

Espressif's Chip-Packing Information



Version 1.0
Copyright © 2017

About This Guide

This document summarizes the packing requirements of Espressif's chip products, including the packing method, packing-material dimensions, standard packing quantity, labels, dry-packing requirements and marking conventions.

Chapter	Title	Content
Chapter 1	Tape and Reel Packing	Dimensions of carrier tape and reel.
Chapter 2	Labels and Symbols	Explanation of labels and symbols attached to reel, moisture barrier bag (MBB) and pizza box.
Chapter 3	Dry-Packing Requirements	Dry-Packing requirements for Espressif's products.
Chapter 4	Marking Conventions	Espressif's chipset marking conventions.

Release Notes

Date	Version	Release notes
2017.06	V1.0	Initial release.

Table of Contents

- 1. Tape and Reel Packing1
 - 1.1. Tape.....1
 - 1.2. Reel1
 - 1.3. Pin1 Location2
- 2. Labels and Symbols3
- 3. Dry Packing Requirements.....5
- 4. Marking Conventions.....7



1. Tape and Reel Packing

1.1. Tape

Table 1-1 shows the dimensions of the carrier tape.

Table 1-1. Carrier Tape Dimensions (Unit: mm)

Package	Carrier Tape Width (W)	Cavity Pitch (P ₁)	Cavity Width (A ₀)	Cavity Length (B ₀)	Cavity Depth (K ₀)
5 * 5	12.0 ± 0.30	8.0 ± 0.10	5.30 ± 0.10	5.30 ± 0.10	1.10 ± 0.10
6 * 6	16.0 ± 0.30	12.0 ± 0.10	6.30 ± 0.10	6.30 ± 0.10	1.10 ± 0.10

Note:

The surface resistance of the carrier tape is $10^4 \sim 10^{11}$ ohms.

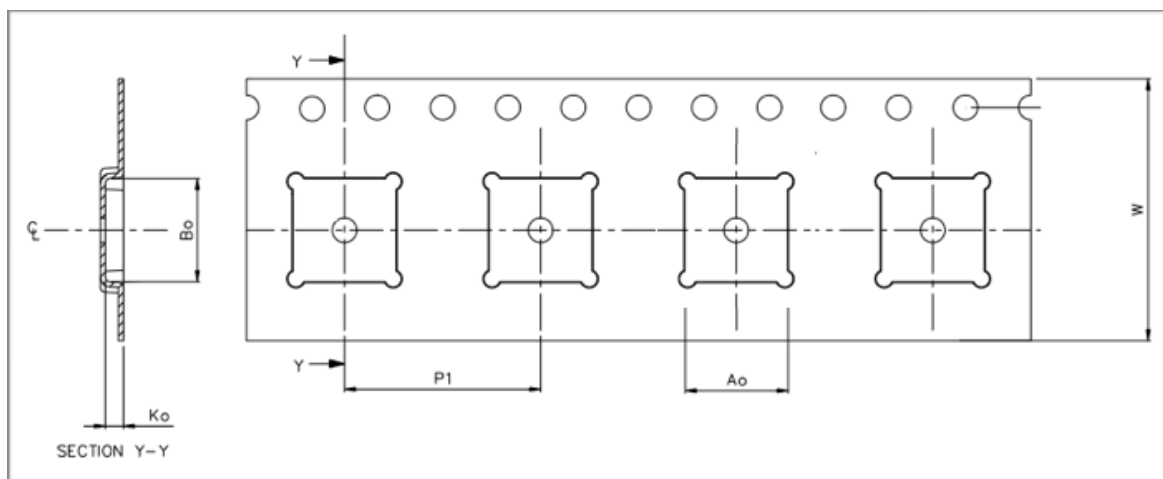


Figure 1-1. Carrier Tape Dimensions

1.2. Reel

Table 1-2 shows the dimensions of the reel.

Table 1-2. Reel Dimensions (Unit: mm)

Package	Reel Diameter (A)	Reel Width (W ₁)	Reel Thickness (W ₂)	Quantity Per Reel
5 * 5	330.0 ± 2.0	12.4 ± 0.5	19.4 ± 0.5	5000
6 * 6	330.0 ± 2.0	16.4 ± 0.5	23.4 ± 0.5	5000

Note:

The surface resistance of the reel is $10^4 \sim 10^{11}$ ohms.

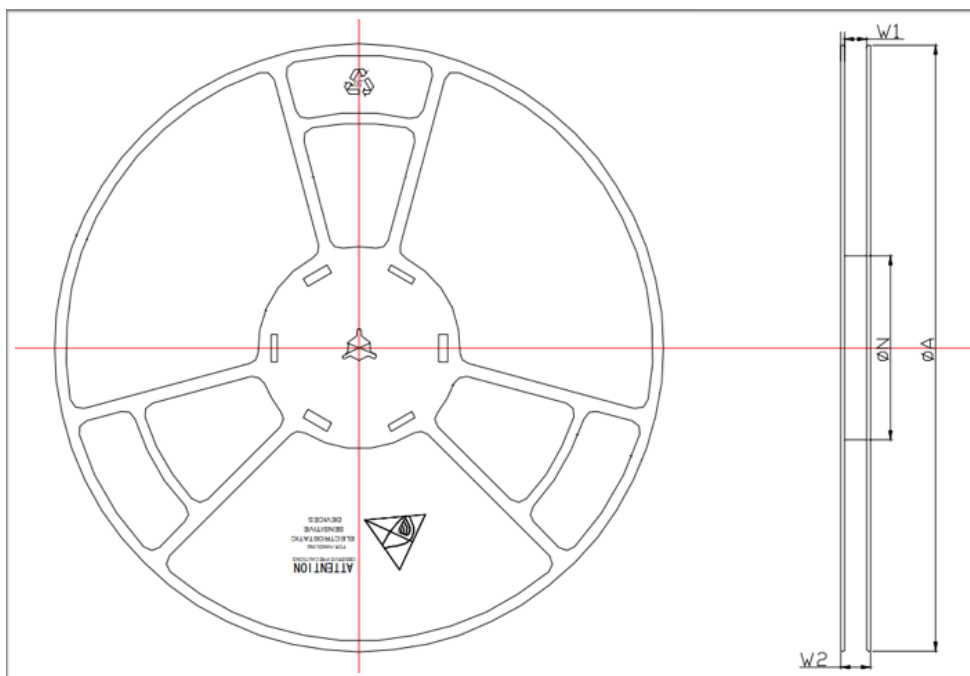


Figure 1-2. Reel Dimensions

1.3. Pin1 Location

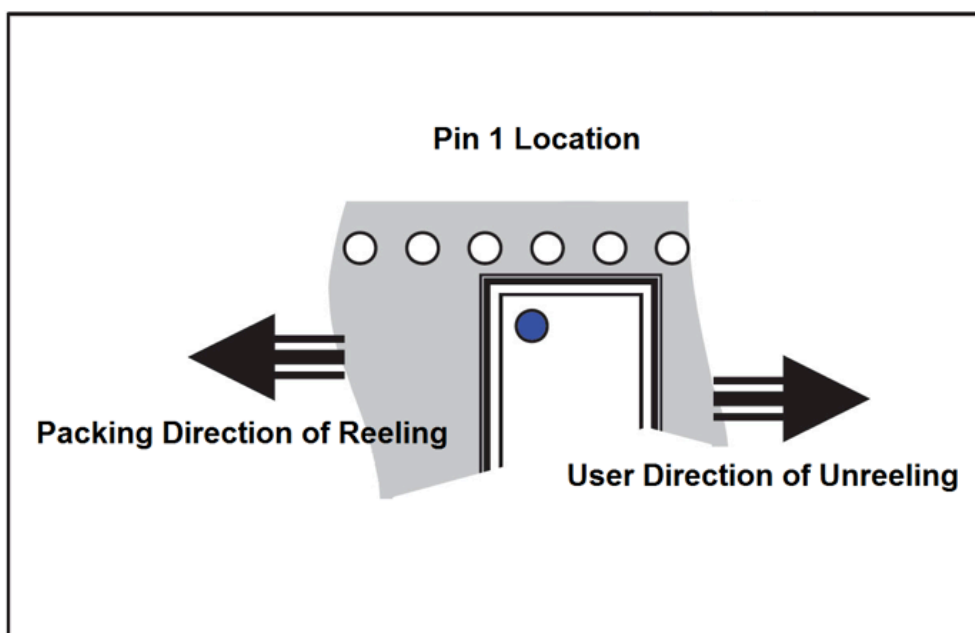


Figure 1-3. Pin 1 Orientation of Chips in Carrier Tape



2. Labels and Symbols

Reel, moisture barrier bag (MBB) and pizza box have relevant labels and symbols, as shown in the figures below.

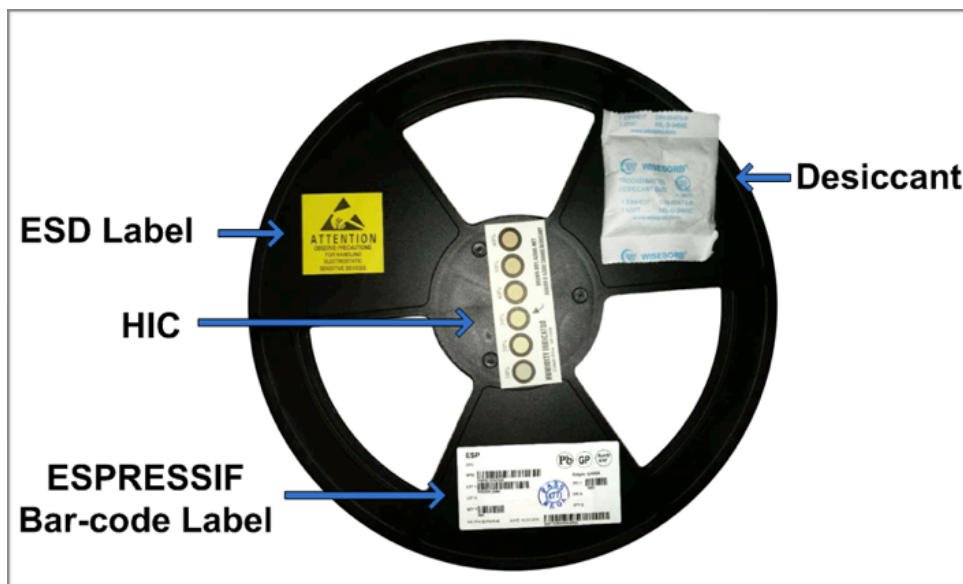


Figure 2-1. Reel Labelling

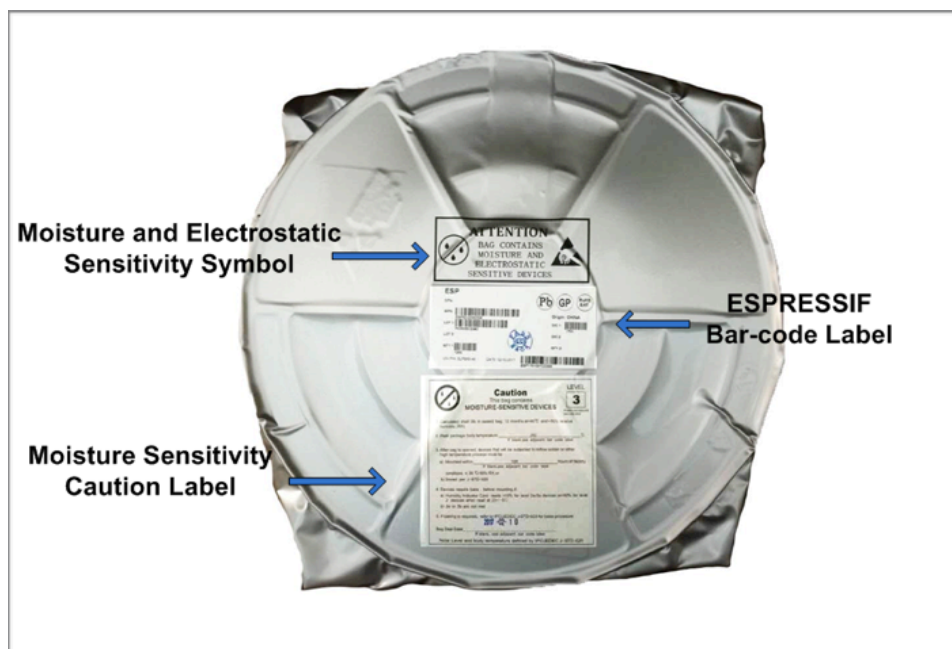


Figure 2-2. MBB Labels and Symbols








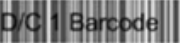





ESPRESSIF				
MPN:	 MPN Barcode ESPRESSIF product name			
LOT 1:	 Lot 1 Barcode Mother lot no information	D/C 1:	 D/C 1 Barcode Mother lot date code	
LOT 2:	 Lot 2 Barcode Combined lot no information	D/C 2:	 D/C 2 Barcode Combined lot date code	
QTY 1:	 QTY 1 Barcode Product quantity in mother lot	QTY 2:	 QTY 2 Barcode Product quantity in combined lot	MSL 3
Test ID:	 Test ID Barcode Test lot information	DATE: 03-29-2016 Origin: CHINA		

Figure 2-3. Barcode Label Format for Reel, MBB and Pizza Box

Table 2-1. Barcode Label Content

Item	Description
ESPRESSIF	Company logo
MPN	Product name
LOT1	Number of mother lot
LOT2	Number of combined lot
QTY1	Quantity of LOT1
QTY2	Quantity of LOT2
D/C 2	Assembly date code for LOT2
D/C 1	Assembly date code for LOT1
Test ID	Test information
DATE	MM-DD-YYYY



3. Dry Packaging Requirements

All Espressif products must be dry-packed, as their moisture sensitivity level (MSL) is 3. Dry packing consists of desiccant material (see figure 3-2) and a humidity-indicator card (HIC, see figure 3-3) sealed with the populated reel inside a moisture barrier bag (MBB).

The calculated shelf life for dry-packed components is a minimum of 12 months from the MBB seal date, when stored in a non-condensing atmospheric environment of <40°C and 90% relative humidity.

The floor life (the allowable period of time after removal from a moisture barrier bag, dry storage or dry bake and before the reflow soldering process) is shown in table 3.

Table 3-1. Moisture Classification Level and Floor Life

Level	Floor life (out of bag) at factory ambient $\leq 30^{\circ}\text{C}/60\% \text{ RH}$, or as stated
3	168 hours



Figure 3-1. Desiccant

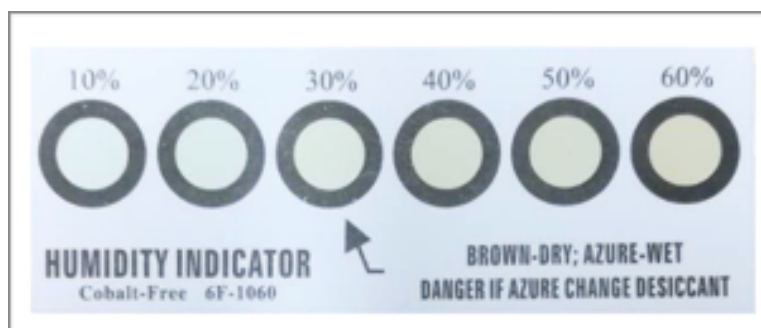


Figure 3-2. HIC

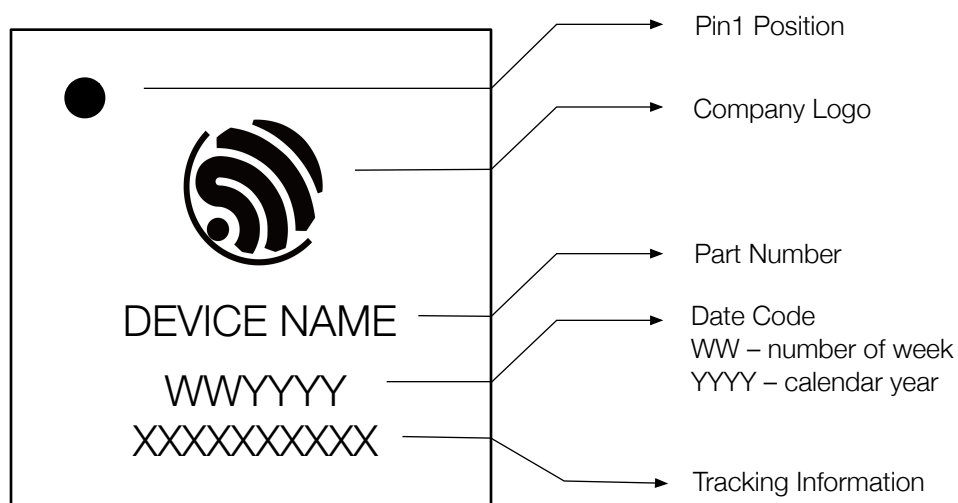


	Caution This bag contains MOISTURE-SENSITIVE DEVICES	LEVEL <div style="border: 1px solid black; width: 50px; height: 30px; margin: 0 auto;"></div> <small>If blank, see adjacent bar code label</small>
	<ol style="list-style-type: none">1. Calculated shelf life in sealed bag: 12 months at <40°C and <90% relative humidity (RH)2. Peak package body temperature: _____ °C <small>If blank, see adjacent bar code label</small>3. After bag is opened, devices that will be subjected to reflow solder or other high temperature process must be<ol style="list-style-type: none">a) Mounted within: _____ hours of factory conditions <small>If blank, see adjacent bar code label</small> ≤30°C/60% RH, orb) Stored per J-STD-0334. Devices require bake, before mounting, if:<ol style="list-style-type: none">a) Humidity Indicator Card reads >10% for level 2a - 5a devices or >60% for level 2 devices when read at 23 ± 5°Cb) 3a or 3b are not met5. If baking is required, refer to IPC/JEDEC J-STD-033 for bake procedure <p>Bag Seal Date: _____ <small>If blank, see adjacent bar code label</small></p> <p>Note: Level and body temperature defined by IPC/JEDEC J-STD-020</p>	

Figure 3-3. Moisture Sensitivity Caution Label



4. Marking Conventions



Notes:

- Date code "122017" stands for the 12th week of the year 2017.
- The number of digits in the tracking information depends on the actual content.



Espressif IoT Team
www.espressif.com

Disclaimer and Copyright Notice

Information in this document, including URL references, is subject to change without notice.

THIS DOCUMENT IS PROVIDED AS IS WITH NO WARRANTIES WHATSOEVER, INCLUDING ANY WARRANTY OF MERCHANTABILITY, NON-INFRINGEMENT, FITNESS FOR ANY PARTICULAR PURPOSE, OR ANY WARRANTY OTHERWISE ARISING OUT OF ANY PROPOSAL, SPECIFICATION OR SAMPLE.

All liability, including liability for infringement of any proprietary rights, relating to use of information in this document is disclaimed. No licenses express or implied, by estoppel or otherwise, to any intellectual property rights are granted herein.

The Wi-Fi Alliance Member logo is a trademark of the Wi-Fi Alliance. The Bluetooth logo is a registered trademark of Bluetooth SIG.

All trade names, trademarks and registered trademarks mentioned in this document are property of their respective owners, and are hereby acknowledged.

Copyright © 2017 Espressif Inc. All rights reserved.