Comparison between AS4C8M16S and AS4C8M16SA - 128Mb SDRAM

Part Number&result / Parameter	AS4C8M16S	AS4C8M16SA	Comparison Result
Wafer Process	70nm	63nm	SA is more advaned than S.
Power Supply	3.3±0.3 V	3.3±0.3 V	Same.
Typical Power Dissipation of Normal Operation	**CLK = 143MHZ:** IDD1=110mA(Operating Current) IDD4=130mA(Operating Current (Burst mode)) IDD5=200mA(Refresh Current) IDD6=6mA(Self Refresh Current) **CLK = 166MHZ:** IDD1=120mA(Operating Current) IDD4=140mA(Operating Current (Burst mode)) IDD5=200mA(Refresh Current) IDD6=6mA(Self Refresh Current)	**CLK = 143MHZ:** IDD1=45mA(Operating Current) IDD4=60mA(Operating Current (Burst mode)) IDD5=65mA(Refresh Current) IDD6=2mA(Self Refresh Current) **CLK = 166MHZ:** IDD1=50mA(Operating Current) IDD4=62mA(Operating Current (Burst mode)) IDD5=70mA(Refresh Current) IDD6=2mA(Self Refresh Current)	SA is more less than S
Operating Temperature	Commercial：0°C to 70°C Industrial：−40°C to 85°C Automotive:−40°C to 105°C	Commercial：0°C to 70°C Industrial：−40°C to 85°C Automotive:−40°C to 105°C	Same.
Max Operating Speed	−7：143MHZ −6: 166MHZ	−7：143MHZ −6: 166MHZ	In theory, SA's surplus is greater than S part.
Interface (Input/Output) Capacitance	I(Input): 2 - 5 pF I/O(Input/Output): 4 - 6.5 pF	I(Input): 2 - 4 pF I/O(Input/Output): 4 - 6 pF	SA is less than S so that SA's limit speed will be faster than S's.And this may need different impedance matching on the circuit

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Part Number&result / Parameter	AS4C8M16S	AS4C8M16SA	Comparison Result
Interface Definition	Omit.**(See datasheet)**	Omit.**(See datasheet)**	Same. They are pin to pin.
Interface Material	Pb free	Pb free	Same.
Timing Parameters	Omit.**(See datasheet)**	Omit.**(See datasheet)**	SA is equal to or less than S.
Timing Diagram & Command	Omit.**(See datasheet)**	Omit.**(See datasheet)**	Same.
ESD Level	JEDEC: 2KV HBM	JEDEC: 2KV HBM	Same.
Capacity	128Mb	128Mb	Same.
Package	54 pin TSOP II 54 ball TFBGA	54 pin TSOP II 54 ball TFBGA	Same.
Supply Time (from 2014 year)	more than 1 year	more than 10 years	SA will replace S.