Comparison studies on TI Line driver IC G4 Vs Non-G4

Line Driver TI IC Comparison

- Problem Statement : High Icc failure
- Product specs. Icc current limit to 55mA max.
- Icc failure observed for the line driver with suffix G4, drawing as high as 104mA. Double the specification set.
- TI Line Driver IC pinouts impedance reading also differs between G4 and Non-G4 option

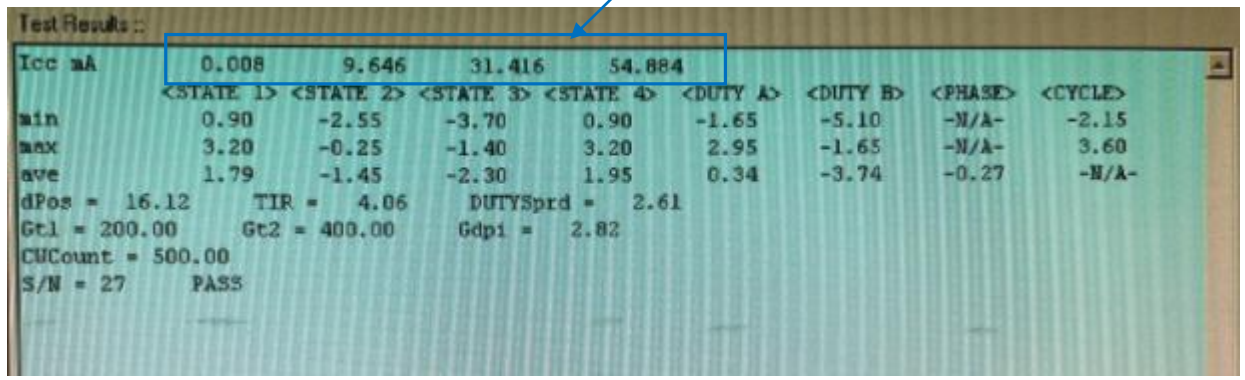
No	Test	Results	Remark
1	line driver change	Pass	Observed different marking on top of the IC
2	PCB change	Pass	Observed different marking on top of the IC
3	encoder level functional test	Pass	No issue with encoder
4	impedance test	Fail	G4 IC has different readings vs no suffix
5	capacitor check	Fail	on-board value differs from off board value. off board value check passed.

IC AM26C31Q Pinouts	Good unit (Mohm)	Fail unit (Mohm)
1	3.2	2.6
2	2.8	5.6
3	2.8	5.6
4	3.2	2.6
5	2.8	5.6
6	2.8	5.6
7	3.2	2.6
8	Gnd	Gnd
9	0	0
10	2.8	5.6
11	2.8	5.6
12	0	0
13	2.8	5.6
14	2.8	5.6
15	3.2	2.6
16	2.7	2.37

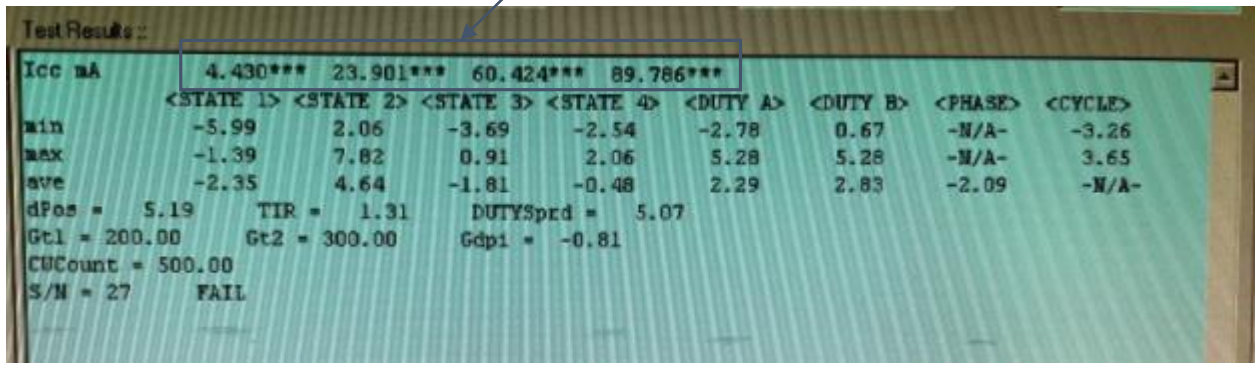
Line Driver TI IC Comparison

Test data log (Screened shot)

PASS



FAIL



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Failure Analysis (Root Cause)

- Findings: Different IC (suffix - G4) was mounted to the PCB (SMT Part from BH)

(Good part) AM26C31Q lead finish - CU NIPDAU & CU SN

(NG part) AM26C31QG4 lead finish - CU NIPDAU

* Different in material affect the resistance value, hence the current consumption is affected.

END