PACKAGING

Overview of Microchip Die/Wafer Support

INTRODUCTION

Microchip Technology Inc. devices are available in wafer form and in die form. All products sold in die or wafers have been characterized and qualified according to the requirements of Microchip Technology Inc. Specifications SPI-41014, “Characterization and Qualification of Integrated Circuits,” and QCI-39000, “Worldwide Quality Conformance Requirements.”

PRODUCT INTEGRITY

Product supplied in die or wafer form are fully tested and characterized. Die or Wafers are inspected to Microchip Technology Inc. Specification, QCI-30014.

CAUTION

Some EEPROM devices use EPROM cells for device configuration. Exposure to ultra-violet light must be avoided. Exposure to ultra-violet light may cause the device to operate improperly.

Extreme care is urged in the handling and assembly of these products since they are susceptible to damage from electro-static discharge.

ORDERING INFORMATION

Die sales must be conducted by contacting your Microchip Sales Office.

To order or obtain information (on pricing or delivery) for a specific device, use one of the following part numbers:

Devices in Waffle Pack
DEVICE_NUMBER/S

Devices in Wafer form
DEVICE_NUMBER/W
DEVICE_NUMBER/WF

where DEVICE_NUMBER is the device that you require. The S specifies die in a waffle pack while a W specifies wafer sales, and WF specifies sawn wafer on frames.

ELECTRICAL SPECIFICATIONS

The functional and electrical specifications of Microchip devices in die form are identical to those of a packaged version. Please refer to individual data sheets for complete details.

QTP

Quick Turnaround Production (QTP) applies only to EPROM and EEPROM microcontrollers.

With QTP devices, the program memory array is only tested against the code provided. This method ensures that the device will operate correctly as programmed, but does not ensure that every program memory bit can be programmed to every state.

Note: Do not erase QTP devices and program them with a different code.

EPROM

EPROM devices are supplied as fully erased programmable parts that are UV erasable and re-programmable by the user (except for QTP and SQTP devices).

EEPROM

EEPROM devices may not be supplied in a fully erased state, but are re-programmable by the user (except for QTP and SQTP devices).

ROM

ROM devices are supplied as fully programmed parts (program memory only). These are not reprogrammable by the user.

DIE MECHANICAL SPECIFICATIONS

Refer to the individual data sheet for these specifications.

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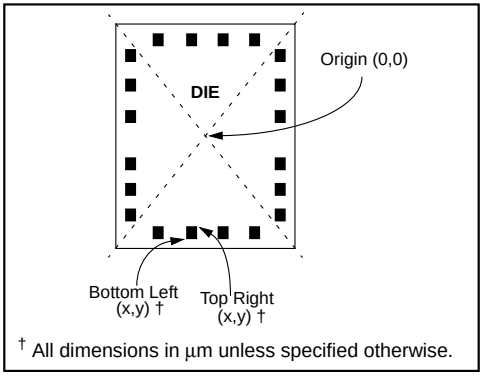
Packaging

BOND PAD COORDINATES

The die figures have associated bond pad coordinates. These coordinates assist in the attaching of the bond wire to the die. All the dimensions of these coordinates are in micrometers (μm) unless otherwise specified. The origin for the coordinates is the center of the die, as shown in Figure 1. Refer to the Microchip Die Specification sheet for openings and pitch.

FIGURE 1: DIE COORDINATE ORIGIN



† All dimensions in μm unless specified otherwise.

The die is capable of thermosonic gold or ultrasonic wire bonding. Die meet the minimum conditions of MIL-STD 883, Method 2011 on “Bond Strength (Destructive Bond Pull Test)”. The Bond Pad metallization is silicon doped aluminum.

SUBSTRATE BONDING

Substrate bonding may be required on certain product families. For more information refer to the die specification sheet.

SHIPPING OPTIONS

DIE Form Shipping

Microchip product in die form can be shipped in waffle-pack. The waffle pack has sufficient cavity area to restrain the die, while maintaining their orientation. Lint free paper inserts are placed over the waffle packs, and each pack is secured with a plastic locking clip. Groups of waffle packs are assembled into sets for shipment. A label with lot number, quantity, and part number is attached.

These waffle packs are hermetically sealed in bags.

Wafer Form

Products may also be shipped in wafer form (see ordering information). Wafers are shipped in a wafer tub. The tub is padded with non-conductive foam. Lint free paper inserts are placed around each wafer. A label with lot number, quantity, and part number is attached.

Sawn Wafer on Frames

Products may also be shipped on wafer frames. Wafers are mounted on plastic frames and 100% sawn through. Sawn wafer on frames may be shipped in bulk (25 wafers per carrier) or in a single wafer in a carrier. A label with lot number, quantity, and part number is attached with each shipment.

Storage Procedures

Temperature and humidity greatly affect the storage life of die. It is recommended that the die be used as soon as possible after receipt.

Upon receipt, the sealed bags should be stored in a cool and dry environment (25°C and 25% relative humidity). In these conditions, sealed bags have a shelf life of 12 months. Temperatures or humidities greater than these will reduce the storage life.

Once a bag containing waffle packs has been opened, the devices should be assembled and encapsulated within 48 hours (assuming, 25°C and 25% humidity).

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NOTES:

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ISO 9001 REGISTERED FIRM

Microchip received ISO 9001 Quality System certification for its worldwide headquarters, design, and wafer fabrication facilities in January 1997. Our field-programmable PICmicro™ 8-bit MCUs, Serial EEPROMs, related specialty memory products and development systems conform to the stringent quality standards of the International Standard Organization (ISO).

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