Alliance Memory Inc.
511 Taylor Way, Suite 1, San Carlos, CA 94070
Main +1(650)610-6800
FAX +1(650)620-9211

Product Change Notification (PCN)

Date: August 29th, 2016 PCN TRACKING NO:PCN-29082016-2

Subject: Product Change Notification (PCN) for Alliance DRAM's (2G 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)
2G	128M x 16	AS4C128M16D3-12BCN	AS4C128M16D3A-12BCN	AS4C128M16D3B-12BCN
2G	128M x 16	AS4C128M16D3-12BIN	AS4C128M16D3A-12BIN	
2G	128M x 16	AS4C128M16D3-12BAN	AS4C128M16D3A-12BAN	
2G	128M x 16	AS4C128M16D3L-12BCN	AS4C128M16D3LA-12BCN	AS4C128M16D3LB-12BCN
2G	128M x 16	AS4C128M16D3L-12BIN	AS4C128M16D3LA-12BIN	
2G	128M x 16	AS4C128M16D3L-12BAN	AS4C128M16D3LA-12BAN	
2G	256Mx8	AS4C256M8D3-12BCN	AS4C256M8D3A-12BCN	
2G	256Mx8	AS4C256M8D3-12BIN	AS4C256M8D3A-12BIN	
2G	256Mx8	AS4C256M8D3-12BAN	AS4C256M8D3A-12BAN	
2G	256Mx8	AS4C256M8D3L-12BCN	AS4C256M8D3LA-12BCN	
2G	256Mx8	AS4C256M8D3L-12BIN	AS4C256M8D3LA-12BIN	
2G	256Mx8	AS4C256M8D3L-12BAN	AS4C256M8D3LA-12BAN	

Last Time Buy Date:	November 29th 2016
Last Time Ship Date:	February 28th 2017
Sample Available Date (128M x 16 – 2G)	NOW
Sample Available Date (256M x 8 – 2G)	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 2G 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

AS4C256M8D3L and AS4C256M8D3LA for C & I Temp - 2Gb DDR3

Part Number&result / Parameter	AS4C256M8D3L-12BCN AS4C256M8D3L-12BIN	AS4C256M8D3LA-12BCN AS4C256M8D3LA-12BIN	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=65mA Operating One Bank Active-Read-Precharge Current: IDD1=90mA Precharge Standby Current: IDD2N=30mA Precharge Power-Down Current Slow Exit: IDD2P0=11mA Precharge Power-Down Current Fast Exit: IDD2P1=20mA Precharge Quiet Standby Current: IDD2Q=30mA Active Standby Current: IDD3N=40mA Active Power-Down Current: IDD3P=30mA Operating Burst Read Current: IDD4R=150mA Operating Burst Write Current: IDD4W=150mA Burst Refresh Current: IDD5B=135mA Self Refresh Current: IDD6=11mA Operating Bank Interleave Read Current: IDD7=210mA RESET Low Current IDD8=13mA	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=62mA Operating One Bank Active-Read-Precharge Current: IDD1=71mA Precharge Standby Current: IDD2N=32mA Precharge Power-Down Current Slow Exit: IDD2P0=11mA Precharge Power-Down Current Fast Exit: IDD2P1=20mA Precharge Quiet Standby Current: IDD2Q=32mA Active Standby Current: IDD3N=42mA Active Power-Down Current: IDD3P=32mA Operating Burst Read Current: IDD4R=140mA Operating Burst Write Current: IDD4W=145mA Burst Refresh Current: IDD5B=135 mA Self Refresh Current: IDD6=11mA Operating Bank Interleave Read Current: IDD7=210mA RESET Low Current IDD8=13mA	D3A is equal to or less than D3 .

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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: 1.4– 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 8 x 10.5 x 1.0mm FBGA package	78-ball 8 x 10.5 x 1.0mm FBGA package	Pin to Pin compatible

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Truth Table	Omit.(See datasheet)	Omit.(See datasheet)	same
Supply Time			D3A will replace D3.

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Comparison between

AS4C256M8D3L and AS4C256M8D3LA for Auto Temp - 2Gb DDR3

Part Number&result / Parameter	AS4C256M8D3L-12BAN	AS4C256M8D3LA-12BAN	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=75mA Operating One Bank Active-Read-Precharge Current: IDD1=86mA Precharge Standby Current: IDD2N=39mA Precharge Power-Down Current Slow Exit: IDD2P0=14mA Precharge Power-Down Current Fast Exit: IDD2P1=24mA Precharge Quiet Standby Current: IDD2Q=39mA Active Standby Current: IDD3N=51mA Active Power-Down Current: IDD3P=39 mA Operating Burst Read Current: IDD4R=168mA Operating Burst Write Current: IDD4W=174mA Burst Refresh Current: IDD5B=162mA Self Refresh Current: IDD6=28mA Operating Bank Interleave Read Current: IDD7=252mA RESET Low Current IDD8=16mA	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=75mA Operating One Bank Active-Read-Precharge Current: IDD1=86mA Precharge Standby Current: IDD2N=39mA Precharge Power-Down Current Slow Exit: IDD2P0=14mA Precharge Power-Down Current Fast Exit: IDD2P1=24mA Precharge Quiet Standby Current: IDD2Q=39mA Active Standby Current: IDD3N=51mA Active Power-Down Current: IDD3P=39mA Operating Burst Read Current: IDD4R=168mA Operating Burst Write Current: IDD4W=174mA Burst Refresh Current: IDD5B=162 mA Self Refresh Current: IDD6=28mA Operating Bank Interleave Read Current: IDD7=252mA RESET Low Current IDD8=16mA	D3A is equal to or less than D3 .

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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	78-ball 8 x 10.5 x 1.0mm FBGA package	78-ball 8 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

AS4C256M8D3 and AS4C256M8D3A for C & I Temp - 2Gb DDR3

Part Number&result / Parameter	AS4C256M8D3-12BCN AS4C256M8D3-12BIN	AS4C256M8D3A-12BCN AS4C256M8D3A-12BIN	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=95mA Precharge Standby Current: IDD2N=35mA Precharge Power-Down Current Slow Exit: IDD2P0=12mA Precharge Power-Down Current Fast Exit: IDD2P1=22mA Precharge Quiet Standby Current: IDD2Q=35mA Active Standby Current: IDD3N=45mA Active Power-Down Current: IDD3P=35 mA Operating Burst Read Current: IDD4R=160mA Operating Burst Write Current: IDD4W=160mA Burst Refresh Current: IDD5B=145 mA Self Refresh Current: IDD6=12mA Operating Bank Interleave Read Current: IDD7=240mA RESET Low Current IDD8=14mA	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=65mA Operating One Bank Active-Read-Precharge Current: IDD1=75mA Precharge Standby Current: IDD2N=35mA Precharge Power-Down Current Slow Exit: IDD2P0=12mA Precharge Power-Down Current Fast Exit: IDD2P1=22mA Precharge Quiet Standby Current: IDD2Q=35mA Active Standby Current: IDD3N=45mA Active Power-Down Current: IDD3P=35mA Operating Burst Read Current: IDD4R=145mA Operating Burst Write Current: IDD4W=150mA Burst Refresh Current: IDD5B=145 mA Self Refresh Current: IDD6=12mA Operating Bank Interleave Read Current: IDD7=230mA RESET Low Current IDD8=14mA	D3A is equal to or less than D3 .

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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: 1.4– 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)	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 8 x 10.5 x 1.2mm	78-ball 8 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			D3A will replace D3.

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Comparison between

AS4C256M8D3 and AS4C256M8D3A for Auto Temp - 2Gb DDR3

Part Number&result / Parameter	AS4C256M8D3-12BAN	AS4C256M8D3A-12BAN	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=114mA Precharge Standby Current: IDD2N=42mA Precharge Power-Down Current Slow Exit: IDD2P0=15mA Precharge Power-Down Current Fast Exit: IDD2P1=27mA Precharge Quiet Standby Current: IDD2Q=42mA Active Standby Current: IDD3N=54mA Active Power-Down Current: IDD3P=42 mA Operating Burst Read Current: IDD4R=192mA Operating Burst Write Current: IDD4W=192mA Burst Refresh Current: IDD5B=174mA Self Refresh Current: IDD6=30mA Operating Bank Interleave Read Current: IDD7=288mA RESET Low Current IDD8=17mA	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=78mA Operating One Bank Active-Read-Precharge Current: IDD1=90mA Precharge Standby Current: IDD2N=42mA Precharge Power-Down Current Slow Exit: IDD2P0=15mA Precharge Power-Down Current Fast Exit: IDD2P1=27mA Precharge Quiet Standby Current: IDD2Q=42mA Active Standby Current: IDD3N=54mA Active Power-Down Current: IDD3P=42mA Operating Burst Read Current: IDD4R=174mA Operating Burst Write Current: IDD4W=180mA Burst Refresh Current: IDD5B=174 mA Self Refresh Current: IDD6=30mA Operating Bank Interleave Read Current: IDD7=276mA RESET Low Current IDD8=17mA	D3A is equal to or less than D3 .

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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)	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 8 x 10.5 x 1.2mm FBGA package	78-ball 8 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

AS4C128M16D3L and AS4C128M16D3LA for C & I Temp - 2Gb DDR3

Part Number&result / Parameter	AS4C128M16D3L-12BCN AS4C128M16D3L-12BIN	AS4C128M16D3LA-12BCN AS4C128M16D3LA-12BIN	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=65mA Operating One Bank Active-Read-Precharge Current: IDD1=90mA Precharge Standby Current: IDD2N=30mA Precharge Power-Down Current Slow Exit: IDD2P0=11mA Precharge Power-Down Current Fast Exit: IDD2P1=20mA Precharge Quiet Standby Current: IDD2Q=30mA Active Standby Current: IDD3N=40mA Active Power-Down Current: IDD3P=30 mA Operating Burst Read Current: IDD4R=150mA Operating Burst Write Current: IDD4W=150mA Burst Refresh Current: IDD5B=135 mA Self Refresh Current: IDD6=11mA Operating Bank Interleave Read Current: IDD7=210mA RESET Low Current IDD8=13mA	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=67mA Operating One Bank Active-Read-Precharge Current: IDD1=76mA Precharge Standby Current: IDD2N=32mA Precharge Power-Down Current Slow Exit: IDD2P0=12mA Precharge Power-Down Current Fast Exit: IDD2P1=20mA Precharge Quiet Standby Current: IDD2Q=32mA Active Standby Current: IDD3N=45mA Active Power-Down Current: IDD3P=32mA Operating Burst Read Current: IDD4R=150mA Operating Burst Write Current: IDD4W=155mA Burst Refresh Current: IDD5B=135 mA Self Refresh Current: IDD6=12mA Operating Bank Interleave Read Current: IDD7=220mA RESET Low Current IDD8=13mA	D3A is equal to or less than D3 .

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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: 1.4– 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– 1.2pF 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– 2.3pF 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– 1.2pF 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

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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	96-ball 9 x 13 x 1.2mm FBGA package	96-ball 8 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

AS4C128M16D3L and AS4C128M16D3LA for Auto Temp - 2Gb DDR3

Part Number&result / Parameter	AS4C128M16D3L-12BAN	AS4C128M16D3LA-12BAN	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=78mA Operating One Bank Active-Read-Precharge Current: IDD1=108mA Precharge Standby Current: IDD2N=36mA Precharge Power-Down Current Slow Exit: IDD2P0=14mA Precharge Power-Down Current Fast Exit: IDD2P1=24mA Precharge Quiet Standby Current: IDD2Q=36mA Active Standby Current: IDD3N=48mA Active Power-Down Current: IDD3P=36mA Operating Burst Read Current: IDD4R=180mA Operating Burst Write Current: IDD4W=180mA Burst Refresh Current: IDD5B=162 mA Self Refresh Current: IDD6=28mA Operating Bank Interleave Read Current: IDD7=252mA RESET Low Current IDD8=16mA	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=81mA Operating One Bank Active-Read-Precharge Current: IDD1=92mA Precharge Standby Current: IDD2N=39mA Precharge Power-Down Current Slow Exit: IDD2P0=15mA Precharge Power-Down Current Fast Exit: IDD2P1=24mA Precharge Quiet Standby Current: IDD2Q=39mA Active Standby Current: IDD3N=54mA Active Power-Down Current: IDD3P=39mA Operating Burst Read Current: IDD4R=180mA Operating Burst Write Current: IDD4W=186mA Burst Refresh Current: IDD5B=162 mA Self Refresh Current: IDD6=28mA Operating Bank Interleave Read Current: IDD7=264mA RESET Low Current IDD8=16mA	D3A is equal to or less than D3 .

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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	96-ball 9 x 13 x 1.2mm FBGA	96-ball 8 x 13 x 1.0mm FBGA	Pin to Pin

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	package	package	compatible
Truth Table	Omit.(See datasheet)	Omit.(See datasheet)	same
Supply Time			D3A will replace D3.

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Comparison between

AS4C128M16D3 and AS4C128M16D3A for C & I Temp - 2Gb DDR3

Part Number&result / Parameter	AS4C128M16D3-12BCN AS4C128M16D3-12BIN	AS4C128M16D3A-12BCN AS4C128M16D3A-12BIN	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=95mA Precharge Standby Current: IDD2N=35mA Precharge Power-Down Current Slow Exit: IDD2P0=12mA Precharge Power-Down Current Fast Exit: IDD2P1=22mA Precharge Quiet Standby Current: IDD2Q=35mA Active Standby Current: IDD3N=45mA Active Power-Down Current: IDD3P=35 mA Operating Burst Read Current: IDD4R=160mA Operating Burst Write Current: IDD4W=160mA Burst Refresh Current: IDD5B=145 mA Self Refresh Current: IDD6=12mA Operating Bank Interleave Read Current: IDD7=240mA RESET Low Current IDD8=14mA	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=70mA Operating One Bank Active-Read-Precharge Current: IDD1=80mA Precharge Standby Current: IDD2N=35mA Precharge Power-Down Current Slow Exit: IDD2P0=15mA Precharge Power-Down Current Fast Exit: IDD2P1=22mA Precharge Quiet Standby Current: IDD2Q=35mA Active Standby Current: IDD3N=55mA Active Power-Down Current: IDD3P=35mA Operating Burst Read Current: IDD4R=155mA Operating Burst Write Current: IDD4W=160mA Burst Refresh Current: IDD5B=145 mA Self Refresh Current: IDD6=12mA Operating Bank Interleave Read Current: IDD7=240mA RESET Low Current IDD8=14mA	D3A is equal to or less than D3 .
Operating	Commercial (0°C to 95°C)	Commercial (0°C to 95°C)	Same

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Temperature	Industrial (-40 ~ 95°C)	Industrial (-40 ~ 95°C)	
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)	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	96-ball 9 x 13 x 1.2mm FBGA	96-ball 8 x 13 x 1.0mm FBGA	Pin to Pin compatible

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	package	package	
Truth Table	Omit.(See datasheet)	Omit.(See datasheet)	same
Supply Time			D3A will replace D3.

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Comparison between

AS4C128M16D3 and AS4C128M16D3A for Auto Temp - 2Gb DDR3

Part Number&result / Parameter	AS4C128M16D3-12BAN	AS4C128M16D3A-12BAN	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=114mA Precharge Standby Current: IDD2N=42mA Precharge Power-Down Current Slow Exit: IDD2P0=15mA Precharge Power-Down Current Fast Exit: IDD2P1=27mA Precharge Quiet Standby Current: IDD2Q=42mA Active Standby Current: IDD3N=54mA Active Power-Down Current: IDD3P=42mA Operating Burst Read Current: IDD4R=192mA Operating Burst Write Current: IDD4W=192mA Burst Refresh Current: IDD5B=174 mA Self Refresh Current: IDD6=30mA Operating Bank Interleave Read Current: IDD7=288mA RESET Low Current IDD8=17mA	CLK = 800MHZ: Operating One Bank Active-Precharge Current IDD0=84mA Operating One Bank Active-Read-Precharge Current: IDD1=96mA Precharge Standby Current: IDD2N=42mA Precharge Power-Down Current Slow Exit: IDD2P0=18mA Precharge Power-Down Current Fast Exit: IDD2P1=27mA Precharge Quiet Standby Current: IDD2Q=42mA Active Standby Current: IDD3N=66mA Active Power-Down Current: IDD3P=42mA Operating Burst Read Current: IDD4R=186mA Operating Burst Write Current: IDD4W=192mA Burst Refresh Current: IDD5B=174 mA Self Refresh Current: IDD6=34mA Operating Bank Interleave Read Current: IDD7=288mA RESET Low Current IDD8=17mA	D3A is equal to or less than D3 .

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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)	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 1.2mm FBGA package	96-ball 8 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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