General Physical Specification

For product parameters and availability, refer to the CY7C643XX product datasheets available on the Cypress website (http://www.cypress.com).

Table 1. 7C643XX Die Physical Specification

Die Technology:	180 nm mixed signal CMOS	**Wafer Diameter [mm]:**	203.2
Metal I:	AlCu 0.4 µm	**Die Size [µm]:**	2214 × 2330
Metal II:	AlCu 0.4 µm	**Step Size [µm]:**	2264 × 2380
Metal III:	AlCu 0.4 µm	**Scribe Size [µm]:**	50 × 50
Die Passivation:	Si_3N_4	**Pad Count:**	53
Substrate Connection Req.:	Ground	**Pad Size [µm]:**	60 × 70

Product Thickness Guide

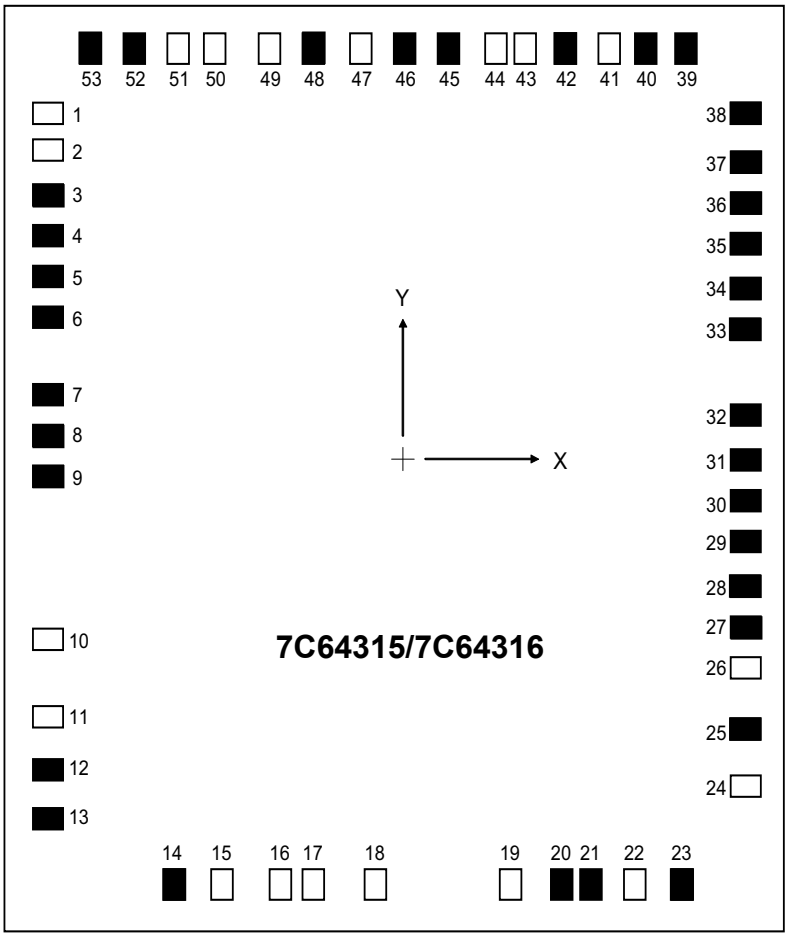
Table 2. Thickness Guide for 7C643xx-3XW14C/7C64316-WAFC

Code	Description	Min	Nom	Max	Unit
XW14	Die (14-mil) in wafer form	342.5	355	367.5	µm
WAFC	Die (29-mil) in wafer form	–	29	–	mil

Bond Pads

This section describes the device bond pads. Table 3 on page 3 describes the pads and Figure 1 shows the pad locations on the 7C64315/7C64316 die.

Figure 1. 7C64315/7C64316 Bond Pad Locations[1]



Note
1. The pad location here is approximate. See the Coordinates in Table 3 for precise information.

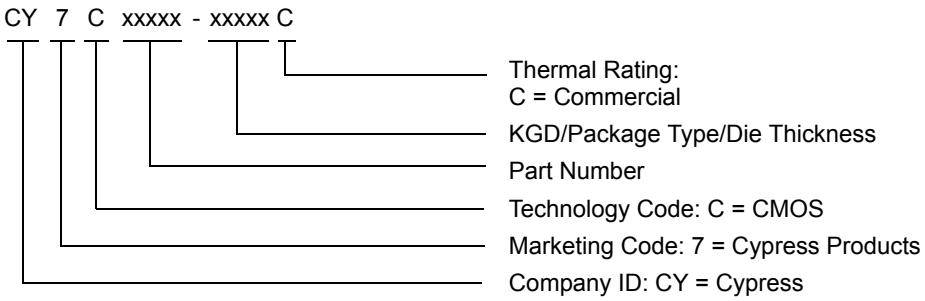
Table 3. 7C64315 Bond Pads

Pad	Name	Coordinates		Notes
		X	Y	
1	P2[5]	–983.395	895.015	Digital I/O, crystal out (XOUT)
2	P2[3]	–983.395	791.33	Digital I/O, crystal in (XIN)
3	NC	–983.395	687.645	Do Not Use
4	NC	–983.395	583.96	Do Not Use
5	NC	–983.395	480.275	Do Not Use
6	NC	–983.395	376.59	Do Not Use
7	NC	–983.395	180.715	Do Not Use
8	NC	–983.395	77.03	Do Not Use
9	NC	–983.395	–26.655	Do Not Use
10	P1[7]	–983.395	–433.9	Digital I/O, I^2C SCL, SPI SS
11	P1[5]	–983.395	–626.61	Digital I/O, I^2C SDA, SPI MISO
12	NC	–983.395	–758.345	Do Not Use
13	NC	–983.395	–878.77	Do Not Use
14	NC	–633.86	–1041.395	Do Not Use
15	P1[1]	–498.42	–1041.395	Digital I/O, ISSP CLK, I^2C SCL, SPI MOSI
16	VGND	–325.445	–1041.395	Ground connection
17	VGNDIO	–246.865	–1041.395	Ground connection
18	DP	–66.385	–1030.685	USB PHY
19	DM	314.245	–1030.685	USB PHY
20	NC	450.95	–1041.395	Do Not Use
21	NC	527.225	–1041.395	Do Not Use
22	P1[0]	658.625	–1041.395	Digital I/O, ISSP DATA, I^2C SDA, SPI CLK
23	NC	794.065	–1041.395	Do Not Use
24	P1[4]	983.395	–797.745	Digital I/O, optional external clock input (EXTCLK)
25	NC	983.395	–662.305	Do Not Use
26	XRES	983.395	–506.675	Active high external reset with internal pull-down
27	NC	983.395	–395.3	Do Not Use
28	NC	983.395	–291.615	Do Not Use
29	NC	983.395	–187.93	Do Not Use
30	NC	983.395	–84.245	Do Not Use
31	NC	983.395	19.44	Do Not Use
32	NC	983.395	123.125	Do Not Use
33	NC	983.395	343.025	Do Not Use
34	NC	983.395	446.71	Do Not Use
35	NC	983.395	550.395	Do Not Use
36	NC	983.395	654.08	Do Not Use
37	NC	983.395	755.065	Do Not Use
38	NC	983.395	884.705	Do Not Use
39	NC	794.35	1041.395	Do Not Use
40	NC	682.365	1041.395	Do Not Use
41	P0[4]	576.93	1041.395	Digital I/O
42	NC	445.36	1041.395	Do Not Use
43	VPWRIO	346.165	1041.395	Supply voltage
44	VPWRQ	270.2	1041.395	Supply voltage
45	NC	133.625	1041.395	Do Not Use
46	NC	9.76	1041.395	Do Not Use
47	P0[7]	–115.11	1041.395	Digital I/O
48	NC	–247.4	1041.395	Do Not Use
49	P0[3]	–375.11	1041.395	Digital I/O
50	VGNDQ	–524.13	1041.395	Ground connection
51	P0[1]	–624.965	1041.395	Digital I/O
52	NC	–749.835	1041.395	Do Not Use
53	NC	–878.3	1041.395	Do Not Use

Ordering Information

Ordering Code	Package	Temperature Range
CY7C64315-3X14C	Die(14 Mil) in waffle pack	Commercial
CY7C64315-3XW14C	Die(14 Mil) in wafer form	Commercial
CY7C64316-WAFC	Die (29 Mil) in wafer form	Commercial

Ordering Code Definitions



Acronyms

Table 4. Acronyms Used in this Document

Acronym	Description
KGD	Known good die

Document Conventions

Units of Measure

Table 5. Units of Measure

Symbol	Unit of Measure
mil	One-thousandth of an inch [0.001”]
µm	Micrometer

Document History Page

Document Title: CY7C643XX-3X14C/CY7C643XX-3XW14C/CY7C64316-WAFC, enCoRe™ V Full Speed USB Microcontroller Die Document Number: 001-75238				
Rev.	**ECN**	**Orig. of Change**	**Submission Date**	**Description of Change**
**	3475794	KKCN	12/27/2011	New data sheet
*A	3507659	CSAI	01/24/2012	Changed title to "CY7C643XX-3X14C/CY7C643XX-3XW14C/CY7C64316-WAFC, enCoRe™ V Full Speed USB Microcontroller Die". Updated Product Thickness Guide: Updated Table 2: Added CY7C64316-WAFC part information. Updated Ordering Information: Updated part numbers.
*B	4426829	CSAI	07/07/2014	Updated Product Thickness Guide: Updated Table 2: Changed details in description column from "Die (27-mil) in wafer form" to "Die (29-mil) in wafer form" for WAFC Code. Updated Ordering Information: Changed details in Package column from "Die (27-mil) in wafer form" to "Die (29-mil) in wafer form" for CY7C64316-WAFC.
*C	4635957	LIP	01/22/2015	Updated to new template. Completing Sunset Review.

Sales, Solutions, and Legal Information

Worldwide Sales and Design Support

Cypress maintains a worldwide network of offices, solution centers, manufacturer's representatives, and distributors. To find the office closest to you, visit us at Cypress Locations.

Products

Automotive	cypress.com/go/automotive
Clocks & Buffers	cypress.com/go/clocks
Interface	cypress.com/go/interface
Lighting & Power Control	cypress.com/go/powerpsoc
Memory	cypress.com/go/memory
PSoC	cypress.com/go/psoc
Touch Sensing	cypress.com/go/touch
USB Controllers	cypress.com/go/USB
Wireless/RF	cypress.com/go/wireless

PSoC® Solutions

psoc.cypress.com/solutions

PSoC 1 | PSoC 3 | PSoC 4 | PSoC 5LP

Cypress Developer Community

Community | Forums | Blogs | Video | Training

Technical Support

cypress.com/go/support