

AEROSPACE DATA EXCHANGE PROGRAM TRANSMITTAL

# PROBLEM ADVISORY

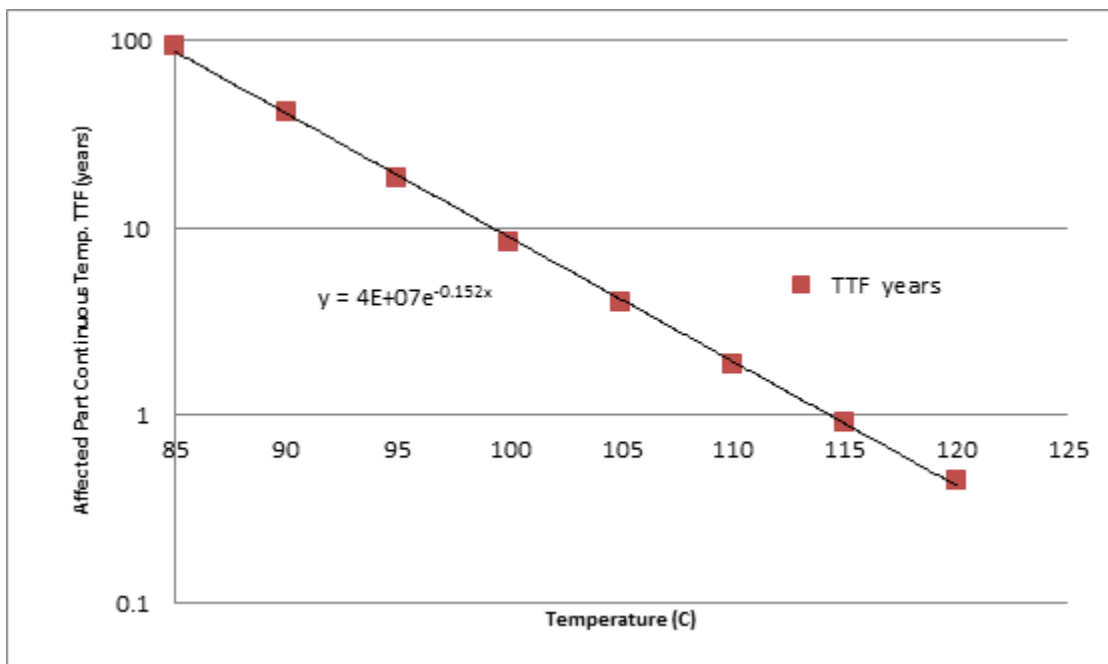


<b>1. TITLE</b> UT8MR2M8 16M MRAM time/temperature induced bit-error anomaly			<b>2. DOCUMENT NUMBER</b> SPO-2014-PA-0008		
<b>4. MANUFACTURER NAME AND ADDRESS</b> CAES 4350 CENTENNIAL BOULEVARD COLORADO SPRINGS, COLORADO 80907-3486			<b>3. DATE (Year, Month, Date)</b> 2014, October, 9		
			<b>5. MANUFACTURER POINT OF CONTACT NAME</b> Robert Ciccariello		
			<b>6. MANUFACTURER POINT OF CONTACT TELEPHONE</b> (719) 594-8022		
<b>7. MANUFACTURER POINT OF CONTACT EMAIL</b> Robert.Ciccariello@cobhamaes.com			<b>8. CAGE CODE</b> 65342		
					<b>9. LDC START</b> See attached
<b>10. LDC END</b> See attached			<b>11. PRODUCT IDENTIFICATION CODE</b> WP01		
			<b>12. BASE PART</b> UT8MR2M8		
<b>13. BLANK</b>			<b>14. SMD NUMBER</b> 5962-12227		
			<b>15. DEVICE TYPE DESIGNATOR</b> 01,02		
			<b>16. RHA LEVELS</b> R,F,G,H		
<b>17. QML LEVEL</b> Q			<b>18. NON QML LEVEL</b> HiRel		
			<b>19. BLANK</b>		
<b>20. PROBLEM DESCRIPTION / DISCUSSION / EFFECT</b>  This Problem Advisory is to notify users of the QML grade UT8MR2M8 16M MRAMs of a time/temperature induced bit-error anomaly and present corrective action to ensure the product lifetime. CAES uncovered the anomaly during its investigation and analysis of a reject device found during extended (3000 hours) life testing.  The root cause investigation determined that affected devices, which are operated or stored continuously above 95°C, may experience random single bit read anomalies (<1/100K bits) resulting in incorrect data read. Failing bits become stuck and will not recover with a write/read. CAES estimates that ~5% of shipped units can experience random single bit read anomalies when operated continuously at maximum use temperature.  A complete list of affected production lots and associated date codes are listed on SHEET 2 of this Problem Advisory.					
<b>21. ACTION TAKEN / PLANNED</b> <ul style="list-style-type: none"> <li>CAES has implemented a screening process that eliminates defective parts.</li> <li>Operation or storage at or below 95°C does not pose a life time risk.</li> <li>Devices may be operated or stored up to a maximum case temperature (105°C) for up to 3 years without impacting the 20 year operating lifetime.</li> <li>Parts planned to be operated or stored beyond these conditions should be returned for replacement. Customers who have received units from one of the affected lots listed on SHEET 2, will be contacted directly by their CAES Sale Representative to obtain a Return Material Authorization if deemed necessary by the customer.</li> </ul>					
<b>22. DISPOSITIONARY RECOMMENDATION:</b>		CHECK & USE AS IS <input type="checkbox"/>	CONTACT MANUFACTURER <input checked="" type="checkbox"/>	REMOVE & REPLACE <input checked="" type="checkbox"/>	CORRECT & USE AS SPECIFIED <input checked="" type="checkbox"/>
<b>23. ADEPT REPRESENTATIVE</b> Lin-Chi Huang		<b>24. SIGNATURE</b> <i>LinChi Huang</i>			<b>25. DATE</b> 2014 November 14

<b>Affected Assembly Lot</b>	<b>Lot Date Code</b>
2SELAA	1415
QL4672E	1316
QL4672A	1316
QL4672C	1316
2SEL	1415
2SEKA	1415
QL4811	1338
QL4811-1B	1338
QL4811B	1338
QL4811-1	1338
QL4811A	1338

Frequently Asked Question (FAQ) regarding Aerospace Data Exchange Program Transmittal (ADEPT) for Problem Advisor on the 16M MRAM - October 2014

1. Will CAES have replacement parts available and when? – ANS: Yes, in Dec. 2014.
2. I'm an International customer and original parts shipped on an export license; how will replacement parts be shipped? - ANS: We use the same export license used to originally export the parts out of the United States. CAES will supply the Return Material Authorization (RMA) number for returning the parts, coordinate the import back into the U.S. and the re-export of replacement parts to you.
3. I have received other date code 16M MRAMs from CAES, why are these not suspect? – ANS: Those subject parts received the proper screen to remove the anomaly from the population.
4. What new screen has CAES put in place? – ANS: A wafer level screen (at 200C).
5. Does the part need to be at biased to be degraded? – ANS: No.
6. My operating temperature is 85C but the Acceptance Test at the box level is at 100C (>10 hours), what's the impact to the lifetime of the part? - ANS: Affected parts can meet a 20 year life time under these conditions.
7. Will CAES be offering 16M MRAMs to a QMLV flow? – ANS: Yes, in 2015; please contact your CAES Sales Representative for more information.
8. If CAES has not contacted me, can I assume I have not received any parts from suspect date codes? – ANS: Yes.
9. Does reflow affect the lifetime of the part? - ANS: MIL-STD-202G specifies topside solder wave temperature and duration as 260C for 20 seconds. Based on our understanding of the package thermal characteristics, CAES does not believe that reflow will have an effect on lifetime on affected parts.
10. What if I have temperature cycled the 16M MRAM beyond the 95C; will I have degraded the lifetime of the part and by how much? - ANS: As part of package qualification, CAES uses MILPRF 883 method 1018 test condition B (-55 to 125C, 10 minute dwell time, 10 total cycles). This equates to 100 minutes at 125C, which reduces the predicted continuous 105C lifetime on affected parts by ~ 1700 hours (71 days). If you have used a different method, please contact CAES directly and we can assess any impact.
11. What will the lifetime of the part be if I am operating at >105C; is there a time/temperature chart that can be shared? – ANS: Below is a chart showing predicted lifetime for affected parts under constant temperature.



12. Is the QMLQ Qualification on the 64M MRAM affected by this issue with the 16M MRAM? – ANS: No.
13. If I'm my operating and storage temperature is below 95C do I need to get parts replaced? – ANS: No.

For any other questions or concerns, please contact CAES directly and your questions will be addressed individually.