

## STAGE 2 - INVESTIGATION

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### Investigation and investigation conclusion

*Include Objective links to supporting data and the F-625 problem solving methodology document if used.*

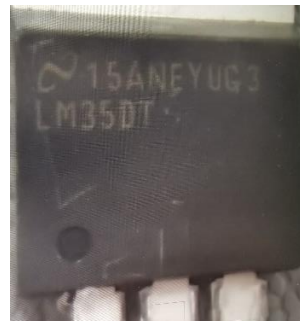
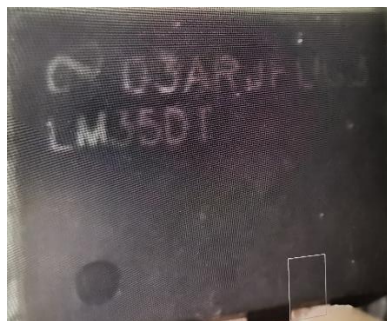
1. These devices were found temperature consistently stuck at 100°C.
2. Wiggling the wires/connector did not show poor contact issue.
3. Temperature sensor leads to Main board connection did not show discontinuity/poor contact issue.
4. A03021 Control Temperature sensor, batch C19577 was begun to use on 25 Jan 2022, lot 424. Failure rate reported was 4.2%. (From lot 424 -lot 427, 10 reported failed out of 240 A03021 temperature sensor used)
5. Temperature sensor were confirmed faulty by Bencol.



RE NCR2022-006  
Persistent warming up

Testing results:

Reference	Resistance		Voltage		Pass	Marking code
	VCC-GND (Red to black)	Output -GND (Yellow to black)	VCC-GND (Red to black)	Output -GND (yellow to black)		
	0.5-0.6 M	43k	5V	0.2-0.3V (20 C)		03ARxxxxx
S1	48k	41k	5V	4.9V	Error	15ANxxxxx
S2	0.56M	46k	5V	4.6V	Error	15ANxxxxx
S3	0.54M	44k	5V	4.3V	Error	15ANxxxxx
S4	0.55M	43k	5V	4.3V	Error	15ANxxxxx
S5 (S/N 490563-008)	0.60M	43k	5V	0.25V	Pass	03ARxxxxx
S6	0.60M	39k	5V	4.3V	Error	15ANxxxxx
S7	0.52M	39k	5V	4.3V	Error	15ANxxxxx
S8	N/A	N/A	N/A	N/A	Pass(T2)	14AKxxxxx
S9	N/A	N/A	N/A	N/A	Pass(T2)	14AKxxxxx
S10	N/A	N/A	N/A	N/A	Pass(T2)	14AKxxxxx
S11	N/A	N/A	N/A	N/A	Pass(T2)	14AKxxxxx
S12	N/A	N/A	N/A	N/A	Pass(T2)	14AKxxxxx
S13	N/A	N/A	N/A	N/A	Pass(T2)	15ANxxxxx
S14	N/A	N/A	N/A	N/A	Pass(T2)	15ANxxxxx
S15	N/A	N/A	N/A	N/A	Pass(T2)	15ANxxxxx
S16	N/A	N/A	N/A	N/A	Error(T2)	15ANxxxxx
S17	N/A	N/A	N/A	N/A	Error(T2)	15ANxxxxx



Analysis:

- 1> All the failed parts are from Marking code “15ANxxxxx”. Output voltage presents the 4.3V-4.9V, which means very high (more than 100 C) temperature.
- 2> 5 samples from Marking code “14AKxxxxx” are tested without problem, also no failure from production with this Marking code.
- 3> 5 samples with Marking code “15ANxxxxx” screening from stock were tested, 2 out of them were failed at the same issue. Roughly 40% failure rate. However, the sample number is low.

Root cause:

LM35D IT temperature sensor with Marking code “15ANxxxxx” components faulty.

**Root cause**

Faulty IC component of A03031 Temperature sensor

Root cause category:	Materials	External	Comments:
<b>Section completed by:</b>	<b>Suek Fong</b>	<b>Date:</b>	3 February 2022