

# PROBLEM ADVISORY

1. TITLE UT32M0R500 Arm Microcontroller: Reported sensitivity in startup circuitry			2. DOCUMENT NUMBER SPO-2023-PA-0002		
			3. DATE (Year, Month, Date) 2023 AUGUST 24		
4. MANUFACTURER NAME AND ADDRESS FRONTGRADE TECHNOLOGIES 4350 CENTENNIAL BOULEVARD COLORADO SPRINGS, COLORADO 80907-3486			5. MANUFACTURER POINT OF CONTACT NAME Jose Betancourt		
			6. MANUFACTURER POINT OF CONTACT TELEPHONE 719-208-9662		
			7. MANUFACTURER POINT OF CONTACT EMAIL jose.betancourt@frontgrade.com		
8. CAGE CODE 65342	9. LDC START All	10. LDC END All	11. PRODUCT IDENTIFICATION CODE MIC	12. BASE PART UT32M0R500	
13. BLANK			14. SMD NUMBER 5962-17212	15. DEVICE TYPE DESIGNATOR ALL	
			16. RHA LEVELS ALL	17. QML LEVEL ALL	
			18. NON QML LEVEL ALL	19. GIDEP NUMBER GB4-P-23-02	
20. PROBLEM DESCRIPTION / DISCUSSION / EFFECT  <p>The UT32M0R500 Arm Microcontroller has a reported sensitivity in its startup circuitry. This issue has been reported only on systems that do not separate analog/digital power and ground domains and manifests in the part not exiting the reset state. Frontgrade is characterizing the rate of occurrence and specific conditions under which this sensitivity may occur.</p> <p>This sensitivity has been reported if published layout guidance is not followed per the published <a href="https://frontgrade.com/sites/default/files/documents/App-Note-UT32M0R500-Board-Design-Recommendations.pdf">https://frontgrade.com/sites/default/files/documents/App-Note-UT32M0R500-Board-Design-Recommendations.pdf</a> Units that reported the issue were returned to Frontgrade and passed all of the datasheet/SMD specifications, this is indicative of a system level sensitivity.</p> <p>Block 20 Continued on page 2.</p>					
21. ACTION TAKEN / PLANNED <p>Frontgrade has attempted to reproduce the problem without success because the Frontgrade lab equipment and Automated Test Equipment have isolated power and ground domains. Frontgrade has not been able to reproduce the issue through simulation despite applying beyond specification conditions and noise injection on boards with isolated split planes.</p> <p>Corrective Actions:</p> <ul style="list-style-type: none"> <li>-Users to architect systems with separate analog/digital power and ground domains.</li> <li>-If this is not possible and the condition is seen in system, Frontgrade recommends power cycling the device until it exits the reset state or disable the affected circuitry through the Power On Reset Shutdown Pin.</li> </ul> <p>Next Steps:</p> <ul style="list-style-type: none"> <li>-Frontgrade to continue its investigation to identify root cause and provide a GIDEP update in H2 2023.</li> <li>-Update the datasheet to identify Power On Reset Shutdown Pin such that users can disable the affected circuitry</li> </ul>					
22. DISPOSITIONARY RECOMMENDATION:		CHECK & USE AS IS <input type="checkbox"/>	CONTACT MANUFACTURER <input type="checkbox"/>	REMOVE & REPLACE <input type="checkbox"/>	CORRECT & USE AS SPECIFIED <input checked="" type="checkbox"/>

**Table 1: Affected Part Numbers**

<b>Ceramic package</b>
UT32M0R500-ZPC
UT32M0R500-ZFC
UT32M0R500LZLC
UT32M0R500-SPF
UT32M0R500-SFF
UT32M0R500LSLF
UT32M0R500LCLF
UT32M0R500-CPA
5962L1721201QXC
5962L1721201QYF
5962L1721202QXC
5962L1721202QYF
<b>Plastic package</b>
UT32M0R500LBNA
UT32M0R500LBLA
ENG-UT32M0R500LBLA