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CY7C1470BV33 NoBL™

72-Mbit (2M × 36) Pipelined Static RAM Die

General Physical Specification

For product parameters and availability, please refer to the CY7C1470BV33 product data sheet available on the Cypress web site (http://www.cypress.com).

Mfg Part Number	7C1470B	Substrate Connection Req.	Ground
Die Part Number	7C1480B	Wafer Diameter [mm]	200.00
Die Technology	RAM9 0.09 µm	Die Size [µm]	10342 × 15408
Metal I	150 Å Ti / 3,200 Å Al / 300 Å TiW	Step Size [µm]	10442 × 15483
Metal II	150 Å Ti / 6,000 Å Al / 300 Å TiW	Scribe Size [µm]	100 × 75
Metal III	150 Å Ti / 8,000 Å Al / 300 Å TiW	Pad Count	205
Die Passivation	1000 Å OxideTEOS / 9000 Å Nitride	Pad Size [µm]	80 × 80

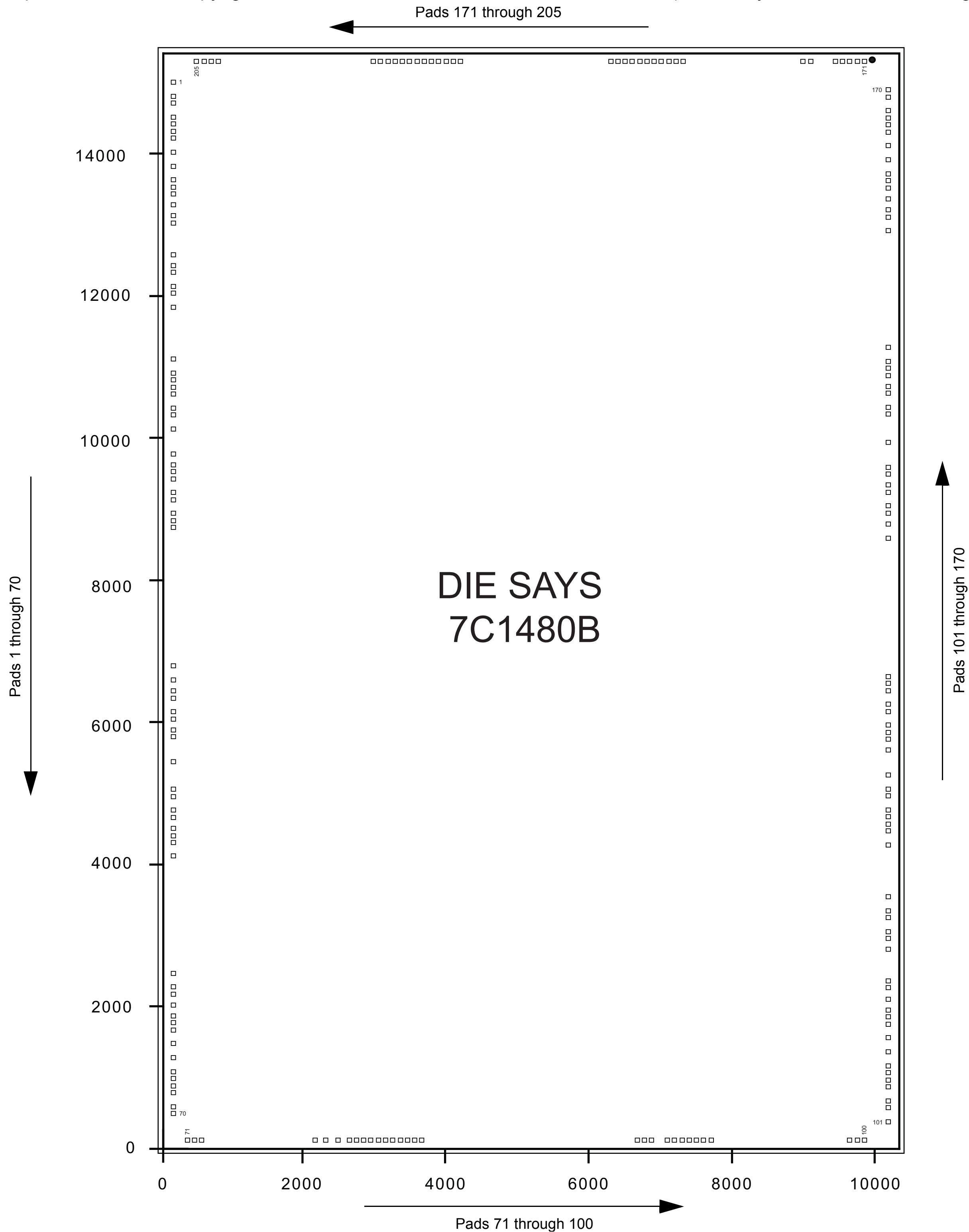
Product Thickness Guide

Code	Description	Min	Nom	Max	Unit
XW	Die (25–30 mil) in wafer form.	617	685	754	µm

Bond Pad Locations

The following bond pad diagram gives the approximate location of the pads. Refer to Bond Pad Coordinates on page 3 for accurate location of the pads.

All units in µm. The center of copyright is located at coordinates 9969.620 × 15318.815 (marked by a dot on the above diagram).



Bond Pad Coordinates

The Bond pad coordinates table follows. [1, 2]

ID	Pad Name	Pad Function	Description	X Coord [µm]	Y Coord [µm]
1	XTDO	TDO	Serial data out to the JTAG circuit	153.545	14995.785
2	XIO<36>	DNU	Do Not Use	153.545	14802.695
3	XIO<37>	DNU	Do Not Use	153.545	14702.695
4	XIO<38>	DNU	Do Not Use	153.545	14509.605
5	VCCQ	V_{DDQ}	Power Supply (I/O Circuitry)	153.545	14409.605
6	VSSQ	V_{SSQ}	Ground (I/O Circuitry)	153.545	14309.605
7	XIO<39>	DNU	Do Not Use	153.545	14209.605
8	XIO<40>	DQP_C	Bidirectional Data Parity Input Output	153.545	14016.515
9	XIO<41>	DQ_C	Bidirectional Data Input Output	153.545	13816.515
10	XIO<42>	DQ_C	Bidirectional Data Input Output	153.545	13623.425
11	VCCQ	V_{DDQ}	Power Supply (I/O Circuitry)	153.545	13523.425
12	XTCO_SLOW	V_{SS}	Ground (Core)	153.545	13423.425
13	VSSQ	V_{SSQ}	Ground (I/O Circuitry)	153.545	13270.505
14	XTCK	TCK	JTAG-Clock	153.545	13117.585
15	XIO<43>	DQ_C	Bidirectional Data Input Output	153.545	13017.585
16	XIO<44>	DQ_C	Bidirectional Data Input Output	153.545	12575.075
17	XSOEB<2>	V_{SS}	Ground (Core)	153.545	12421.575
18	XTMS	TMS	Test Mode Select	153.545	12321.575
19	XTDI	TDI	Serial data-in to the JTAG circuit	153.545	12128.485
20	XBIST_EN	V_{SS}	Ground (Core)	153.545	12028.485
21	VPWR_WL	DNU	Do Not Use	153.545	11835.395
22	XIO<45>	DNU	Do Not Use	153.545	11101.955
23	XIO<46>	DNU	Do Not Use	153.545	10908.870
24	VSSQ	V_{SSQ}	Ground (I/O Circuitry)	153.545	10808.870
25	VCCQ	V_{DDQ}	Power Supply (I/O Circuitry)	153.545	10708.870
26	XIO<47>	DNU	Do Not Use	153.545	10608.870
27	XIO<48>	DNU	Do Not Use	153.545	10415.780
28	XIO<49>	DQ_C	Bidirectional Data Input Output	153.545	10315.780
29	XIO<50>	DQ_C	Bidirectional Data Input Output	153.545	10122.690
30	VSSQ	V_{SSQ}	Ground (I/O Circuitry)	153.545	9772.670
31	XFDET_EN	V_{SS}	Ground (Core)	153.545	9619.770
32	VCCQ	V_{DDQ}	Power Supply (I/O Circuitry)	153.545	9519.770
33	XIO<51>	DQ_C	Bidirectional Data Input Output	153.545	9419.770
34	XIO<52>	DQ_C	Bidirectional Data Input Output	153.545	9226.680
35	XIO<53>	DNU	Do Not Use	153.545	9126.680
36	VCOMPREF	DNU	Do Not Use	153.545	8933.590
37	VPWR	DNU	Do Not Use	153.545	8833.590
38	VCCH	V_{DD}	Power Supply (Core)	153.545	8733.590

Notes:
1. All pad coordinates are from the center of the bond pad. X Coord and Y Coord are referenced from the bottom left corner of the die.
2. All DNU pads must to be left floating.

Bond Pad Coordinates (continued)

The Bond pad coordinates table follows. [1, 2]

ID	Pad Name	Pad Function	Description	X Coord [µm]	Y Coord [µm]
39	XDENSITY<0>	V_{DD}	Power Supply (Core)	153.545	6787.195
40	VGND	V_{SS}	Ground (Core)	153.545	6587.200
41	XIO<54>	DNU	Do Not Use	153.545	6434.300
42	XIO<55>	DQ_D	Bidirectional Data Input Output	153.545	6334.300
43	XIO<56>	DQ_D	Bidirectional Data Input Output	153.545	6141.210
44	VCCQ	V_{DDQ}	Power Supply (I/O Circuitry)	153.545	6041.210
45	XZBL	V_{DDQ}	Power Supply (I/O Circuitry)	153.545	5888.310
46	VSSQ	V_{SSQ}	Ground (I/O Circuitry)	153.545	5792.150
47	XIO<57>	DQ_D	Bidirectional Data Input Output	153.545	5442.150
48	XIO<58>	DQ_D	Bidirectional Data Input Output	153.545	5049.060
49	XIO<59>	DNU	Do Not Use	153.545	4949.060
50	XIO<60>	DNU	Do Not Use	153.545	4755.970
51	VCCQ	V_{DDQ}	Power Supply (I/O Circuitry)	153.545	4655.970
52	XWLBI	V_{SS}	Ground (Core)	153.545	4503.070
53	VSSQ	V_{SSQ}	Ground (I/O Circuitry)	153.545	4403.070
54	XIO<61>	DNU	Do Not Use	153.545	4303.070
55	XIO<62>	DNU	Do Not Use	153.545	4109.980
56	XIO<63>	DQ_D	Bidirectional Data Input Output	153.545	2465.480
57	XIO<64>	DQP_D	Bidirectional Data Parity Input Output	153.545	2272.390
58	XSOEB<3>	V_{SS}	Ground (Core)	153.545	2172.390
59	VSSQ	V_{SSQ}	Ground (I/O Circuitry)	153.545	2019.490
60	XBGA119	V_{SS}	Ground (Core)	153.545	1866.590
61	VCCQ	V_{DDQ}	Power Supply (I/O Circuitry)	153.545	1766.590
62	XIO<65>	DQ_D	Bidirectional Data Input Output	153.545	1666.590
63	XIO<66>	DQ_D	Bidirectional Data Input Output	153.545	1473.500
64	XIO<67>	DQ_D	Bidirectional Data Input Output	153.545	1273.500
65	XIO<68>	DNU	Do Not Use	153.545	1080.410
66	VSSQ	V_{SSQ}	Ground (I/O Circuitry)	153.545	980.410
67	VCCQ	V_{DDQ}	Power Supply (I/O Circuitry)	153.545	880.410
68	XIO<69>	DNU	Do Not Use	153.545	780.410
69	XIO<70>	DNU	Do Not Use	153.545	587.320
70	XIO<71>	DNU	Do Not Use	153.545	487.320
71	REFCLK	DNU	Do Not Use	350.395	116.075
72	PLL_REF	DNU	Do Not Use	450.395	116.075
73	PLL_VDD	DNU	Do Not Use	550.395	116.075
74	PLL_GND	DNU	Do Not Use	2136.630	116.075
75	XMODE	MODE	Selects Burst Order	2287.050	116.075
76	XX<5>	ADDR	Address	2466.450	116.075
77	XX<4>	ADDR	Address	2616.450	116.075
78	XX<3>	ADDR	Address	2720.850	116.075
79	XX<2>	ADDR	Address	2825.250	116.075

Bond Pad Coordinates (continued)

The Bond pad coordinates table follows. [1, 2]

ID	Pad Name	Pad Function	Description	X Coord [µm]	Y Coord [µm]
80	XY<1>	ADDR 1	Address 1	2925.250	116.075
81	XY<0>	ADDR 0	Address 0	3029.650	116.075
82	XY_SYN<3>	DNU	Do Not Use	3129.650	116.075
83	XY_SYN<2>	DNU	Do Not Use	3234.050	116.075
84	VBG	DNU	Do Not Use	3334.050	116.075
85	VGND	V_{SS}	Ground (Core)	3434.050	116.075
86	BISTVGND	V_{SS}	Ground (Core)	3534.050	116.075
87	BG_VGND	V_{SS}	Ground (Core)	3634.050	116.075
88	VCCH	V_{DD}	Power Supply (Core)	6665.720	116.075
89	BISTVCCH	V_{DD}	Power Supply (Core)	6765.720	116.075
90	BG_VCCH	V_{DD}	Power Supply (Core)	6865.720	116.075
91	VPWR	DNU	Do Not Use	7090.720	116.075
92	XX<6>	ADDR	Address	7190.720	116.075
93	XX<7>	ADDR	Address	7295.120	116.075
94	XX<8>	ADDR	Address	7395.120	116.075
95	XX<9>	ADDR	Address	7499.520	116.075
96	XX<0>	ADDR	Address	7599.520	116.075
97	XX<1>	ADDR	Address	7703.920	116.075
98	XY<8>	ADDR	Address	9655.305	116.075
99	XY<9>	ADDR	Address	9759.705	116.075
100	XY<10>	ADDR	Address	9859.705	116.075
101	BIST_ACKB	DNU	Do Not Use	10188.455	379.220
102	XIO<0>	DNU	Do Not Use	10188.455	572.310
103	XIO<1>	DNU	Do Not Use	10188.455	672.310
104	XIO<2>	DNU	Do Not Use	10188.455	865.400
105	VCCQ	V_{DDQ}	Power Supply (I/O Circuitry)	10188.455	965.400
106	VSSQ	V_{SSQ}	Ground (I/O Circuitry)	10188.455	1065.400
107	XIO<3>	DNU	Do Not Use	10188.455	1165.400
108	XIO<4>	DQP_A	Bidirectional Data Parity Input Output	10188.455	1358.490
109	XIO<5>	DQ_A	Bidirectional Data Input Output	10188.455	1558.490
110	XIO<6>	DQ_A	Bidirectional Data Input Output	10188.455	1751.580
111	VCCQ	V_{DDQ}	Power Supply (I/O Circuitry)	10188.455	1851.580
112	XFT	V_{SS}	Ground (Core)	10188.455	1951.580
113	VSSQ	V_{SSQ}	Ground (I/O Circuitry)	10188.455	2104.500
114	XSOEB<0>	V_{SS}	Ground (Core)	10188.455	2257.420
115	XIO<7>	DQ_A	Bidirectional Data Input Output	10188.455	2357.420
116	XIO<8>	DQ_A	Bidirectional Data Input Output	10188.455	2799.930
117	XORCLK1	DNU	Do Not Use	10188.455	2953.430
118	XORCLK2	DNU	Do Not Use	10188.455	3053.430
119	XPAIRCLK	DNU	Do Not Use	10188.455	3246.520
120	XPAIRCLKB	DNU	Do Not Use	10188.455	3346.520

Bond Pad Coordinates (continued)

The Bond pad coordinates table follows. [1, 2]

ID	Pad Name	Pad Function	Description	X Coord [µm]	Y Coord [µm]
121	XWLBICLK	DNU	Do Not Use	10188.455	3539.610
122	XIO<9>	DNU	Do Not Use	10188.455	4273.045
123	XIO<10>	DNU	Do Not Use	10188.455	4466.135
124	VSSQ	V_{SSQ}	Ground (I/O Circuitry)	10188.455	4566.135
125	VCCQ	V_{DDQ}	Power Supply (I/O Circuitry)	10188.455	4666.135
126	XIO<11>	DNU	Do Not Use	10188.455	4766.135
127	XIO<12>	DNU	Do Not Use	10188.455	4959.225
128	XIO<13>	DQ_A	Bidirectional Data Input Output	10188.455	5059.225
129	XIO<14>	DQ_A	Bidirectional Data Input Output	10188.455	5252.315
130	VSSQ	V_{SSQ}	Ground (I/O Circuitry)	10188.455	5602.335
131	XV18_EN	V_{SS}	Ground (Core)	10188.455	5755.235
132	VCCQ	V_{DDQ}	Power Supply (I/O Circuitry)	10188.455	5855.235
133	XIO<15>	DQ_A	Bidirectional Data Input Output	10188.455	5955.235
134	XIO<16>	DQ_A	Bidirectional Data Input Output	10188.455	6148.325
135	XIO<17>	DNU	Do Not Use	10188.455	6248.325
136	XZZ	ZZ	ZZ “sleep” Input	10188.455	6441.415
137	VPWR	DNU	Do Not Use	10188.455	6541.415
138	VCCH	V_{DD}	Power Supply (Core)	10188.455	6641.415
139	XDENSITY<1>	V_{SS}	Ground (Core)	10188.455	8587.810
140	VGND	V_{SS}	Ground (Core)	10188.455	8787.805
141	XIO<18>	DNU	Do Not Use	10188.455	8940.705
142	XIO<19>	DQ_B	Bidirectional Data Input Output	10188.455	9040.705
143	XIO<20>	DQ_B	Bidirectional Data Input Output	10188.455	9233.795
144	VCCQ	V_{DDQ}	Power Supply (I/O Circuitry)	10188.455	9333.795
145	XSLOW	V_{DDQ}	Power Supply (I/O Circuitry)	10188.455	9486.695
146	VSSQ	V_{SSQ}	Ground (I/O Circuitry)	10188.455	9582.855
147	XIO<21>	DQ_B	Bidirectional Data Input Output	10188.455	9932.855
148	XIO<22>	DQ_B	Bidirectional Data Input Output	10188.455	10325.945
149	XIO<23>	DNU	Do Not Use	10188.455	10425.945
150	XIO<24>	DNU	Do Not Use	10188.455	10619.035
151	VCCQ	V_{DDQ}	Power Supply (I/O Circuitry)	10188.455	10719.035
152	XPLL_EN	V_{SS}	Ground (Core)	10188.455	10871.935
153	VSSQ	V_{SSQ}	Ground (I/O Circuitry)	10188.455	10971.935
154	XIO<25>	DNU	Do Not Use	10188.455	11071.935
155	XIO<26>	DNU	Do Not Use	10188.455	11265.025
156	XIO<27>	DQ_B	Bidirectional Data Input Output	10188.455	12909.525
157	XIO<28>	DQP_B	Bidirectional Data Parity Input Output	10188.455	13102.615
158	XSOEB<1>	V_{SS}	Ground (Core)	10188.455	13202.615
159	VSSQ	V_{SSQ}	Ground (I/O Circuitry)	10188.455	13355.515
160	XSCD	V_{DDQ}	Power Supply (I/O Circuitry)	10188.455	13508.415
161	VCCQ	V_{DDQ}	Power Supply (I/O Circuitry)	10188.455	13608.415

Bond Pad Coordinates (continued)

The Bond pad coordinates table follows. [1, 2]

ID	Pad Name	Pad Function	Description	X Coord [µm]	Y Coord [µm]
162	XIO<29>	DQ_B	Bidirectional Data Input Output	10188.455	13708.415
163	XIO<30>	DQ_B	Bidirectional Data Input Output	10188.455	13901.505
164	XIO<31>	DQ_B	Bidirectional Data Input Output	10188.455	14101.505
165	XIO<32>	DNU	Do Not Use	10188.455	14294.595
166	VSSQ	V_{SSQ}	Ground (I/O Circuitry)	10188.455	14394.595
167	VCCQ	V_{DDQ}	Power Supply (I/O Circuitry)	10188.455	14494.595
168	XIO<33>	DNU	Do Not Use	10188.455	14594.595
169	XIO<34>	DNU	Do Not Use	10188.455	14787.685
170	XIO<35>	DNU	Do Not Use	10188.455	14887.685
171	XY<11>	DNU	Do Not Use	9859.705	15291.925
172	XY_NOBL<3>	ADDR	Address	9759.705	15291.925
173	XY_NOBL<2>	ADDR	Address	9655.305	15291.925
174	XY<7>	ADDR	Address	9555.305	15291.925
175	XY<6>	ADDR	Address	9450.905	15291.925
176	XLDB	$ADV/\overline{LD}$	Advance/Load Bar	9102.710	15291.925
177	XADVB	DNU	Do Not Use	8998.310	15291.925
178	XADSPB	DNU	Do Not Use	7313.845	15291.925
179	XADSCB	DNU	Do Not Use	7209.445	15291.925
180	XOEB	$\overline{OE}$	Output Enable/Select Bar	7109.445	15291.925
181	XCKENB	CEN	Clock Enable/Select Bar	7005.045	15291.925
182	XBWENB	DNU	Do Not Use	6905.045	15291.925
183	XWEB	$\overline{WE}$	Write Enable Bar	6800.645	15291.925
184	XGWB	DNU	Do Not Use	6700.645	15291.925
185	XCLK	CLK	Clock Input	6596.245	15291.925
186	XSORT	V_{SS}	Ground (Core)	6496.245	15291.925
187	BISTVGND	V_{SS}	Ground (Core)	6396.245	15291.925
188	VGND	V_{SS}	Ground (Core)	6296.245	15291.925
189	VCCH	V_{DD}	Power Supply (Core)	4180.425	15291.925
190	BISTVCCH	V_{DD}	Power Supply (Core)	4080.425	15291.925
191	VPWR	DNU	Do Not Use	3980.425	15291.925
192	XCE2B	$\overline{CE}_3$	Chip Enable/Select 3 Bar	3878.225	15291.925
193	XBWEB<4>	DNU	Do Not Use	3778.225	15291.925
194	XBWEB<5>	DNU	Do Not Use	3673.825	15291.925
195	XBWEB<6>	DNU	Do Not Use	3573.825	15291.925
196	XBWEB<7>	DNU	Do Not Use	3469.425	15291.925
197	XBWEB<0>	$\overline{BW}_A$	Byte Write A Bar	3369.425	15291.925
198	XBWEB<1>	$\overline{BW}_B$	Byte Write B Bar	3265.025	15291.925
199	XBWEB<2>	$\overline{BW}_C$	Byte Write C Bar	3165.025	15291.925
200	XBWEB<3>	$\overline{BW}_D$	Byte Write D Bar	3060.625	15291.925
201	XCE2	CE_2	Chip Enable/Select 2	2960.625	15291.925
202	XCEB	$\overline{CE}_1$	Chip Enable/Select 1 Bar	781.995	15291.925

Bond Pad Coordinates (continued)

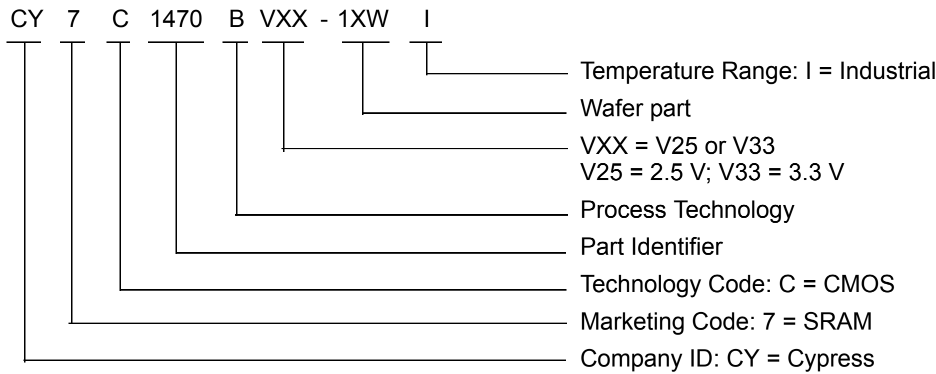
The Bond pad coordinates table follows. [1, 2]

ID	Pad Name	Pad Function	Description	X Coord [µm]	Y Coord [µm]
203	XY<5>	ADDR	Address	677.595	15291.925
204	XY<4>	ADDR	Address	577.595	15291.925
205	VREF	DNU	Do Not Use	475.395	15291.925

Die Ordering Information

Silicon Type	Ordering Code	Wafer Code	Wafer/Die Type	Operating Range
	CY7C1470BV25-200AXI			Industrial
KGD1	CY7C1470BV33-1XWI	XW	Die (25–30 mil) in wafer form	Industrial

Ordering Code Definitions



Acronyms

Acronym	Description
I/O	input/output
JTAG	joint test action group
NoBL	no bus latency
$\overline{\text{OE}}$	output enable
SRAM	static random access memory
TCK	test clock
TDI	test data-in
TDO	test data-out
$\overline{\text{WE}}$	write enable

Document Conventions

Units of Measure

Symbol	Unit of Measure
µm	micrometer
nm	nanometer

Document History Page

Document Title: CY7C1470BV33 NoBL™, 72-Mbit (2M × 36) Pipelined Static RAM Die Document Number: 001-49084				
Rev	**ECN**	**Orig. of Change**	**Submission Date**	**Description of Change**
**	2572953	VKN / PYRS	09/26/08	New data sheet.
*A	2673412	VKN / PYRS	03/13/2009	Updated Die Ordering Information (Updated part numbers).
*B	3354582	PRIT	08/25/2011	No technical updates. Completing Sunset Review.
*C	3374266	PRIT	09/16/2011	Updated Die Ordering Information (Updated part numbers).
*D	3747752	PRIT	09/18/2012	Updated Die Ordering Information (Updated part numbers) and added Ordering Code Definitions. Added Acronyms and Units of Measure.
*E	5515271	PRIT	11/09/2016	Updated to new template. Completing Sunset Review.

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