Read Margin Check
Sense-Amp Signal vs Internal Noise

Bit   **BitB**

Sense Controls   **Sense Amplifier**

Voltage

Bit

0.1 V   0.2 V

Fast Access Time Low Reliability

BitB

Early Sense Time   Time
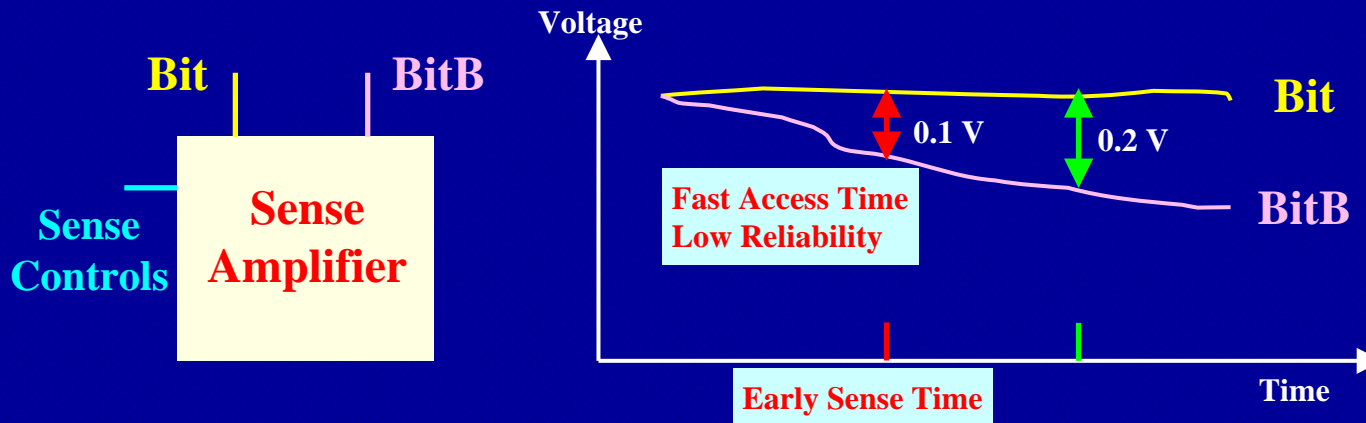
◆ CharFlo-Memory!™ can locate

 • Bit and BitB signal

 • Sense control signal

Any change on voltage supply, .temp, process corners will impact Bit, BitB and Sense Controls.

◆ CharFlo-Memory!™ can automate the simulation output and measurement for reliability check

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Determine Read-Margin Setting
Checking for Yields and Speed

◆ Determine Read-Margin setting based upon access time, Voltage(Bit-BitB) against noise-margin

Read Margin	Access Time	V(Bit-BitB)	*SRAM 8Kx24*
1000	4.3212 ns	365.8 mv	Slow
0100	1.8824 ns	95.9 mv	
1101	2.8109 ns	200.6 mv	
0111	1.8824 ns	95.9 mv	
1111	1.6969 ns	68.3 mv	Danger

* Noise margin is 100 mv minimum normally , and 200 mv for the safer.

Wrong Read Margin (RM) setting causes Poor Yield!

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