

FREESCALE

Freescall Semiconductor, Inc.
Issuing Division: MICRO-CONTROLLER DIVISION - MCD (JB, JC
, JD, JI, JJ)

DEVICE MIGRATION **Generic Copy**

18-SEP-2007

Subject: FREESCALE DEVICE MIGRATION 12887
TITLE:

TSPG MCD MRAM MR2A16A MASK REVISION

LAST BUY DATE: 20-Nov-2007
LAST SHIP DATE: 20-Dec-2007

AFFECTED CHANGE CATEGORIES

AFFECTED PRODUCT DIVISIONS

- **TRANSPORTATION & STANDARD PRODUCT GROUP - TSPG**
- **MICRO-CONTROLLER DIVISION - MCD (JB, JC, JD, JI, JJ)**
- **WIRELESS & MOBILE SYSTEMS GROUP MISC. - WMSG (VZ)**
- **FREESCALE SEMICONDUCTOR**

ADDITIONAL RELIABILITY DATA: Available
REFERENCE: Contact Sales Office (RA6452)

Contact your local Sales Office.

SAMPLES: Contact Local Sales Office
REFERENCE: Contact Sales Office ()

Contact your local Sales Office.

For any questions concerning this notification:
REFERENCE: Contact Sales Office (TOM LEE (ORIGINATOR))

DISCLAIMER

YOU CAN REPLY TO THIS MESSAGE AND IT WILL GO TO RHHF70@freescale.com
GPCN FORMAT: CUSTOMER

DESCRIPTION AND PURPOSE

Freescale is announcing improved MRAM MR2A16ATS35C devices.

Replacement part numbers will be aligned with standard Freescale naming conventions:

Original Part#	Replacement Part#
MR2A16ATS35C_____	MR2A16AYS35
MR2A16ATS35CR_____	MR2A16AYS35R

This new mask revision supports enhancements in quality and reliability over the existing commercial temperature device.

There is no change to the package case outline.

There are two changes to the product datasheet specification. The maximum allowable magnetic field during write will increase from 15 Oersted to 25 Oersted. The power up waiting period will be increased from 2 microseconds to 2 milliseconds. Details are provided below:

OLD SPECIFICATION:
Maximum magnetic field during write was 15 Oersted.

NEW SPECIFICATION:
Maximum magnetic field during write is 25 Oersted.

See MR2A16A data sheet, table 3.

OLD SPECIFICATION:
After power up or if VDD falls below V-WI, a waiting period of 2 microseconds must be observed, and the chip enable pin and write enable pin must remain high (inactive) for 2 microseconds.

NEW SPECIFICATION:
After power up or if VDD falls below V-WI, a waiting period of 2 milliseconds must be observed, and the chip enable pin and write enable pin must remain high (inactive) for 2 milliseconds.

See MR2A16A data sheet, note in table 4.

POSSIBLE REPLACEMENT PARTS

The newly qualified commercial MR2A16A product will use a new part number.

Original Part Number	Replacement Part Number
MR2A16ATS35C	MR2A16AYS35
MR2A16ATS35CR	MR2A16AYS35R

QUALIFICATION PLAN

A qualification plan was created per Freescale standard Commercial Tier qualification requirements.

The detailed plan and results are provided in the Reliability Summary section below.

RELIABILITY DATA SUMMARY

Moisture Sensitivity Level Preconditioning: 0/693 Required

PC(MSL3/260C) 0*/231 x 3 lots

*** One failure addressed with 8D and Corrective Action**

Temperature Humidity Bias: 0/231 Required

THB(85C/85RH/504hrs/Vdd=3.6V/Vih=2.5V) 0/77 x 3 lots

FYI THB(85C/85RH/1008hrs/Vdd=3.6V/Vih=2.5V) 0/77 x 3 lots

Temperature Cycle: 0/231 Required

TC(-40Cto125C/500cyc) 0/77 x 3 lots

FYI TC(-40Cto125C/1000cyc) 0/77 x 3 lots

High Temperature Storage Life: 0/231 Required

HTSL(150C/504hr) required. Completed straight to 1008hrs, see below.

FYI HTSL(150C/1008hrs) 0*/77 x 3 lots

*** Three failures addressed with 8D and Corrective Action**

High Temperature Operating Life: <100FIT Required

HTOL(4.3V/125C Ta/200h) required. Completed straight to 400h, see below.

FYI HTOL(4.3V/125C Ta/400h) <100FIT at 60 percent Upper Confidence Limit

FYI HTOL Readout (4.3V/125C Ta/780hrs) 0/478

Early Life Failure Rate: <1000PPM Required.

ELFR(125C Ta/40hrs) <1000PPM at 60 percent Upper Confidence Limit

Soft Error Rate: <2000FIT Required.

SER(-40C/3.3V/100cyc/ECC-off) <2000FIT, Typical = 100FIT.

Thermal Endurance: 0/231 Required.

Checkerboard Memory Pattern Verify (150C/1008hrs) 0/77 x 3 lots

Wire Bond shear: Cpk > 1.67 Required.

WBS Cpk > 1.67 x 3 lots

Wire Bond Pull: Cpk > 1.67 Required.

WBP Cpk > 1.67 x 3 lots

Solderability: 0/15 Required.

SD(8hr Steam Age/burn-in) 0/15 x 1 lot

Physical Dimensions: Cpk > 1.67 Required.

PD(per case outline drawing) Cpk > 1.67 x 3 lots

ESD - Human Body Model: 0/3 at 2000V Required.

ESD-HBM(500/1000/1500/2000V) 0/3 per voltage level

ESD - Charged Device Model: 0/3 at 500V Required.

ESD-CDM(250/500V) 0/3 per voltage level

FYI ESD-DCM(750/1000V) 0/3 per voltage level

Latch-up: 0/6 Required.

LU(Operating Temperature Maximum, 100mA) 0/6 x 1 lot

Qualification Report available upon request.

ELECTRICAL CHARACTERISTIC SUMMARY

Electrical characterization was performed across the product datasheet temperature range. The results passed Freescale qualification requirements.

AFFECTED DEVICE LIST

PART	REPLACEMENT PART	REPLACEMENT TYPE	REPLACEMENT REASON
MR2A16ATS35C			
MR2A16ATS35CR			
PR2A16ATS35C			
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