

Laboratory Analysis Report

Customer Information			
Name:	N/A	Receipt Date:	N/A
Purchase Order #:	N/A	Customer Order #:	N/A

Test Sample Information			
Manufacturer:	Nexperia	Part Number:	PESD1FLEX
Package Type:	SOT-23-3	Description:	TVS DIODE
Country of Origin:	MY	Total Quantity:	24000
Lot Code:	TAPA4901130A		
Date Code:	2150		

Test Environment Information			
Temperature:	20°C – 25°C	Humidity:	30% RH – 40% RH

Summary Report	
General Conclusion:	Parts categorized as unused, deemed acceptable according to the reference standard.

Prepared By:	Disclaimer: <i>This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.</i> <i>This report is computer generated.</i>	Generated On:
Michael Mendoza		
Approved By:		
Horst Fischer		



Test Results Summary						
Test Overview	Quantity Tested	Pass	Fail	N/A	Remark	Performed By
General Inspection (SAE AS6081, 4.2.6.4.2.1)						
Condition Observed	24000	24000			The packaging and labels have been assessed and are deemed acceptable.	MA
External Visual Inspection (SAE AS6081, 4.2.6.4.2.2)						
Condition Observed	122	122			No abnormalities were detected.	MA
Package Inspection (SAE AS6081 / IDEA-STD-1010-B)						
Dimensions Verification	3	3			Dimensions are as per the datasheet specification.	MA
Solvent Test for Remarking – Permanency (SAE AS6081 4.2.6.4.3 A / 4.2.6.4.3 B)						
Marking Verification	3	3			The markings do not smear or get removed by the solution. The part/s passed the marking permanency testing.	MA
Solvent Test for Resurfacing – Acetone (SAE AS6081 4.2.6.4.3 A / 4.2.6.4.3 B)						
Surface Inspection	3	3			No secondary coating or markings were removed during this process.	MA
Solvent Test for Resurfacing – Dynasolve (SAE AS6081 4.2.6.4.3 A / 4.2.6.4.3 B)						
Surface Inspection	3	3			No secondary coating was found.	MA
X-Ray Inspection (SAE AS6081, 4.2.6.4.4)						
Internal Structure Inspection	45	45			No anomalies are observed in the internal structure.	MA
XRF Inspection (SAE AS6081, 4.2.6.4.5)						
Lead Finish Analysis	3	3			The restricted substances in the part/s are within the allowable limits specified by the RoHS directive.	MA
Solderability Test (MIL-STD-883 Method 2003 / J-STD-002)						
Solderability Evaluation	3	3			The leads show a solder wetting coverage rate exceeding 95%.	MA
Delid/Decapsulation Internal Analysis (SAE AS6081 4.2.6.4.6)						
Die Verification	3	3			Die construction of the part are checked and captured.	MA

Prepared By:	<i>Disclaimer:</i> <i>This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.</i> <i>This report is computer generated.</i>	Generated On:
Michael Mendoza		
Approved By:		
Horst Fischer		

General Inspection (SAE AS6081, 4.2.6.4.2.1)

Test Description	Sample Size	Acceptable	Not Acceptable	Remark
Condition Observed	24,000	●		Parts were received in acceptable condition.



Fig 1. Incoming Condition



Fig 2. Top of Box



Fig 3. Box Label



Fig 4. Top of Reel



Fig 5. Bottom of Reel

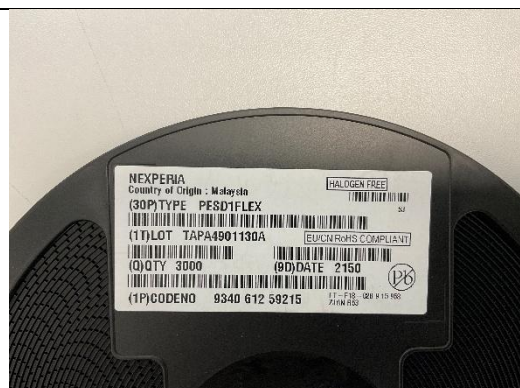


Fig 6. Label on Reel

Prepared By:	Disclaimer:	Generated On:
Michael Mendoza	This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.	
Approved By:		
Horst Fischer	This report is computer generated.	

General Inspection (SAE AS6081, 4.2.6.4.2.1)



Fig 7. Part Orientation

REFERENCE

Prepared By:	Disclaimer: <i>This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.</i> <i>This report is computer generated.</i>	Generated On:
Michael Mendoza		
Approved By:		
Horst Fischer		

External Visual Inspection (SAE AS6081, 4.2.6.4.2.2)

Test Description	Sample Size	Acceptable	Not Acceptable	Remark
Condition Observed	119	•		No anomalies were observed during the visual inspection.

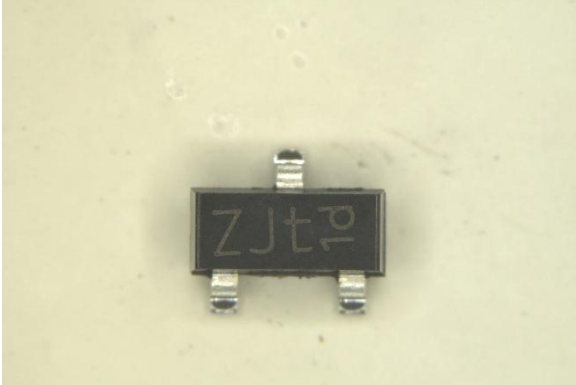


Fig 8. Top View

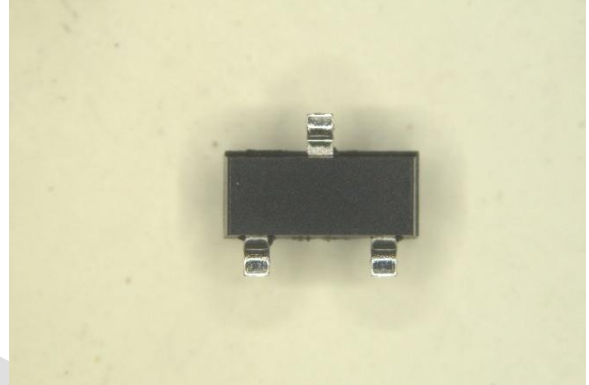


Fig 9. Bottom View

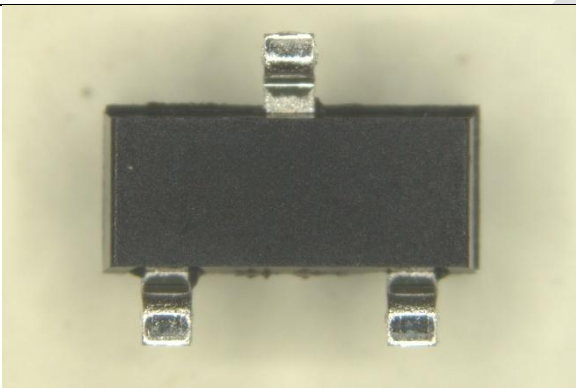


Fig 10. Lead View (1)

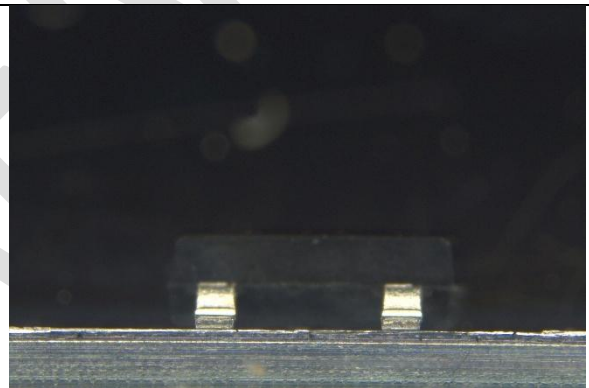


Fig 11. Lead View (2)

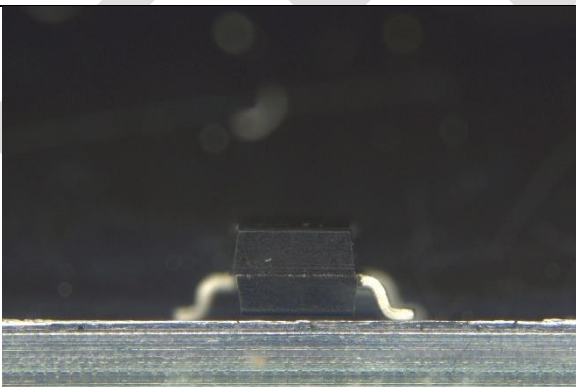


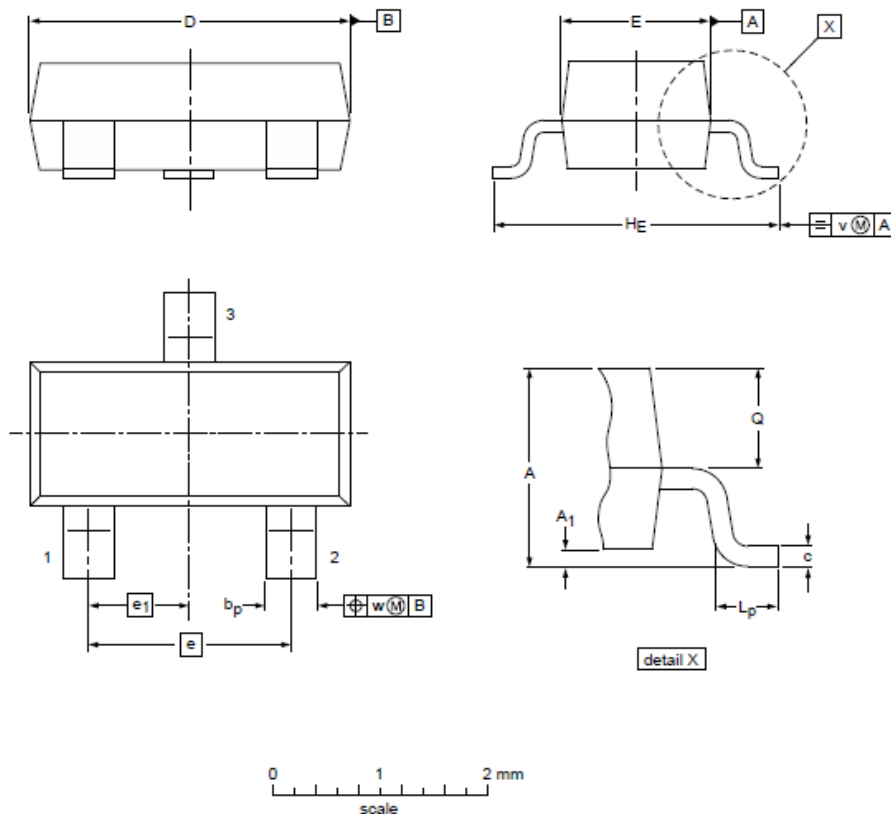
Fig 12. Side View

Prepared By:	<p><i>Disclaimer:</i></p> <p><i>This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.</i></p> <p><i>This report is computer generated.</i></p>	Generated On:
Michael Mendoza		
Approved By:		
Horst Fischer		

Package Inspection (SAE AS6081 / IDEA-STD-1010-B)

Equipment Used: Leica Microscope M205 C

Test Description	Sample Size	Acceptable	Not Acceptable	Remark
Dimensions Verification	3	●		Dimensions match the datasheet specifications.



Dimensions (mm are the original dimensions)

Unit	A	A ₁	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w
max	1.1	0.1	0.48	0.15	3.0	1.4			2.5	0.45	0.55		
nom							1.9	0.95				0.2	0.1
min	0.9		0.38	0.09	2.8	1.2			2.1	0.15	0.45		

Fig 13. Manufacturer's Datasheet

Dimensional Measurement

Dimension: mm	Length (H _E)	Width (D)	Thickness (A)
	2.10 – 2.50	2.80 – 3.00	0.90 – 1.10
S1	2.45	2.85	0.92
S2	2.49	2.86	0.91
S3	2.44	2.86	0.92

Prepared By:

Disclaimer:

Generated On:

Michael Mendoza

This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.

Approved By:

Horst Fischer

This report is computer generated.

Package Inspection (SAE AS6081 / IDEA-STD-1010-B)

Equipment Used:

Leica Microscope M205 C

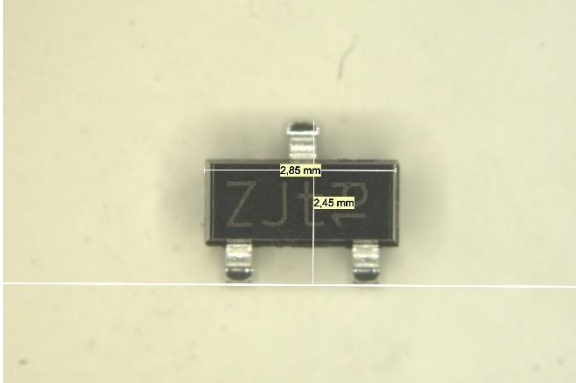


Fig 14. S1 – Package Length / Width

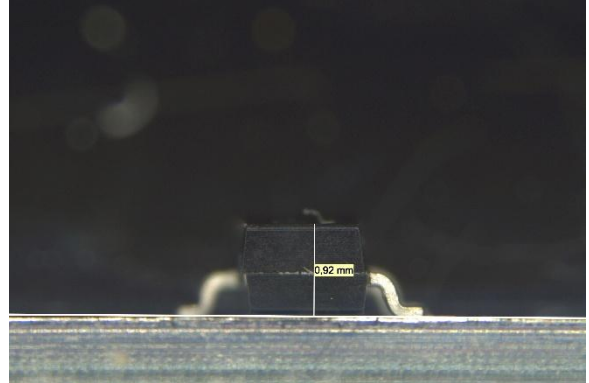


Fig 15. S1 – Package Thickness

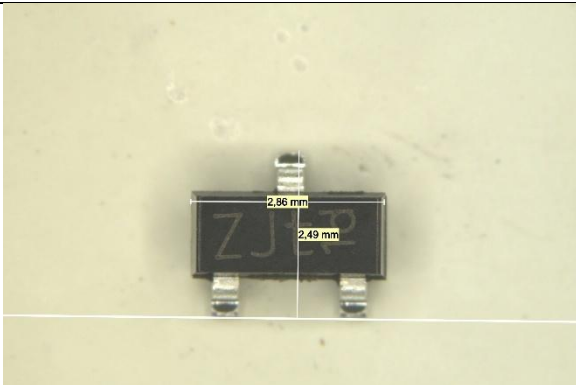


Fig 16. S2 – Package Length / Width

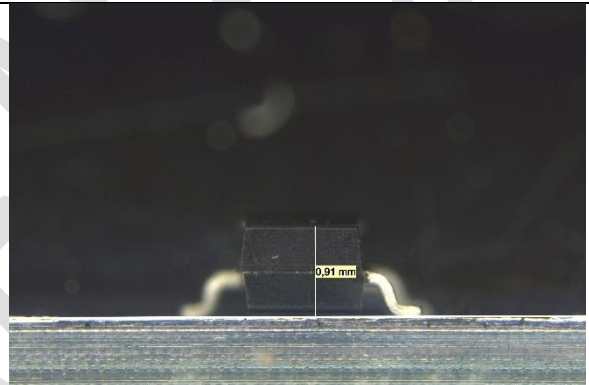


Fig 17. S2 – Package Thickness

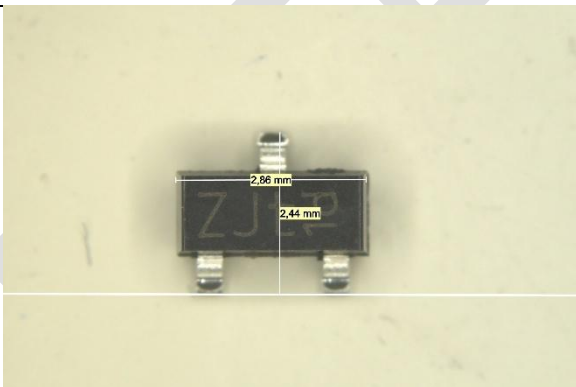


Fig 18. S3 – Package Length / Width

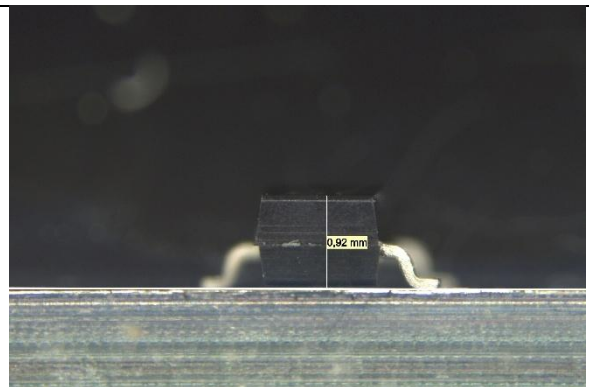


Fig 19. S3 – Package Thickness

Prepared By:

Michael Mendoza

Approved By:

Horst Fischer

Disclaimer:

This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.

This report is computer generated.

Generated On:

Solvent Test for Remarking – Permanency (SAE AS6081 4.2.6.4.3 A / 4.2.6.4.3 B)

Test Description	Sample Size	Acceptable	Not Acceptable	Remark
Marking Verification	3	●		The markings do not smear or get removed by the solution. The part/s passed the marking permanency testing.

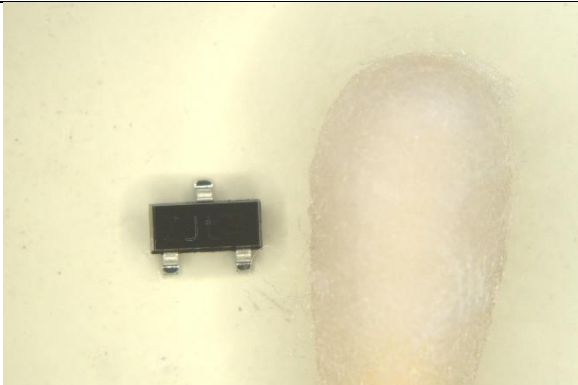


Fig 20. S1 – Marking Permanency Test

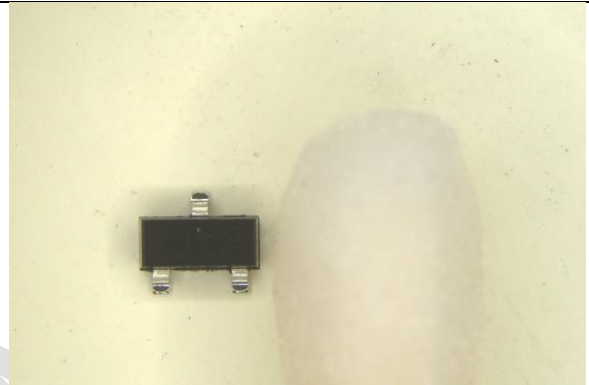


Fig 21. S2 – Marking Permanency Test

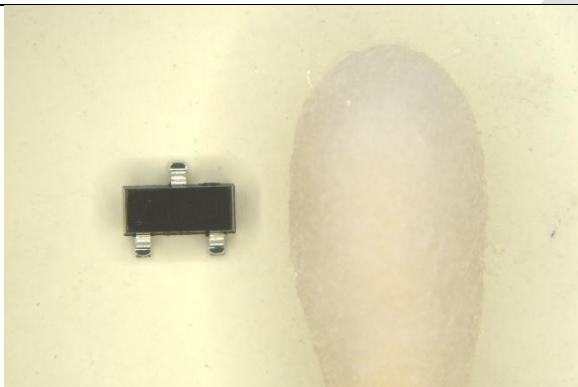


Fig 22. S3 – Marking Permanency Test

Prepared By:	Disclaimer:	Generated On:
Michael Mendoza	This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.	
Approved By:		
Horst Fischer	This report is computer generated.	

Solvent Test for Resurfacing – Acetone (SAE AS6081 4.2.6.4.3 A / 4.2.6.4.3 B)

Test Description	Sample Size	Acceptable	Not Acceptable	Remark
Surface Inspection	3	•		No secondary coating or markings were removed during this process.

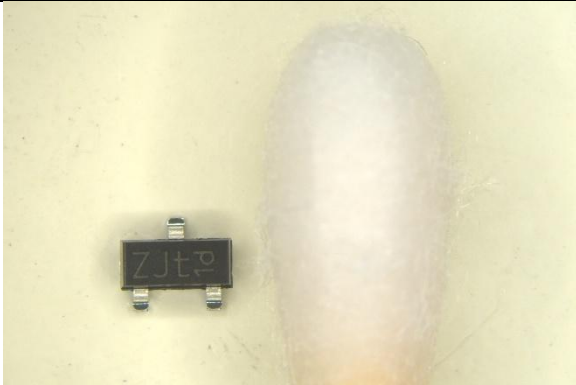


Fig 23. S1 – Acetone Test

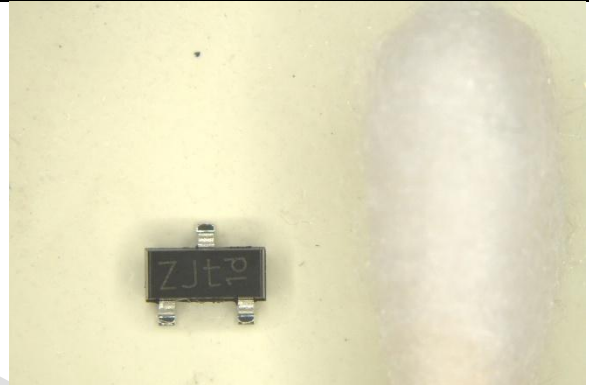


Fig 24. S2 – Acetone Test

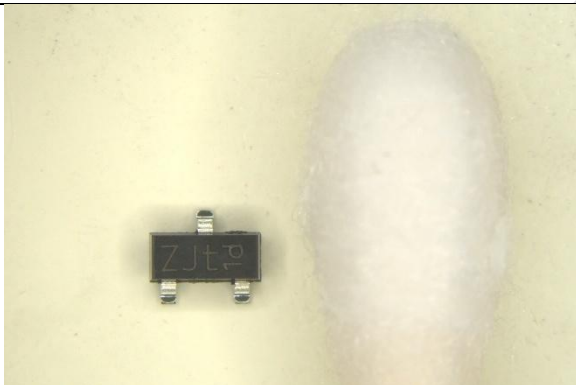


Fig 25. S3 – Acetone Test

Prepared By:	Disclaimer:	Generated On:
Michael Mendoza	This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.	
Approved By:		
Horst Fischer	This report is computer generated.	

Solvent Test for Resurfacing – Dynasolve (SAE AS6081 4.2.6.4.3 A / 4.2.6.4.3 B)

Test Description	Sample Size	Acceptable	Not Acceptable	Remark
Surface Inspection	3	•		No secondary coating was found.

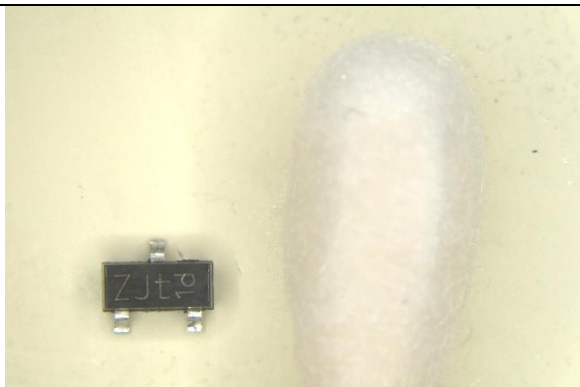


Fig 26. S1 – Dynasolve Test

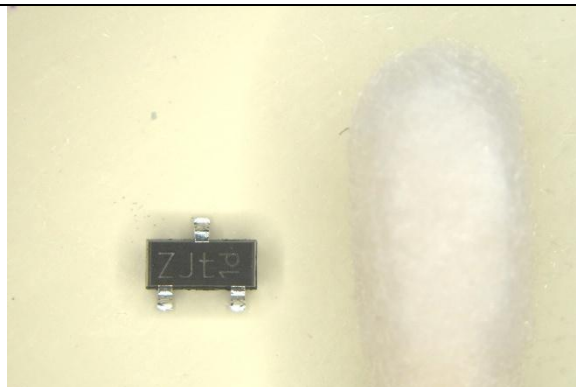


Fig 27. S2 – Dynasolve Test

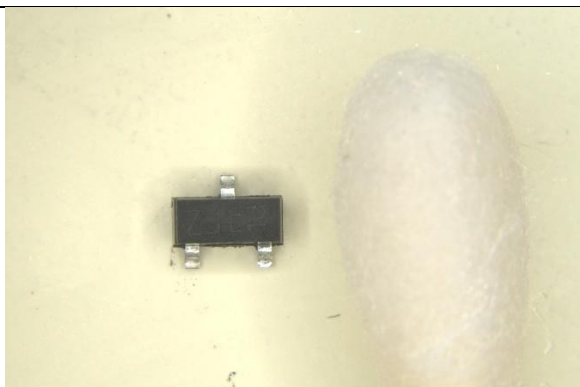


Fig 28. S3 – Dynasolve Test

Prepared By:	Disclaimer: <i>This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.</i> <i>This report is computer generated.</i>	Generated On:
Michael Mendoza		
Approved By:		
Horst Fischer		

X-Ray Inspection (SAE AS6081, 4.2.6.4.4)			
Equipment Used:	Truview Prime		
Utilized – kV:	60	Utilized – uA:	50
Exposure Time:	600 sec		

Test Description	Sample Size	Acceptable	Not Acceptable	Remark
Internal Structure Inspection	45	●		No anomalies were observed.

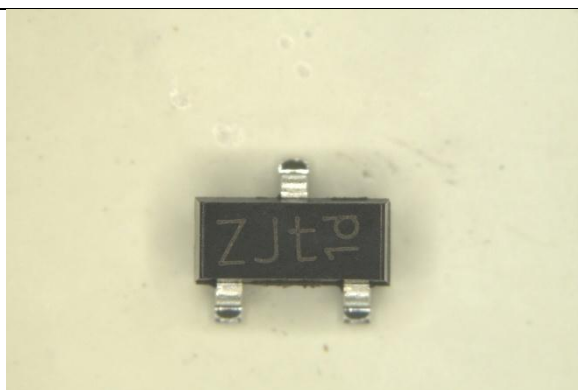


Fig 29. Overview

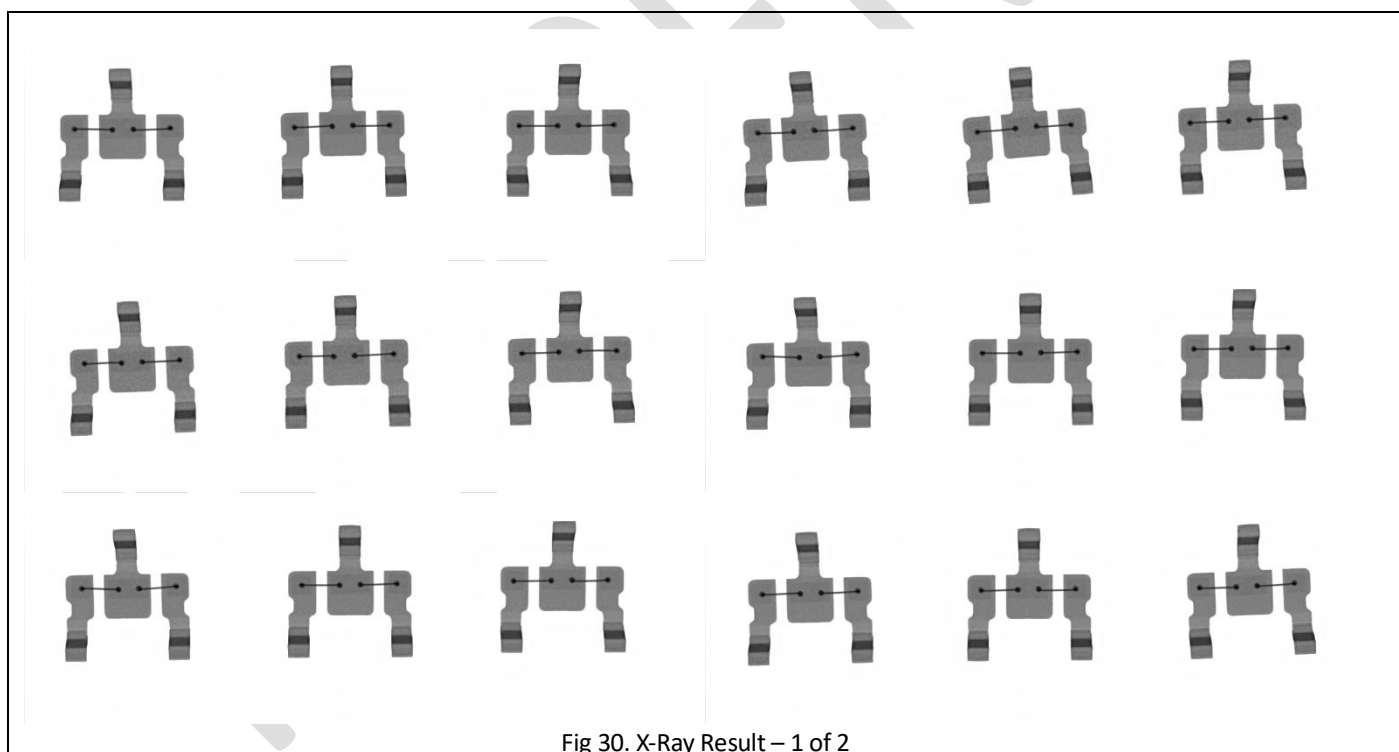


Fig 30. X-Ray Result – 1 of 2

Prepared By:	Disclaimer: <i>This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.</i> <i>This report is computer generated.</i>	Generated On:
Michael Mendoza		
Approved By:		
Horst Fischer		

X-Ray Inspection (SAE AS6081, 4.2.6.4.4)

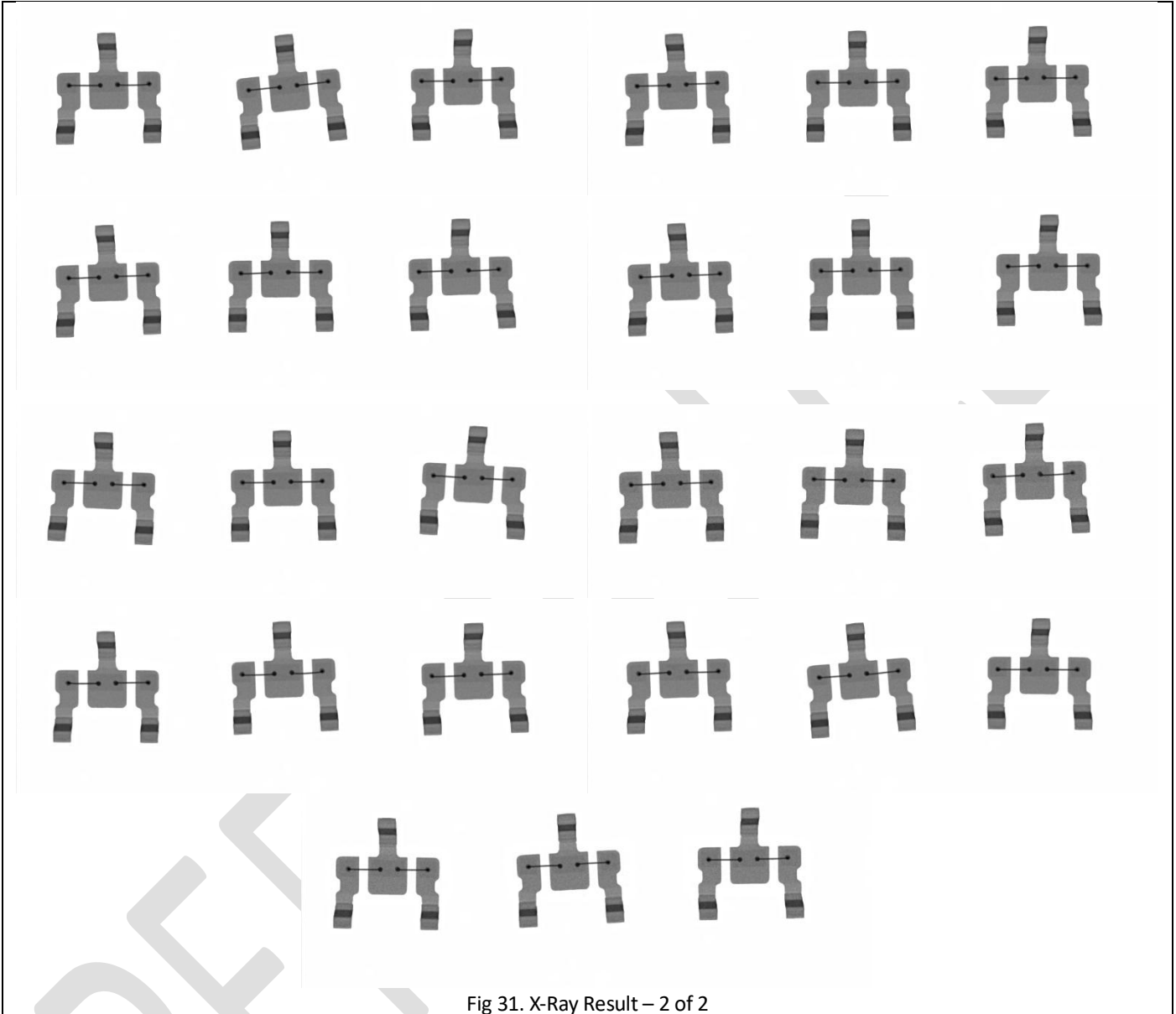


Fig 31. X-Ray Result – 2 of 2

Prepared By:	<p>Disclaimer:</p> <p><i>This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.</i></p> <p><i>This report is computer generated.</i></p>	Generated On:
Michael Mendoza		
Approved By:		
Horst Fischer		

XRF Inspection (SAE AS6081, 4.2.6.4.5)

Equipment Used: SpectroCube XRF Machine

Test Description	Sample Size	Acceptable	Not Acceptable	Remark
Lead Finish Analysis	3	●		XRF analysis confirms that the levels of restricted substances comply with the limits set by the RoHS directive.



Element	Upper Limit	Concentration	Abs. Error
48 Cd	-	< 6.0 ppm	-
24 Cr	-	< 8.1 ppm	-
80 Hg	-	< 1.3 ppm	-
82 Pb	-	< 0.8 ppm	-
29 Cu	-	24.96 %	0.09
50 Sn	-	68.58 %	0.24
26 Fe	-	3.822 %	0.040
28 Ni	-	2.532 %	0.030
Sum of concentration	99.89 %		

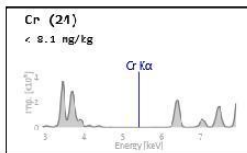
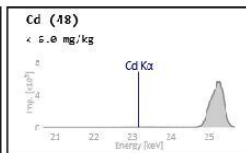
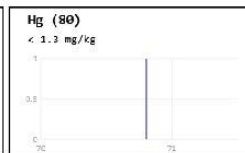
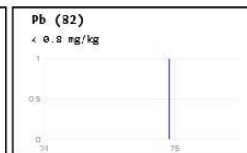
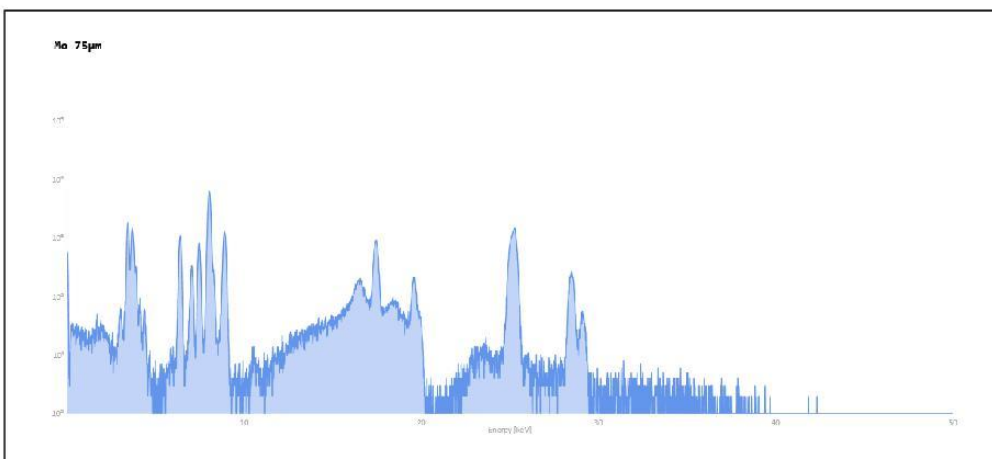


Fig 32. S1 – XRF Result

Prepared By:	Disclaimer:	Generated On:
Michael Mendoza	This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.	
Approved By:		
Horst Fischer	This report is computer generated.	

XRF Inspection (SAE AS6081, 4.2.6.4.5)



Element	Upper Limit	Concentration	Abs. Error
48 Cd	-	< 6.0 ppm	-
24 Cr	-	< 7.6 ppm	-
80 Hg	-	< 1.3 ppm	-
82 Pb	-	< 0.8 ppm	-
29 Cu	-	27.77 %	0.10
50 Sn	-	65.12 %	0.25
26 Fe	-	4.427 %	0.045
28 Ni	-	2.577 %	0.031
Sum of concentration		99.89 %	

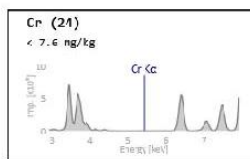
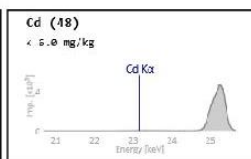
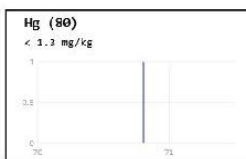
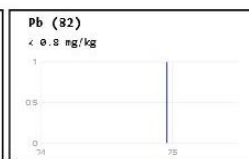
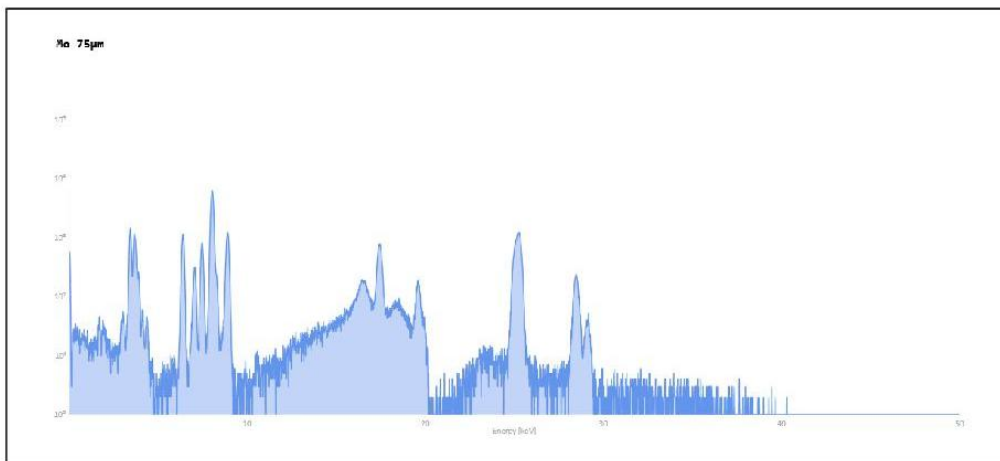
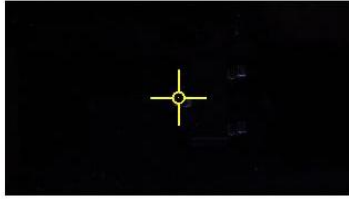


Fig 33. S2 – XRF Result

Prepared By:	Disclaimer: <i>This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.</i> <i>This report is computer generated.</i>	Generated On:
Michael Mendoza		
Approved By:		
Horst Fischer		

XRF Inspection (SAE AS6081, 4.2.6.4.5)



Element	Upper Limit	Concentration	Abs. Error
48 Cd	-	< 6.0 ppm	-
24 Cr	-	< 8.6 ppm	-
80 Hg	-	< 1.3 ppm	-
82 Pb	-	< 0.8 ppm	-
29 Cu	-	23.93 %	0.09
50 Sn	-	72.94 %	0.26
26 Fe	-	0.905 %	0.012
28 Ni	-	2.121 %	0.028
Sum of concentration		99.90 %	

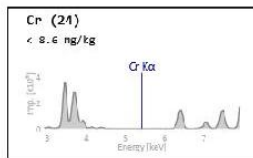
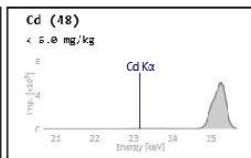
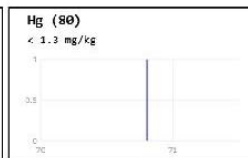
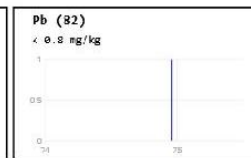
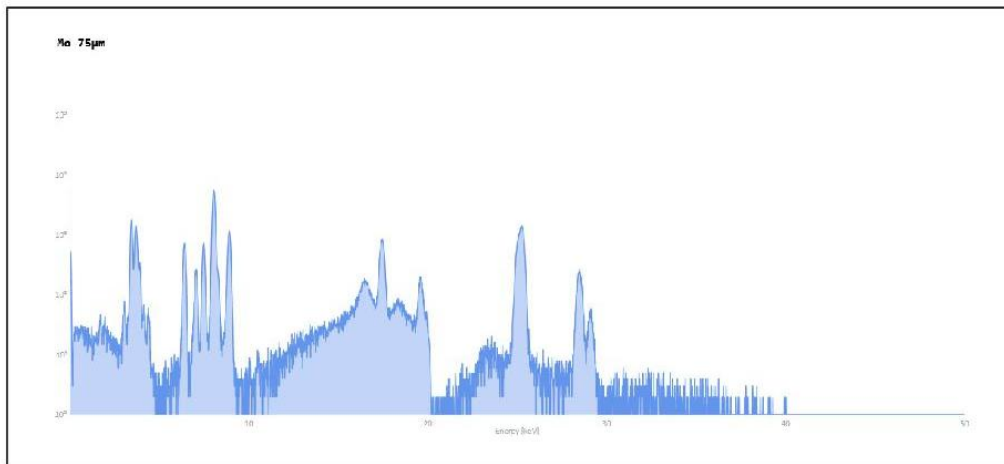


Fig 34. S3 – XRF Result

Prepared By:	Disclaimer: <i>This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.</i> <i>This report is computer generated.</i>	Generated On:
Michael Mendoza		
Approved By:		
Horst Fischer		

Solderability Test (MIL-STD-883 Method 2003 / J-STD-002)

Test Description	Sample Size	Acceptable	Not Acceptable	Remark
Solderability Evaluation	3	●		All leads must have a continuous solder coating, free from defects, covering at least 95% of the critical area. For exposed pad packages, the exposed pad surfaces must be at least 80% covered with a continuous solder coating, free from defects.

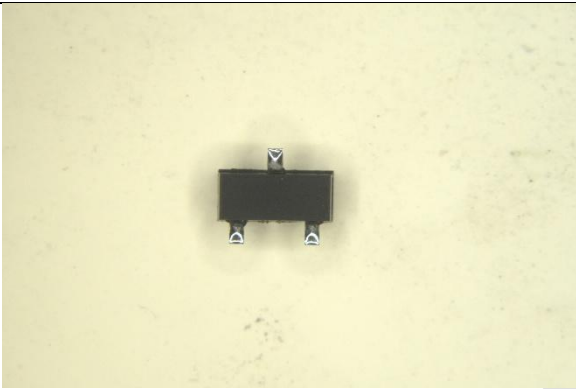


Fig 35. S1 – Solderability Result

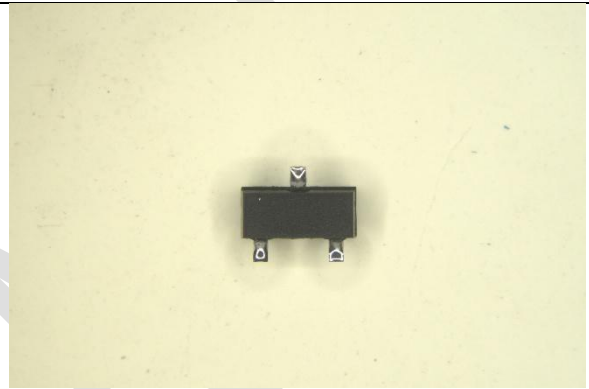


Fig 36. S2 – Solderability Result

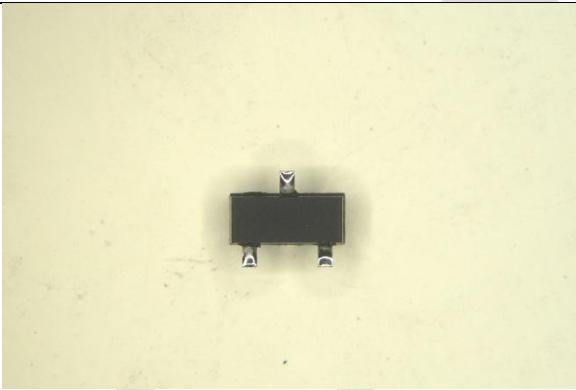


Fig 37. S3 – Solderability Result

Prepared By:	Disclaimer: <i>This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.</i> <i>This report is computer generated.</i>	Generated On:
Michael Mendoza		
Approved By:		
Horst Fischer		

Delid/Decapsulation Internal Analysis (SAE AS6081 4.2.6.4.6)

Test Description	Sample Size	Acceptable	Not Acceptable	Remark
Die Verification	3	●		Die construction of the part are checked and captured.

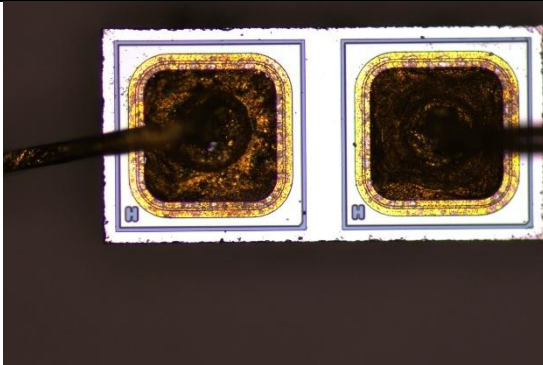
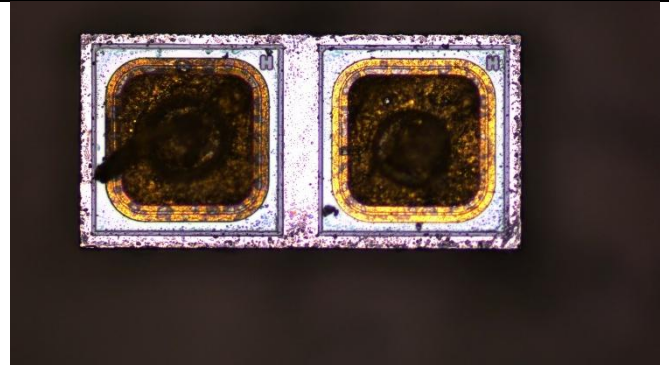
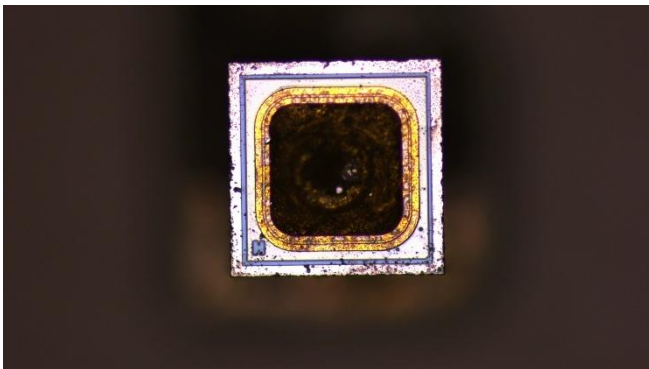
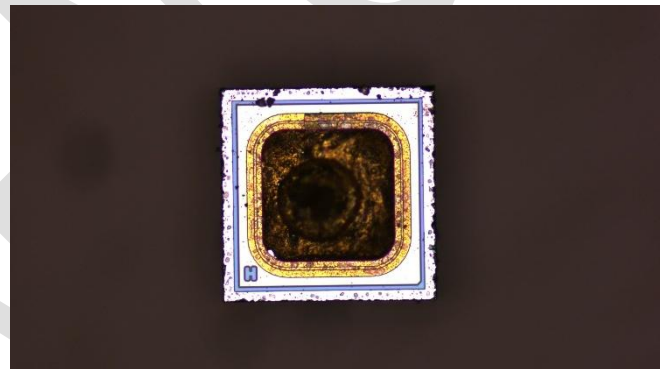
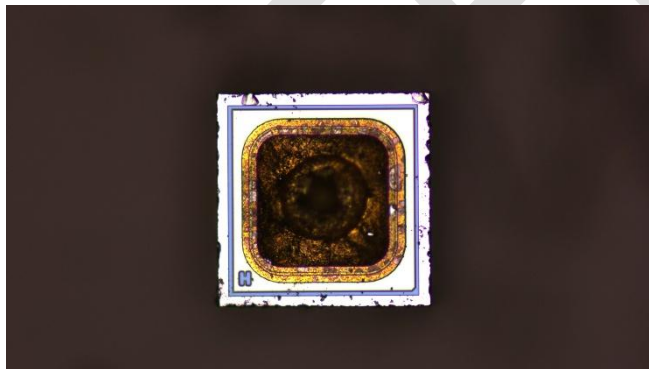
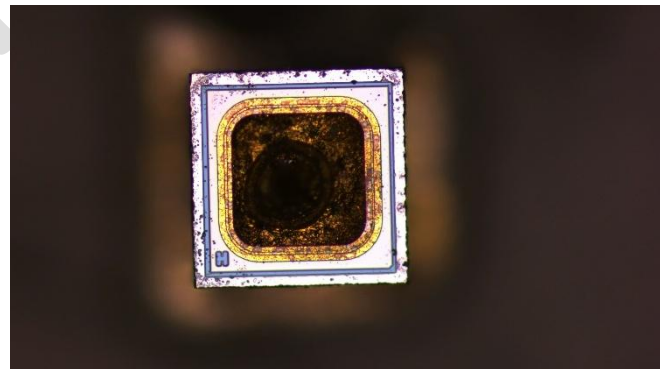


Fig 38. S1 – Die Overview

Fig 39. S2 – Die Overview

Prepared By:	Disclaimer: <i>This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.</i> <i>This report is computer generated.</i>	Generated On:
Michael Mendoza		
Approved By:		
Horst Fischer		

Delid/Decapsulation Internal Analysis (SAE AS6081 4.2.6.4.6)

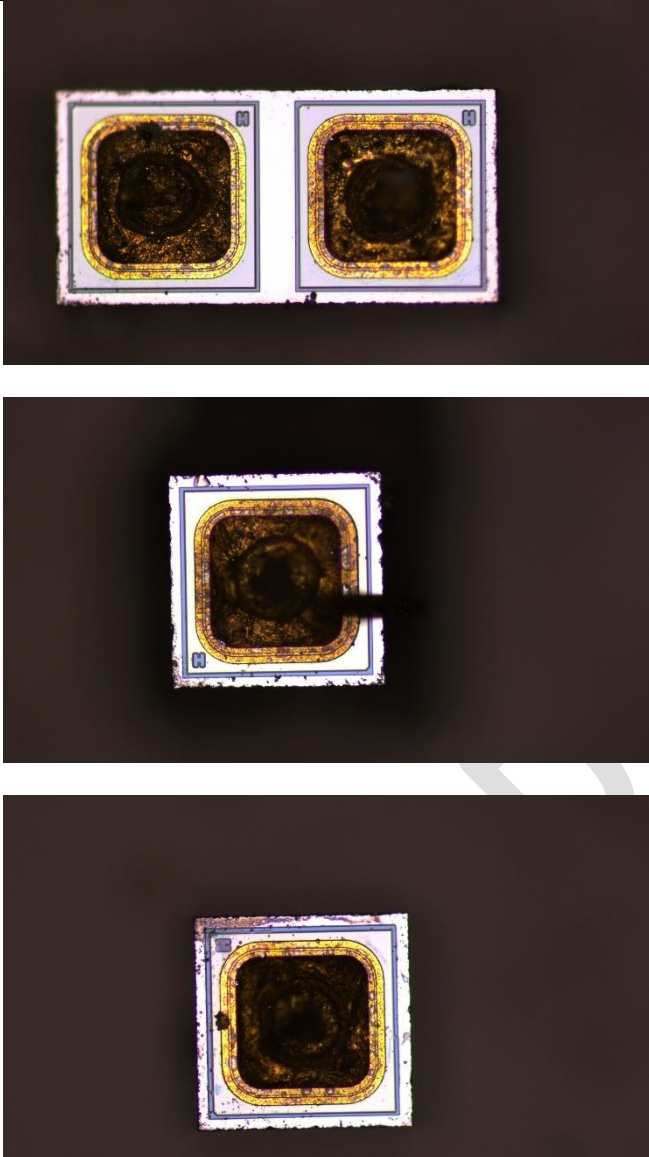


Fig 40. S3 – Die Overview

Prepared By:	Disclaimer: <i>This report may not be reproduced in part without prior approval from authorized lab personnel of Q-Lab Components at Service.</i> <i>This report is computer generated.</i>	Generated On:
Michael Mendoza		
Approved By:		
Horst Fischer		