#### TO OUR VALUED CUSTOMERS

It is our intention to provide our valued customers with the best documentation possible to ensure successful use of your Microchip products. To this end, we will continue to improve our publications to better suit your needs. Our publications will be refined and enhanced as new volumes and updates are introduced.

If you have any questions or comments regarding this publication, please contact the Marketing Communications Department via E-mail at docerrors@microchip.com. We welcome your feedback.

### **Most Current Data Sheet**

To obtain the most up-to-date version of this data sheet, please register at our Worldwide Web site at:

#### http://www.microchip.com

You can determine the version of a data sheet by examining its literature number found on the bottom outside corner of any page. The last character of the literature number is the version number, (e.g., DS30000000A is version A of document DS30000000).

#### **Errata**

An errata sheet, describing minor operational differences from the data sheet and recommended workarounds, may exist for current devices. As device/documentation issues become known to us, we will publish an errata sheet. The errata will specify the revision of silicon and revision of document to which it applies.

To determine if an errata sheet exists for a particular device, please check with one of the following:

- Microchip's Worldwide Web site; http://www.microchip.com
- Your local Microchip sales office (see last page)

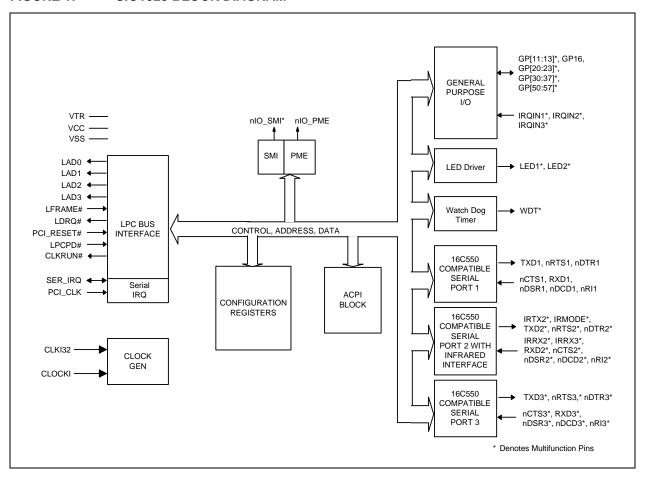
When contacting a sales office, please specify which device, revision of silicon and data sheet (include -literature number) you are using.

# **Customer Notification System**

Register on our web site at www.microchip.com to receive the most current information on all of our products.

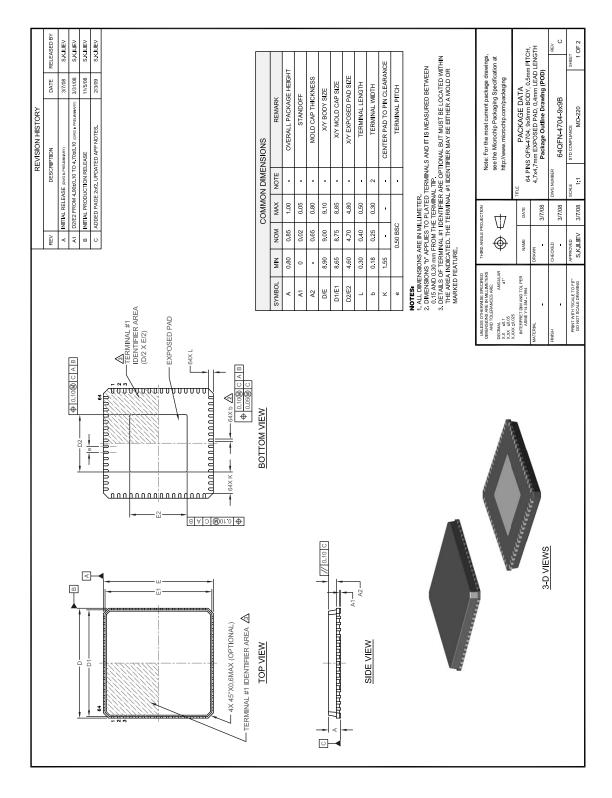
# **BLOCK DIAGRAM**

FIGURE 1: SIO1028 BLOCK DIAGRAM

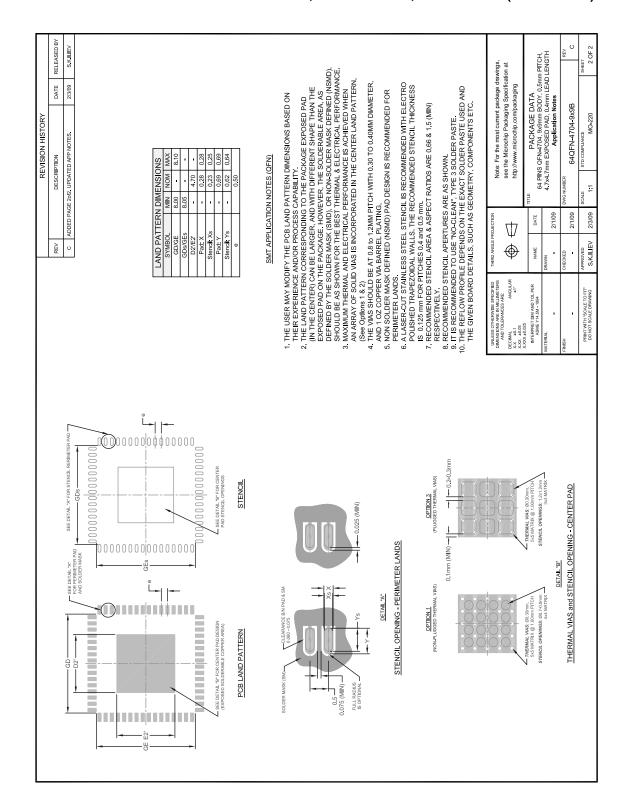


# **PACKAGE OUTLINE**

FIGURE 2: SIO1028 64-PIN QFN PACKAGE, 9 X 9MM BODY, 0.5MM PITCH



# FIGURE 2: SIO1028 64-PIN QFN PACKAGE, 9 X 9MM BODY, 0.5MM PITCH (CONTINUED)



# **SIO1028**

# APPENDIX A: PRODUCT BRIEF REVISION HISTORY

# TABLE A-1: REVISION HISTORY

Revision	Section/Figure/Entry	Correction
DS00001818A (08-15-14)	Replaces previous SMSC version Rev. 0.5 (11-02-09)	

# THE MICROCHIP WEB SITE

Microchip provides online support via our WWW site at <a href="www.microchip.com">www.microchip.com</a>. This web site is used as a means to make files and information easily available to customers. Accessible by using your favorite Internet browser, the web site contains the following information:

- Product Support Data sheets and errata, application notes and sample programs, design resources, user's
  guides and hardware support documents, latest software releases and archived software
- General Technical Support Frequently Asked Questions (FAQ), technical support requests, online discussion groups, Microchip consultant program member listing
- Business of Microchip Product selector and ordering guides, latest Microchip press releases, listing of seminars and events, listings of Microchip sales offices, distributors and factory representatives

# CUSTOMER CHANGE NOTIFICATION SERVICE

Microchip's customer notification service helps keep customers current on Microchip products. Subscribers will receive e-mail notification whenever there are changes, updates, revisions or errata related to a specified product family or development tool of interest.

To register, access the Microchip web site at www.microchip.com. Under "Support", click on "Customer Change Notification" and follow the registration instructions.

# **CUSTOMER SUPPORT**

Users of Microchip products can receive assistance through several channels:

- · Distributor or Representative
- · Local Sales Office
- · Field Application Engineer (FAE)
- · Technical Support

Customers should contact their distributor, representative or field application engineer (FAE) for support. Local sales offices are also available to help customers. A listing of sales offices and locations is included in the back of this document.

Technical support is available through the web site at: http://www.microchip.com/support

# PRODUCT IDENTIFICATION SYSTEM

To order or obtain information, e.g., on pricing or delivery, refer to the factory or the listed sales office.

PART NO. <sup>(1)</sup> Device	- XXX <sup>(2)</sup> - [X] <sup>(3)</sup>     Package Tape and Reel Option
Device:	SIO1028 <sup>(1)</sup>
Package:	JZX = 64-pin QFN <sup>(2)</sup>
Tape and Reel Option:	Blank = Tray packaging TR = Tape and Reel <sup>(3)</sup>

### **Examples:**

- SIO1028-JZX = 64-pin QFN SIO1028-JZX-TR = 64-pin QFN Tape and Reel
- These products meet the halogen maximum Note 1: concentration values per IEC61249-2-21.
- All package options are RoHS compliant. For RoHS compliance and environmental information, please visit <a href="http://www.micro-chip.com/pagehandler/en-us/aboutus/">http://www.micro-chip.com/pagehandler/en-us/aboutus/</a> Note 2: ehs.html
- Tape and Reel identifier only appears in the catalog part number description. This identi-Note 3: fier is used for ordering purposes and is not printed on the device package. Check with your Microchip Sales Office for package availability with the Tape and Reel option.

## 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.

#### **Trademarks**

The Microchip name and logo, the Microchip logo, dsPIC, FlashFlex, flexPWR, JukeBlox, KEELoQ, Iogo, Kleer, LANCheck, MediaLB, MOST, MOST logo, MPLAB, OptoLyzer, PIC, PICSTART, PIC<sup>32</sup> 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.

The Embedded Control Solutions Company and mTouch are registered trademarks of Microchip Technology Incorporated in the U.S.A.

Analog-for-the-Digital Age, BodyCom, chipKIT, chipKIT logo, CodeGuard, dsPICDEM, dsPICDEM.net, ECAN, In-Circuit Serial Programming, ICSP, Inter-Chip Connectivity, KleerNet, KleerNet logo, MiWi, MPASM, MPF, MPLAB Certified logo, MPLIB, MPLINK, MultiTRAK, NetDetach, Omniscient Code Generation, PICDEM, PICDEM.net, PICkit, PICtail, RightTouch logo, REAL ICE, SQI, Serial Quad I/O, 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.

© 2009 - 2014, Microchip Technology Incorporated, Printed in the U.S.A., All Rights Reserved.

ISBN: 9781632765277

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

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® MCUs and dsPIC® DSCs, KEELOQ® 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.



# 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

**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

NOVI, IVII

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

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 - 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

China - Xiamen

Tel: 86-592-2388138 Fax: 86-592-2388130

China - Zhuhai

Tel: 86-756-3210040 Fax: 86-756-3210049

#### ASIA/PACIFIC

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: 886-7-213-7830

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 - Munich

Tel: 49-89-627-144-0 Fax: 49-89-627-144-44

**Germany - Pforzheim** Tel: 49-7231-424750

Italy - Milan

Tel: 39-0331-742611 Fax: 39-0331-466781

Italy - Venice

Tel: 39-049-7625286

Netherlands - Drunen

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

03/25/14