

Replacing the Cypress CY62168EV30LL-45BVXI (2Mb x 8) MoBL SRAM with Everspin's MR4A08BMA35 MRAM

General Considerations for Replacing SRAM with MRAM

Everspin Toggle technology magnetic RAM (MRAM) is essentially non-volatile SRAM. Replacing SRAM with MRAM in any application adds non-volatility without compromise of performance or function. Replacing a non-volatile or battery-backed SRAM with MRAM will provide instant 20-year data retention without the overhead of storing data to a non-volatile cell or the expense and space of a battery backup power source.

Considerations for Replacing CY62168EV30LL-45BVXI (2Mb x 8) MoBL SRAM with Everspin's (2Mb x 8) MR4A08BMA35 MRAM

Designers considering a replacement of CY62168EV30LL-45BVXI with MR4A08BMA35 need to consider differences in package size and timing.

Table 1 – Overview: CY62168EV30LL-45BVXI vs. MR4A08BMA35

Parameter	CY62168EV30LL-45BVXI	MR4A08BMA35
Package		
Size and Height	6 x 8 x 1.0 mm	10 x 10 x 1.27 mm
Pinout / Footprint	See Figure 1 and Table 2 below	
Solder Profile	per JEDEC J-STD-020D.1	
Firmware / Timing	0ns Address Hold Time	12ns Minimum Address Hold Time. See Figure 2 below

Figure 1 – Pinout/Footprint Comparison and Considerations

6 x 8 Ball Grid Array, 0.75 mm Pitch

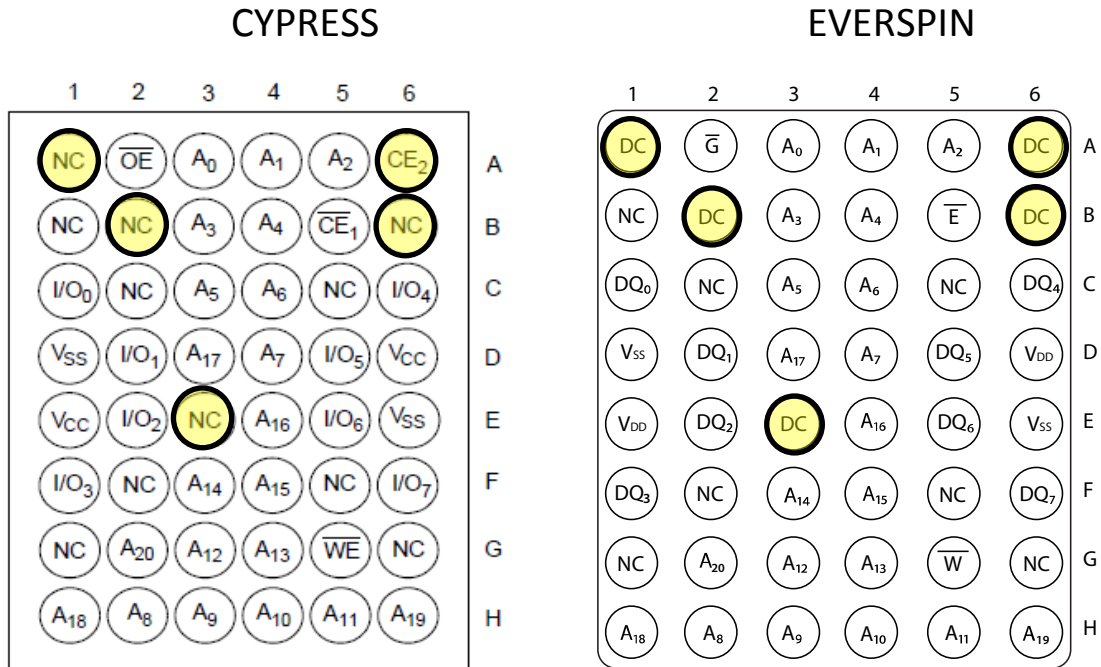


Table 2 – Pin Function Comparison

Ball #	Cypress	Everspin	Everspin Definition	Everspin Comments
A1	NC	DC	Do Not Connect	Prefer to float or pulled low
A6	CE#	DC	Do Not Connect	Function of CE2# is not available on the Everspin device. Prefer to float or pulled low.
B2	NC	DC	Do Not Connect	Prefer to float or pulled low
B6	NC	DC	Do Not Connect	Prefer to float or pulled low
E3	NC	DC	Do Not Connect	Prefer to float or pulled low

Circuit Design Recommendation for an MoBL SRAM and MRAM Compatible Layout

The recommended circuit design below will accommodate both the MoBL SRAM and MRAM with a single PCB layout.

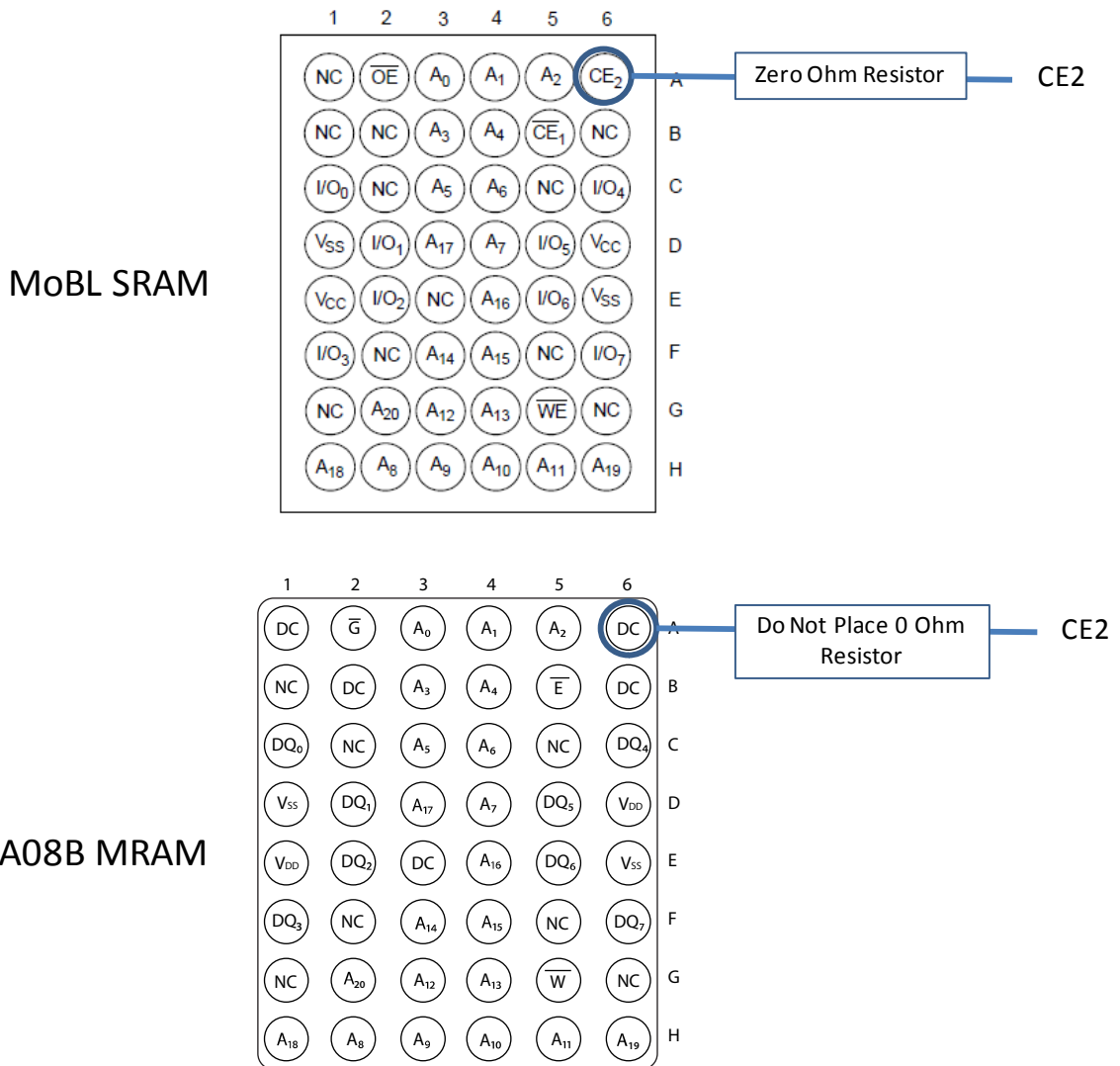
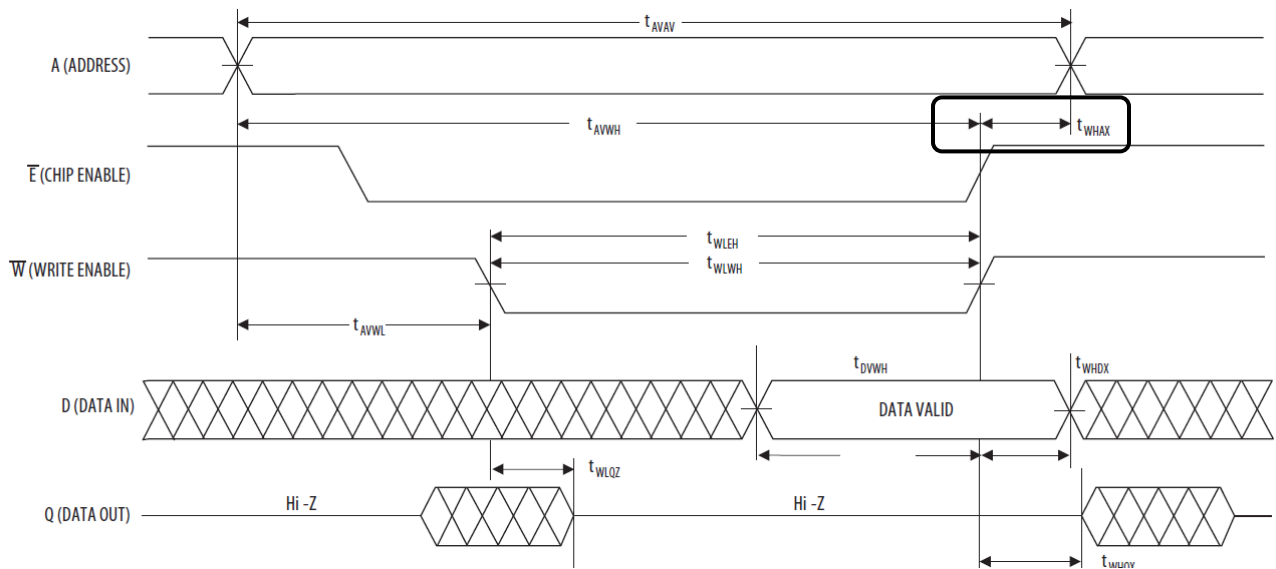


Figure 2 - 12ns Minimum for Address Hold Time for MR4A08B

The Address Hold Time (Everspin Write Recovery Time, t_{WHAX}) for the MR4A08B is a minimum of 12ns compared to 0ns minimum for CY62168EV30LL-45BVXI.



How to Reach Us:

Home Page:
www.everspin.com

E-Mail:

support@everspin.com
orders@everspin.com
sales@everspin.com

USA/Canada/South and Central America

Everspin Technologies
1347 N. Alma School Road, Suite 220
Chandler, Arizona 85224
+1-877-347-MRAM (6726)
+1-480-347-1111

Europe, Middle East and Africa

support.europe@everspin.com

Japan

support.japan@everspin.com

Asia Pacific

support.asia@everspin.com

Everspin Technologies, Inc.

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Author: Chuck Bohac, Manager Applications Engineering, Everspin Technologies chuck.bohac@everspin.com, 480-347-1161