

## Bluetooth® 4.2 Stereo Audio Module

### Features

- Qualified for Bluetooth v4.2 specifications
- Worldwide regulatory certifications are planned
- Supports HFP 1.6, HSP 1.2, A2DP 1.3, SPP 1.2, AVRCP 1.6
- Supports Bluetooth (BR/EDR/BLE) specifications (FW dependent)
- Stand-alone module with onboard antenna and Bluetooth stack
- Supports high resolution 24-bit, 96 kHz audio data format
- Supports to connect two hosts with HFP or A2DP profiles simultaneously
- Transparent UART mode for seamless serial data over UART interface
- Easy to configure with Windows GUI or directly by MCU
- Supports firmware field upgrade
- Supports 2-Microphone (BM62) and 1-Microphone (BM64)
- Compact surface mount module:
  - BM62: 29 mm x 15 mm x 2.5 mm
  - BM64: 32 mm x 15 mm x 2.5 mm
- Castellated surface mount pads for easy and reliable host PCB mounting
- RoHS compliant
- Ideal for portable battery operated devices
- Internal battery regulator circuitry

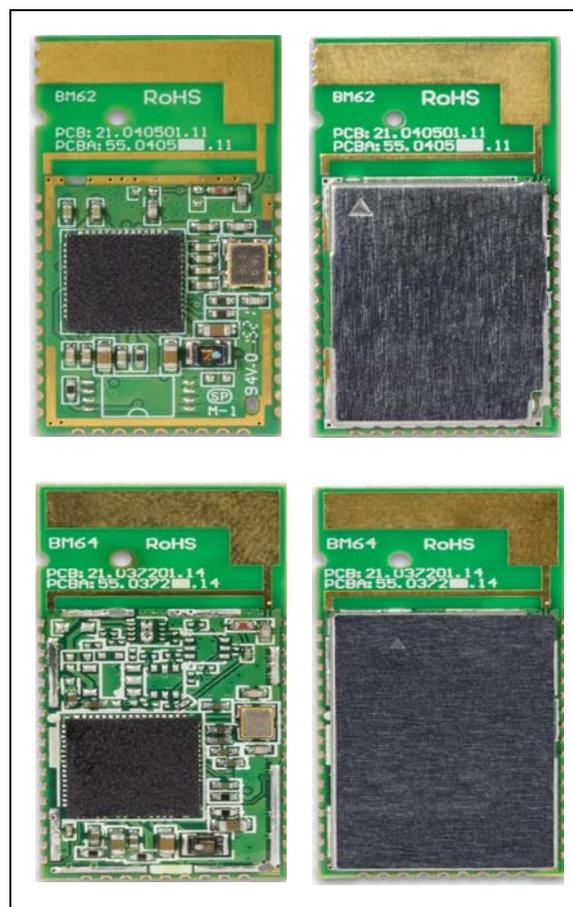
### RF/Analog

- Frequency spectrum: 2.402 GHz to 2.480 GHz
- Receive sensitivity: -90 dBm (2 Mbps EDR)
- Class 2 output power (+2 dBm typical) for BM62, BM64 and Class 1 output power (+15 dBm typical) for BM64

### DSP Audio Processing

- Supports 64 kb/s A-Law,  $\mu$ -Law PCM format, or Continuous Variable Slope Delta (CVSD) modulation for SCO channel operation
- Support 8 kHz or 16 kHz noise suppression
- Support 8 kHz or 16 kHz echo cancellation
- SBC and optional AAC decoding
- Packet loss concealment (PLC)
- Support Serial Copy Management System (SCMS-T) content protection

**FIGURE 1: BM62 AND BM64 MODULES**



# BM62/64

## Audio Codec

- SBC and optional AAC decoding
- 20-bit digital-to-analog (DAC) with 96 dB SNR
- 16-bit analog-to-digital (ADC) with 90 dB SNR
- Up to 24-bit or 96 kHz on I<sup>2</sup>S digital audio

## Peripherals

- Built-in lithium ion and lithium polymer battery charger (upto 350 mA)
- Integrated 3V and 1.8V configurable switching regulator and low-dropout (LDO)
- Built-in ADC for battery monitoring and voltage sense
- Built-in ADC for charger thermal protection
- Built-in under voltage protection (UVP)
- An aux-in port for external audio input
- Two LED drivers
- Multiple I/O pins for control and status

## HCI Interface

- High-speed HCI-UART interface (supports up to 921,600 bps)

## MAC/Baseband Processor

- Supports Bluetooth Low Energy (BLE) (FW dependent)
  - Generic Access Service
  - Device Information Service
  - Proprietary Service for data communication
  - Apple Notification Center Service (ANCS)

## Operating Condition

- Operating voltage: 3.2V to 4.2V
- Operating temperature: -20°C to +70°C

## Compliance

- Bluetooth SIG QDID: XXXXXX
- Certified for the United States (FCC) and Canada (IC), European Economic Area (CE), Korea (KCC), Taiwan (NCC) and Japan (JRF)

## Applications

- Soundbar and Wireless Subwoofer
- Bluetooth speaker
- Multi speaker

## Description

The BM62/64 Bluetooth Stereo Audio module is a fully qualified Bluetooth version 4.2 (BDR/EDR/BLE) module for designers to add Bluetooth wireless audio and voice applications to their products. The BM62/64 is a Bluetooth Special Interest Group (SIG) certified module that provides a complete wireless solution with Bluetooth stack, integrated antenna, and worldwide radio certifications in a compact surface mount package.

The BM62/64 module has several SKUs. The BM62 module is a Class 2 device, whereas BM64 is available in both Class 2 and Class 1 versions.

The BM62/64 module has an integrated lithium-ion and lithium-polymer battery charger and a digital audio interface. It supports HSP, HFP, SPP, A2DP, and AVRCP profiles and both AAC and SBC codecs are supported.

[Table 1](#) provides ordering information for the BM62 and BM64 Bluetooth 4.2 Stereo Audio modules.

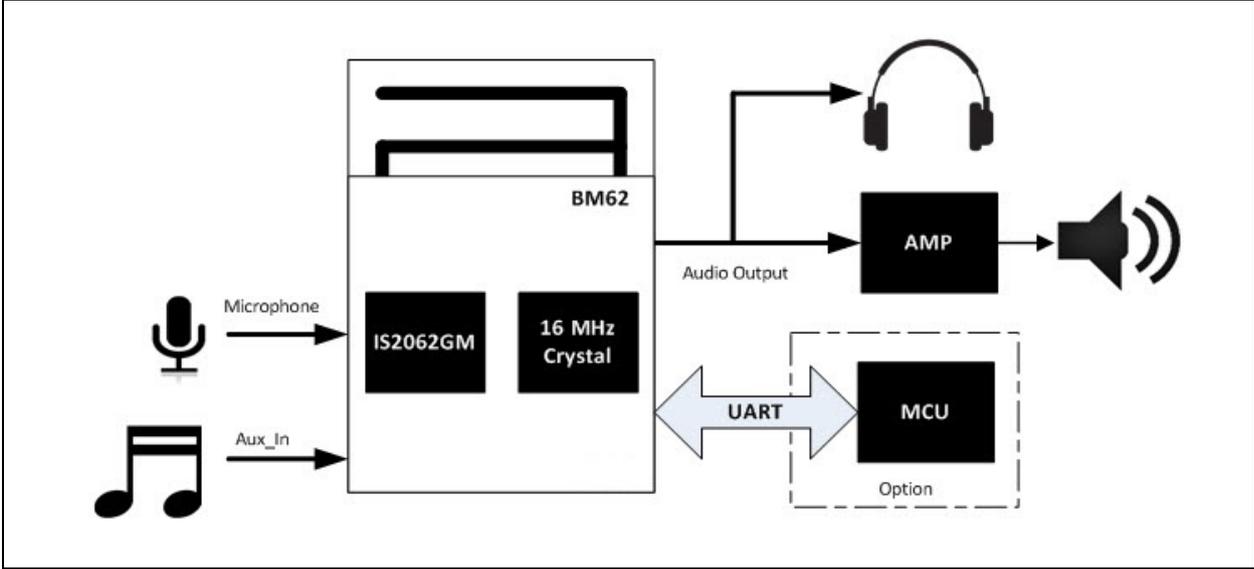
**TABLE 1: ORDERING INFORMATION**

Device	IC	Description	Shield	Ordering No.
BM62	IS2062GM	Bluetooth 4.2 Stereo Audio Module, Class2 with RF shield	Yes	BM62SPKS1MC2
BM62	IS2062GM	Bluetooth 4.2 Stereo Audio Module, Class2 without RF shield	No	BM62SPKA1MC2
BM64	IS2064GM	Bluetooth 4.2 Stereo Audio Module, Class2 with RF shield	Yes	BM64SPKS1MC2
BM64	IS2064GM	Bluetooth 4.2 Stereo Audio Module, Class2 without RF shield	No	BM64SPKA1MC2
BM64	IS2064GM	Bluetooth 4.2 Stereo Audio Module, Class1 with RF shield	Yes	BM64SPKS1MC1
BM64	IS2064GM	Bluetooth 4.2 Stereo Audio Module, Class1 without RF shield	No	BM64SPKA1MC1

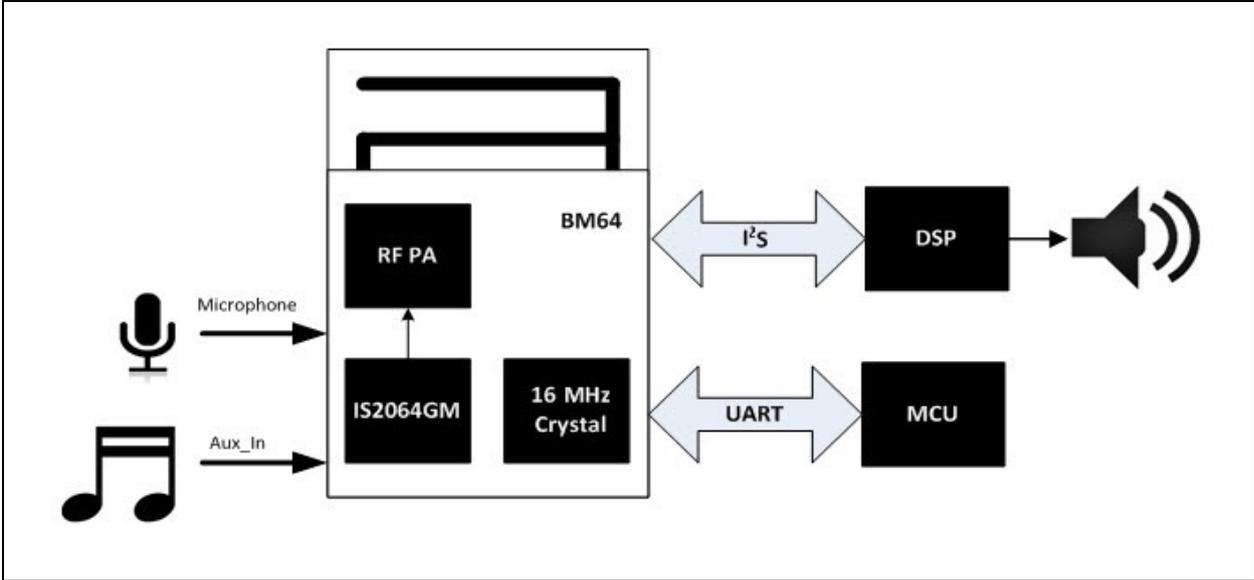
The examples of typical application connections using the BM62 and BM64 modules are shown in [Figure 2](#) through [Figure 4](#).

[Figure 5](#) and [Figure 6](#) illustrate the PCB dimensions of the BM62 and BM64 modules.

**FIGURE 2: APPLICATION USING BM62 MODULE**



**FIGURE 3: APPLICATION USING BM64 MODULE**



# BM62/64

FIGURE 4: SOUNDBAR AND SUBWOOFER APPLICATION USING BM64 MODULE

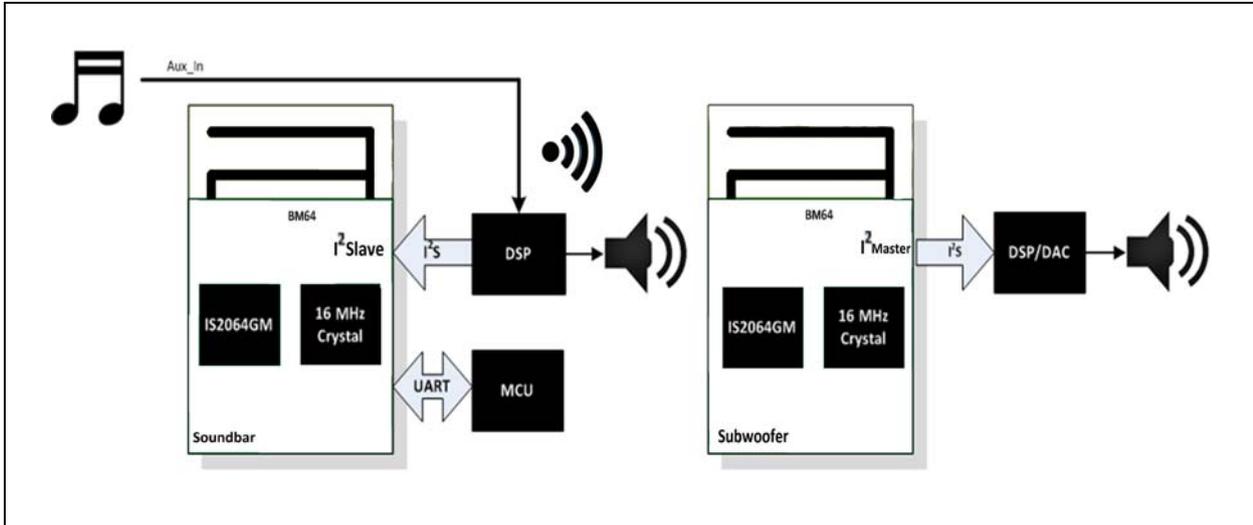
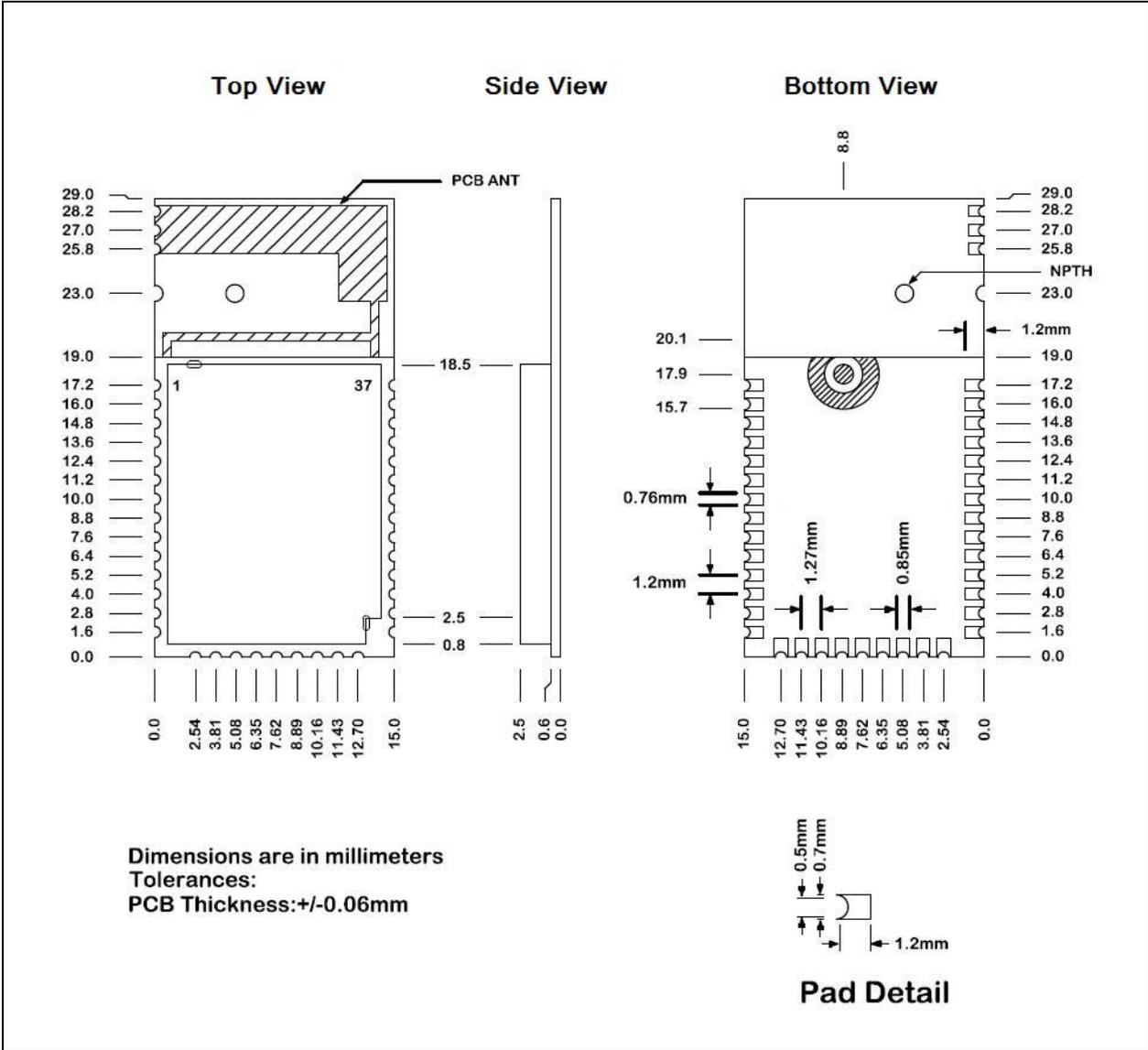
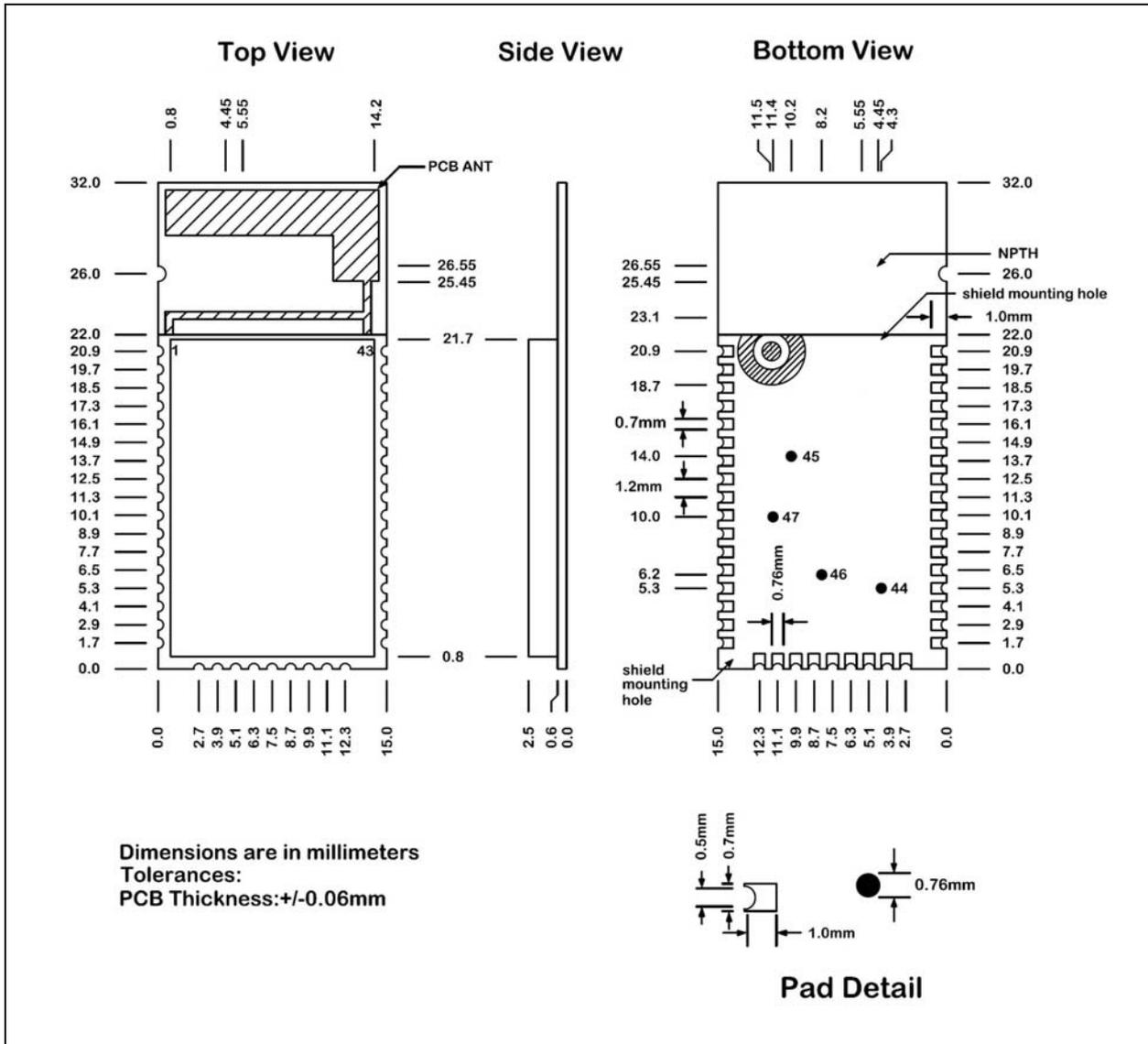


FIGURE 5: BM62 PCB DIMENSION



# BM62/64

FIGURE 6: BM64 PCB DIMENSION



---

**Note the following details of the code protection feature on Microchip devices:**

- Microchip products meet the specification contained in their particular Microchip Data Sheet.
- Microchip believes that its family of products is one of the most secure families of its kind on the market today, when used in the intended manner and under normal conditions.
- There are dishonest and possibly illegal methods used to breach the code protection feature. All of these methods, to our knowledge, require using the Microchip products in a manner outside the operating specifications contained in Microchip's Data Sheets. Most likely, the person doing so is engaged in theft of intellectual property.
- Microchip is willing to work with the customer who is concerned about the integrity of their code.
- Neither Microchip nor any other semiconductor manufacturer can guarantee the security of their code. Code protection does not mean that we are guaranteeing the product as "unbreakable."

Code protection is constantly evolving. We at Microchip are committed to continuously improving the code protection features of our products. Attempts to break Microchip's code protection feature may be a violation of the Digital Millennium Copyright Act. If such acts allow unauthorized access to your software or other copyrighted work, you may have a right to sue for relief under that Act.

---

Information contained in this publication regarding device applications and the like is provided only for your convenience and may be superseded by updates. It is your responsibility to ensure that your application meets with your specifications. MICROCHIP MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND WHETHER EXPRESS OR IMPLIED, WRITTEN OR ORAL, STATUTORY OR OTHERWISE, RELATED TO THE INFORMATION, INCLUDING BUT NOT LIMITED TO ITS CONDITION, QUALITY, PERFORMANCE, MERCHANTABILITY OR FITNESS FOR PURPOSE. Microchip disclaims all liability arising from this information and its use. Use of Microchip devices in life support and/or safety applications is entirely at the buyer's risk, and the buyer agrees to defend, indemnify and hold harmless Microchip from any and all damages, claims, suits, or expenses resulting from such use. No licenses are conveyed, implicitly or otherwise, under any Microchip intellectual property rights unless otherwise stated.

*Microchip received ISO/TS-16949:2009 certification for its worldwide headquarters, design and wafer fabrication facilities in Chandler and Tempe, Arizona; Gresham, Oregon and design centers in California and India. The Company's quality system processes and procedures are for its PIC<sup>®</sup> MCUs and dsPIC<sup>®</sup> DSCs, KEELOQ<sup>®</sup> code hopping devices, Serial EEPROMs, microperipherals, nonvolatile memory and analog products. In addition, Microchip's quality system for the design and manufacture of development systems is ISO 9001:2000 certified.*

**QUALITY MANAGEMENT SYSTEM  
CERTIFIED BY DNV  
= ISO/TS 16949 =**

**Trademarks**

The Microchip name and logo, the Microchip logo, AnyRate, dsPIC, FlashFlex, flexPWR, Heldo, JukeBlox, KeeLoq, KeeLoq logo, Klear, LANCheck, LINK MD, MediaLB, MOST, MOST logo, MPLAB, OptoLyzer, PIC, PICSTART, PIC32 logo, RightTouch, SpyNIC, SST, SST Logo, SuperFlash and UNI/O are registered trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.

ClockWorks, The Embedded Control Solutions Company, ETHERSYNCH, Hyper Speed Control, HyperLight Load, IntelliMOS, mTouch, Precision Edge, and QUIET-WIRE are registered trademarks of Microchip Technology Incorporated in the U.S.A.

Analog-for-the-Digital Age, Any Capacitor, AnyIn, AnyOut, BodyCom, chipKIT, chipKIT logo, CodeGuard, dsPICDEM, dsPICDEM.net, Dynamic Average Matching, DAM, ECAN, EtherGREEN, In-Circuit Serial Programming, ICSP, Inter-Chip Connectivity, JitterBlocker, KlearNet, KlearNet logo, MiWi, motorBench, MPASM, MPF, MPLAB Certified logo, MPLIB, MPLINK, MultiTRAK, NetDetach, Omniscient Code Generation, PICDEM, PICDEM.net, PICKit, PICtail, PureSilicon, RightTouch logo, REAL ICE, Ripple Blocker, Serial Quad I/O, SQL, SuperSwitcher, SuperSwitcher II, Total Endurance, TSHARC, USBCheck, VariSense, ViewSpan, WiperLock, Wireless DNA, and ZENA are trademarks of Microchip Technology Incorporated in the U.S.A. and other countries.

SQTP is a service mark of Microchip Technology Incorporated in the U.S.A.

Silicon Storage Technology is a registered trademark of Microchip Technology Inc. in other countries.

GestIC is a registered trademarks of Microchip Technology Germany II GmbH & Co. KG, a subsidiary of Microchip Technology Inc., in other countries.

All other trademarks mentioned herein are property of their respective companies.

© 2016, Microchip Technology Incorporated, Printed in the U.S.A., All Rights Reserved.

ISBN: 978-1-5224-0281-7



# MICROCHIP

## Worldwide Sales and Service

### AMERICAS

**Corporate Office**  
2355 West Chandler Blvd.  
Chandler, AZ 85224-6199  
Tel: 480-792-7200  
Fax: 480-792-7277  
Technical Support:  
<http://www.microchip.com/support>  
Web Address:  
[www.microchip.com](http://www.microchip.com)

**Atlanta**  
Duluth, GA  
Tel: 678-957-9614  
Fax: 678-957-1455

**Austin, TX**  
Tel: 512-257-3370

**Boston**  
Westborough, MA  
Tel: 774-760-0087  
Fax: 774-760-0088

**Chicago**  
Itasca, IL  
Tel: 630-285-0071  
Fax: 630-285-0075

**Cleveland**  
Independence, OH  
Tel: 216-447-0464  
Fax: 216-447-0643

**Dallas**  
Addison, TX  
Tel: 972-818-7423  
Fax: 972-818-2924

**Detroit**  
Novi, MI  
Tel: 248-848-4000

**Houston, TX**  
Tel: 281-894-5983

**Indianapolis**  
Noblesville, IN  
Tel: 317-773-8323  
Fax: 317-773-5453

**Los Angeles**  
Mission Viejo, CA  
Tel: 949-462-9523  
Fax: 949-462-9608

**New York, NY**  
Tel: 631-435-6000

**San Jose, CA**  
Tel: 408-735-9110

**Canada - Toronto**  
Tel: 905-673-0699  
Fax: 905-673-6509

### ASIA/PACIFIC

**Asia Pacific Office**  
Suites 3707-14, 37th Floor  
Tower 6, The Gateway  
Harbour City, Kowloon

**Hong Kong**  
Tel: 852-2943-5100  
Fax: 852-2401-3431

**Australia - Sydney**  
Tel: 61-2-9868-6733  
Fax: 61-2-9868-6755

**China - Beijing**  
Tel: 86-10-8569-7000  
Fax: 86-10-8528-2104

**China - Chengdu**  
Tel: 86-28-8665-5511  
Fax: 86-28-8665-7889

**China - Chongqing**  
Tel: 86-23-8980-9588  
Fax: 86-23-8980-9500

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

**China - Hangzhou**  
Tel: 86-571-8792-8115  
Fax: 86-571-8792-8116

**China - Hong Kong SAR**  
Tel: 852-2943-5100  
Fax: 852-2401-3431

**China - Nanjing**  
Tel: 86-25-8473-2460  
Fax: 86-25-8473-2470

**China - Qingdao**  
Tel: 86-532-8502-7355  
Fax: 86-532-8502-7205

**China - Shanghai**  
Tel: 86-21-5407-5533  
Fax: 86-21-5407-5066

**China - Shenyang**  
Tel: 86-24-2334-2829  
Fax: 86-24-2334-2393

**China - Shenzhen**  
Tel: 86-755-8864-2200  
Fax: 86-755-8203-1760

**China - Wuhan**  
Tel: 86-27-5980-5300  
Fax: 86-27-5980-5118

**China - Xian**  
Tel: 86-29-8833-7252  
Fax: 86-29-8833-7256

### ASIA/PACIFIC

**China - Xiamen**  
Tel: 86-592-2388138  
Fax: 86-592-2388130

**China - Zhuhai**  
Tel: 86-756-3210040  
Fax: 86-756-3210049

**India - Bangalore**  
Tel: 91-80-3090-4444  
Fax: 91-80-3090-4123

**India - New Delhi**  
Tel: 91-11-4160-8631  
Fax: 91-11-4160-8632

**India - Pune**  
Tel: 91-20-3019-1500

**Japan - Osaka**  
Tel: 81-6-6152-7160  
Fax: 81-6-6152-9310

**Japan - Tokyo**  
Tel: 81-3-6880-3770  
Fax: 81-3-6880-3771

**Korea - Daegu**  
Tel: 82-53-744-4301  
Fax: 82-53-744-4302

**Korea - Seoul**  
Tel: 82-2-554-7200  
Fax: 82-2-558-5932 or  
82-2-558-5934

**Malaysia - Kuala Lumpur**  
Tel: 60-3-6201-9857  
Fax: 60-3-6201-9859

**Malaysia - Penang**  
Tel: 60-4-227-8870  
Fax: 60-4-227-4068

**Philippines - Manila**  
Tel: 63-2-634-9065  
Fax: 63-2-634-9069

**Singapore**  
Tel: 65-6334-8870  
Fax: 65-6334-8850

**Taiwan - Hsin Chu**  
Tel: 886-3-5778-366  
Fax: 886-3-5770-955

**Taiwan - Kaohsiung**  
Tel: 886-7-213-7828

**Taiwan - Taipei**  
Tel: 886-2-2508-8600  
Fax: 886-2-2508-0102

**Thailand - Bangkok**  
Tel: 66-2-694-1351  
Fax: 66-2-694-1350

### EUROPE

**Austria - Wels**  
Tel: 43-7242-2244-39  
Fax: 43-7242-2244-393

**Denmark - Copenhagen**  
Tel: 45-4450-2828  
Fax: 45-4485-2829

**France - Paris**  
Tel: 33-1-69-53-63-20  
Fax: 33-1-69-30-90-79

**Germany - Dusseldorf**  
Tel: 49-2129-3766400

**Germany - Karlsruhe**  
Tel: 49-721-625370

**Germany - Munich**  
Tel: 49-89-627-144-0  
Fax: 49-89-627-144-44

**Italy - Milan**  
Tel: 39-0331-742611  
Fax: 39-0331-466781

**Italy - Venice**  
Tel: 39-049-7625286

**Netherlands - Druen**  
Tel: 31-416-690399  
Fax: 31-416-690340

**Poland - Warsaw**  
Tel: 48-22-3325737

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

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

**UK - Wokingham**  
Tel: 44-118-921-5800  
Fax: 44-118-921-5820

07/14/15

# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

## Microchip:

[BM64SPKS1MC1-0001AA](#) [BM64SPKA1MC1-0001AA](#) [BM64SPKS1MC2-0001AA](#) [BM64SPKA1MC2-0001AA](#)  
[BM62SPKA1MC2-0001AA](#) [BM62SPKS1MC2-0001AA](#) [BM64SPKS1MC1-00M2AA](#) [BM64SPKS1MC2-0003AA](#)  
[BM64SPKS1MC1-0003AA](#)