AEROSPACE DATA EXCHANGE PROGRAM TRANSMITTAL

# PRODUCT CHANGE NOTICE

| 1. TITLE | 2. DOCUMENT NUMBER |
|---|---|
| RAD-HARD 8-BIT MSI LOGIC WITH SCHMITT TRIGGER INPUTS – NEW SPEC. PARAMETER INPUT TR/TF MAX. | SPO-2018-PCN-0003 |
| | 3. DATE *(Year, Month, Date)*<br>2018 NOV 27 |
| 4. MANUFACTURER NAME AND ADDRESS<br>CAES<br>4350 CENTENNIAL BOULEVARD<br>COLORADO SPRINGS, COLORADO 80907-3486 | 5. MANUFACTURER POINT OF CONTACT NAME<br>BRUCE MASSEY |
| | 6. MANUFACTURER POINT OF CONTACT TELEPHONE<br>719 594-8466 |
| | 7. MANUFACTURER POINT OF CONTACT EMAIL<br>Bruce.Massey@cobhamaes.com |

| 8. CAGE CODE | 9. EFFECTIVE DATE | 10. PRODUCT IDENTIFICATION CODE | 11. BASE PART |
|---|---|---|---|
| **65342** | 2018, NOV, 27 | **See Table 1, SHEET 2** | **See Table 1, SHEET 2** |
| 12. BLANK | | 13. SMD NUMBER<br>**See Table 1, SHEET 2** | 14. DEVICE TYPE DESIGNATOR<br>**See Table 1, SHEET 2** |
| | | 15. RHA LEVELS<br>**R, F, G, H** | 16. QML LEVEL<br>**Q, V** |
| | | 17. NON QML LEVEL<br>**N/A** | 18. GIDEP<br>**GB4-C-19-001** |

19. PRODUCT CHANGE

All 8-bit Rad-Hard Medium Scale Integrated (RHMSI) Logic devices with Schmitt Trigger Inputs, listed in Table 1, SHEET 2 (below) will have parameters $t_R$, $t_F$ (20%/80% input rise, fall times) added to the RECOMMENDED OPERATING CONDITIONS section, for both Data Sheets and SMD documents, with a limit value of <1µs. This change applies as of the EFFECTIVE DATE listed in section 9 (above).

A Product Advisory was issued in February, 2015, describing the issue and notifying device users via the CAES 8-bit RHMSI Logic webpage. The document link and *Section 5, Summary and Conclusion,* are provided below in *italics* for reference. However, in order to ensure that all users of the devices listed under Table 1 receive notification, CAES is issuing this ADEPT PCN.

*Standard Products Product Advisory*
*RHMSI with Schmitt Trigger Inputs: Recommended Max. Input Rise/Fall Time*
*February 2015*
*www.cobhamaes.com/HiRel*

*5. Summary and Conclusion*

There are maximum input rise/fall ($t_R$,$t_F$) time requirements for RHMSI products with Schmitt Trigger inputs that are not currently reflected in the product datasheets. The common practice for Schmitt Trigger inputs is to provide immunity to noise and slow rise/fall times. However, operating the referenced parts with input edges slower than 1µs (0-100%) may lead to anomalous output behavior. Limiting the logic input signal $t_R$,$t_F$ to a maximum value of 1µs (0-100%) will avoid the risk of this undesired output behavior.

Additional UT54ACTS132 device measurements have been performed over voltage (V) and temperature (T). Based on all measurements and a review of general circuit characteristics, the maximum value of 1µs (0-100%) is representative of worst-case circuit operation for the referenced RHMSI with Schmitt Trigger input parts. Therefore, it is assumed that these findings and recommendations may be applied to all similar parts in this logic family. (Continued on SHEET 2)

| 20. DISPOSITIONARY RECOMMENDATION: | CHECK & USE AS IS ☐ | CONTACT MANUFACTURER ☐ | REMOVE & REPLACE ☐ | CORRECT & USE AS SPECIFIED ☒ |
|---|---|---|---|---|
| 21. ADEPT REPRESENTATIVE<br>**Robert Polk** | 22. SIGNATURE | | | 23. DATE<br>**2019 FEB 26** |

5. Summary and Conclusion (Continued)

If the input signal is RC filtered sufficiently it will inherently filter any noise on the input and under these conditions the anomaly has not been observed.

Note: This PCN does not apply to the UT54ACS2S99S Dual and UT54ACS3G99S Triple ManyGate 8-bit RHMSI Logic devices with Schmitt Trigger Inputs, which have an input edge specification limit value of $t_R, t_F < 1s$.

Table 1. Affected Part Numbers Under This PCN

| Description | SMD Number | Device Type | CAESPart Number | CAES PIC Number |
|---|---|---|---|---|
| Hex Inverter Schmitt Trigger Inputs | 5962-96524 | 01 | UT54ACS14 | CA014 |
| | 5962-96524 | 02, 03 | UT54ACS14E | CE014 |
| | 5962-96525 | 01 | UT54ACTS14 | LA014 |
| | 5962-96525 | 02, 03 | UT54ACTS14E | LE014 |
| Quad 2-In NAND Gate Schmitt Trigger Inputs | 5962-96542 | 01 | UT54ACS132 | CA132 |
| | 5962-96542 | 02, 03 | UT54ACS132E | CE132 |
| | 5962-96543 | 01 | UT54ACTS132 | LA132 |
| | 5962-96543 | 02, 03 | UT54ACTS132E | LE132 |
| Octal Bus Transceivers Schmitt Trigger Inputs | 5962-96572 | 01 | UT54ACS245S | CA45S |
| | 5962-96572 | 02, 03 | UT54ACS245SE | CE45S |