Failure Analysis Report

TEXAS INSTRUMENTS

Device Analysis Services

QEM-CCR-2006-00885

Customer:	/	**Assy Site:**	/
Customer Tracking ID:	/	**Fab Site:**	/
Customer Part ID:	/	**Technology:**	/
Customer Contact:	/	**Analyst:**	/
Device Type:	TLV62568DBVR	**TI Contact:**	/
		Qty Submitted:	1
Flow Type:	/	**Date Submitted:**	/
Reviewer:	/	**Approval:**	/

Summary

Failure Analysis	Results
Customer Reported Failure Mode	1pcs field failure, Vin short to GND.
TI Failure Description	Pin3 (SW) and Pin4 (VIN) short to GND
What effect does the defect or damage cause?	Short failure
Where and what is the defect/damage?	EIPD (Electrical Induced Physical Damage) as degraded molding compund was observed.
Did the identified physical defect/damage explain the TI reported failure mode?	Yes

TI Unit #	Cust. Unit #	Lot Trace Code	Symbolization	Wafer Fab Lot #	Assembly Lot #
1					

- **Customer Reported Problem Description:**

  1pcs field failure, Vin short to GND.

- **TI Problem Description:**

  Short failure was verified on unit#1.

- **Package Analysis:**

  - **External Package Examination:**

  Solder and flux material was observed. No abnormality was observed on unit #1.

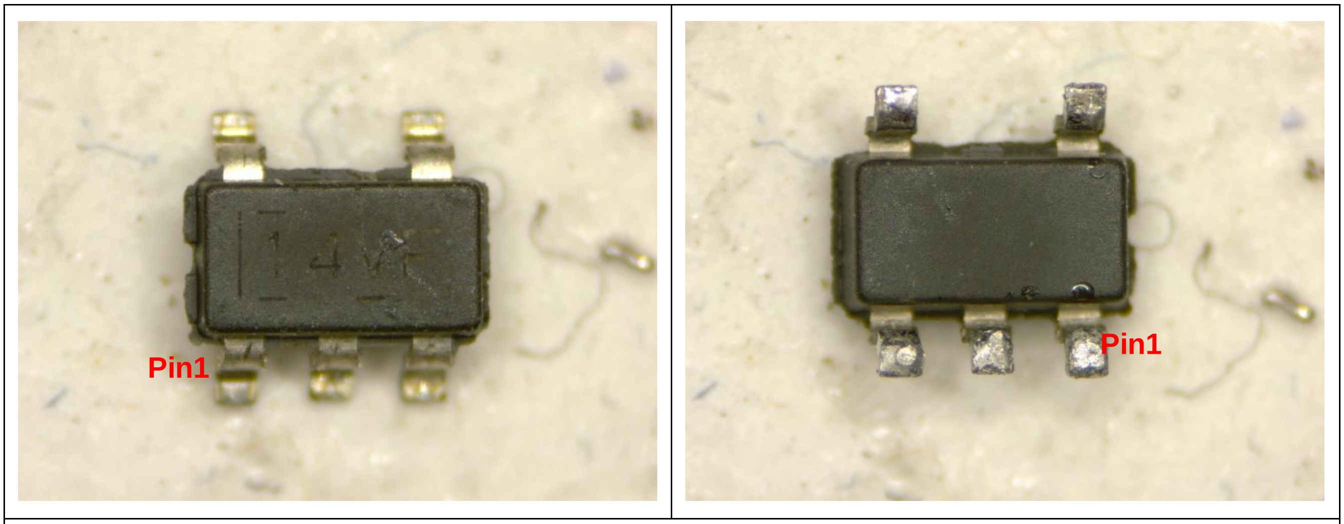


Figure 1. Optical images of unit #1

- **X-Ray Analysis:**

The returned unit was inspected by X-ray. No abnormality was observed on unit #1.

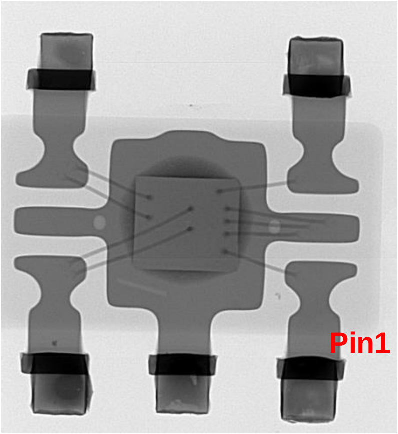


Figure 2. X-ray image of Unit #1

- **SAM Analysis:**

Delamination was observed at molding compound/die paddle interface of unit #1.

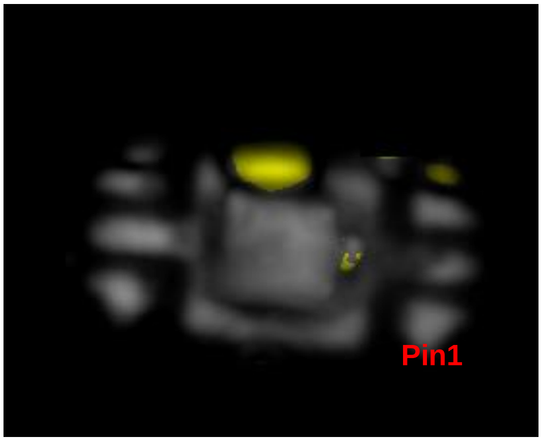
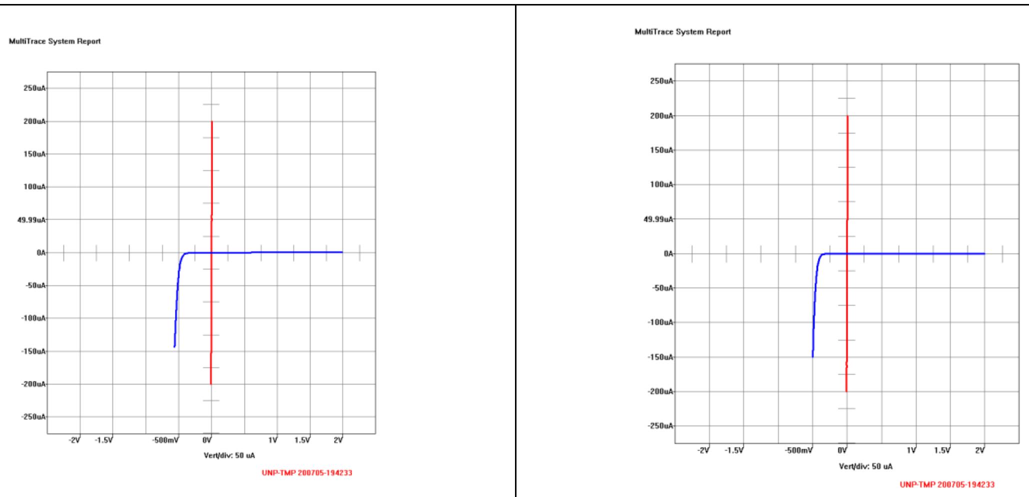


Figure 3. SAM image of Unit #1

- **Electrical Characterization:**

  I-V curve trace analysis was performed on unit #1. Short failure was verified at pin3 (SW) and pin4 (VIN) to GND of unit#1.



Pin3 (SW) vs. GND I-V curve

Pin4 (VIN) vs. GND I-V curve

Figure 4. Unit#1, typical I-V curve showed short failure was verified at pin3 and pin4 to GND

- **Decapsulation and OM inspection:**

  Unit#1 was decapped. EIPD as degraded molding compound was observed at die surface of unit#1.

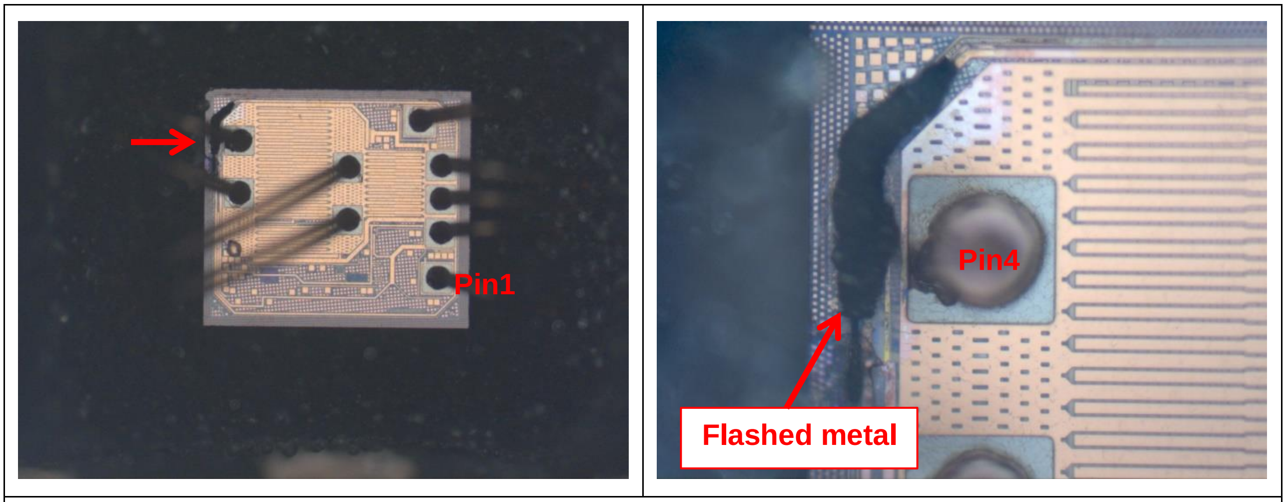


Figure 5. Unit#1, Optical pictures showed flashed metal was observed at die surface

- **Observation:**

  Short failure was verified on unit #1. After decapsulation, EIPD as degraded molding compound was observed at die surface of unit#1.

Note 1: Due to digital image capture, the magnification is not calibrated nor is the aspect ratio maintained. Not all tools provide a means recorded in the image for calibrating the measurements. When a calibration marker is supplied in the image, the measurements may be calibrated in the direction of the marker.