

# Cypress Semiconductor Sort Site Qualification Report

QTP#170503 VERSION \*D  
June 2017

Cypress Test 25, Austin, Texas Sort Site Qualification for F-RAM Devices
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F-RAM Devices
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**FOR ANY QUESTIONS ON THIS REPORT, PLEASE CONTACT**  
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**PACKAGE/PRODUCT QUALIFICATION HISTORY**

<b>QTP Number</b>	<b>Description of Qualification Purpose</b>	<b>Date</b>
170503	Cypress Test 25, Austin, Texas Sort Site Qualification for F-RAM Device	February 2017

### QUALIFICATION COVERAGE RANGE

MARKETING PART NUMBER	PACKAGE
FM16*	8L-SOIC
FM18*	8L-SOIC / 8L-PDIP
FM21*	44L-TSOP
FM22*	44L-TSOP / 48L-BGA
FM24*	8L-SOIC / 8L-DFN
FM25*	8L-SOIC / 8L-DFN / 8L-PDIP
FM28*	8L-SOIC / 28L-TSOP/ 32L-TSOP
FM31*	14L-SOIC
FM33*	14L-SOIC
CY15*	8L-SOIC / 8L-DFN / 8L-PDIP



**Reliability Test Data**  
**QTP #: 170503**

<b>Device</b>	<b>Fab Lot#</b>	<b>Assy Lot#</b>	<b>Test- Loc</b>	<b>Yield</b>
<b><i>SORT TEST: CORRELATION</i></b>				
<b><i>Sort 1 Yield</i></b>				
TR20011ACY	2539013 W5, W9, W12	N/A	KYEC-TEST25	Correlated
<b><i>Sort 2 Yield</i></b>				
TR20011ACY	2539013 W5, W9, W12	N/A	KYEC-TEST25	Correlated
<b><i>Sort 1 Bin Movement</i></b>				
TR20011ACY	2603007 W9	N/A	KYEC-TEST25	0.47% Passed
TR20011ACY	2539013 W9	N/A	KYEC-TEST25	0.35% Passed
<b><i>Sort 2 Bin Movement</i></b>				
TR20011ACY	2603007 W9	N/A	KYEC-TEST25	0.92% Passed
TR20011ACY	2539013 W9	N/A	KYEC-TEST25	0.52% Passed
<b><i>Fishers Exact</i></b>				
TR20011ACY	2539013 W5, W9, W12	N/A	KYEC-TEST25	> 0.05
<b><i>Bin Split Yield</i></b>				
TR20011ACY	3646046 W5, W9, W12	N/A	KYEC-TEST25	Passed
<b><i>Site to Site Verification</i></b>				
TR20011ACY	3646046	N/A	KYEC-TEST25	Passed

See below for an explanation of the terms used above.

**Sort** is the process of electrically testing the die on a wafer after fabrication is complete. Sort test flows vary by product and technology. Sort can be a single test step, or include multiple test steps at different temperatures, data bake, UV erase or other steps.

Sort 1 is the first sort test insertion, Sort 2 is the second sort test insertion, etc. Sort 1 and Sort 2 will typically be done at different temperatures and possibly with different test parameters. Both sort steps use the same reference wafer-map and the rejected die from Sort 1 are not subject to Sort 2. The quantity-out of Sort 1 is the quantity-in for Sort 2.

**Yield** is the ratio of good/working die on a wafer to the total number of die on a wafer.

**Sort 1 Yield** and **Sort 2 Yield** refer to the percent of die on a processed wafer that pass all functional and technical requirements necessary for customer shipment during Sort 1 and Sort 2.

Sort yield comparison between repeated sort insertions for the same wafer are considered correlated if die get binned into the same bins consistently.

Binning allows die to be put into different groups depending on their test results. Each die is assigned a bin based on its performance or failure mode.

**Bin Movement** measures the percentage of die which are put into different bins between repeated sort insertions (i.e. Sort 1 to a repeated Sort 1). Bin movement <2% is required for passing qualification to ensure consistency in sort results.

**Fishers Exact** test is a statistical test used to compare proportions of two nominal variables, to check if they are statistically significant. Sort Yield Comparison using Fisher Exact Test should meet F value  $\geq 0.05$ .

**Site to Site Verification** insures consistent results across all test sites for products which include multiple die tested simultaneously. In this context, “test site” refers to one of the die which are tested simultaneously during a single touch down.



## Document History Page

Document Title: QTP#170503: CYPRESS TEST 25, AUSTIN, TEXAS SORT SITE QUALIFICATION F-RAM DEVICES

Document Number: 002-18687

Rev.	ECN No.	Orig. of Change	Description of Change
**	5624001	SUZH	Initial Release.
*A	5633500	SUZH	Updated the parts list.
*B	5723685	HSTO	Updated Cypress logo Updated the parts list
*C	5747295	EKNG	Updated additional Qualification data
*D	5767156	EKNG SANC	Updated Sort 1 and 2 Bin Movement Value Added definition of technical terms