

TAS2562HYFPR – Debug Update

12th November, 2019

TAS2562HYFPR | Summary of Reported Issues

Reported Issue	Debug Update	Screen Status	Issue Status from TI
OC flag set, stops playing audio	<ul style="list-style-type: none">TI identified the root cause to be higher GREG impedance on some devices.Higher GREG impedance along with >200pH board inductance causes the issue.	<ul style="list-style-type: none">Screen added in FT to filter out devices with higher impedance.Screen gives margin of up to 4nH inductance on GREG.	Closed in September including screen added.
Intermittent audio cut-off	<ul style="list-style-type: none">Issue debugged to wrong memory pointer initialization.	<ul style="list-style-type: none">New screen ensures 100% coverage on memory.	Closed in October including screen added.
Audio POP noise	<ul style="list-style-type: none">I2S output was intermittently corrupted due to glitches.Algorithm is supposed to filter out glitches.Algorithm update needed at Customer system to take care of this.	<ul style="list-style-type: none">NA	Closed in September.

TAS2562HYFPR | GREG Issue

- GREG design has been done for parasitic inductance of upto 4nH
 - GREG needs to support up to 4mA current to deliver max power in Class-D under datasheet conditions
- Earlier screen in FT was with lower current($\sim 1\text{mA}$) under tester conditions
 - This corresponds to 4mA current under datasheet conditions
 - Devices which are marginal can have issues with systems with higher parasitic inductance
- Additional stringent test added, screens for 4mA DC current capability on all devices
 - Allows the device to support maximum designed parasitic inductance of 4nH
 - The corner case devices which had lower current capability will also get screened out with the new program
 - Provides margin on the customer system which has $\sim 2.6\text{nH}$ (2.1nH board routing + $\sim 500\text{pH}$ of ESL) of parasitic inductance
- Customer Screen is tried and is confirmed to be working for this issue
 - The factory screen that is added also ensures that the device works in the actual system scenario

TAS2562HYFPR | TI Screen Update

- TI screens devices based on GREG Voltage with 4mA Load Current
 - 4mA is higher than maximum expected loading on GREG by device.
 - Failing Units because of higher impedance show much lower voltage on GREG as compared to good devices.
 - This is used as a screen mechanism by TI to weed out bad devices.
 - Design is verified to work with minimum GREG-PVDD voltage of 1.9V where as Test Screen is added at 2.28V to give margin.
 - TI has verified this screen on multiple wafers and screen is working as expected

TAS2562HYFPR | Intermittent Audio cut-out

Summary

- Issue is related to incorrect memory pointer being queried
 - This is because of small($<0.1\%$ memory) uncovered in FT.
 - On good devices, issue is never expected to be seen
 - On failing devices, run to run variation is observed
- Following are the two different screens added in FT to catch failing devices.
 - 10 individual runs to load/read the pointer are being done in FT to catch this issue
 - In every run, pointer is read back and compared to expected value. Any run fail is screened out.
 - In addition to this, rest of the memory is fully covered in FT.
 - Memory Screen is updated to ensure 100% coverage on memory.

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