level Reliability absorbing mechanical stress during thermal cycling, unlike traditional QFN packages
  - Visual (AOI) soldering inspection, no need for expensive x-ray equipment
  - Easy solder wetting for good mechanical solder joint
- LFPAK copper clip technology:
  - Improved reliability, with reduced R_{th} and $R_{DS(on)}$
  - Increases maximum current capability and improved current spreading
- Enhanced LFPAK56E design allows up to 30% improvement in $R_{DS(on)}$ and power density

KEY APPLICATIONS

- Power train – automotive application
- Connected car

MARKET SEGMENT

- Automotive

SUB MARKET

- Automotive Power Train and Chassis
- Commercial, Construction and Agricultural Vehicles
- Connected Car, Body Electronics and Automotive Lighting
- ADAS, Automotive Infotainment & Cluster

TECHNOLOGY SEGMENT

- Analog & Power

€ 2.80 | **1-up price**
EV-VN7003ALH

€ 1.51 | **1000-up price**
STMVN7003AHTR

VN7003ALH

High-side driver with CurrentSense analog feedback for automotive applications

Octapak package

The device is a single channel high-side driver manufactured using ST proprietary VIPower® technology and housed in the Octapak package.

- **AEC-Q100 qualified**
- **Very low standby current**
- **Overload and short to ground (power limitation) indication**
- **Undervoltage shutdown**

FEATURES

- AEC-Q100 qualified
- Extreme low voltage operation for deep cold cranking applications (compliant with LV124, revision 2013)
- General
  - Single channel smart high-side driver with CurrentSense analog feedback
  - Very low standby current
  - Compatible with 3 V and 5 V CMOS outputs
- Diagnostic functions
  - Overload and short to ground (power limitation) indication
  - Thermal shutdown indication
  - OFF-state open-load detection
  - Output short to VCC detection
- Protections
  - Undervoltage shutdown
  - Overvoltage clamp
  - Load current limitation
  - Self limiting of fast thermal transients
  - Loss of ground and loss of VCC
  - Configurable latch-off on overtemperature or power limitation
  - Reverse battery
  - Electrostatic discharge protection

KEY APPLICATIONS

- Automotive smart power distribution
- Glow plugs
- Heating systems
- DC motors
- Relay replacement
- High power resistive and inductive actuators

MARKET SEGMENT

- Communication & Infrastructure
- Healthcare & Wearables
- Industrial
- Lighting
- Smart Consumer & Building
- Smart Grid
- Automotive

SUB MARKET

- Elevators, Escalators, Moving Walkways
- Embedded Computing & Storage
- Embedded Vision
- Factory Automation (PLCs, I/O, Sensors & Actuators)
- Human Machine Interface

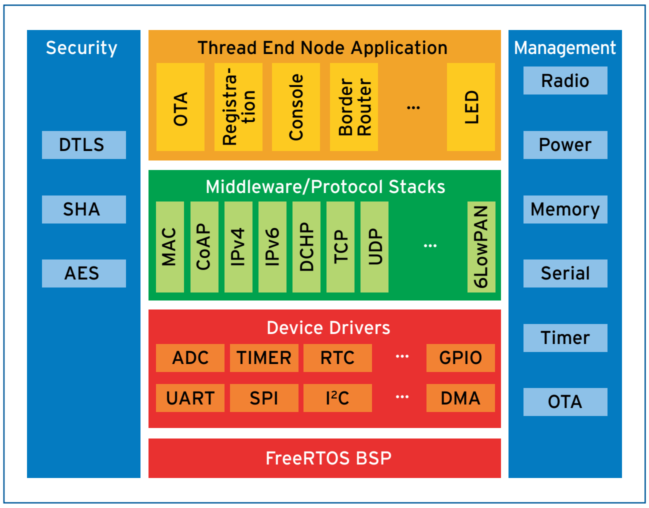
TECHNOLOGY SEGMENT

- Analog & Power

€ 665.00 1-up price
SLN-IOT-GPI

Modular IoT Gateway Solution

Integrated Development Experience (IDEx)
Reference Design for General Purpose IoT Systems



Modular Edge Node SW Architecture BD

NXP provides optimized Integrated Development Experience (IDEx) kits to accelerate development of gateways and end nodes for IoT, out-of-the-box. The gateway reference design offers a wide array of connectivity (up to six wireless radios) and a hardened, fully integrated software framework to support the secure delivery of IoT services to home, business or industrial end users.

The IDEx for IoT Applications (SLN-IOT-GPI) includes the NXP Modular IoT Gateway and Modular Edge Node which are tested and verified for ZigBee and Thread, as well as secure Wi-Fi and Ethernet cloud communications.

- **Low Power - the i.MX 6UL operates at ~1W typical power.**
- **Robust Software Framework - Cutting 6 months off development**
- **Secure, Secure boot, Trust Architecture, Tamper detection.**
- **Speeds Development - Proven software for immediate reuse**

FEATURES

- Modular IoT Gateway, tested and RF certified for wireless communication protocols including Thread, ZigBee and Wi-Fi
- SLN-IOT-GPI Integrated Development Experience (IDEx) combines the NXP Modular IoT Gateway supporting simultaneous ZigBee and Thread connectivity
- Controlled by the energy efficient i.MX6UL processor and a Modular Edge Node controlled by a wireless SoC
- NFC and BLE based device commissioning
- Smart phone app reference design for device control via cloud
- Cloud service reference design and cloud connectivity reference design using MQTT and CoAP
- Modular Edge Node Platform with Thread and ZigBee support

KEY APPLICATIONS

- wireless infrastructure

MARKET SEGMENT

- Communication & Infrastructure
- Smart Consumer & Building

SUB MARKET

- Wireless Infrastructure
- Asset Tracking
- Home & Building Control and Automation
- Home Appliances
- Audio and Video

TECHNOLOGY SEGMENT

- TOOL

ON Semiconductor®

€ 93.00 1-up price BB-GEVK

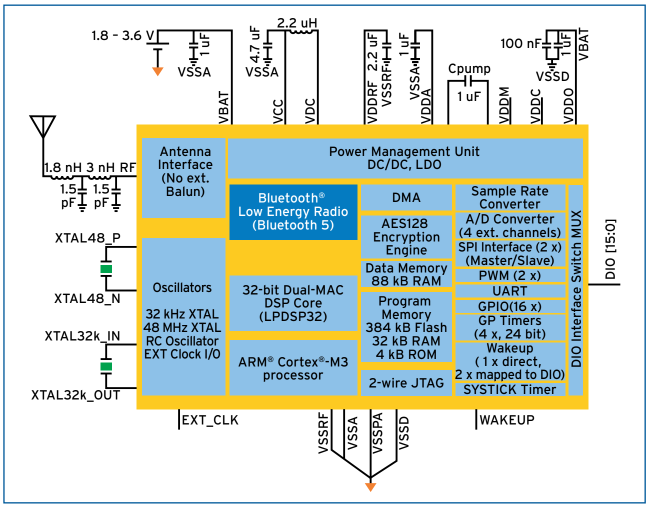
€ 13.00 1-up price PIR-GEVB

€ 33.00 1-up price EU-SIGFOX-GEVB

€ 46.00 1-up price BLDC-GEVK

IoT Development Kit (IDK)

Configurable rapid prototyping for Industrial IoT, Smart Building, & Mobile Health



Structure of Development Kit

ON Semiconductor IoT Development Kits (IDK) offer a modular, easy to use, and compact platform that provides developers with access to all of the hardware and software building blocks needed to rapidly design, evaluate, and implement medical, home, and industrial Internet of Things (IoT) applications. The ON Semiconductor IDK incorporates a variety of module options for sensing, wired and wireless connectivity, and actuation. The comprehensive software development framework encompasses an embedded operating system, drivers, APIs for hardware shields, a GUI, and sample applications code.

- **Portfolio of sensors, connectivity, and actuator devices**
- **Individual API for each device**
- **Complex C Code examples adapted to multiple applications**
- **Integrated development environment**

FEATURES

- Full documentation of sytem hardware and software design
- Cloud software
- Ready to use for fast turnaround from concept to production

KEY APPLICATIONS

- Smart Lighting
- Smart Dispenser
- Patient Monitoring
- Smart Actuator
- Smart Tissue Dispenser

MARKET SEGMENT

- Communication & Infrastructure
- Healthcare & Wearables
- Industrial
- Lighting
- Smart Consumer & Building

SUB MARKET

- Wireless Infrastructure
- Portable Personal Electronics & Wearables
- Personal Health, Sport & Fitness
- Factory Automation (PLCs, I/O, Sensors & Actuators)
- Human Machine Interface
- Motion Control, Servo Drives
- Home & Building Control and Automation
- Home Appliances

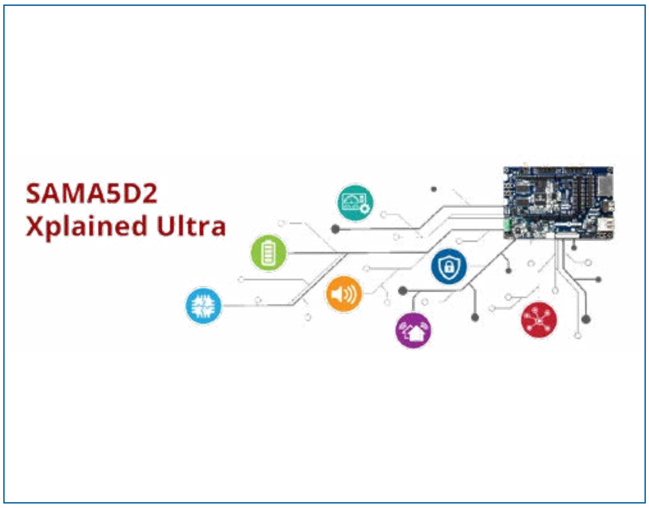
TECHNOLOGY SEGMENT

- TOOL

€ 11.69	**100-up price** ATSAMA5D225C-D1M-CU
€ 13.96	**100-up price** ATSAMA5D27C-D5M-CU
€ 16.32	**100-up price** ATSAMA5D27C-D1G-CU

SAMA5D2 System in Package

Embedded DRAM simplifies design effort and reduces board cost



SAMA5D2 Xplained Ultra

Microchip's SAMA5D2 System-in-Package (SiP) family integrates DDR2 SDRAM with the SAMA5D2 MPU in a single package, eliminating the board layout and design risk of interfacing high-speed SDRAM signals and also reducing EMI concerns. Besides shrinking board dimensions, SiPs reduce the number of PCB layers significantly lowering the system cost. In addition, Microchip's no-EOL policy insulates customers from the risk of DRAM obsolescence and price fluctuations.

- **Lower overall system cost**
- **Low power, high performance and security architecture**
- **Reduce board complexity and risks**
- **Life time commitment**

FEATURES

- Lower overall system cost
  - Reduce the board size and number of layers leading to lower system cost
  - Initial design effort is reduced as well as the hidden cost of DRAM obsolescence on design resources
- Reduce board complexity and risks
  - SiP DRAM integration completely eliminates DRAM signals layout challenge
  - Reduces board EMI
  - Possible four-layer PCB design enables further savings
- Lifetime commitment
  - No-EOL policy
  - Long-term supply contracts with Winbond to ensure a lifetime DDR2 SDRAM supply
- Low-power, high-performance and security architecture
- Very low power consumption with values down to 300 µA in retention mode with context preserved and 15µS ultra-fast wake-up
- The SAMA5D2 was designed to provide a comprehensive security environment
- There are 4 devices rated for -40°C to +85°C operation
  - ATSAMA5D225C-D1M-CU RTOS, bare metal 128 Mbit BGA196
  - ATSAMA5D27C-DSM-CU Linux 512 Mbit BGA289
  - ATSAMA5D27C-D1G-CU Linux 1 Gbit BGA289
  - ATSAMA5D28C-D1G-CU Linux, PCI 1 Gbit BGA289

KEY APPLICATIONS

- Industrial applications -40°C to 85°C
- Smart HMI, control panels.
- IoT/ secure gateway for home or building
- POS terminals
- Imaging/cameras such as bar code scanner
- White good appliances
- Alarm system
- Temperature control
- Industrial UI
- Smart labelling
- Gateway in smartgrid, fleet tracking, tacograph

MARKET SEGMENT

- Industrial
- Smart Consumer & Building
- Smart Grid
- Healthcare & Wearables

SUB MARKET

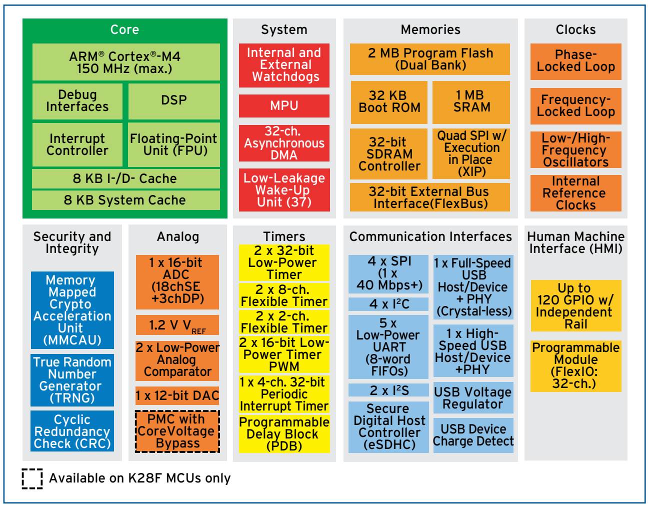
- Embedded Vision
- Human Machine Interface
- Robotics
- Surveillance, Parking & Traffic Control
- Medical Instruments
- Metering (Electricity, Flow, Heat)
- Home Appliances
- Audio and Video
- ... and many more

TECHNOLOGY SEGMENT

- High End Processing

Kinetis K27/K28 MCU Families

Power-efficient, dual-USB with large embedded memory MCUs based in ARM® Cortex-M4®



K27-K28 Block Diagram

The Kinetis K27 and K28 with ARM® Cortex®-M4 expand NXP's Kinetis K portfolio with embedded memory of 2 MB Flash and 1 MB SRAM, targeting applications which require processing efficiency as well as tight integration.

Highly integrated with two I²S interfaces, two USB controllers and analog peripherals, they are expandable through a 32-bit SDRAM memory controller and QuadSPI interface supporting eXecution-In-Place (XiP).

These MCUs enable secure content with TRNG, CRC, Memory Mapped Cryptographic Acceleration Unit, providing a strong foundation for the next generation of Internet of Things.

- **Power efficient**
- **Extra-large and expandable embedded memory**
- **High Integration**
- **Reliable and secure**

FEATURES

- 150 MHz (max) ARM®Cortex®-M4
- 32-channel DMA with asynchronous support in Stop mode
- Active run power consumption @120Mhz: <258 μA/MHz (typ.), Static power consumption down to <14μA (typ.) with full 1MB SRAM retention and <6 μS wakeup (K28)
- 2 MB dual bank embedded program flash and 1 MB SRAM
- 8 KB I/D Cache + 8 KB System Cache
- 2 x I²S, 4 x I²C, 4 x SPI (1x 40Mbps+), 5 x LPUART
- 2 x USB Controllers (High-Speed w/ PHY and Full-Speed)
- PMC with Core Voltage Bypass (K28 Only)
- 32-ch Programmable module (FlexIO)
- Secure Digital Host Controller
- True Random Number Generator
- Cyclic Redundancy Check
- Memory Mapped Cryptographic Acceleration Unit

KEY APPLICATIONS

- Human-Machine Interface

MARKET SEGMENT

- Communication & Infrastructure
- Healthcare & Wearables
- Smart Consumer & Building

SUB MARKET

- Personal Health, Sport & Fitness
- Portable Personal Electronics & Wearables
- Toys, games and entertainment
- Home Appliances
- Home & Building Security (Alarms, Access Control)
- Home & Building Control and Automation
- Heating, Ventilation and Air Conditioning
- Audio and Video
- Asset Tracking
- Wireless Infrastructure

TECHNOLOGY SEGMENT

- High End Processing

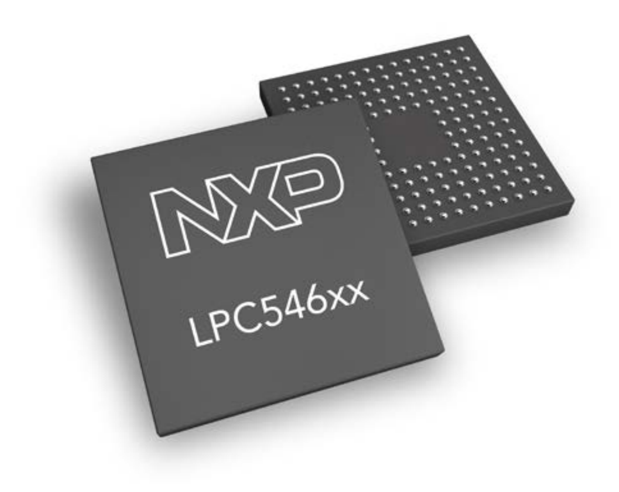
€ 4.63 100-up price LPC54606J512BD100E

€ 5.55 100-up price LPC54608J512ET180E

€ 73.00 1-up price OM13098UL

LPC546xx Microcontroller

Power-Efficient Microcontrollers With Advanced Peripherals Based on ARM® Cortex®-M4 Core



LPC546xx

Offering great flexibility and performance scalability, the LPC546xx MCU family based on the ARM® Cortex®-M4 core, provides up to 220 MHz performance while retaining power-efficiency as low as 100 µA / MHz, finding the right balance between feature integration and power efficiency.

Its 21 communication interfaces make it ideal for the HMI and connectivity needs of next-generation IoT applications.

- **Up to 220MHz ARM® Cortex®-M4, Up to 512KB Flash, 200KB RAM**
- **Interfaces for connectivity & sensors**
- **Graphic LCD with resolution up to 1024x768**
- **Ethernet, 2 x CAN-FD controllers, XIP from QSPI via SPIFI**

FEATURES

- Up to 220MHz ARM®Cortex®-M4 core
- Up to 512 KB Flash
- Up to 200 KB RAM
- 16 KB EEPROM
- Interfaces for connectivity & sensors
  - Stereo DMIC subsystem
  - 1x HS USB (H/D) w/ on-chip HS PHY
  - XTAL-less FS USB (H/D)
  - 10 SPI, 10 I2C, 10 UART, 2 I2S channels. (Max 10 channels)
- Graphic LCD with resolution up to 1024x768
- Ethernet
- 2 x CAN-FD controllers
- XIP from QSPI via SPIFI
- External Memory Ctrl (up to 32 bits)
- Packages
  - LQFP100
  - LQFP208
  - TFBGA180
  - TFBGA100
- Operating voltage: 1.71 to 3.6V
- Temperature range: -40 to 105 C

KEY APPLICATIONS

- sensor node

MARKET SEGMENT

- Healthcare & Wearables
- Automotive
- Smart Consumer & Building
- Industrial

SUB MARKET

- Medical Diagnostic and Therapy
- Medical Instruments
- ADAS, Automotive Infotainment & Cluster
- Heating, Ventilation and Air Conditioning
- Home Appliances
- Home & Building Security (Alarms, Access Control)
- Home & Building Control and Automation
- Instrumentation, Test and Measurement

TECHNOLOGY SEGMENT

- High End Processing

€ 12.80 10-up price STM32H743BIT6

€ 13.60 10-up price STM32H743XIH6

€ 12.40 10-up price STM32H743IIT6

€ 18.00 1-up price NUCLEO-H743ZI

STM32H7

STM32H7 series of high-performance MCUs with ARM® Cortex®-M7 core

Taking advantage of an L1 cache, STM32H7 devices deliver the maximum theoretical performance of the Cortex-M7 core. This is regardless whether code is executed from embedded Flash or external memory: 2020 CoreMark /856 DMIPS at 400 MHz fCPU.

- **2MB of Embedded Flash with ECC**
- **1MB of embedded RAM with ECC**
- **16bits ADC**
- **Power efficiency thanks to advanced process node**

FEATURES

- AXI and multi-AHB bus matrixes for interconnecting core, peripherals and memories
- 16 Kbytes +16 Kbytes of I-cache and D-cache
- Up to 2 Mbytes of embedded dual-bank Flash memory, with ECC and Read-While-Write capability
- A high-speed master direct memory access (MDMA) controller, two dual-port DMAs
- Chrom-ART acceleration for efficient 2D image copy and double-precision FPU
- Two USB OTG with dedicated power supply
- Dual-mode Quad-SPI interface
- Two FD-CAN controllers, a high-resolution timer
- A TFT-LCD controller, a JPEG codec
- Three fast 16-bit ADCs, two comparators and two operational amplifiers.
- 1 Mbyte of SRAM with a scattered architecture:320 KB total TCM + DTCM RAM, 864 Kbytes user SRAM, 4 Kbytes of SRAM (backup domain in lowest power modes)
- Power efficiency
- The multi-power domains architecture allows the different power domains to be set in low-power mode to optimize the power efficiency.
- 263 µ/MHz typical @VDD = 3.3 V and 25 °C in Run mode (peripherals off)
- 4 µA in Standby mode (low-power mode)

KEY APPLICATIONS

- HMI
- Motor Control
- Saftey applications
- High computaion applications
- Image Computing
- People detection
- High end sensors fusion

MARKET SEGMENT

- Communication & Infrastructure
- Healthcare & Wearables
- Industrial
- Smart Consumer & Building

SUB MARKET

- Medical Diagnostic and Therapy
- Motion Control, Servo Drives
- Point of Sales and Vending machines
- Professional Gaming, Amusement & Casino Machines
- Robotics
- Surveillance, Parking & Traffic Control
- Asset Tracking
- Audio and Video
- Home & Building Control and Automation
- Home Appliances

TECHNOLOGY SEGMENT

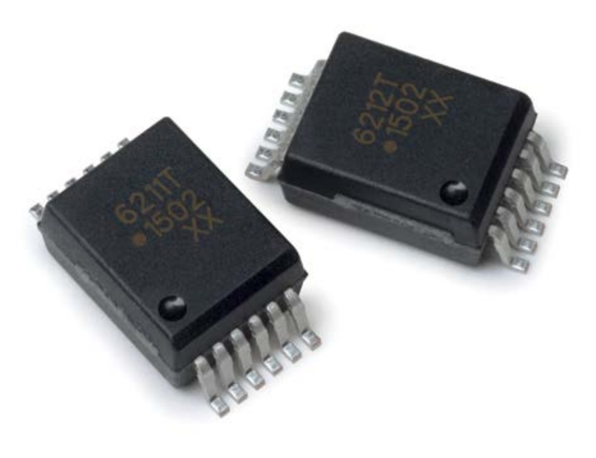
- High End Processing

BROADCOM
connecting everything

€ 3.31	100-up price ACFL-6211T-000E
€ 3.34	1000-up price ACFL-6211T-560E
€ 3.33	1000-up price ACFL-6211T-500E
€ 3.33	100-up price ACFL-6211T-060E

ACFL-6211x, ACFL-6212x

10/15 MBd Dual-channel, Bi-directional R²Coupler® Optocoupler



ACFL-6211T, ACFL-6212T packages

The Broadcom ACFL-6211x/6212x family is an automotive-grade, dual-channel optocoupler device designed for bi-directional digital communications. It has two optocoupler channels internally aligned 180 degrees of each other, providing optimum chip pin-out configuration for bi-directional Tx/Rx data communication design and board layout. The two channels are electrically independent and galvanically isolated, providing an ideal isolated bi-directional power system communication interface.The device is optimized for high-speed systems supporting data rates up to 15 MBd.

- **Automotive Qualified per AEC-Q100 Grade 1 Test Guidelines**
- **3.3/5V CMOS Output**
- **Data Rates up to 15 MBd**
- **Low Propagation Delay: 35 ns (max.)**

FEATURES

- Automotive Qualified per AEC-Q100 Grade 1 Test Guidelines (ACFL-6211T/6212T)
- Operating Temperature from -40 °C to +125 °C
- 8mm Creepage and Clearance
- Data Rates up to 15 MBd
- LED Current Drive (I_F): 4 to 15 mA
- VRange: 3 to 5.5 V
- Compact, Auto-Insertable Stretched SO12 Package
- Worldwide Safety Approval:
  - UL 1577 approval, V_{ISO}= 5,000 Vrms for 1 min.
  - CSA Component Acceptance Notice 5
  - IEC/EN/DIN EN 60747-5-5, V_{IORM}= 1,140 V_{PEAK}

KEY APPLICATIONS

- Automotive CANBus and SPI Communications Interface
- Automotive Power Transitor Isolation
- High Temperature Digital Signal Isolation
- Automotive IPM Driver for DC/DC Converters
- Digital Isolation for A/D and D/A Conversion

MARKET SEGMENT

- Industrial
- Automotive

SUB MARKET

- Elevators, Escalators, Moving Walkways
- Motion Control, Servo Drives
- Robotics
- Factory Automation (PLCs, I/O, Sensors & Actuators)
- Automotive Power Train and Chassis

TECHNOLOGY SEGMENT

- Analog & Power

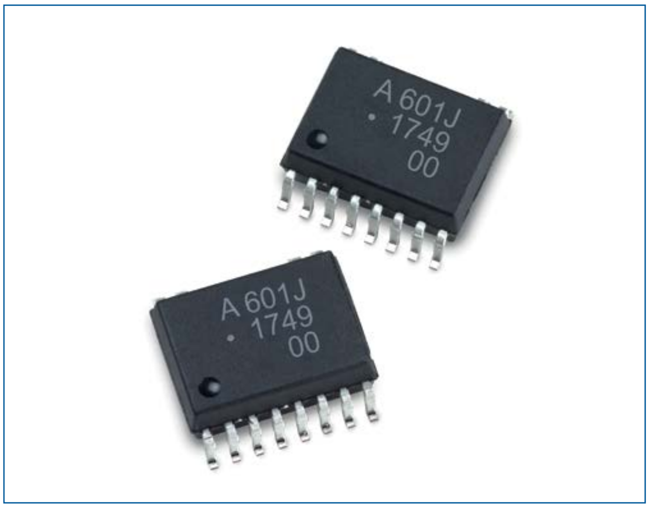
€ 3.47 100-up price ASSR-601J

€ 3.93 100-up price ASSR-601JV

€ 3.93 100-up price ASSR-601JT

ASSR-601J

1500 V Solid State Relay



ASSR-601

The ASSR-601J is a high-voltage solid state relay that is designed for high voltage industrial applications. The detector consists of a high-speed photovoltaic diode array and driver circuitry to switch on/off two discrete high-voltage MOSFETs. The relay turns on (contact closes) with a minimum input current of 10 mA through the input LED. The relay turns off (contact opens) with an input voltage of 0.4V or less. The ASSR-601J is equivalent to FormA Electromechanical Relays (EMR) and is available in 16-pin SOIC package.

- **Compact solid-state bi-directional signal switch**
- **Breakdown voltage, V_{OFF}: 1500 V at I_{DSS} = 250 µA**
- **Output Leakage Current, I_O < 1 µA at V_O = 1000 V**
- **Operating temperature range: -40° C to +110° C**

FEATURES

- Compact solid-state bidirectional signal switch
- Operating temperature range: -40° C to +110° C
- Breakdown voltage, V_{OFF}: 1500 V at I_{DSS}= 250 µA
- Avalanche-rated MOSFETs
- Output Leakage Current, I_O< 1 µA at V_O= 1000 V
- On-resistance, R_{ON}< 250Ω at I_O= 50 mA
- Turn on time: T_{ON}< 4 ms
- Turn off time: T_{OFF}<0.5 ms
- Package: 300 mil SO-16
- Creepage and clearance ≥ 8 mm (input-output)
- Creepage > 5 mm (between drain pins of MOSFETs)
- Safety and regulatory approvals:
  - IEC/EN/DIN EN 60747-5-5
  - Maximum working insulation voltage 1414V_{PEAK}
  - 5000V_{RMS} for 1 minute per UL1577
  - CSA component acceptance

KEY APPLICATIONS

- Battery/motor/solar panel insulation resistance
- measurement/leakage detection
- BMS flying capacitor topology for sensing batteries
- Electro mechanical relay replacement
- Inrush current limiter protection

MARKET SEGMENT

- Smart Grid
- Industrial

SUB MARKET

- Power Conversion (Inverters, Welding, Converters)
- Elevators, Escalators, Moving Walkways
- Factory Automation (PLCs, I/O, Sensors & Actuators)
- Robotics
- Renewable Energy Generation
- Railway (Traction, Control, etc...)

TECHNOLOGY SEGMENT

- Analog & Power

€ 0.38 | **1000-up price**
TC78H630FNG(O,EL)

TC78H630FNG

Brushed DC Motor Driver including Single H-Bridge

TC78H6xxx Devices

Single H-bridge IC with a 2.1 A rating and a low on-resistance of 0.4 Ω for DC brushed motors and stepping motors used in mobile battery-drive equipment, home appliances, housing and facility equipment. The TC78H630FNG requires a logic power supply in the range of 2.7 to 5.5 V and can accept motor drive voltages in the range 2.5 to 15 V. In standby mode the current consumption is approximately 1 µA (max.). The maximum output voltage is 18 V. This new device is suitable for a wide range of applications.

- **Output current: I_{OUT} = 2.1 A (max)**
- **Output ON resistance: $R_{ON\ (upper\ and\ lower\ sum)}$ = 0.4 Ω (typ.)**
- **Power supply voltage for motor: V_M = 18 V (max)**
- **Power supply voltage for control: V_{CC} = 6 V (max)**

FEATURES

- Internal pull-down resistors on inputs : 200 kΩ (typ.)
- Built-in over current detection (ISD), thermal shutdown (TSD) circuit and under voltage lockout (UVLO) circuit
- Built-in cross conduction protection circuit
- Short brake mode support
- Small package: P-TSSOP16-0505-0.65-001

KEY APPLICATIONS

- Home appliances
- Point-of-sales
- White goods
- Housing and facility equipment
- Ventilation
- Water supply valves
- Electronic lock
- Smart meter

MARKET SEGMENT

- Communication & Infrastructure
- Smart Consumer & Building

SUB MARKET

- Telecom and Networking
- Broadcast
- Home & Building Security (Alarms, Access Control)
- Heating, Ventilation and Air Conditioning
- Audio and Video

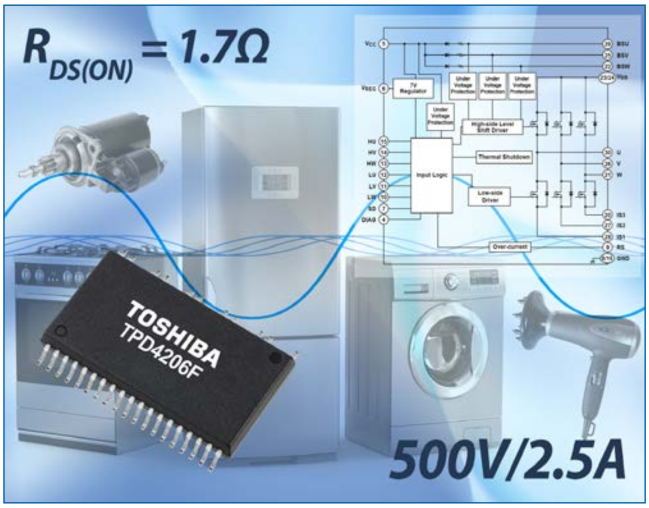
TECHNOLOGY SEGMENT

- Analog & Power

€ 2.53 | **1000-up price**
TPD4206F,FQ(S

TPD4206F

500V, 2.5A IC combines driver, power stage and protection with sine wave control



Toshiba TPD4206F

Toshiba's high-voltage intelligent power device (HV-IPD) will improve the efficiency and reduce the component count of brushless DC (BLDC) motor drives.

The TPD4206F multichip IC integrates six MOSFETs, a driver IC and protection functionality, is rated for 500V and 2.5A, and is offering integrated sine and trapezoidal wave motor control. Designers can combine the new HV-IPD with microcontrollers and other driver ICs depending on the needs of the target application. Toshiba also offers an evaluation board that allows engineers to quickly prototype and test designs based on the IC.

- **Compact, Low-Noise, High-Efficiency BLDC Motor Drives**
- **Ideal for motion control with power ratings up to 80W**
- **Multichip IC rated for 500V and 2.5A**
- **Measures only 20mm x 14.2mm x 2mm**

FEATURES

- High Voltage DC 450V
- Low $R_{DS(on)}$: 1.7Ω(typ)
- Excellent t_{rr} : 90ns(typ)
- Multi chip solution
- Flow soldering
- Separated control & power terminals
- Protection functions
  - Over current
  - Thermal shutdown
  - Shutdown (SD) function
  - Under voltage protection
- 30-pin SOP30 SMD package

KEY APPLICATIONS

- General motor control (up to 80W)
- Home appliances (dishwasher, fridge)
- Industrial fans, pumps control

MARKET SEGMENT

- Industrial
- Smart Consumer & Building

SUB MARKET

- Factory Automation (PLCs, I/O, Sensors & Actuators)
- Elevators, Escalators, Moving Walkways
- Motion Control, Servo Drives
- Robotics
- Home Appliances

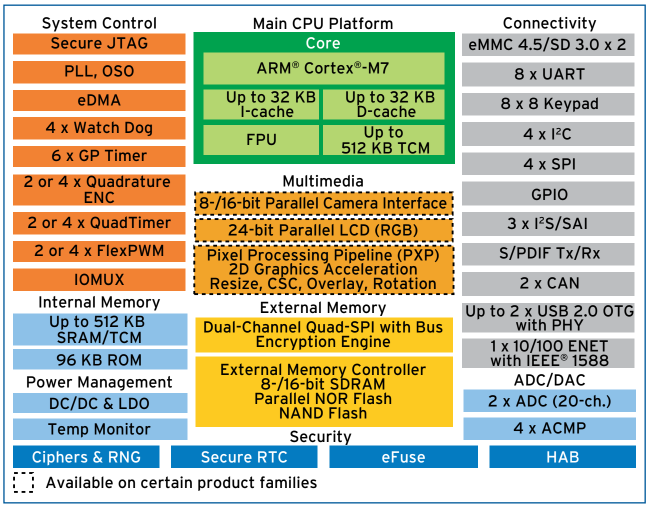
TECHNOLOGY SEGMENT

- Analog & Power

€ 5.88	100-up price MIMXRT1051CVL5A	€ 6.14	100-up price MIMXRT1052CVL5A
€ 5.34	100-up price MIMXRT1051DVL6A	€ 89.00	1-up price MIMXRT1050-EVK

i.MX RT1050 Crossover Proc.

One of the first Crossover Processor: High performance with real-time functionality



i.MX RT Block Diagram

Building upon decades of leadership in providing both MCUs and applications processors, NXP has developed a new series of embedded processors that fully embodies the best of two worlds: Application processor and Microcontrollers.

The new i.MX RT1050 crossover processors are based on ARM® Cortex®-M7, and offer twice the performance and twice the level of integration compared to other solutions. They bring applications processor-level performance into the MCU world in support of real-time, performance-intensive processing functions such as camera and display capabilities, at an affordable price

- **High Performance Real-time Processing**
- **High Levels of Integration**
- **Low BOM Cost**
- **Easy to Use**

FEATURES

- Cortex-M7 up to 600MHz , 50% faster than any other existing M7 products
- 20ns interrupt latency, a TRUE Real time processor
- 512KB SRAM, configurable to 512KB TCM
- Motor Control: Flex PWM X 4, Quad Timer X 4, ENC X 4
- 2x USB, 2x SDIO, 2x CAN, 1x ENET with 1588, 8xUART, 4x SPI, 4X I2C
- 8/16-bit CSI interface and 8/16/24-bit LCD interface
- Qual-SPI interface, with Bus Encryption Engine
- Audio interface: 3x SAI/ SPDIF RX & TX/ 1x ESAI
- TRNG & PRNG (NIST SP 800-90 Certified)
- 128-AES cryptography
- Bus Encryption Engine: Protect QSPI Flash Content
- FreeRTOS with SDK
- MCUXpresso
- Comprehensive ecosystem
- Competitive Price
- Fully integrated PMIC with DC-DC
- Low cost package, 10x10 BGA with 0.65mm Pitch
- SDRAM interface

KEY APPLICATIONS

- Location tracking
- Automotive (aftermarket)
- Wearables
- IoT applications
- M2M applications
- Industrial applications

MARKET SEGMENT

- Communication & Infrastructure
- Healthcare & Wearables
- Smart Grid
- Industrial
- Lighting
- Smart Consumer & Building

SUB MARKET

- Broadcast
- Metering (Electricity, Flow, Heat)
- Toys, games and entertainment
- Home & Building Security (Alarms, Access Control)
- Home & Building Control and Automation
- Asset Tracking
- Lighting Fixtures
- Surveillance, Parking & Traffic Control
- Point of Sales and Vending machines
- Information Kiosk & Advertising Panels
- Factory Automation (PLCs, I/O, Sensors & Actuators)
- Personal Health, Sport & Fitness
- Portable Personal Electronics & Wearables
- Wireless Infrastructure
- Smart Grid Protection and Control

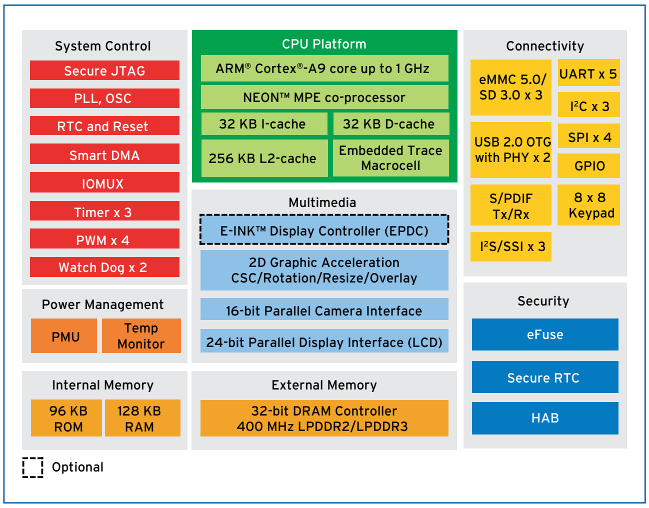
TECHNOLOGY SEGMENT

- High End Processing

Please contact EBV!

i.MX6SLL Application Processor

High-performance, low power multimedia products for industrial and consumer market



Zynq UltraScale+ MPSoC Features

The i.MX6SLL processor represents NXP's latest achievement in integrated multimedia applications processors, which are part of a growing family of industrial and consumer products that offer high-performance processing and are optimized for lowest power consumption.

The processor provides a 32-bit DDR interface that supports LPDDR2 and LPDDR3. In addition, there are a number of other interfaces for connecting peripherals, such as WLAN, Bluetooth™, GPS, hard drive, displays, and camera sensors.

- **NXP's advanced implementation of a single ARM® Cortex®-A9**
- **Operates at speeds up to 1GHz**
- **Low power DDR controller supports 32-bit LPDDR2 and LPDDR3**
- **Rich multimedia features**

FEATURES

- Single Cortex®-A9 core with the NEON SIMD engine and a floating point engine
- Multilevel memory system based on the L1 instruction and data caches, L2 cache, and internal and external memory
- Low power DDR controller supports 32-bit LPDDR2 and LPDDR3
- 2D graphics acceleration engine (PXP) that can support CSC, dithering, rotation, resize, overlay and new generation EPDC waveform processing
- E Ink display controller supports EPD panel up to 2332 x 1650 resolution and 5-bit grayscale
- 16 bit Parallel Camera Interface and 24-bit Parallel LCD
- 3 X I^2S, S/PDIF
- 2X High-speed USB on-the-go with PHY, 3 X EMMC 5.0/SD 3.0
- UART, I^2C
- An integrated part of a broad and scalable application processor family
- SW compatible to broad i.MX 6 series, SW, and pin to pin compatible with i.MX 6SoloLite
- Multiple package options: 14 x 14 BGA / 13 x 13 BGA

KEY APPLICATIONS

- Human-machine interface (HMI)
- Home energy management systems
- Portable medical
- Intelligent industrial control systems
- Smart appliances
- Smart energy concentrators
- Color and monochrome eReaders

MARKET SEGMENT

- Industrial
- Healthcare & Wearables
- Smart Consumer & Building

SUB MARKET

- Factory Automation (PLCs, I/O, Sensors & Actuators)
- Medical Imaging
- Human Machine Interface
- Personal Health, Sport & Fitness
- Home Appliances

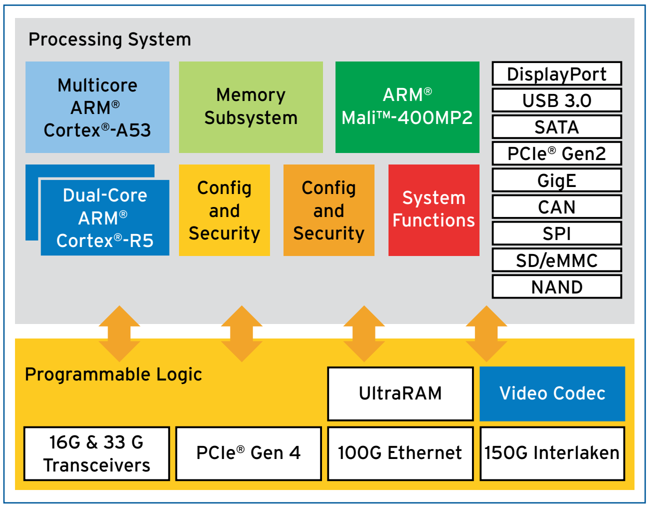
TECHNOLOGY SEGMENT

- High End Processing

€ 400.00 1-up price
XCZU2EG-2SFVC784E

Zynq UltraScale+ MPSoCs

All Programmable Heterogeneous MPSoC



Zynq UltraScale+ MPSoC Features

Zynq® UltraScale+™ All Programmable MPSoCs is the high-end member of the Xilinx Zynq All Programmable portfolio, providing up to 5X system level performance-per-watt compared to the Zynq-7000 SoC family. Zynq UltraScale+ devices combine a high-performance ARM®-based multicore, multiprocessing system with ASIC-class programmable logic. Dual- and quad-core application processor equipped devices deliver maximum scalability, and are capable of offloading critical applications, such as graphics and video pipelining.

- **Quad or Dual-core ARM Cortex A53 Application Processing Unit**
- **Dual-core ARM Cortex-R5 Real-Time Processing Unit**
- **ARM Mali-400 MP2 Graphics Processing Unit**
- **Video Codec Unit**

FEATURES

- ARMv8 64-bit architecture running up to 1.5GHz
- Up to 2.7 x performance-per-watt over dual-core ARM Cortex-A9
- 2.3 DMIPS/MHz performance
- Hardware virtualization with terabyte memory access
- ARMv7 32-bit architecture running up to 600MHz
- 1.67 DMIPS/MHz performance
- Lock-step mode for high reliability, safety critical functions
- Multicore 2D/3D acceleration at 667MHz
- 1080p resolution graphics
- OpenGL ES 1.1 and 2.0 and OpenVG 1.0 and 1.1
- Supports H.265 (HEVC) / H.264 (AVC) standards
- Simultaneous encode and decode at 8Kx4K (15fps) or 4Kx2K (60fps)
- Multiple power domains with granular gating control
- Platform Management Unit for power, safety, and reliability
- PCI Express®(PCIe) Gen3x16 and Gen4x8, MIPI D-PHY in FPGA logic
- Processing system includes USB 3.0, SATA 3.1, PCIe Gen2,
- DisplayPort support for resolutions up to 4Kx2K (30fps)
- 150G Interlaken and 100G Ethernet MAC cores in FPGA logic
- Configuration Security Unit for anti-tamper and lockdown
- 4096-bit RSA keys with SHA3 hash functions
- Secure system boot with AES 256 decryption
- Full ARM TrustZone support

KEY APPLICATIONS

- Motion Control
- Camera-based ADAS
- Professional Broadcast Camera
- Public Safety & Military Mobile Radio

MARKET SEGMENT

- Industrial
- Smart Grid
- Smart Consumer & Building

SUB MARKET

- Elevators, Escalators, Moving Walkways
- Motion Control, Servo Drives
- Robotics
- Factory Automation (PLCs, I/O, Sensors & Actuators)
- Human Machine Interface
- Railway (Traction, Control, etc...)
- Home Appliances

TECHNOLOGY SEGMENT

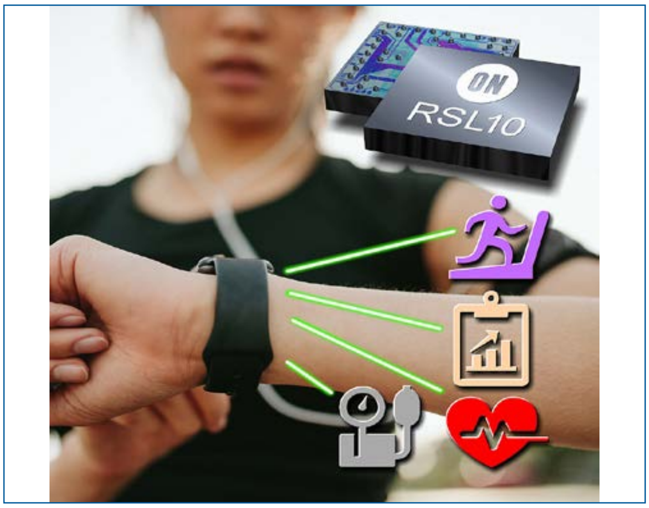
- High End Processing

ON Semiconductor®

€ 4.30 1000-up price
NCH-RSL10-101Q48-ABG

RSL10

Ultra-Low-Power Multi-Protocol Bluetooth® 5 Certified Radio SoC



RSL10 Applications

RSL10 is a multi-protocol Bluetooth 5 certified radio System on Chip (SoC) which brings ultra-low-power wireless technology to IoT. Offering the industry's lowest power consumption, RSL10 helps to provide devices like heart rate monitors with advanced wireless features while optimizing system size and battery life.

RSL10 is specifically designed for applications using 1.2 and 1.5 V batteries and supports a voltage supply range between 1.1 and 3.3 V without a DC/DC converter. The SoC features a dual-core architecture and a 2.4 GHz transceiver.

- **Ultra Low Power**
- **Advanced Multi-Protocol Wireless Functionality**
- **Flexible Voltage Supply Range**
- **Ultra-Miniature**

FEATURES
- Sophisticated Dual-Core Architecture
- On-Chip and Software Wireless Support
- Highly-Integrated System-on-Chip
- 384 kB Flash Memory
- IP Protection
- Configurable Analog and Digital Sensor Interfaces

KEY APPLICATIONS
- Fitness tracker
- Smart Watches
- Heart Rate Monitor
- Hearing Aids/Hearables
- Blood Glucose Monitors
- Continuous Glucose Monitors
- Pule Oximeters

MARKET SEGMENT
- Healthcare & Wearables
- Smart Consumer & Building

SUB MARKET
- Medical Diagnostic and Therapy
- Personal Health, Sport & Fitness
- Portable Personal Electronics & Wearables
- Medical Instruments
- Home Appliances
- Home & Building Security (Alarms, Access Control)
- Home & Building Control and Automation
- Toys, games and entertainment

TECHNOLOGY SEGMENT
- RF & Microwave

€ 19.99 100-up price AR18-A21E

€ 19.99 100-up price AR18-A21S

AR18 & AR35 Series

Miniature 17-21 Bits Programmable Absolute Encoders

The AR18 and AR35 Series are miniature Absolute Encoders ASIC designed to cater for the growing demand in space constrained applications. The AR18 is designed for an overall diameter of 18 mm and offers user-programmable resolution ranging from 17,19, and 21-bit single-turn absolute output, while AR35 is designed for an overall diameter of 35 mm and offers 17 and 21-bit single-turn absolute output. Both, AR18 and AR35 series provide the incremental ABI and UVW in differential mode and come with a recommended high-temperature range of -40...+115 °C suitable for most industrial applications.

- **RoHs compliant**
- **Differential output for ABI and UVW**
- **Selectable RS485 mode communication protocol**
- **Selectable SSI mode communication protocol**

FEATURES

- Miniature absolute encoder ASIC surface mount DFN package: 10.9 mm (L) x 9.1 mm (W) x 1.5 mm (H)
- User-programmable resolution ranging from:
  - 17, 19, and 21-bit single turn (OD18)
  - 17 and 21-bit single turn (OD35)
- User-programmable incremental output (ABI) resolution ranging from 128 to 8192 CPR
- User-programmable commutation signal (UVW) ranging from 2, 3, 4, 5, 12, 30, 32 pole pair
- High-temperature range of -40 °C to 115 °C suitable for most of the industrial operation
- Dual-mode operating voltage of 3.3V and 5V, enabling handheld and portable device applications

KEY APPLICATIONS

- Robotic automation and engineering
- Factory automation and drone
- Medical and dentistry, devices and equipment
- High-accuracy portable and handheld devices
- Miniature motor, servo motor, linear actuator

MARKET SEGMENT

- Industrial

SUB MARKET

- Factory Automation (PLCs, I/O, Sensors & Actuators)
- Motion Control, Servo Drives
- Robotics

TECHNOLOGY SEGMENT

- Smart Sensing & Connectivity

Please contact EBV!

FS1012 and FS2012

High-performance, digital flow rate sensor modules for both liquids and gases

High-performance, digital flow rate sensor

The IDT® FS1012 and FS2012 are high-performance, digital flow rate sensor modules suitable for liquids and gases. The sensors have no moving parts, no fragile diaphragm over a cavity, and feature a layer of silicon-carbide coating. This eliminates clogged sensor elements and fluid pressure sensitivity, provides excellent shock resistance, and prevents chemicals from damaging the sensor element. Therefore, IDT's solution is suitable in medical, industrial, and FDA-compatible food-grade consumer applications where reliability, robustness, and cross-contamination are critical factors.

- **No cavity in MEMS sensor to cause clogging**
- **Silicon-carbide coating over MEMS flow sensor**
- **Accuracy down to 2% of the measurement reading**
- **Measures gas or liquid mediums**

FEATURES

- A protective silicon-carbide coating, making it a highly robust and reliable flow sensor element also compatible with food-grade applications.
- High-performance digital flow rate sensor modules suitable for both liquids and gases
- Flow sensor modules offer accuracy down to 2% of the measurement reading, providing high-accuracy in high- or low-flow situations using the same sensor module
- The compact package, wide -40 to 125°C operating temperature range and ubiquitous 3V to 5V supply voltage range eases system design integration constraints
- No cavities and diaphragms - eliminates clogged sensor elements and fluid pressure sensitivity, provides excellent shock resistance, and prevents chemicals from damaging the sensor element

KEY APPLICATIONS

- Medical instrumentation

MARKET SEGMENT

- Industrial
- Smart Consumer & Building
- Healthcare & Wearables

SUB MARKET

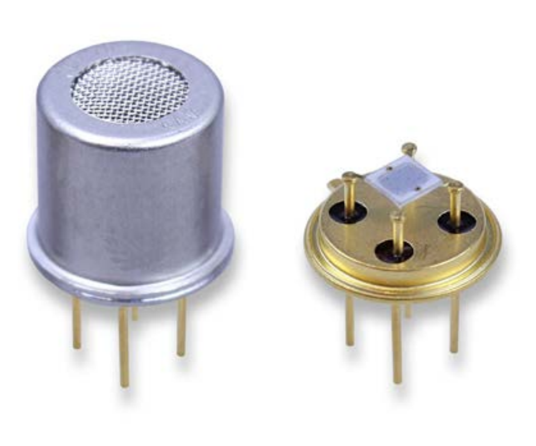
- Medical Instruments
- Point of Sales and Vending machines
- Instrumentation, Test and Measurement
- Heating, Ventilation and Air Conditioning

TECHNOLOGY SEGMENT

- Smart Sensing & Connectivity

SGas Sensor Portfolio

High performance sensors for industrial leak detection and air quality applications



SGAS Cap and Capless Pair

IDT offers innovative, high performance gas sensors ideal for industrial leak detection and air quality applications. These sensors are based upon a highly reliable ceramic substrate, coupled with advanced nanostructured materials tailored for individual applications. IDT's gas sensors are capable of accurate detection of a range of gases, including hydrogen, flammable gases (methane, propane, natural gas) and volatile organic compounds (includes TVOC, alcohols, aldehydes, ketones and more). With a track record in real world applications of over 10 years they're reliable and proven.

- **High reliability thanks to innovative materials**
- **Accurate detection of gases (H, flammable gases, VOC)**
- **Excellent gas sensitivity and selectivity**
- **Over a decade of gas sensing experience**

FEATURES

- Reliable gas detection
- High sensitivity to a wide range of gases
- Long lifetime:
  - SGAS707: 3 to 5 years
  - SGAS701/SGAS711: 5+ years
- Proprietary sensing materials
- Response time < 30 seconds
- Over a decade of gas sensing experience
- Reduced frequency of calibrations, maintenance, and overall system cost

APPLICATION EXAMPLES

- Medical equipment
- Home automation
- Breath analysis
- Leak detection
- Process control
- Air quality

MARKET SEGMENT

- Industrial
- Smart Consumer & Building
- Healthcare & Wearables

SUB MARKET

- Heating, Ventilation and Air Conditioning
- Instrumentation, Test and Measurement
- Medical Instruments

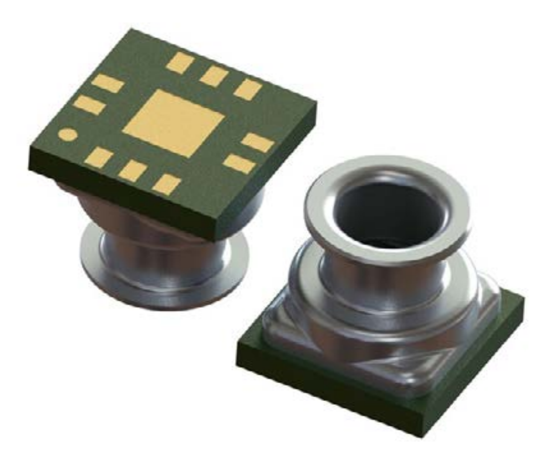
TECHNOLOGY SEGMENT

- Smart Sensing & Connectivity

€ 3.69 | **100-up price**
LPS33HWTR

LPS33HW

260-1260 hPa absolute barometer, 10-bar water-resistant


LPS33HW holed package

The LPS33HW is a waterproof pressure sensor, resistant to chemicals like chlorine, bromine, salt water and also resistant to soaps or detergents. Due to the sensor's high-performance built-in processor and the advanced formula of its water-resistant gel filling gives performance advantages and fast recovery between factory and store-shelf. The LPS33HW can withstand being submerged up to 90 meters, and the very low RMS pressure noise of 0.008 mbar allows apps like an altimeter, depth gauge, or weather monitor to deliver consistent and stable results.

- **Pressure sensor with water-resistant package**
- **Current consumption down to 3 µA**
- **24-bit pressure, 16-bit temperature data output**
- **Embedded FIFO**

FEATURES

- 260 to 1260 hPa absolute pressure range
- High overpressure capability: 20x full scale
- Embedded temperature compensation
- 24-bit pressure data output
- 16-bit temperature data output
- ODR from 1 Hz to 75 Hz
- SPI and I²C interfaces
- Interrupt functions: data-ready, FIFO flags, pressure thresholds
- Supply voltage: 1.7 to 3.6 V
- Sensor accuracy drifts by less than ±1 mbar per year
- LPS33HW is assembled in a 3.3 mm x 3.3 mm x 2.9 mm cylindrical metal package suitable for use with O-ring seals

KEY APPLICATIONS

- Wearable devices
- Altimeters and barometers for portable devices
- GPS applications
- Weather station equipment

MARKET SEGMENT

- Industrial

SUB MARKET

- Factory Automation (PLCs, I/O, Sensors & Actuators)
- Instrumentation, Test and Measurement
- Point of Sales and Vending machines
- Motion Control, Servo Drives
- Robotics

TECHNOLOGY SEGMENT

- Smart Sensing & Connectivity

€ 6.69 10-up price SPBTLE-1S

SPBTLE-1S

Very low power application module for Bluetooth® Smart v4.2

Bluetooth LE Radio module

The SPBTLE-1S is a Bluetooth® low Energy System-on-Chip application processor certified module, compliant with BT specifications v4.2 and BQE qualified. The module supports multiple roles simultaneously and can act at the same time as Bluetooth Smart master and slave device. It is based on BlueNRG-1 system-on-chip and entire Bluetooth Low Energy stack and protocols are embedded into the module. The SPBTLE-1S module provides a complete RF platform in a tiny form factor. Radio, embedded antenna and high frequency oscillators are integrated to offer a certified solution.

- **Bluetooth v4.2 compliant**
- **High performance, ultra-low power Cortex-M0 32-bit core**
- **Programmable embedded 160 KB Flash**
- **AES security co-processor**

FEATURES

- Supports master and slave modes
- Multiple roles supported simultaneously
- High performance, ultra-low power Cortex-M0 32-bit based architecture core
- 24 KB embedded RAM with data retention
- Interfaces:1 x UART, 2 x I²C, 1xSPI, 14 x GPIO, 2 x multifunction timer, 10-bit ADC, Watchdog & RTC, DMA controller, PDM stream processor, SWD debug Interface
- Bluetooth radio performance: Max Tx power: + 5 dBm
- Excellent link reliability
- On-board chip antenna
- Small form factor: 11.5 mm x 13.5 mm
- Complemented with Bluetooth low energy protocol stack library (GAP, GATT, SM, L2CAP, LL)
- Bluetooth low energy SDK with wide range of profile available
- Certifications: EU (RED) Type certificate
- FCC, IC modular approval certification
- SRRC Chinese Certification
- BT SIG End Product QDID
- Pre-programmed UART bootloader
- Operating supply voltage: from 1.7 to 3.6 V
- Operating temperature range: -40 °C to 85 °C

KEY APPLICATIONS

- All devices requiring a BLE

MARKET SEGMENT

- Healthcare & Wearables
- Industrial
- Lighting
- Smart Consumer & Building

SUB MARKET

- Medical Instruments
- Personal Health, Sport & Fitness
- Portable Personal Electronics & Wearables
- Factory Automation (PLCs, I/O, Sensors & Actuators)
- Human Machine Interface
- Information Kiosk & Advertising Panels
- Motion Control, Servo Drives
- Point of Sales and Vending machines
- Professional Gaming, Amusement & Casino Machines
- Robotics
- Surveillance, Parking & Traffic Control
- Lighting Drivers and Electronic Control Gears
- Home & Building Control and Automation
- Home & Building Security (Alarms, Access Control)
- Home Appliances
- Toys, games and entertainment

TECHNOLOGY SEGMENT

- Smart Sensing & Connectivity

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