Alliance Memory Inc.
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Product Change Notification (PCN)

Date: August 29th, 2016 PCN TRACKING NO:PCN-29082016-3

Subject: Product Change Notification (PCN) for Alliance DRAM's (4G DDR3)

Description of Change:	Product will only be offered in a new Die Revision (A die)
Reason for Change	Product revision to provide continuous support to Alliance's customers
Traceability, Guidelines (lot, date code, markings, shipment date)	Traceable through marketing part #
Updated Datasheet Summary of Changes between New and Old part numbers	Part # has been changed and updated datasheets are posted on our website http://www.alliancememory.com/products/ddr3.asp See table 1 Below

Table 1

Density	Organization	Alliance Part Number	Alliance New Part Number (A die)	Alliance New Part Number (B die)
4G	256M x 16	AS4C256M16D3-12BCN	AS4C256M16D3A-12BCN	AS4C256M16D3B-12BCN
4G	256M x 16	AS4C256M16D3-12BIN	AS4C256M16D3A-12BIN	
4G	256M x 16	AS4C256M16D3-12BAN	AS4C256M16D3A-12BAN	
4G	256M x 16	AS4C256M16D3L-12BCN	AS4C256M16D3LA-12BCN	AS4C256M16D3LB-12BCN
4G	256M x 16	AS4C256M16D3L-12BIN	AS4C256M16D3LA-12BIN	
4G	256M x 16	AS4C256M16D3L-12BAN	AS4C256M16D3LA-12BAN	
4G	512Mx8	AS4C512M8D3-12BCN	AS4C512M8D3A-12BCN	AS4C512M8D3B-12BCN
4G	512Mx8	AS4C512M8D3-12BIN	AS4C512M8D3A-12BIN	
4G	512Mx8	AS4C512M8D3-12BAN	AS4C512M8D3A-12BAN	
4G	512Mx8	AS4C512M8D3L-12BCN	AS4C512M8D3LA-12BCN	AS4C512M8D3LB-12BCN
4G	512Mx8	AS4C512M8D3L-12BIN	AS4C512M8D3LA-12BIN	
4G	512Mx8	AS4C512M8D3L-12BAN	AS4C512M8D3LA-12BAN	

Last Time Buy Date:	November 29th 2016
Last Time Ship Date:	February 28th 2017
Sample Available Date (256M x 16 – 4G)	Now
Sample Available Date (512M x 8 – 4G)	Now
PCN Effective Date:	August 29th 2016

Any orders after November 29th, 2016 are Non-cancelable / Non-Returnable and cannot be changed. Products cannot be returned in stock rotations after this date.

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Dear Valued Customer:

This letter provides End–of–Life (EOL) notice of DDR3 products with an 4G density. These products will move to new 'A' die revision in Q1---2017.

The delivery deadline is February 28th, 2017 with last time buy (LTB) deadline on November 29th , 2016. 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.

Please see the below comparison between the current die rev and the new A die. Samples 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.

Comparison between

AS4C256M16D3 and AS4C256M16D3A for Auto Temp - 4Gb DDR3

Part Number&result / Parameter	AS4C256M16D3	AS4C256M16D3A	Comparison Result
Wafer Process	30nm	30nm	Same
Power Supply	V DD & V DDQ = 1.5± 0.075V	V DD & V DDQ = 1.5±0.075V	Same
Typical Power Dissipation of Normal Operation	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=102mA Operating One Bank Active-Read-Precharge Current: IDD1=132mA Precharge Standby Current: IDD2N=60mA Precharge Power-Down Current Slow Exit: IDD2P0=22mA Precharge Power-Down Current Fast Exit: IDD2P1=45mA Precharge Quiet Standby Current: IDD2Q=60mA Active Standby Current: IDD3N=84mA Active Power-Down Current: IDD3P=54 mA Operating Burst Read Current: IDD4R=336mA Operating Burst Write Current: IDD4W=270mA Burst Refresh Current: IDD5B=264 mA Self Refresh Current: IDD6=56mA Operating Bank Interleave Read Current: IDD7=360mA RESET Low Current IDD8=24mA	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=76mA Operating One Bank Active-Read-Precharge Current: IDD1=100mA Precharge Standby Current: IDD2N=36mA Precharge Power-Down Current Slow Exit: IDD2P0=22mA Precharge Power-Down Current Fast Exit: IDD2P1=32mA Precharge Quiet Standby Current: IDD2Q=36mA Active Standby Current: IDD3N=83mA Active Power-Down Current: IDD3P=59 mA Operating Burst Read Current: IDD4R=250mA Operating Burst Write Current: IDD4W=210mA Burst Refresh Current: IDD5B=222 mA Self Refresh Current: IDD6=50mA Operating Bank Interleave Read Current: IDD7=276mA RESET Low Current IDD8=23mA	D3A has better power dissipation

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Operating Temperature	Automotive (-40 ~ 105°C)	Automotive (-40 ~ 105°C)	Same
Max Operating Speed	800MHz	800MHz	Same
Interface (Input/Output) Capacitance	Input/output capacitance, (DQ, DM, DQS, DQS#);Cio: 1.4– 2.3pF Input capacitance, CK and CK#;Cck 0.8– 1.4pF Input capacitance delta, CK and CK#;Cdck 0– 0.15pF Input/output capacitance delta,DQS and DQS#;Cddqs: 0– 0.15pF Input capacitance, (CTRL, ADD, CMD input-only pins);Ci: 0.75– 1.3pF Input capacitance delta, (All CTRL input-only pins); Cdi_ctrl: -0.4– 0.2pF Input capacitance delta, (All ADD, CMD input-only pins); Cdi_add_cmd: -0.4– 0.4pF Input/output capacitance delta, (DQ, DM, DQS, DQS#);Cdio: -0.5– 0.3pF Input/output capacitance of ZQ pin;Czq: 0– 3pF	Input/output capacitance, (DQ, DM, DQS, DQS#);Cio: 1.4– 2.3pF Input capacitance, CK and CK#;Cck 0.8– 1.4pF Input capacitance delta, CK and CK#;Cdck 0– 0.15pF Input/output capacitance delta,DQS and DQS#;Cddqs: 0– 0.15pF Input capacitance, (CTRL, ADD, CMD input-only pins);Ci: 0.75– 1.3pF Input capacitance delta, (All CTRL input-only pins); Cdi_ctrl: -0.4– 0.2pF Input capacitance delta, (All ADD, CMD input-only pins); Cdi_add_cmd: -0.4– 0.4pF Input/output capacitance delta, (DQ, DM, DQS, DQS#);Cdio: -0.5– 0.3pF Input/output capacitance of ZQ pin;Czq: 0– 3pF	Same
Interface Definition	Omit.(See datasheet)	Omit.(See datasheet)	Same. They are pin to pin.
Interface Material	Pb and Halogen Free	Pb and Halogen Free	Same
Timing Parameters	Omit.(See datasheet)	Omit.(See datasheet)	D3A is equal to or less than D3 .
Timing Diagram & Command	Omit.(See datasheet)	Omit.(See datasheet)	Same
ESD Level	JEDEC: 2KV HBM	JEDEC: 2KV HBM	Same
Capacity	4Gb	4Gb	Same

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Package	96-ball 9 x 13 x 1.2mm FBGA package	96-ball 9 x 13 x 1.0mm FBGA package	Pin to Pin compatible
Truth Table	Omit.(See datasheet)	Omit.(See datasheet)	same
Supply Time			D3A will replace D3.

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Comparison between

AS4C256M16D3 and AS4C256M16D3A for C&I temp - 4Gb DDR3

Part Number&result / Parameter	AS4C256M16D3	AS4C256M16D3A	Comparison Result
Wafer Process	30nm	30nm	Same
Power Supply	V DD & V DDQ = 1.5± 0.075V	V DD & V DDQ = 1.5±0.075V	Same
Typical Power Dissipation of Normal Operation	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=85mA Operating One Bank Active-Read-Precharge Current: IDD1=110mA Precharge Standby Current: IDD2N=50mA Precharge Power-Down Current Slow Exit: IDD2P0=18mA Precharge Power-Down Current Fast Exit: IDD2P1=37mA Precharge Quiet Standby Current: IDD2Q=50mA Active Standby Current: IDD3N=70mA Active Power-Down Current: IDD3P=45 mA Operating Burst Read Current: IDD4R=280mA Operating Burst Write Current: IDD4W=225mA Burst Refresh Current: IDD5B=220 mA Self Refresh Current: IDD6=22mA Operating Bank Interleave Read Current: IDD7=300mA RESET Low Current IDD8=20mA	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=63mA Operating One Bank Active-Read-Precharge Current: IDD1=83mA Precharge Standby Current: IDD2N=30mA Precharge Power-Down Current Slow Exit: IDD2P0=18mA Precharge Power-Down Current Fast Exit: IDD2P1=26mA Precharge Quiet Standby Current: IDD2Q=30mA Active Standby Current: IDD3N=69mA Active Power-Down Current: IDD3P=49 mA Operating Burst Read Current: IDD4R=208mA Operating Burst Write Current: IDD4W=175mA Burst Refresh Current: IDD5B=185 mA Self Refresh Current: IDD6=20mA Operating Bank Interleave Read Current: IDD7=230mA RESET Low Current IDD8=19mA	D3A has better power dissipation

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Operating Temperature	Commercial (0°C to 95°C) Industrial (-40 ~ 95°C)	Commercial (0°C to 95°C) Industrial (-40 ~ 95°C)	Same
Max Operating Speed	800MHz	800MHz	Same
Interface (Input/Output) Capacitance	Input/output capacitance, (DQ, DM, DQS, DQS#);Cio: 1.5– 2.3pF Input capacitance, CK and CK#;Cck 0.8– 1.4pF Input capacitance delta, CK and CK#;Cdck 0– 0.15pF Input/output capacitance delta,DQS and DQS#;Cddqs: 0– 0.15pF Input capacitance, (CTRL, ADD, CMD input-only pins);Ci: 0.75– 1.3pF Input capacitance delta, (All CTRL input-only pins); Cdi_ctrl: -0.4– 0.2pF Input capacitance delta, (All ADD, CMD input-only pins); Cdi_add_cmd: -0.4– 0.4pF Input/output capacitance delta, (DQ, DM, DQS, DQS#);Cdio: -0.5– 0.3pF Input/output capacitance of ZQ pin;Czq: 0– 3pF	Input/output capacitance, (DQ, DM, DQS, DQS#);Cio: 1.4– 2.3pF Input capacitance, CK and CK#;Cck 0.8– 1.4pF Input capacitance delta, CK and CK#;Cdck 0– 0.15pF Input/output capacitance delta,DQS and DQS#;Cddqs: 0– 0.15pF Input capacitance, (CTRL, ADD, CMD input-only pins);Ci: 0.75– 1.3pF Input capacitance delta, (All CTRL input-only pins); Cdi_ctrl: -0.4– 0.2pF Input capacitance delta, (All ADD, CMD input-only pins); Cdi_add_cmd: -0.4– 0.4pF Input/output capacitance delta, (DQ, DM, DQS, DQS#);Cdio: -0.5– 0.3pF Input/output capacitance of ZQ pin;Czq: 0– 3pF	Same
Interface Definition	Omit.(See datasheet)	Omit.(See datasheet)	Same. They are pin to pin.
Interface Material	Pb and Halogen Free	Pb and Halogen Free	Same
Timing Parameters	Omit.(See datasheet)	Omit.(See datasheet)	D3A is equal to or less than D3 .
Timing Diagram & Command	Omit.(See datasheet)	Omit.(See datasheet)	Same
ESD Level	JEDEC: 2KV HBM	JEDEC: 2KV HBM	Same

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Capacity	4Gb	4Gb	Same
Package	96-ball 9 x 13 x 1.2mm FBGA package	96-ball 9 x 13 x 1.0mm FBGA package	Pin to Pin compatible
Truth Table	Omit.(See datasheet)	Omit.(See datasheet)	same
Supply Time			D3A will replace D3.

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Comparison between

AS4C256M16D3L and AS4C256M16D3LA for Auto Temp - 4Gb DDR3

Part Number&result / Parameter	AS4C256M16D3L	AS4C256M16D3LA	Comparison Result
Wafer Process	30nm	30nm	Same
Power Supply	V DD & V DDQ = 1.35V Backward compatible VDD & VDDQ = 1.5± 0.075V	V DD & V DDQ = 1.35V Backward compatible VDD & VDDQ = 1.5±0.075V	Same
Typical Power Dissipation of Normal Operation	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=72mA Operating One Bank Active-Read-Precharge Current: IDD1=95mA Precharge Standby Current: IDD2N=33mA Precharge Power-Down Current Slow Exit: IDD2P0=21mA Precharge Power-Down Current Fast Exit: IDD2P1=29mA Precharge Quiet Standby Current: IDD2Q=33mA Active Standby Current: IDD3N=75mA Active Power-Down Current: IDD3P=54 mA Operating Burst Read Current: IDD4R=239mA Operating Burst Write Current: IDD4W=192mA Burst Refresh Current: IDD5B=215 mA Self Refresh Current: IDD6=46mA Operating Bank Interleave Read Current: IDD7=264mA RESET Low Current IDD8=22mA	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=72mA Operating One Bank Active-Read-Precharge Current: IDD1=95mA Precharge Standby Current: IDD2N=33mA Precharge Power-Down Current Slow Exit: IDD2P0=21mA Precharge Power-Down Current Fast Exit: IDD2P1=29mA Precharge Quiet Standby Current: IDD2Q=33mA Active Standby Current: IDD3N=75mA Active Power-Down Current: IDD3P=54mA Operating Burst Read Current: IDD4R=239mA Operating Burst Write Current: IDD4W=192mA Burst Refresh Current: IDD5B=215 mA Self Refresh Current: IDD6=46mA Operating Bank Interleave Read Current: IDD7=264mA RESET Low Current IDD8=22mA	Same

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Operating Temperature	Automotive (-40 ~ 105°C)	Automotive (-40 ~ 105°C)	Same
Max Operating Speed	800MHz	800MHz	Same
Interface (Input/Output) Capacitance	Input/output capacitance, (DQ, DM, DQS, DQS#);Cio: 1.4– 2.2pF Input capacitance, CK and CK#;Cck 0.8– 1.4pF Input capacitance delta, CK and CK#;Cdck 0– 0.15pF Input/output capacitance delta,DQS and DQS#;Cddqs: 0– 0.15pF Input capacitance, (CTRL, ADD, CMD input-only pins);Ci: 0.75– 1.2pF Input capacitance delta, (All CTRL input-only pins); Cdi_ctrl: -0.4– 0.2pF Input capacitance delta, (All ADD, CMD input-only pins); Cdi_add_cmd: -0.4– 0.4pF Input/output capacitance delta, (DQ, DM, DQS, DQS#);Cdio: -0.5– 0.3pF Input/output capacitance of ZQ pin;Czq: 0– 3pF	Input/output capacitance, (DQ, DM, DQS, DQS#);Cio: 1.4– 2.2pF Input capacitance, CK and CK#;Cck 0.8– 1.4pF Input capacitance delta, CK and CK#;Cdck 0– 0.15pF Input/output capacitance delta,DQS and DQS#;Cddqs: 0– 0.15pF Input capacitance, (CTRL, ADD, CMD input-only pins);Ci: 0.75– 1.2pF Input capacitance delta, (All CTRL input-only pins); Cdi_ctrl: -0.4– 0.2pF Input capacitance delta, (All ADD, CMD input-only pins); Cdi_add_cmd: -0.4– 0.4pF Input/output capacitance delta, (DQ, DM, DQS, DQS#);Cdio: -0.5– 0.3pF Input/output capacitance of ZQ pin;Czq: 0– 3pF	Same
Interface Definition	Omit.(See datasheet)	Omit.(See datasheet)	Same. They are pin to pin.
Interface Material	Pb and Halogen Free	Pb and Halogen Free	Same
Timing Parameters	Omit.(See datasheet)	Omit.(See datasheet)	Same
Timing Diagram & Command	Omit.(See datasheet)	Omit.(See datasheet)	Same
ESD Level	JEDEC: 2KV HBM	JEDEC: 2KV HBM	Same
Capacity	4Gb	4Gb	Same

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Package	96-ball 9 x 13 x 1.0mm FBGA package	96-ball 9 x 13 x 1.0mm FBGA package	Pin to Pin compatible
Truth Table	Omit.(See datasheet)	Omit.(See datasheet)	same
Supply Time			D3A will replace D3.

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Comparison between

AS4C512M8D3 and AS4C512M8D3A for Auto Temp - 4Gb DDR3

Part Number&result / Parameter	AS4C512M8D3	AS4C512M8D3A	Comparison Result
Wafer Process	30nm	30nm	Same
Power Supply	V DD & V DDQ = 1.5± 0.075V	V DD & V DDQ = 1.5±0.075V	Same
Typical Power Dissipation of Normal Operation	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=84mA Operating One Bank Active-Read-Precharge Current: IDD1=99mA Precharge Standby Current: IDD2N=60mA Precharge Power-Down Current Slow Exit: IDD2P0=22mA Precharge Power-Down Current Fast Exit: IDD2P1=45mA Precharge Quiet Standby Current: IDD2Q=60mA Active Standby Current: IDD3N=69mA Active Power-Down Current: IDD3P=54 mA Operating Burst Read Current: IDD4R=225mA Operating Burst Write Current: IDD4W=198mA Burst Refresh Current: IDD5B=264 mA Self Refresh Current: IDD6=56mA Operating Bank Interleave Read Current: IDD7=324mA RESET Low Current IDD8=24mA	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=65mA Operating One Bank Active-Read-Precharge Current: IDD1=74mA Precharge Standby Current: IDD2N=36mA Precharge Power-Down Current Slow Exit: IDD2P0=21mA Precharge Power-Down Current Fast Exit: IDD2P1=30mA Precharge Quiet Standby Current: IDD2Q=36mA Active Standby Current: IDD3N=66mA Active Power-Down Current: IDD3P=41 mA Operating Burst Read Current: IDD4R=160mA Operating Burst Write Current: IDD4W=144mA Burst Refresh Current: IDD5B=222 mA Self Refresh Current: IDD6=50mA Operating Bank Interleave Read Current: IDD7=226mA RESET Low Current IDD8=23mA	D3A has better power dissipation

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Operating Temperature	Automotive (-40 ~ 105°C)	Automotive (-40 ~ 105°C)	Same
Max Operating Speed	800MHz	800MHz	Same
Interface (Input/Output) Capacitance	Input/output capacitance, (DQ, DM, DQS, DQS#);Cio: 1.5– 2.3pF Input capacitance, CK and CK#;Cck 0.8– 1.4pF Input capacitance delta, CK and CK#;Cdck 0– 0.15pF Input/output capacitance delta,DQS and DQS#;Cddqs: 0– 0.15pF Input capacitance, (CTRL, ADD, CMD input-only pins);Ci: 0.75– 1.3pF Input capacitance delta, (All CTRL input-only pins); Cdi_ctrl: -0.4– 0.2pF Input capacitance delta, (All ADD, CMD input-only pins); Cdi_add_cmd: -0.4– 0.4pF Input/output capacitance delta, (DQ, DM, DQS, DQS#);Cdio: -0.5– 0.3pF Input/output capacitance of ZQ pin;Czq: 0– 3pF	Input/output capacitance, (DQ, DM, DQS, DQS#);Cio: 1.4– 2.3pF Input capacitance, CK and CK#;Cck 0.8– 1.4pF Input capacitance delta, CK and CK#;Cdck 0– 0.15pF Input/output capacitance delta,DQS and DQS#;Cddqs: 0– 0.15pF Input capacitance, (CTRL, ADD, CMD input-only pins);Ci: 0.75– 1.3pF Input capacitance delta, (All CTRL input-only pins); Cdi_ctrl: -0.4– 0.2pF Input capacitance delta, (All ADD, CMD input-only pins); Cdi_add_cmd: -0.4– 0.4pF Input/output capacitance delta, (DQ, DM, DQS, DQS#);Cdio: -0.5– 0.3pF Input/output capacitance of ZQ pin;Czq: 0– 3pF	Same
Interface Definition	Omit.(See datasheet)	Omit.(See datasheet)	Same. They are pin to pin.
Interface Material	Pb and Halogen Free	Pb and Halogen Free	Same
Timing Parameters	Omit.(See datasheet)	Omit.(See datasheet)	Same
Timing Diagram & Command	Omit.(See datasheet)	Omit.(See datasheet)	Same
ESD Level	JEDEC: 2KV HBM	JEDEC: 2KV HBM	Same
Capacity	4Gb	4Gb	Same

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Package	78-ball 9 x 10.5 x 1.2mm FBGA package	78-ball 9 x 10.5 x 1.0mm FBGA package	Pin to Pin compatible
Truth Table	Omit.(See datasheet)	Omit.(See datasheet)	same
Supply Time			D3A will replace D3.

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Comparison between

AS4C512M8D3L and AS4C512M8D3LA for Auto Temp - 4Gb DDR3

Part Number&result / Parameter	AS4C512M8D3L	AS4C512M8D3LA	Comparison Result
Wafer Process	30nm	30nm	Same
Power Supply	V DD & V DDQ = 1.5± 0.075V	V DD & V DDQ = 1.5±0.075V	Same
Typical Power Dissipation of Normal Operation	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=62mA Operating One Bank Active-Read-Precharge Current: IDD1=69mA Precharge Standby Current: IDD2N=33mA Precharge Power-Down Current Slow Exit: IDD2P0=20mA Precharge Power-Down Current Fast Exit: IDD2P1=28mA Precharge Quiet Standby Current: IDD2Q=33mA Active Standby Current: IDD3N=59mA Active Power-Down Current: IDD3P=38 mA Operating Burst Read Current: IDD4R=152mA Operating Burst Write Current: IDD4W=137mA Burst Refresh Current: IDD5B=215 mA Self Refresh Current: IDD6=46mA Operating Bank Interleave Read Current: IDD7=218mA RESET Low Current IDD8=22mA	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=62mA Operating One Bank Active-Read-Precharge Current: IDD1=69mA Precharge Standby Current: IDD2N=33mA Precharge Power-Down Current Slow Exit: IDD2P0=20mA Precharge Power-Down Current Fast Exit: IDD2P1=28mA Precharge Quiet Standby Current: IDD2Q=33mA Active Standby Current: IDD3N=59mA Active Power-Down Current: IDD3P=38 mA Operating Burst Read Current: IDD4R=152mA Operating Burst Write Current: IDD4W=137mA Burst Refresh Current: IDD5B=215 mA Self Refresh Current: IDD6=46mA Operating Bank Interleave Read Current: IDD7=218mA RESET Low Current IDD8=22mA	D3LA has better power dissipation

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Operating Temperature	Automotive (-40 ~ 105°C)	Automotive (-40 ~ 105°C)	Same
Max Operating Speed	800MHz	800MHz	Same
Interface (Input/Output) Capacitance	Input/output capacitance, (DQ, DM, DQS, DQS#);Cio: 1.4– 2.2pF Input capacitance, CK and CK#;Cck 0.8– 1.4pF Input capacitance delta, CK and CK#;Cdck 0– 0.15pF Input/output capacitance delta,DQS and DQS#;Cddqs: 0– 0.15pF Input capacitance, (CTRL, ADD, CMD input-only pins);Ci: 0.75– 1.2pF Input capacitance delta, (All CTRL input-only pins); Cdi_ctrl: -0.4– 0.2pF Input capacitance delta, (All ADD, CMD input-only pins); Cdi_add_cmd: -0.4– 0.4pF Input/output capacitance delta, (DQ, DM, DQS, DQS#);Cdio: -0.5– 0.3pF Input/output capacitance of ZQ pin;Czq: 0– 3pF	Input/output capacitance, (DQ, DM, DQS, DQS#);Cio: 1.4– 2.2pF Input capacitance, CK and CK#;Cck 0.8– 1.4pF Input capacitance delta, CK and CK#;Cdck 0– 0.15pF Input/output capacitance delta,DQS and DQS#;Cddqs: 0– 0.15pF Input capacitance, (CTRL, ADD, CMD input-only pins);Ci: 0.75– 1.2pF Input capacitance delta, (All CTRL input-only pins); Cdi_ctrl: -0.4– 0.2pF Input capacitance delta, (All ADD, CMD input-only pins); Cdi_add_cmd: -0.4– 0.4pF Input/output capacitance delta, (DQ, DM, DQS, DQS#);Cdio: -0.5– 0.3pF Input/output capacitance of ZQ pin;Czq: 0– 3pF	Same
Interface Definition	Omit.(See datasheet)	Omit.(See datasheet)	Same. They are pin to pin.
Interface Material	Pb and Halogen Free	Pb and Halogen Free	Same
Timing Parameters	Omit.(See datasheet)	Omit.(See datasheet)	Same
Timing Diagram & Command	Omit.(See datasheet)	Omit.(See datasheet)	Same
ESD Level	JEDEC: 2KV HBM	JEDEC: 2KV HBM	Same
Capacity	4Gb	4Gb	Same
Package	78-ball 9 x 10.5 x 1.0mm	78-ball 9 x 10.5 x 1.0mm FBGA	Pin to Pin compatible

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	FBGA package	package	
Truth Table	Omit.(See datasheet)	Omit.(See datasheet)	same
Supply Time			D3LA will replace D3L.

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Comparison between

AS4C512M8D3L and AS4C512M8D3LA for C&I temp - 4Gb DDR3

Part Number&result / Parameter	AS4C512M8D3L	AS4C512M8D3LA	Comparison Result
Wafer Process	30nm	30nm	Same
Power Supply	V DD & V DDQ = 1.35V Backward compatible VDD & VDDQ = 1.5± 0.075V	V DD & V DDQ = 1.35V Backward compatible VDD & VDDQ = 1.5±0.075V	Same
Typical Power Dissipation of Normal Operation	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=63mA Operating One Bank Active-Read-Precharge Current: IDD1=74mA Precharge Standby Current: IDD2N=45mA Precharge Power-Down Current Slow Exit: IDD2P0=16mA Precharge Power-Down Current Fast Exit: IDD2P1=33mA Precharge Quiet Standby Current: IDD2Q=45mA Active Standby Current: IDD3N=50mA Active Power-Down Current: IDD3P=40 mA Operating Burst Read Current: IDD4R=168mA Operating Burst Write Current: IDD4W=149mA Burst Refresh Current: IDD5B=198 mA Self Refresh Current: IDD6=20mA Operating Bank Interleave Read Current: IDD7=243mA RESET Low Current	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=51mA Operating One Bank Active-Read-Precharge Current: IDD1=57mA Precharge Standby Current: IDD2N=27mA Precharge Power-Down Current Slow Exit: IDD2P0=16mA Precharge Power-Down Current Fast Exit: IDD2P1=23mA Precharge Quiet Standby Current: IDD2Q=27mA Active Standby Current: IDD3N=49mA Active Power-Down Current: IDD3P=31 mA Operating Burst Read Current: IDD4R=126mA Operating Burst Write Current: IDD4W=114mA Burst Refresh Current: IDD5B=179 mA Self Refresh Current: IDD6=17mA Operating Bank Interleave Read Current: IDD7=181mA	D3LA has better power dissipation

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	IDD8=18mA	RESET Low Current IDD8=18mA	
Operating Temperature	Commercial (0°C to 95°C) Industrial (-40 ~ 95°C)	Commercial (0°C to 95°C) Industrial (-40 ~ 95°C)	Same
Max Operating Speed	800MHz	800MHz	Same
Interface (Input/Output) Capacitance	Input/output capacitance, (DQ, DM, DQS, DQS#);Cio: 1.5– 2.3pF Input capacitance, CK and CK#;Cck 0.8– 1.4pF Input capacitance delta, CK and CK#;Cdck 0– 0.15pF Input/output capacitance delta,DQS and DQS#;Cddqs: 0– 0.15pF Input capacitance, (CTRL, ADD, CMD input-only pins);Ci: 0.75– 1.3pF Input capacitance delta, (All CTRL input-only pins); Cdi_ctrl: -0.4– 0.2pF Input capacitance delta, (All ADD, CMD input-only pins); Cdi_add_cmd: -0.4– 0.4pF Input/output capacitance delta, (DQ, DM, DQS, DQS#);Cdio: -0.5– 0.3pF Input/output capacitance of ZQ pin;Czq: 0– 3pF	Input/output capacitance, (DQ, DM, DQS, DQS#);Cio: 1.4– 2.2pF Input capacitance, CK and CK#;Cck 0.8– 1.4pF Input capacitance delta, CK and CK#;Cdck 0– 0.15pF Input/output capacitance delta,DQS and DQS#;Cddqs: 0– 0.15pF Input capacitance, (CTRL, ADD, CMD input-only pins);Ci: 0.75– 1.2pF Input capacitance delta, (All CTRL input-only pins); Cdi_ctrl: -0.4– 0.2pF Input capacitance delta, (All ADD, CMD input-only pins); Cdi_add_cmd: -0.4– 0.4pF Input/output capacitance delta, (DQ, DM, DQS, DQS#);Cdio: -0.5– 0.3pF Input/output capacitance of ZQ pin;Czq: 0– 3pF	Same
Interface Definition	Omit.(See datasheet)	Omit.(See datasheet)	Same. They are pin to pin.
Interface Material	Pb and Halogen Free	Pb and Halogen Free	Same
Timing Parameters	Omit.(See datasheet)	Omit.(See datasheet)	Same
Timing Diagram & Command	Omit.(See datasheet)	Omit.(See datasheet)	Same

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ESD Level	JEDEC: 2KV HBM	JEDEC: 2KV HBM	Same
Capacity	4Gb	4Gb	Same
Package	78-ball 9 x 10.5 x 1.2mm FBGA package	78-ball 9 x 10.5 x 1.0mm FBGA package	Pin to Pin compatible
Truth Table	Omit.(See datasheet)	Omit.(See datasheet)	same
Supply Time			D3LA will replace D3L.

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Comparison between

AS4C256M16D3L and AS4C256M16D3LA for C&I temp - 4Gb DDR3

Part Number&result / Parameter	AS4C256M16D3	AS4C256M16D3LA	Comparison Result
Wafer Process	30nm	30nm	Same
Power Supply	V DD & V DDQ = 1.35V Backward compatible VDD & VDDQ = 1.5± 0.075V	V DD & V DDQ = 1.35V Backward compatible VDD & VDDQ = 1.5±0.075V	Same
Typical Power Dissipation of Normal Operation	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=77mA Operating One Bank Active-Read-Precharge Current: IDD1=99mA Precharge Standby Current: IDD2N=45mA Precharge Power-Down Current Slow Exit: IDD2P0=16mA Precharge Power-Down Current Fast Exit: IDD2P1=33mA Precharge Quiet Standby Current: IDD2Q=45mA Active Standby Current: IDD3N=62mA Active Power-Down Current: IDD3P=40mA Operating Burst Read Current: IDD4R=280mA Operating Burst Write Current: IDD4W=202mA Burst Refresh Current: IDD5B=198 mA Self Refresh Current: IDD6=20mA Operating Bank Interleave Read Current: IDD7=270mA RESET Low Current IDD8=18mA	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=60mA Operating One Bank Active-Read-Precharge Current: IDD1=79mA Precharge Standby Current: IDD2N=27mA Precharge Power-Down Current Slow Exit: IDD2P0=17mA Precharge Power-Down Current Fast Exit: IDD2P1=24mA Precharge Quiet Standby Current: IDD2Q=27mA Active Standby Current: IDD3N=62mA Active Power-Down Current: IDD3P=45 mA Operating Burst Read Current: IDD4R=208mA Operating Burst Write Current: IDD4W=160mA Burst Refresh Current: IDD5B=179 mA Self Refresh Current: IDD6=18mA Operating Bank Interleave Read Current: IDD7=220mA RESET Low Current IDD8=18mA	D3A has better power dissipation

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Operating Temperature	Commercial (0°C to 95°C) Industrial (-40 ~ 95°C)	Commercial (0°C to 95°C) Industrial (-40 ~ 95°C)	Same
Max Operating Speed	800MHz	800MHz	Same
Interface (Input/Output) Capacitance	Input/output capacitance, (DQ, DM, DQS, DQS#);Cio: 1.5– 2.3pF Input capacitance, CK and CK#;Cck 0.8– 1.4pF Input capacitance delta, CK and CK#;Cdck 0– 0.15pF Input/output capacitance delta,DQS and DQS#;Cddqs: 0– 0.15pF Input capacitance, (CTRL, ADD, CMD input-only pins);Ci: 0.75– 1.3pF Input capacitance delta, (All CTRL input-only pins); Cdi_ctrl: -0.4– 0.2pF Input capacitance delta, (All ADD, CMD input-only pins); Cdi_add_cmd: -0.4– 0.4pF Input/output capacitance delta, (DQ, DM, DQS, DQS#);Cdio: -0.5– 0.3pF Input/output capacitance of ZQ pin;Czq: 0– 3pF	Input/output capacitance, (DQ, DM, DQS, DQS#);Cio: 1.4– 2.2pF Input capacitance, CK and CK#;Cck 0.8– 1.4pF Input capacitance delta, CK and CK#;Cdck 0– 0.15pF Input/output capacitance delta,DQS and DQS#;Cddqs: 0– 0.15pF Input capacitance, (CTRL, ADD, CMD input-only pins);Ci: 0.75– 1.2pF Input capacitance delta, (All CTRL input-only pins); Cdi_ctrl: -0.4– 0.2pF Input capacitance delta, (All ADD, CMD input-only pins); Cdi_add_cmd: -0.4– 0.4pF Input/output capacitance delta, (DQ, DM, DQS, DQS#);Cdio: -0.5– 0.3pF Input/output capacitance of ZQ pin;Czq: 0– 3pF	Almost the same
Interface Definition	Omit.(See datasheet)	Omit.(See datasheet)	Same. They are pin to pin.
Interface Material	Pb and Halogen Free	Pb and Halogen Free	Same
Timing Parameters	Omit.(See datasheet)	Omit.(See datasheet)	D3A is equal to or less than D3 .
Timing Diagram & Command	Omit.(See datasheet)	Omit.(See datasheet)	Same
ESD Level	JEDEC: 2KV HBM	JEDEC: 2KV HBM	Same
Capacity	4Gb	4Gb	Same

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Package	96-ball 9 x 13 x 1.2mm FBGA package	96-ball 9 x 13 x 1.0mm FBGA package	Pin to Pin compatible
Truth Table	Omit.(See datasheet)	Omit.(See datasheet)	same
Supply Time			D3A will replace D3.

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Comparison between

AS4C512M8D3 and AS4C512M8D3A for C&I temp - 4Gb DDR3

Part Number&result / Parameter	AS4C512M8D3	AS4C512M8D3A	Comparison Result
Wafer Process	30nm	30nm	Same
Power Supply	V DD & V DDQ = 1.5± 0.075V	V DD & V DDQ = 1.5±0.075V	Same
Typical Power Dissipation of Normal Operation	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=70mA Operating One Bank Active-Read-Precharge Current: IDD1=82mA Precharge Standby Current: IDD2N=50mA Precharge Power-Down Current Slow Exit: IDD2P0=18mA Precharge Power-Down Current Fast Exit: IDD2P1=37mA Precharge Quiet Standby Current: IDD2Q=50mA Active Standby Current: IDD3N=57mA Active Power-Down Current: IDD3P=45 mA Operating Burst Read Current: IDD4R=187mA Operating Burst Write Current: IDD4W=165mA Burst Refresh Current: IDD5B=220 mA Self Refresh Current: IDD6=22mA Operating Bank Interleave Read Current: IDD7=270mA RESET Low Current IDD8=20mA	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=54mA Operating One Bank Active-Read-Precharge Current: IDD1=61mA Precharge Standby Current: IDD2N=30mA Precharge Power-Down Current Slow Exit: IDD2P0=17mA Precharge Power-Down Current Fast Exit: IDD2P1=25mA Precharge Quiet Standby Current: IDD2Q=30mA Active Standby Current: IDD3N=55mA Active Power-Down Current: IDD3P=34 mA Operating Burst Read Current: IDD4R=133mA Operating Burst Write Current: IDD4W=120mA Burst Refresh Current: IDD5B=185 mA Self Refresh Current: IDD6=19mA Operating Bank Interleave Read Current: IDD7=188mA RESET Low Current IDD8=19mA	D3A has better power dissipation

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Operating Temperature	Commercial (0°C to 95°C) Industrial (-40 ~ 95°C)	Commercial (0°C to 95°C) Industrial (-40 ~ 95°C)	Same
Max Operating Speed	800MHz	800MHz	Same
Interface (Input/Output) Capacitance	Input/output capacitance, (DQ, DM, DQS, DQS#);Cio: 1.5– 2.3pF Input capacitance, CK and CK#;Cck 0.8– 1.4pF Input capacitance delta, CK and CK#;Cdck 0– 0.15pF Input/output capacitance delta,DQS and DQS#;Cddqs: 0– 0.15pF Input capacitance, (CTRL, ADD, CMD input-only pins);Ci: 0.75– 1.3pF Input capacitance delta, (All CTRL input-only pins); Cdi_ctrl: -0.4– 0.2pF Input capacitance delta, (All ADD, CMD input-only pins); Cdi_add_cmd: -0.4– 0.4pF Input/output capacitance delta, (DQ, DM, DQS, DQS#);Cdio: -0.5– 0.3pF Input/output capacitance of ZQ pin;Czq: 0– 3pF	Input/output capacitance, (DQ, DM, DQS, DQS#);Cio: 1.4– 2.3pF Input capacitance, CK and CK#;Cck 0.8– 1.4pF Input capacitance delta, CK and CK#;Cdck 0– 0.15pF Input/output capacitance delta,DQS and DQS#;Cddqs: 0– 0.15pF Input capacitance, (CTRL, ADD, CMD input-only pins);Ci: 0.75– 1.3pF Input capacitance delta, (All CTRL input-only pins); Cdi_ctrl: -0.4– 0.2pF Input capacitance delta, (All ADD, CMD input-only pins); Cdi_add_cmd: -0.4– 0.4pF Input/output capacitance delta, (DQ, DM, DQS, DQS#);Cdio: -0.5– 0.3pF Input/output capacitance of ZQ pin;Czq: 0– 3pF	Same
Interface Definition	Omit.(See datasheet)	Omit.(See datasheet)	Same. They are pin to pin.
Interface Material	Pb and Halogen Free	Pb and Halogen Free	Same
Timing Parameters	Omit.(See datasheet)	Omit.(See datasheet)	Same
Timing Diagram & Command	Omit.(See datasheet)	Omit.(See datasheet)	Same
ESD Level	JEDEC: 2KV HBM	JEDEC: 2KV HBM	Same

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Capacity	4Gb	4Gb	Same
Package	78-ball 9 x 10.5 x 1.2mm FBGA package	78-ball 9 x 10.5 x 1.0mm FBGA package	Pin to Pin compatible
Truth Table	Omit.(See datasheet)	Omit.(See datasheet)	same
Supply Time			D3A will replace D3.

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