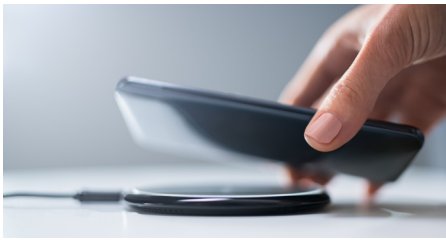
MICROCHIP

Wireless Product Solutions



www.microchip.com/wireless

Wireless Connectivity for Your Application

Wireless technologies enrich our everyday lives. They provide convenience and peace of mind by providing access and control to people and things from across the globe.

How Does Microchip Make Wireless Connectivity Easy?

MPLAB® and Studio IDEs provide an easy to use environment with ample documentation, free software libraries and numerous application examples.

Microchip is committed to providing you with continuous innovation, robust operation and superior manufacturing quality. We continually evolve our product firmware to enhance security, convenience and features. Our products are extensively interoperability tested to ensure compliance to industry standards as well as seamless operation in a wide variety of environments. Finally, we qualify our products against our rigorous reliability standards to ensure long operating life and our customer-driven EOL policy ensures a lengthy and stable supply to your applications.

Microchip Solutions are Designed to Address Multiple Markets

- Internet of Things
- Home/building automation
- Smart energy
- Smartphone to devices
- Remote equipment monitoring
- Asset tracking and telemetry
- Security
- Wireless audio
- Industrial sensors and controls
- Medical devices

Microchip's Wireless Portfolio

- Wi-Fi®
- Bluetooth®
- LoRa®
- IEEE 802.15.4
- Sub-GHz
- Remote Controls

Robust, reliable and safe connections are what you can expect when you use Microchip's Wi-Fi devices in your application. We extensively test our products for interoperability against hundreds of Access Points (APs) with our in-house test lab providing you with the confidence that your product will work wherever it's deployed. Whether you're looking for a chip-down solution or a plug-and-play module, our portfolio of Wi-Fi solutions has you covered. We make it easy to start developing immediately with our development kits, libraries, and individualized support. We're continuously deploying improvements to our firmware to provide additional features and functions while keeping your designs protected from the latest security threats.

Wi-Fi Connectivity Offers

- Ease of control with a smartphone/tablet
- Connection to the Cloud
- Support for the Internet of Things (IoT)
- Standards-based technology

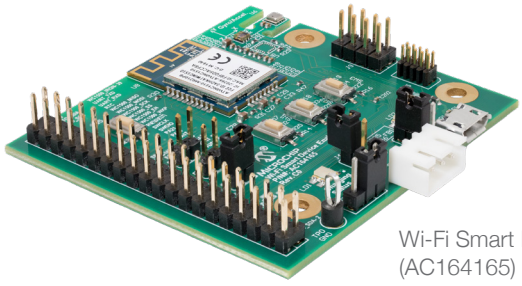
Microchip is a trusted provider in embedded Wi-Fi

- Easy to Use Low Power Modules
- Best in class security for IoT/Cloud applications
- WFA and Regulatory Certified Modules
- Linux Support

Alexa/Google

Voice control (usage of voice assistants) is becoming increasingly popular as the preferred way to control home automation devices and perform different tasks. Voice enabled speakers like Amazon Echo and Google Home are becoming the control center of the home. Using voice control reduces the need for complicated GUI (touch screens) and complex mobile apps.

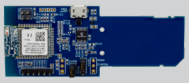
Accelerate adding voice control with Alexa to your existing application with the Wi-Fi Smart Device Enablement Kit. The kit allows you to use an Alexa-compatible smart speaker or the Alexa App to control the board's General-Purpose Input/Outputs (GPIOs) to interface with your application, interrogate the sensors and change the LED colors. Use our open-source firmware, along with the open-source Lambda Functions and Alexa Skills, to create custom skills that will provide your customers with more engaging ways to interact with your application.



Wi-Fi Smart Device Enablement Kit (AC164165)

Product	Radio	Antenna	System	Supported Host OS	Power Output (dBm)	Security	Interface	Packages (Dimensions)
WFI32E01PC	802.11 b/g/n	PCB, U.FL	Standalone		20.5	WEP, WPA, WPA2, WPA3, TLS & SSL	N/A	132/Module (24.5 x 20.5 mm)
ATWINC15x0-MR	802.11 b/g/n	Chip, PCB, U.FL	Network Controller-TCP/IP Stack on Device	–	17	Enterprise, WEP, WPA, WPA2, TLS, SSL	SPI	28/Module (21.7 × 14.7 mm)
ATWINC3400-MR	802.11 b/g/n and BLE 5.0	Chip		–	4 (BLE), 14 (Wi-Fi®)	WEP, WPA, WPA2	SPI	Module (22.4 × 14.7 mm)
ATWILC1000-MR	802.11 b/g/n	PCB	Link Controller - TCP/IP Stack on Host	Linux® and FreeRTOS	15	WEP, WPA, WPA2	SPI, SDIO	Module (21.5 × 14.5 mm)
ATWILC3000-MR	802.11 b/g/n and BLE 5.0	Chip		Linux and FreeRTOS	4 (BLE), 14 (Wi-Fi)	WEP, WPA, WPA2	SPI, SDIO, UART	Module (22.4 × 14.7 mm)

Wi-Fi Development Tools

Part #	Name and Description	Photo
EV12F11A	The PIC32WFI32E Curiosity Board is an easy-to-use evaluation tool to evaluate the performance of WFI32E01PC Wi-Fi® MCU module, which contains the PIC32MZW1, a highly integrated IoT system core supporting smart Wi-Fi functionalities and premium MCU.	
ATWINC1500-XPRO	The ATWINC1500-XPRO extension board allows you to evaluate the ATWINC1500 low cost, low power 802.11 b/g/n Wi-Fi network controller module. It is supported by the Atmel Studio integrated development platform	
ATWINC3400-XSTK	The ATWINC3400-XSTK evaluation kit is a hardware platform to evaluate the Wi-Fi® and BLE WINC3400-MR210CA module.	
AC164160	The AVR-IoT WG development board combines a powerful 8-bit ATmega4808 MCU, an ATECC608A CryptoAuthentication™ secure element IC and the fully certified ATWINC1510 Wi-Fi network controller - which provides the most simple and effective way to connect your embedded application to Google's Cloud IoT core platform.	
AC164158	The ATWILC3000 SD is a Secure Digital (SD) card interface board that supports IEEE 802.11 b/g/n standard and Bluetooth Low Energy (BLE) 5.0 and is designed to demonstrate the features of the low power consumption ATWILC3000-MR110CA link controller module.	
ATWILC1000-SD	The ATWILC1000-SD evaluation kit is a hardware platform to evaluate the ATWILC1000-MR110PB module. IEEE 802.11 b/g/n link controller module.	
AC164164	The PIC-IoT WG Development Board combines a powerful PIC24FJ128GA705 MCU, an ATECC608A CryptoAuthentication secure element IC and the fully-certified ATWINC1510 Wi-Fi network controller - which provides the most simple and effective way to connect your embedded application to the Google Cloud IoT Core.	
AC164165	Wi-Fi Smart Device Enablement Kit helps you add Alexa Voice Control to your existing application, enabling rapid prototyping.	

The Bluetooth market has taken off and found a home in many new applications, thanks to the smartphone and other mobile devices that make it incredibly easy to connect point to point over Bluetooth.

Bluetooth Connectivity Offers

- Ease of control with a smartphone/tablet
- Short-range, personal connections
- Standards-based technology
- Easy connect and disconnect
- Low power for long battery life

Target Applications

- Battery-powered sensor devices
- Wearables
- Smart appliances
- Health and fitness trackers
- Home automation
- Consumer electronics
- Retail beacons

Bluetooth Low Energy

Microchip's approach to Bluetooth Low Energy (BLE) is simple. Remove as many barriers as possible so you can focus on your design. Our BLE solutions are certified to the Bluetooth 5.0 standard which eliminates the need to spend time and money certifying your BLE design.

- Our BLE solutions are designed to be easy-to-use with free mobile app source code
- Application examples
- Turnkey reference designs
- Fully-certified, highly-integrated module solutions

Our pre-programmed Bluetooth Network Processor solutions abstract and separate the complexity of managing Bluetooth from your application, reducing risk and time to market.

Bluetooth Network Processor

- Easy to use and low support required
- Application runs on host MCU
- Flexibility by offloading Bluetooth stack processing
- Simple ASCII or Binary interface over UART
- Enhanced security and throughput

Bluetooth Audio

Microchip offers high-value and high-quality Bluetooth audio silicon and module solutions. They are compliant with the latest Bluetooth specifications and are proven for interoperability. Low power and small form factor with a built-in Bluetooth stack, Microchip's audio solutions provide excellent audio quality (SNR), sound level and sound effects (DSP). They also support digital audio, a variety of audio sources and value-added features such as support for multiple speakers and high-resolution Bluetooth audio with LDAC technology.

Typical Audio Applications

- Headsets
- Speakers
- Premium audio
- Audio with BLE
- Soundbars
- Gaming with audio/voice
- Smart home with audio/voice

Bluetooth Products

Bluetooth Audio

Easy To Use

RN4870/71
BLE
ASCII Interface
LE Security, Limited DLE

RN4678
BLE + BT Classic
ASCII Interface
MFi Available

Can be used with or without external host using ASCII scripting engine

Can be Customized

BM70/71
BLE
Binary UART Interface
Full DLE

BM78
BLE + BT Classic
Binary UART Interface
DLE or SPP

Can be configured with Windows® GUI tools to use less host MCU resources

Linux

WILC3000
Wi-Fi® + BLE
BlueZ compatibility

Link Controller with Wi-Fi and BLE capabilities using BlueZ, official Bluetooth® protocol stack

Dual Mode

BM/IS2063/64
BT 5 + BLE
8 x 8 LGA IC, EE
Flash

IS2064S/B
BT 5 + BLE
8 x 8 QFN; 5 x 5 BGA
ROM

IS2066
BT5 + BLE
3.5 x 5 BGA
Flash

BM83/IS2083
BT 5 + BLE
32 x 15 x 2.5 mm (BM83 module)
5.5 x 5.5 BGA (IS2083) Flash

Classic

IS2008
BT 4.1
EE, Analog Output
ROM

IS201x
BT 4.1
EE, Analog Output
ROM

BM/IS2020
BT 5
EE, Analog Output
ROM

BM/IS2023
BT 5
EE, I²S
ROM

Bluetooth Development Tools

Bluetooth Data Boards

Part #	Name	Photo
BM-71-XPRO	BM71 Xplained Pro Evaluation Kit	
BM-70-PICTAIL	BM70 PICtail™/PICtail Plus Daughter Board	
RN-4870-SNSR	RN4870 Sensor Board	
ATAVRBLE-IOT	Secure AVR® BLE IoT Node	
DT100111	AVR-BLE Development Board	
DT100112	PIC-BLE Development Board	

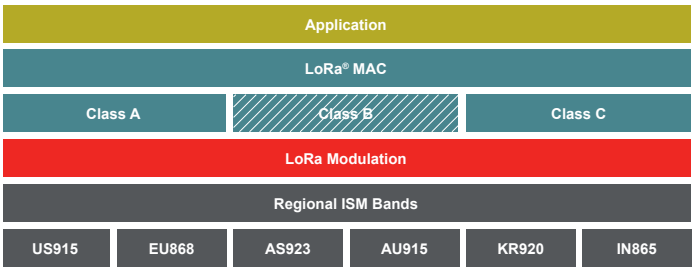
Bluetooth Audio Boards

Part #	Name	Photo
BM-62-EVB	BM62 Bluetooth® Audio Evaluation Board	
BM-64-EVB-C1	BM64 Bluetooth Audio Evaluation Board for the Class 1 BM64	
BM-64-EVB-C2	BM64 Bluetooth Audio Evaluation Board for the Class 2 BM64	
DM164152	BM83 Bluetooth Audio Development Board	

LoRa Technology

LoRa technology is a wireless modulation for long-range, low-power low data-rate applications. By achieving a range of more than 15 kilometers in a suburban environment and more than 2 kilometers in a dense urban environment, LoRa solutions target multiple application domains, such as Internet of Things (IoT), smart cities, smart agriculture and supply chain and tracking.

SAM R34/35 LoRa Software Block Diagram



LoRa Modules

- Ultra-low power, fully certified turnkey WLR089U0 module
- On-board LoRaWAN stack
- Up to 14 GPIO for control and status
- Simple ASCII command to communicate with the host via UART
- Castellated SMT pads for easy and reliable PCB mounting

LoRa SiP

- Industry's lowest power SAM R34/35 LoRa SiP device family with sleep currents down to 790 nA
- Integrated 32-bit Cortex M0+ MCU, sub-GHz radio and proven LoRaWAN software stack
- FCC, IC and RED certified development board and reference designs
- Detailed certified chip-down design package with schematics, BOM and hardware design guidelines
- Up to 256 KB Flash and 40 KB RAM in compact 6 x 6 mm BGA package

LoRa Products

Part #	Photo	Output Power (dBm)	Frequency (MHz)	Package	Sensitivity (dBm)	Range	Size (mm)	Certification
WLR089U0		+18.59 dBm	863-928 MHz (multiple regions)	Surface mount module	–136	>15 km (suburban)	17.0 × 13.5	FCC, IC, RED
RN2483		+10 at 433 MHz +14 at 868 MHz	433, 858 (Europe)	Surface mount module	–148	>15 km (suburban)	17.8 × 26.7 × 3	RED
RN2903		+20 dBm	915 (North America)	Surface mount module	–148	>15 km (suburban)	17.8 × 26.7 × 3	FCC
SAMR34		+20 dBm	862–1020 MHz (Multiple regions)	System-in-Package (SiP)	–148	>15 km (suburban)	6 x 6 BGA	FCC, IC and RED Certified reference designs available

LoRa Development Tools

Development Tool	Photo	Part #	Description
WLR089 Xplained Pro Development Kit		EV23M25A	The WLR Xplained Pro Development Kit integrates the fully-certified WLR089U0 module. With Atmel Studio support, software examples and LoRaWAN stack, this development board greatly simplifies the development of LoRa technology end nodes.
RN2483 and RN2903 LoRa® technology Motes		DM164138 (RN2483 Mote) DM164139 (RN2903 Mote)	The Motes provide a convenient platform to quickly demonstrate the long-range capabilities of the RN2483 and RN2903 modules, as well as to verify inter-operability when connecting to LoRaWAN compliant gateways and infrastructure.
RN2483 and RN2903 PICtail™/PICtail Plus Development Boards		RN-2483-PICTAIL RN-2903-PICTAIL	These demonstration boards showcase the LoRa Sub-GHz modems. (RN-2483-PICTAIL: European version, 433/868 MHz) (RN-2903-PICTAIL: North American version, 915 MHz)
SAM R34 Xplained Pro Evaluation Kit		DM3201111	The SAM R34 Xplained Pro is a hardware platform designed to evaluate the SAM R34 family of LoRa devices.

Created to support low-cost, low-power networks, the IEEE's 802.15.4 standard defines the MAC and PHY layer used by, but not limited to, networking specifications such as zigbee, 6LoWPAN, Thread, WiSUN and MiWi™ protocols.

IEEE 802.15.4-based products from Microchip are deployed today in a wide range of applications from battery-free, energy-harvesting wireless light switches, to alarm sensors with several years of battery life, to high-performance mesh utility networks supporting smart meters and street lighting. Our complete line of IEEE 802.15.4 transceivers, RF microcontrollers (MCUs) and regulatory-certified modules help you deliver the functionality you need with the low-power performance demanded by your customers.

zigbee

Flexible Development Options

RF MCUs

Integrated MCU with RF transceiver solutions combine a low-power MCU with a 2.4 GHz or Sub-GHz RF transceiver in a single QFN package.

- Perfect for space-constrained coin-cell powered sensors or lighting solutions
- Sub-GHz or 2.4 GHz devices
- Supports application and communications code
- zigbee and MiWi demo code for jumpstarting development

RF Transceivers

High-performing 802.15.4-compliant RF ICs for flexible pairing with most host MCUs.

- Sub-GHz and/or 2.4 GHz band coverage
- Simultaneous dual-band solution certified to zigbee 2017
- FSK, O-QPSK and OFDM modulations for superior noise immunity
- Easy-to-use serial interface

Modules

Our regulatory certified modules offer combination MCU and transceiver or transceiver-only versions.

- No RF experience required
- Supports application and communication code
- FCC, ISED certified and EU RED assessed modules
- Sub-GHz and/or 2.4 GHz band coverage
- Easy-to-use serial interface

Software

zigbee Compliant Platform

zigbee 3.0 (zigbee PRO 2015 Feature Set and Green Power) is the latest standard released by the zigbee Alliance. The BitCloud® Software Development Kit (SDK) is a full-featured, production grade, embedded software development platform that provides a framework with reference applications and libraries for creating zigbee compliant products.

MiWi Protocol

Microchip's MiWi Mesh Stack is now available for Atmel Studio 7, the Integrated Development Platform (IDP) for developing and debugging all AVR® and SAM micrcocontroller applications. The MiWi mesh code is part of the latest Advanced Software Framework (ASF) release for Studio.

Atmel Studio 7

Atmel Studio 7 IDP gives you a seamless and easy-to-use environment to write, build and debug your application written in C/C++ or assembly code. It also connects seamlessly to the debuggers, programmer and development kits that support AVR and SAM devices.

802.15.4 product

	P/N	Type	Module	Software**	Market
Transceivers	AT86RF212B	RFIC	✓	802.15.4 MAC, MiWi™	Thermostats, Home Lighting, Smart Door Locks, Water Meters
	AT86RF233	RFIC	✓	802.15.4 MAC, zigbee®*, MiWi	Light Sensors, Smart Home, Metering, Boiler Control, Solar Power Units
	MRF24J40	RFIC	✓	802.15.4 MAC, MiWi	Temp and Water Sensors, Garage door, SPA Control
	AT86RF215	RFIC	Not Planned	802.15.4 MAC	Smart Meters, Smart Home, Critical Apps – Flight Recorders, Avalanche Rescue devices
RF MCUs	ATSAMR30*	SiP	✓	802.15.4 MAC, MiWi	Security, Irrigation Control, Wireless Switches and Plugs, Meters
	ATSAMR21	SiP	✓	802.15.4 MAC, zigbee*, MiWi	zigbee Lighting, Smart Home, Smart Plugs, Thermostats, Outdoor Lighting
	ATMEGA256(4)RFR2	SoC	✓	802.15.4 MAC, zigbee*	zigbee lighting, Outdoor Lighting, PIR Sensors, Operator Interfaces
	ATMEGA128(4)RFR2	SoC	✓	802.15.4 MAC, zigbee*	Access Control, Fume hoods, Healthcare patient tags, AC Control, Industrial Control
	ATMEGA64(4)RFR2	SoC	✓	802.15.4 MAC	Wireless race timer control, Water heater control

*NSCAR Required **For Transceivers, protocols are supported on host MCU

Sub-GHz

2.4GHz

Dual Band

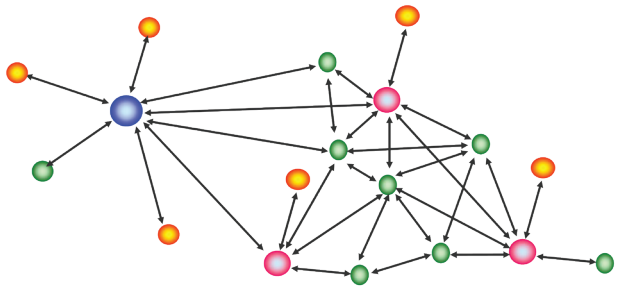
zigbee and MiWi Stacks

Microchip's own zigbee stack

- zigbee 3.0 (zigbee Pro + Green Power)
- 1st Platform certified by the Alliance
- Lighting and Zigbee Green Power Switch and Sensor support
- SAMR21 (2.4GHz) platform developed with 250+ Node test network
- IAR Toolchain

MiWi - Microchip's Compact, Royalty-Free Wireless Protocol Designed for 802.15.4 Networks

- Only 20 to 32 KB code
- Point-to-Point, Star and Mesh network topologies
- SAMR21 (2.4 GHz) and SAMR30 (Sub-GHz) SiP support
- Legacy version for support of PIC® MCUs and transceivers
- Same Stack 2.4 GHz or Sub-GHz



The Industrial, Scientific and Medical (ISM) unlicensed Sub-GHz radio frequency bands are used for many short-range, low-data rate, and low-power wireless applications. Microchip provides stand-alone transceivers and receiver products along with our family of rfPIC transmitter with embedded PIC microcontroller.

These radio solutions are ideal for AMR metering, consumer electronics, home, business, industrial automation, automotive, toys and medical applications

Sub-GHz Embedded MCU + Transmitter

- PIC12LF1840T39A
- PIC12F529T39A
- PIC16LF1824T39A

Benefits of the Embedded Transmitter Family

- Frequency-Agile Operation in 310, 433, 868 and 915 MHz Bands
- Supports Modulation FSK/ASK
- Low Operating Voltage 1.8V to support Single Cell Battery and Low Power-Saving Sleep mode (175nA) for longer battery lifespan
- Optional built-in Keeloq (Advance and Ultimate)
- Programmable Code Protection
- Various Option for GPIOs for more button counts.
- Configurable Tx Power to 10 dBm

Sub-GHz Transmitter Solution

- MICRF112
- MICRF113
- ATA8403

Benefits of the Transmitter Family

- Low power consumption
  - 0.05-0.2 µA sleep or shut down mode
- Small form factor and low pin counts
  - Tx: 6-10 pins, Rx: 16 pins
  - Tx: smallest 2 x 2 mm, Rx: 5 x 6 mm
- Low Cost FSK by Crystal Polling
- Extended temperature range
  - Extended 105°C, or 125°C for certain devices

Sub-GHz Receiver Solution

- MICRF219A/229
- MICRF220/230
- MICRF221
- ATA8203/4/5
- ATA8210
- ATA8215

Benefits of the Receiver Family

- Auto-Polling Reduces Average Supply Current of Receiver; 15 µA auto-polling current
- Improved Automatic Gain Control
- Improved XTAL Oscillator
- 60dB RSSI
- RF Power Level Lock—rejects competing noise signals
- Squelch-decrease activity on data out put till RF signal is detected

Sub-GHz Transceiver Solution

- MRF89XA
- ATA8510/5
- MICRF505/505L
- MICRF506

Benefits of the Transceiver Family

- Superior RF functionalities (e.g., blocking capabilities, power management, and more) enable an extremely low current consumption
- High-sensitivity and high-output power allow for extended RF transmission distances
- Perfect for industrial and consumer applications such as:
  - RF remote control such as garage door openers
  - Smart metering
  - Home automation
  - Building security systems

Support

Microchip is committed to supporting its customers in developing products faster and more efficiently. We maintain a worldwide network of field applications engineers and technical support ready to provide product and system assistance. For more information, please visit www.microchip.com:

- Technical Support: www.microchip.com/support
- Evaluation samples of any Microchip device: www.microchip.com/sample
- Knowledge base and peer help: www.microchip.com/forums
- Sales and Global Distribution: www.microchip.com/sales

Training

If additional training interests you, Microchip offers several resources including in-depth technical training and reference material, self-paced tutorials and significant online resources.

- Overview of Technical Training Resources: www.microchip.com/training
- MASTERs Conferences: www.microchip.com/masters
- Developer Help Website: www.microchip.com/developerhelp
- Technical Training Centers: www.microchip.com/seminars

Sales Office Listing

AMERICAS

Atlanta, GA
Tel: 678-957-9614

Austin, TX
Tel: 512-257-3370

Boston, MA
Tel: 774-760-0087

Chandler, AZ (HQ)
Tel: 480-792-7200

Chicago, IL
Tel: 630-285-0071

Dallas, TX
Tel: 972-818-7423

Detroit, MI
Tel: 248-848-4000

Houston, TX
Tel: 281-894-5983

Indianapolis, IN
Tel: 317-773-8323
Tel: 317-536-2380

Los Angeles, CA
Tel: 949-462-9523
Tel: 951-273-7800

Raleigh, NC
Tel: 919-844-7510

New York, NY
Tel: 631-435-6000

San Jose, CA
Tel: 408-735-9110
Tel: 408-436-4270

Canada - Toronto
Tel: 905-695-1980

EUROPE

Austria - Wels
Tel: 43-7242-2244-39

Denmark - Copenhagen
Tel: 45-4485-5910

Finland - Espoo
Tel: 358-9-4520-820

France - Paris
Tel: 33-1-69-53-63-20

Germany - Garching
Tel: 49-8931-9700

Germany - Haan
Tel: 49-2129-3766-400

Germany - Heilbronn
Tel: 49-7131-67-3636

Germany - Karlsruhe
Tel: 49-721-62537-0

Germany - Munich
Tel: 49-89-627-144-0

Germany - Rosenheim
Tel: 49-8031-354-560

EUROPE

Israel - Ra'anana
Tel: 972-9-744-7705

Italy - Milan
Tel: 39-0331-742611

Italy - Padova
Tel: 39-049-7625286

Netherlands - Drunen
Tel: 31-416-690399

Norway - Trondheim
Tel: 47-7289-7561

Poland - Warsaw
Tel: 48-22-3325737

Romania - Bucharest
Tel: 40-21-407-87-50

Spain - Madrid
Tel: 34-91-708-08-90

Sweden - Gothenberg
Tel: 46-31-704-60-40

Sweden - Stockholm
Tel: 46-8-5090-4654

UK - Wokingham
Tel: 44-118-921-5800

ASIA/PACIFIC

Australia - Sydney
Tel: 61-2-9868-6733

China - Beijing
Tel: 86-10-8569-7000

China - Chengdu
Tel: 86-28-8665-5511

China - Chongqing
Tel: 86-23-8980-9588

China - Dongguan
Tel: 86-769-8702-9880

China - Guangzhou
Tel: 86-20-8755-8029

China - Hangzhou
Tel: 86-571-8792-8115

China - Hong Kong SAR
Tel: 852-2943-5100

China - Nanjing
Tel: 86-25-8473-2460

China - Qingdao
Tel: 86-532-8502-7355

China - Shanghai
Tel: 86-21-3326-8000

China - Shenyang
Tel: 86-24-2334-2829

China - Shenzhen
Tel: 86-755-8864-2200

China - Suzhou
Tel: 86-186-6233-1526

China - Wuhan
Tel: 86-27-5980-5300

China - Xiamen
Tel: 86-592-2388138

China - Xian
Tel: 86-29-8833-7252

ASIA/PACIFIC

China - Zhuhai
Tel: 86-756-321-0040

India - Bangalore
Tel: 91-80-3090-4444

India - New Delhi
Tel: 91-11-4160-8631

India - Pune
Tel: 91-20-4121-0141

Japan - Osaka
Tel: 81-6-6152-7160

Japan - Tokyo
Tel: 81-3-6880-3770

Korea - Daegu
Tel: 82-53-744-4301

Korea - Seoul
Tel: 82-2-554-7200

Malaysia - Kuala Lumpur
Tel: 60-3-7651-7906

Malaysia - Penang
Tel: 60-4-227-8870

Philippines - Manila
Tel: 63-2-634-9065

Singapore
Tel: 65-6334-8870

Taiwan - Hsin Chu
Tel: 886-3-577-8366

Taiwan - Kaohsiung
Tel: 886-7-213-7830

Taiwan - Taipei
Tel: 886-2-2508-8600

Thailand - Bangkok
Tel: 66-2-694-1351

Vietnam - Ho Chi Minh
Tel: 84-28-5448-2100

2/27/20

MICROCHIP

www.microchip.com

Microchip Technology Inc. | 2355 W. Chandler Blvd. | Chandler AZ, 85224-6199

DS70005187E