Alliance Memory Inc.
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Product Change Notification (PCN)

PCN TRACKING NO: PCN# 20200721/SM

Date: July 21, 2020
Subject: Product Change Notification (PCN) for Alliance 4G DDR3 'B' die options

Description of Change:	Product will only be offered in a new Die Revision – 'C'
Reason for Change	Product revision to provide continuous support to Alliance Memory's customers Part # change to new WAFER process technology
Traceability, Guidelines **(lot, date code, markings, shipment date)**	Traceable through marketing part number
Updated Datasheet/s	Part # has been changed and updated datasheets are posted on our website https://www.alliancememory.com/datasheets/AS4C256M16D3C/ https://www.alliancememory.com/datasheets/AS4C256M16D3LC/
Summary of Changes between New and Old part numbers	See *table 1* Below

***Table 1* - DDR3**

Density	Organisation	Alliance old Part Number	Alliance New Part Number
4G - B DIE	256M x 16	AS4C256M16D3B-12BCN	AS4C256M16D3C-12BCN
4G - B DIE	256M x 16	AS4C256M16D3B-12BCNTR	AS4C256M16D3C-12BCNTR
4G - B DIE	256M x 16	AS4C256M16D3B-12BIN	AS4C256M16D3C-12BIN
4G - B DIE	256M x 16	AS4C256M16D3B-12BINTR	AS4C256M16D3C-12BINTR
4G - B DIE	256M x 16	AS4C256M16D3B-12BAN	refer to 1.35V DDR3L option
4G - B DIE	256M x 16	AS4C256M16D3B-12BANTR	refer to 1.35V DDR3L option
4G - C DIE	256M x 16	New	AS4C256M16D3C-10BCN
4G - C DIE	256M x 16	New	AS4C256M16D3C-10BCNTR
4G - C DIE	256M x 16	New	AS4C256M16D3C-10BIN
4G - C DIE	256M x 16	New	AS4C256M16D3C-10BINTR
4G - C DIE	256M x 16	New	AS4C256M16D3C-93BCN
4G - C DIE	256M x 16	New	AS4C256M16D3C-93BCNTR
4G - B DIE	256M x 16	AS4C256M16D3LB-12BCN	AS4C256M16D3LC-12BCN
4G - B DIE	256M x 16	AS4C256M16D3LB-12BCNTR	AS4C256M16D3LC-12BCNTR
4G - B DIE	256M x 16	AS4C256M16D3LB-12BIN	AS4C256M16D3LC-12BIN

4G - B DIE	256M x 16	AS4C256M16D3LB-12BINTR	AS4C256M16D3LC-12BINTR
4G - B DIE	256M x 16	AS4C256M16D3LB-12BAN	AS4C256M16D3LC-12BAN
4G - B DIE	256M x 16	AS4C256M16D3LB-12BANTR	AS4C256M16D3LC-12BANTR
4G - B DIE	256M x 16	AS4C256M16D3LB-10BCN	AS4C256M16D3LC-10BCN
4G - B DIE	256M x 16	AS4C256M16D3LB-10BCNTR	AS4C256M16D3LC-10BCNTR
4G - B DIE	256M x 16	AS4C256M16D3LB-10BIN	AS4C256M16D3LC-10BIN
4G - B DIE	256M x 16	AS4C256M16D3LB-10BINTR	AS4C256M16D3LC-10BINTR
4G - B DIE	512M x 8	AS4C512M8D3LB-12BCN	AS4C512M8D3LC-12BCN
4G - B DIE	512M x 8	AS4C512M8D3LB-12BCNTR	AS4C512M8D3LC-12BCNTR
4G - B DIE	512M x 8	AS4C512M8D3LB-12BIN	AS4C512M8D3LC-12BIN
4G - B DIE	512M x 8	AS4C512M8D3LB-12BINTR	AS4C512M8D3LC-12BINTR
4G - B DIE	512M x 8	AS4C512M8D3LB-12BAN	AS4C512M8D3LC-12BAN
4G - B DIE	512M x 8	AS4C512M8D3LB-12BANTR	AS4C512M8D3LC-12BANTR
4G - B DIE	512M x 8	AS4C512M8D3LB-10BCN	x
4G - B DIE	512M x 8	AS4C512M8D3LB-10BCNTR	x
4G - B DIE	512M x 8	AS4C512M8D3LB-10BIN	x
4G - B DIE	512M x 8	AS4C512M8D3LB-10BINTR	x

***Any orders after January 31st, 2021 are Non-Cancelable/Non-Returnable and cannot be changed. Products cannot be returned in stock rotations after this date.**

Last Time Buy Date	January 31st, 2021
Last Time Ship Date	July 31st, 2021
Sample Available Date	Available Now
PCN Effective Date	July 21st, 2020

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Dear Valued Customer:

This letter provides End–of–Life (EOL) notice of products for 'B' die 30nm wafer technology for the 4G DDR3 (x16 FBGA). These products will move to new 25nm wafer technology 'C' die revision in Q3-2020.

The delivery deadline is **July 31st, 2021** with last time buy (LTB) deadline on **January 31st 2021**. Please note that the standard shipment dates will apply in general and extended delivery dates must be pre-arranged and accepted in writing by Alliance Memory Management.

Regarding the replacement, Alliance Memory has provided the new 25nm technology product line-up (refer to Table 1 above). The 'C' die products will provide better cost and performance. Samples are now available for customers to start verification procedures. We are also in full production of the 'C' die parts too.

Please see below comparison charts between the 'B' die vs. our new 'C' die.

Samples/Mass production are available now.

Please contact your local Alliance Memory representative if you have any questions regarding this information

Yours sincerely

David Bagby
President
Alliance Memory, Inc.

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AS4C256M16D3B-12 & AS4C256M16D3C-12 Comparison

(4Gb – 256M x 16, DDR3 rev.B vs rev.C Comparison)

Part Number & result / Parameter	AS4C256M16D3B-12BCN AS4C256M16D3B-12BIN	AS4C256M16D3C-12BCN AS4C256M16D3C-12BIN	Comparison Result
Fab Process Technology	**30nm**	**25nm**	Different
Capacity	4Gb (256M x 16)	4Gb (256M x 16)	Same
Memory Organization	32Mwords, x16bits, x8 banks	32Mwords, x16bits, x8 banks	Same
Operating Power Supply	V_{DD} & V_{DDQ} = 1.5 ± 0.075V (1.425V to 1.575V)	V_{DD} & V_{DDQ} = 1.5 ± 0.075V (1.425V to 1.575V)	Same
Operating Temperature	Commercial (0°C to 95°C) Industrial (-40 ~ 95°C)	Commercial (0°C to 95°C) Industrial (-40 ~ 95°C)	Same
Clock Frequency	800MHz	800MHz	Same
CAS Latency	11	11	Same
tRCD & tRP (ns)	13.75	13.75	Same
AC/DC Characteristics	Same	Same	Same
IDD Specification			
I_{DD0} (mA)	55	57	Comparable
I_{DD1} (mA)	75	81	Comparable
I_{DD2P0} (mA)	12	8	Comparable
I_{DD2P1} (mA)	18	14	Comparable
I_{DD2N} (mA)	25	24	Comparable
I_{DD2Q} (mA)	25	24	Comparable
I_{DD3P} (mA)	22	26	Comparable
I_{DD3N} (mA)	32	38	Comparable
I_{DD4R} (mA)	135	155	Comparable
I_{DD4W} (mA)	150	155	Comparable
I_{DD5B} (mA)	160	235	Comparable
I_{DD6} (mA)	12	12	Same
I_{DD6ET} (mA)	17	16	Comparable
I_{DD7} (mA)	195	190	Comparable
I_{DD8} (mA)	12	10	Comparable
Package	96-ball FBGA package (9 x 13.5 x 1.1mm)	96-ball FBGA package (7.5 x 13.5 x 1.2mm)	Ball matrix dimension same
Package Material	Pb and Halogen Free	Pb and Halogen Free	Same
Reliability & QA	Same	Same	Same

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AS4C256M16D3LB-10 & AS4C256M16D3LC-10 Comparison

(4Gb – 256M x 16, DDR3L rev.B vs rev.C Comparison)

Part Number & result / Parameter	AS4C256M16D3LB-10BCN AS4C256M16D3LB-10BIN	AS4C256M16D3LC-10BCN AS4C256M16D3LC-10BIN	Comparison Result
Fab Process Technology	**30nm**	**25nm**	Different
Capacity	4Gb (256M x 16)	4Gb (256M x 16)	Same
Memory Organization	32Mwords, x16bits, x8 banks	32Mwords, x16bits, x8 banks	Same
Operating Power Supply	V_{DD} & V_{DDQ} = 1.35V (1.283V to 1.45V)	V_{DD} & V_{DDQ} = 1.35V (1.283V to 1.45V)	Same
DDR3 Compatibility	Compatible to 1.5±0.075V	Compatible to 1.5±0.075V	Same
Operating Temperature	Commercial (0°C to 95°C) Industrial (-40 ~ 95°C)	Commercial (0°C to 95°C) Industrial (-40 ~ 95°C)	Same
Clock Frequency	933MHz	933MHz	Same
CAS Latency	13	13	Same
tRCD & tRP (ns)	13.91	13.91	Same
AC/DC Characteristics	Same	Same	Same
IDD Specification			
I_{DD0} **(mA)**	60	59	Comparable
I_{DD1} **(mA)**	80	84	Comparable
I_{DD2P0} **(mA)**	12	8	RevC better
I_{DD2P1} **(mA)**	19	16	RevC better
I_{DD2N} **(mA)**	25	26	Comparable
I_{DD2Q} **(mA)**	25	26	Comparable
I_{DD3P} **(mA)**	22	28	Comparable
I_{DD3N} **(mA)**	34	40	Comparable
I_{DD4R} **(mA)**	150	165	Comparable
I_{DD4W} **(mA)**	165	165	Same
I_{DD5B} **(mA)**	160	242	Comparable
I_{DD6} **(mA)**	12	12	Same
I_{DD6ET} **(mA)**	17	16	Comparable
I_{DD7} **(mA)**	215	200	RevC better
I_{DD8} **(mA)**	12	10	Comparable
Package	96-ball FBGA package (9 x 13.5 x 1.1mm)	96-ball FBGA package (7.5 x 13.5 x 1.2mm)	Ball matrix dimension same
Package Material	Pb and Halogen Free	Pb and Halogen Free	Same
Reliability & QA	Same	Same	Same

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AS4C256M16D3LB-12 & AS4C256M16D3LC-12 Comparison

(4Gb – 256M x 16, DDR3L rev.B vs rev.C Comparison)

Part Number & result / Parameter	AS4C256M16D3LB-12BCN AS4C256M16D3LB-12BIN	AS4C256M16D3LC-12BCN AS4C256M16D3LC-12BIN	Comparison Result
Fab Process Technology	**30nm**	**25nm**	Different
Capacity	4Gb (256M x 16)	4Gb (256M x 16)	Same
Memory Organization	32Mwords, x16bits, x8 banks	32Mwords, x16bits, x8 banks	Same
Operating Power Supply	V_{DD} & V_{DDQ} = 1.35V (1.283V to 1.45V)	V_{DD} & V_{DDQ} = 1.35V (1.283V to 1.45V)	Same
DDR3 Compatibility	Compatible to 1.5±0.075V	Compatible to 1.5±0.075V	Same
Operating Temperature	Commercial (0°C to 95°C) Industrial (-40 ~ 95°C)	Commercial (0°C to 95°C) Industrial (-40 ~ 95°C)	Same
Clock Frequency	800MHz	800MHz	Same
CAS Latency	11	11	Same
tRCD & tRP (ns)	13.75	13.75	Same
AC/DC Characteristics	Same	Same	Same
IDD Specification			
I_{DD0} (mA)	55	57	Comparable
I_{DD1} (mA)	75	81	Comparable
I_{DD2P0} (mA)	12	8	RevC better
I_{DD2P1} (mA)	18	14	RevC better
I_{DD2N} (mA)	25	24	Comparable
I_{DD2NT} (mA)	30	30	Comparable
I_{DD2Q} (mA)	25	24	Comparable
I_{DD3P} (mA)	22	26	Comparable
I_{DD3N} (mA)	32	38	Comparable
I_{DD4R} (mA)	135	155	Comparable
I_{DD4W} (mA)	150	155	Comparable
I_{DD5B} (mA)	160	235	Comparable
I_{DD6} (mA)	12	12	Comparable
I_{DD6ET} (mA)	17	16	Comparable
I_{DD7} (mA)	195	190	RevC better
I_{DD8} (mA)	12	10	Comparable
Package	96-ball FBGA package (9 x 13.5 x 1.1mm)	96-ball FBGA package (7.5 x 13.5 x 1.2mm)	Ball matrix dimension same
Package Material	Pb and Halogen Free	Pb and Halogen Free	Same
Reliability & QA	Same	Same	Same

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AS4C512M8D3LB-12 & AS4C512M8D3LC-12 Comparison

(4Gb – 512M x 8, DDR3L rev.B vs rev.C Comparison)

Part Number & result / Parameter	AS4C512M8D3LB-12BCN AS4C512M8D3LB-12BIN	AS4C512M8D3LC-12BCN AS4C512M8D3LC-12BIN	Comparison Result
Fab Process Technology	**30nm**	**25nm**	Different
Capacity	4Gb (512M x 8)	4Gb (512M x 8)	Same
Memory Organization	64Mwords, x8bits, x8 banks	64Mwords, x8bits, x8 banks	Same
Operating Power Supply	V_{DD} & V_{DDQ} = 1.35V (1.283V to 1.45V)	V_{DD} & V_{DDQ} = 1.35V (1.283V to 1.45V)	Same
DDR3 Compatibility	Compatible to 1.5±0.075V	Compatible to 1.5±0.075V	Same
Operating Temperature	Commercial (0°C to 95°C) Industrial (-40 ~ 95°C)	Commercial (0°C to 95°C) Industrial (-40 ~ 95°C)	Same
Clock Frequency	800MHz	800MHz	Same
CAS Latency	11	11	Same
tRCD & tRP (ns)	13.75	13.75	Same
AC/DC Characteristics	Same	Same	Same
IDD Specification			
I_{DD0} (mA)	45	47	Comparable
I_{DD1} (mA)	60	61	Comparable
I_{DD2P0} (mA)	10	8	Comparable
I_{DD2P1} (mA)	16	14	Comparable
I_{DD2N} (mA)	20	24	Comparable
I_{DD2Q} (mA)	25	24	Comparable
I_{DD3P} (mA)	15	26	Comparable
I_{DD3N} (mA)	30	30	Same
I_{DD4R} (mA)	85	95	Comparable
I_{DD4W} (mA)	90	95	Comparable
I_{DD5B} (mA)	160	235	Comparable
I_{DD6} (mA)	10	12	Comparable
I_{DD6ET} (mA)	15	16	Comparable
I_{DD7} (mA)	150	130	RevC better
I_{DD8} (mA)	10	10	Same
Package	78-ball FBGA package (9 x 10.6 x 1.1mm)	78-ball FBGA package (7.5 x 10.6 x 1.2mm)	Ball matrix dimension same
Package Material	Pb and Halogen Free	Pb and Halogen Free	Same
Reliability & QA	Same	Same	Same