

Part Number&result Parameter	AS4C16M16S	AS4C16M16SA	Comparison Result
Wafer Process	70nm	63nm	SA is more advanced than S.
Power Supply	3.3±0.3 V	3.3±0.3 V	Same.
Typical Power Dissipation of Normal Operation	<b>CLK = 143MHZ:</b> IDD1=100mA(Operating Current) IDD4=150mA(Operating Current (Burst mode)) IDD5=200mA(Refresh Current) IDD6=6mA(Self Refresh Current) <b>CLK = 166MHZ:</b> IDD1=100mA(Operating Current) IDD4=150mA(Operating Current (Burst mode)) IDD5=200mA(Refresh Current) IDD6=6mA(Self Refresh Current)	<b>CLK = 143MHZ:</b> IDD1=55mA(Operating Current) IDD4=60mA(Operating Current (Burst mode)) IDD5=70mA(Refresh Current) IDD6=2mA(Self Refresh Current) <b>CLK = 166MHZ:</b> IDD1=60mA(Operating Current) IDD4=62mA(Operating Current (Burst mode)) IDD5=75mA(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 - 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.



## Comparison between AS4C16M16S and AS4C16M16SA - 256Mb SDRAM

Part Number&result Parameter	AS4C16M16S	AS4C16M16SA	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	256Mb	256Mb	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.