

**Parts and Material Analysis Report** 

Customer	Global Components	Part Number	TPS54061DRBR	
<b>Customer PO</b>	Q2201040013	Manufacturer	Texas Instruments	
<b>Customer Address</b>	2479 Rue Guénette, Montréal, Quebec H4R 2E9 CANADA	Date/Lot Code	2129/2138	
Report Date	2/8/2022 2:26:02 PM	Quantity Revd	total: 21000 test: 21000	
Revision	0	AAA WO#	W2201130000	

# **Summary**

Result: C: Conforming, NC: Non Conforming, S: Suspect, NA: Not Applicable

<b>Test-Process Operation</b>	Test Quantity	Result	Comments			
		General EVI &	Handling per AS6081, Section 4.2.6.4.1			
<b>Contract Review Items</b>	1	С				
<b>Box/Content Condition</b>	1	C				
		Detailed Visual In	nspection per AS6081, Section 4.2.6.4.2.2			
Package Condition	60	С	Acceptable			
Lead Condition	60	C	Acceptable			
Part Markings	60	C	Acceptable			
Inspection for Remarking/Resurfacing per AS6081, Section 4.2.6.4.3						
3:1 Marking Permanency	2	C	Pass			
Acetone Swab Test	2	C	Pass			
HCT-1 (1-Methyl, 2- Pyrrolidinone)	2	С	Pass			
НСТ-2	2	C	Pass			
		XRF Evalu	ation per AS6081, Section 4.2.6.4.5			
Lead Finish	3	C	Cu/Ni plating			
		Internal Visual l	Inspection per AS6081, Section 4.2.6.4.6			
Observed Defects	2	С	None			
		Radiological In	spection per AS6081, Section 4.2.6.4.4			
Internal Construction	10	С	Pass			
		Electrical T	esting per AAA 622-001 Section 13			
Pin Correlation	60	60 pcs.	100% Pass			

# Assessment Parts passed electrical testing.

Phone: 877-369-6547



#### **Analysis Summary**

#### **External Visual Inspection**

External Visual Inspection on 60 samples marked with D/C: 2138 revealed legible device markings consistent with the lot traveler and published data related to the part. No secondary coating, sanding marks, cracks, or chips were observed on all devices inspected. Leads were in acceptable condition.

Device package characteristics and dimensions matched manufacturer's specification.

No records of suspect counterfeit parts were found for this part number in the ERAI/GIDEP data bases.

NOTE: All inspections in this section performed in accordance with AAA Test Procedure Manual, 622-001, Sections 1-3; microscope magnification = 10X to 30X unless otherwise noted.

#### **Internal Visual Inspection**

Internal Visual Inspection on 2 samples marked with D/C: 21+ revealed Manufacturer TI marking with 2011 copyright year and die marking TPS54061 and PG1P0. Device confirmed to be a Texas Instruments die.

Die markings consistent with information in the AAA die bank data base for this part number.

Testing performed in accordance with AAA Test Procedure Manual, 622-001, Section 4

#### **Electrical Test**

Parts tested: 60 Parts Passed: 60

Test notes: 60 devices passed all tested parameters. Device pins correlated to the manufacturer's specification.

D/C Tested: 2138

#### X-Ray Inspection

Radioscopic (X-ray) analysis of 10 random sample(s) revealed the same internal structure on all the samples. No internal damages were observed during inspection.

Radioscopic inspection performed in accordance with AAA Test Procedure Manual, 622-001, Section 7

Represented images are typical. All images are available on request.

Equipment: Creative Electron Tru-View Prime X-Ray, Calibration due 10/28/22)

#### XRF Analysis

XRF Analysis performed on 3 random sample(s) revealed the elemental composition of the device(s), as shown in the table below.

Reading 1 2 3	Fe % 1.72 1.77 1.78	Ni % 14.64 14.02 13.65	Cu % 82.17 82.84 83.02	Ag % 0.00 0.02 0.02	W % 0.00 0.00 0.00	Au % 1.23 1.13 1.34	Sn % 0.24 0.23 0.20	Pb % 0.00 0.00 0.00
Statistics	Fe %	Ni %	Cu %	Ag %	W %	Au %	Sn %	Pb %

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Mean	1.8	14.1	82.7	0.0	0.0	1.2	0.2	0.0
Minimum	1.7	13.6	82.2	0.0	0.0	1.1	0.2	0.0
Maximum	1.8	14.6	83.0	0.0	0.0	1.3	0.2	0.0
Std Dev	0.0	0.5	0.4	0.0	0.0	0.1	0.0	0.0

XRF spectrometer analyzers do not conclusively measure the elemental composition of any samples but do measure the % of each element relative to the others being measured. No comparison to actual manufacturer composition declarations should be made or implied.

XRF testing performed in accordance with AAA Test Procedure Manual, 622-001, Section 8

#### **Solvent Test**

Marking Permanency Test results were negative - no markings were removed.

Acetone Test results for resurfacing were negative - no residue was deposited on the swab.

HCT-1 Test results for resurfacing were negative - no residue was deposited on the swab.

HCT-2 Test results for resurfacing were positive - minor residue was deposited on the swab. No sanding or previous markings revealed.

Note: D/C 2129(Left), D/C 2138(Right); HCT-1: 1-Methyl 2-Pyrrolidinone; HCT-2: Dynasolve 711

Testing performed in accordance with AAA Test Procedure Manual, 622-001, Section 5

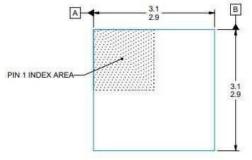
## **Device Description**

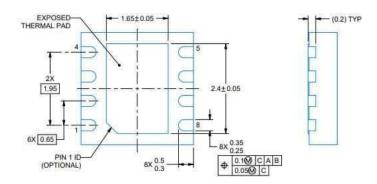
	-
Device	Buck Switching Regulator IC Positive Adjustable 0.8V 1 Output 200mA 8-VDFN Exposed Pad
	Function Step-Down
	Output Configuration Positive
	Topology Buck
	Output Type Adjustable
	Number of Outputs 1
	Voltage - Input 4.7V - 60V
	Voltage - Output (Min/Fixed) 0.8V - (Max) 58V
	Current - Output 200mA
	Frequency - Switching 50kHz ~ 1.1MHz
	Synchronous Rectifier Yes
	Operating Temperature -40°C ~ 150°C (TJ)
	Package / Case 8-VDFN Exposed Pad (3x3)
	RoHS Status ROHS3 Compliant
	Moisture Sensitivity Level (MSL) 2 (1 Year)
	ECCN EAR99
	HTSUS 8542.39.0001
Case	8-Pin VDFN
PDF	https://www.ti.com/lit/ds/symlink/tps54061.pdf?HQS=dis-dk-null-digikeymode-dsf-pf-null-
	wwe&ts=1637004931420&ref_url=https%253A%252F%252Fwww.ti.com%252Fgeneral%252Fdocs%
	252Fsuppproductinfo.tsp%253FdistId%253D10%2526gotoUrl%253Dhttps%253A%252F%252Fwww.ti.co
Datasheet	REVISED NOVEMBER 2015

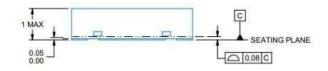
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Phone: 877-369-6547 Page 3/23 Email: cs@aaactl.com F-750-004-D











### **Receiving - Documentation and Package Inspection**

General EVI & Handling per AS6081, Section 4.2.6.4.1

Result: C: Conforming, NC: Non Conforming, S: Suspect, NA: Not Applicable

Date:	1/13/2022 8:55:26 AM	Tech:	Tyler
<b>Device Count:</b>	21000	Date/Lot Code:	2129/2138
Weight:	10.0000 lbs	ESD Protection:	Present
<b>Moisture Protection:</b>	Present WITH Indicator and Desiccant	Carrier Type:	Reel

Criteria	Result	Comments
Receiving - Docu	mentation	and Package Inspection
Lot/Date Code information consistent with published data	NA	
Manufacturer label/logo are present and matches datasheet and prev orders	NA	
Documentation review	С	
Barcode data scans and matches	NA	
Consistent package materials	NA	
Gen	eral Visual	Inspection
Parts received in a single shipment	С	
Consistent part markings throughout lot	С	
Consistent appearance	С	
Consistent handling, packaging and storage	NA	
No evidence parts have been separated	NA	

Box received in acceptable condition.

ESD bag contained HIC and Desiccant.

Devices were received in acceptable condition.

Part markings were consistent throughout the samples inspected.







**Package Condition** 



## **Receiving Inspection ( Continued )**



**Sample ESD Protection** 



Sample Bag Label 1



Sample Bag Label 2



Sample Package Type



Sample Reel 1 Label



Sample Reel 2 Label



# **Receiving Inspection ( Continued )**

Phone: 877-369-6547



Sample Reel 1 Received with 3000 Devices



Sample Reel 2 Received with 3000 Devices



**Device Orientation** 



#### **Detailed External Visual Inspection**

Detailed Visual Inspection per AS6081, Section 4.2.6.4.2.2

Result: C: Conforming, NC: Non Conforming, S: Suspect, NA: Not Applicable

Criteria	Sample Size	Result	Comments
		Gene	eral Conditions
Pin/Lead Count	60	С	8
Package Type	60	С	VSON
Verify Pin 1 placement	60	С	Acceptable
Part Markings	60	С	Acceptable
<b>Package Conditions</b>	60	С	Acceptable
Mold Cavities	60	NA	
Plating	60	С	Acceptable
Lead/Ball Conditions	60	С	Acceptable
Dimensions	60	C	Acceptable
GIDEP Verification	60	С	
ERAI Verification	60	С	

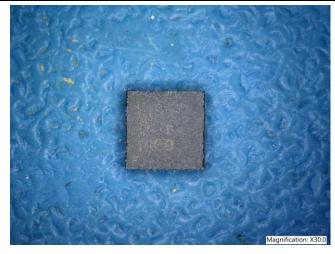
External Visual Inspection on 60 samples marked with D/C: 2138 revealed legible device markings consistent with the lot traveler and published data related to the part. No secondary coating, sanding marks, cracks, or chips were observed on all devices inspected. Leads were in acceptable condition.

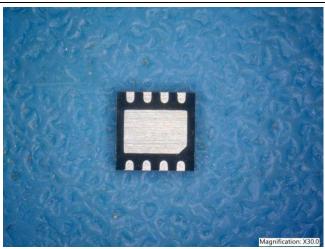
Device package characteristics and dimensions matched manufacturer's specification.

No records of suspect counterfeit parts were found for this part number in the ERAI/GIDEP data bases.

NOTE: All inspections in this section performed in accordance with AAA Test Procedure Manual, 622-001, Sections 1-3; microscope magnification = 10X to 30X unless otherwise noted.

Test Operator:	J Bank
Test Date:	2/8/2022





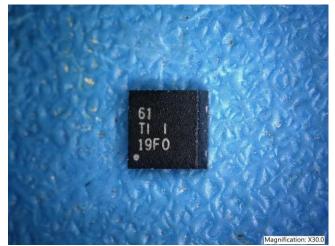
Top Bottom

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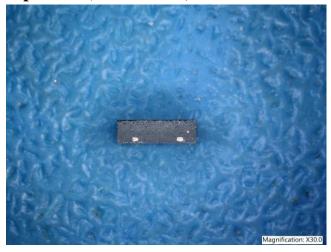
Phone: 877-369-6547 Email: cs@aaactl.com



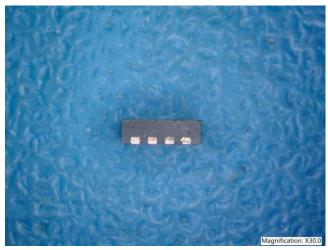
# **Detailed External Visual Inspection ( Continued )**



**Top Markings** 



Side view 1



Side view 2



Length 2.9 to 3.1



Width 2.9 to 3.1



**Thickness 1 Max** 



## **Solvent/Chemical Testing**

#### Inspection for Remarking/Resurfacing per AS6081, Section 4.2.6.4.3

Result: C: Conforming, NC: Non Conforming, S: Suspect, NA: Not Applicable

Criteria	Sample Size	Result	Comments
Marking Permanency	2	С	Pass
Acetone Swab Test	2	С	Pass
HCT-1 (1-Methyl, 2-Pyrrolidione)	2	С	Pass
НСТ-2	2	С	Pass

Marking Permanency Test results were negative - no markings were removed.

Acetone Test results for resurfacing were negative - no residue was deposited on the swab.

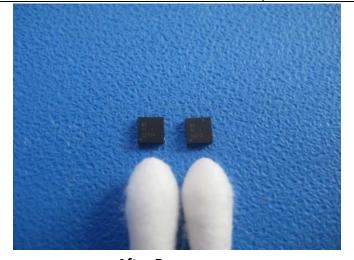
HCT-1 Test results for resurfacing were negative - no residue was deposited on the swab.

HCT-2 Test results for resurfacing were positive - minor residue was deposited on the swab. No sanding or previous markings revealed.

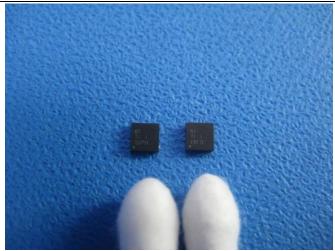
Note: D/C 2129(Left), D/C 2138(Right); HCT-1: 1-Methyl 2-Pyrrolidinone; HCT-2: Dynasolve 711

Testing performed in accordance with AAA Test Procedure Manual, 622-001, Section 5

Test Operator	J Bank
Test Date	2/8/2022



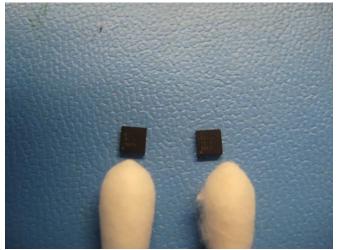




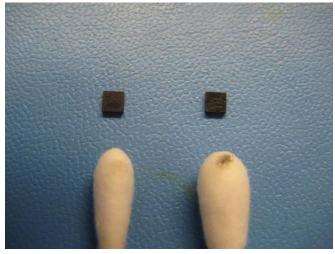
**After Acetone** 



# ${\bf Solvent/Chemical\ Testing\ (\ Continued\ )}$







After HCT-2



**HCT-2 Close up** 



#### **XRF** Analysis

#### XRF Evaluation per AS6081, Section 4.2.6.4.5

Result: C: Conforming, NC: Non Conforming, S: Suspect, NA: Not Applicable

Criteria				ample Size	Resul	lt			Comment	S
Consistent Compositio		n & Material		3 C Cu/Ni plating						
XRF Analysis performed on 3 random sample(s) revealed the elemental composition of the device(s), as shown in the table believed.								own in the table below.		
Reading	Fe %	Cu %		Ag %	W	<i>7</i> %	Au %	Sn %	Pb %	
1	1.72	14.64	82.17		0.00	0.	.00	1.23	0.24	0.00
2	1.77	14.02	82.84		0.02	0.	.00	1.13	0.23	0.00
3	1.78	13.65	83.02		0.02	0.	.00	1.34	0.20	0.00
Statistics	Fe %	Ni %	Cu %		Ag %	W	/ %	Au %	Sn %	Pb %
Mean	1.8	14.1	82.7		0.0	0.	.0	1.2	0.2	0.0
Minimum	1.7	13.6	82.2		0.0	0.	.0	1.1	0.2	0.0
Maximum	1.8	14.6	83.0		0.0	0.	.0	1.3	0.2	0.0
Std Dev	0.0	0.5	0.4		0.0	0.	.0	0.1	0.0	0.0

XRF spectrometer analyzers do not conclusively measure the elemental composition of any samples but do measure the % of each element relative to the others being measured. No comparison to actual manufacturer composition declarations should be made or implied.

XRF testing performed in accordance with AAA Test Procedure Manual, 622-001, Section 8

Test Operator	K O'Neil
Test Date	2/8/2022

Phone: 877-369-6547



Read Time (s):

Session Date:

## AAA Test Lab 2320 Commerce Park Dr NE, Palm Bay, FL 32905



Bowman P Series XRF

KO

30

Operator Initials: Workorder:

W2201130000

2/8/2022 8:25 4mil

Customer:

Global Medical Components Collimator:

Part Number:

TPS54061DRBR

Reading	Fe %	NI %	Cu %	Ag %	W%	Au %	5n %	Pb %
1	1,72	14.64	82.17	0.00	0.00	1.23	0.24	0.00
2	1.77	14.02	82.84	0.02	0.00	1.13	0.23	0.00
3	1.78	13,65	83.02	0.02	0.00	1.34	0.20	0.00

Statistics	Fe %	NI%	Cu%	Ag %	. W%	Au %	Sn %	Pb%
Mean	1.8	14.1	82.7	0.0	0.0	1.2	0.2	0.0
Minimum	1.7	13.6	82.2	0.0	0.0	1.1	0.2	0.0
Maximum	1.8	14.6	83.0	0.0	0.0	1.3	0.2	0.0
Std Dev	0.0	0.5	0.4	0.0	0.0	0.1	0.0	0.0

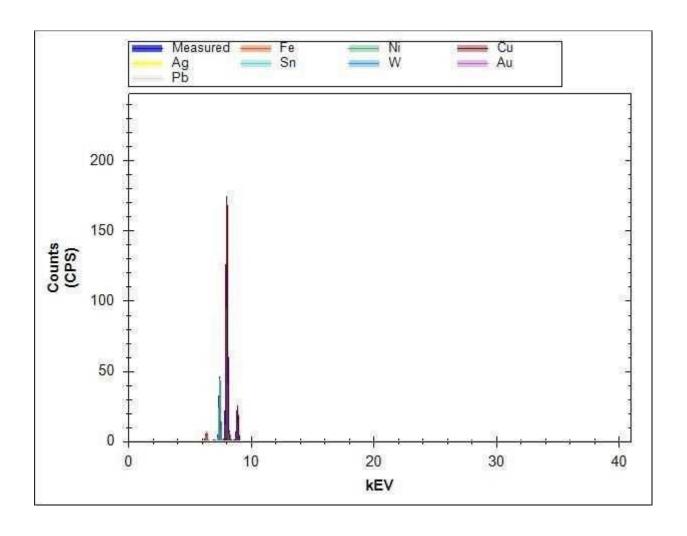






**XRF Results** 

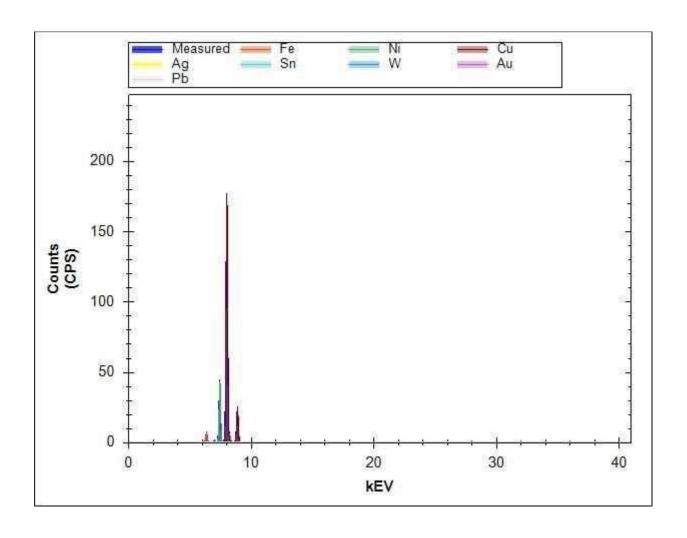




XRF Spectrum - Sample 1

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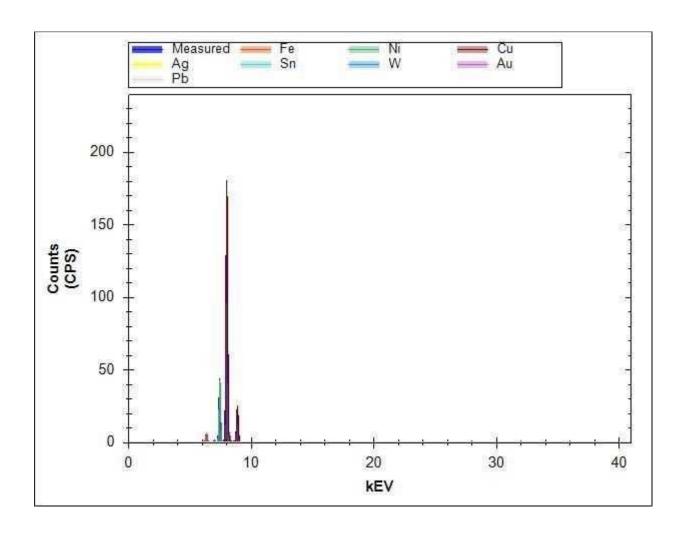




XRF Spectrum - Sample 2

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XRF Spectrum - Sample 3



## **DDPA & Internal Visual Inspection**

Internal Visual Inspection per AS6081, Section 4.2.6.4.6

Result: C: Conforming, NC: Non Conforming, S: Suspect, NA: Not Applicable

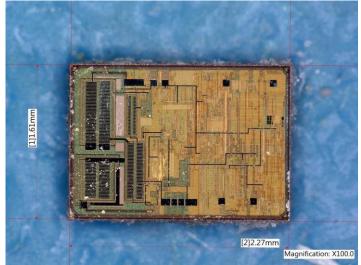
Criteria	Sample Size	Result	Comments
Die VerificationMatch ''Known Good'' or AAA Data Base	2	С	Pass
Observed Defects	2	С	None
Topography/Markings Match "Known Good" or AAA Data Base	2	С	Samples match

Internal Visual Inspection on 2 samples marked with D/C: 21+ revealed Manufacturer TI marking with 2011 copyright year and die marking TPS54061 and PG1P0. Device confirmed to be a Texas Instruments die.

Die markings consistent with information in the AAA die bank data base for this part number.

Testing performed in accordance with AAA Test Procedure Manual, 622-001, Section 4

Test Operator	J Bank
Test Date	2/8/2022



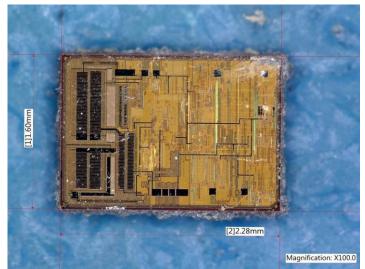


Die Topography - D/C 2129

Die Markings - D/C 2129



# **DDPA & Internal Visual Inspection ( Continued )**





Die Topography - D/C 2138

Die Markings - D/C 2138



### X-Ray Inspection

#### Radiological Inspection per AS6081, Section 4.2.6.4.4

Result: C: Conforming, NC: Non Conforming, S: Suspect, NA: Not Applicable

Criteria	Sample Size	Result	Comments	
<b>Consistent Internal Contents</b>	10	C	Pass	
Tube Voltage	90 kV			
Dosage Time	300 Seconds			

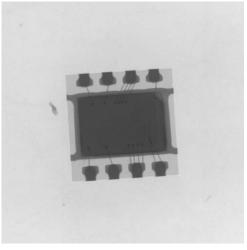
Radioscopic (X-ray) analysis of 10 random sample(s) revealed the same internal structure on all the samples. No internal damages were observed during inspection.

Radioscopic inspection performed in accordance with AAA Test Procedure Manual, 622-001, Section 7

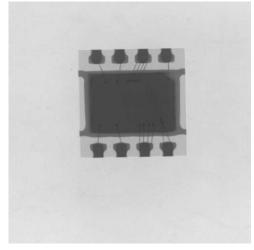
Represented images are typical. All images are available on request.

Equipment: Creative Electron Tru-View Prime X-Ray, Calibration due 10/28/22)

Test Operator	K O'Neil
Test Date	2/8/2022



X-Ray Analysis - Sample 1



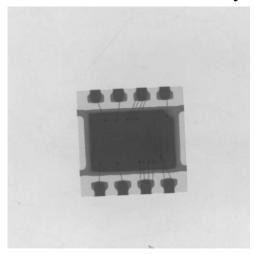
X-Ray Analysis - Sample 2

Phone: 877-369-6547 Email: cs@aaactl.com

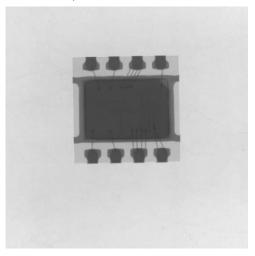


# X-Ray Inspection ( Continued )

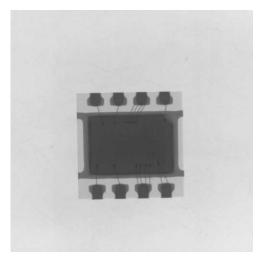
Phone: 877-369-6547



X-Ray Analysis - Sample 3



X-Ray Analysis - Sample 4



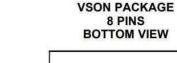
X-Ray Analysis - Sample 5

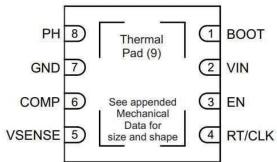


## **Electrical Testing**

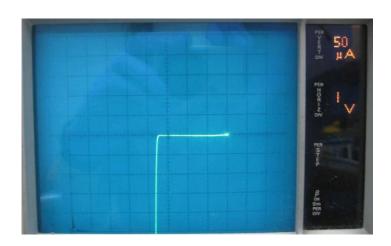
Electrical Testing per AAA 622-001 Section 13

Test Type	Quantity Tested	Pass	Fail	Requirements			
Pin Correlation	60 pcs.	60 pcs.	0 pcs. ( 0.00% )	Pin Correlation			
Test Procedure	Device pin characteristics correlated to manufacturer datasheet specified pin descriptions, to verify pin out, and check for damage via Opens/Shorts Test.  Testing performed in accordance with AAA Test Procedure Manual, 622-001, Section 13						
Parameters Verified	Continuity Opens/Shorts						
Observation	60 devices passed all tested parameters. Device pins correlated to the manufacturer's specification.  D/C Tested: 2138						
Equipment	Tektronix Type 576 Curve Tracer - Cal Date: (07/30/23) Cert: TFL-253186						
Test Operator	R O'Hare						
Test Date	2/8/2022						





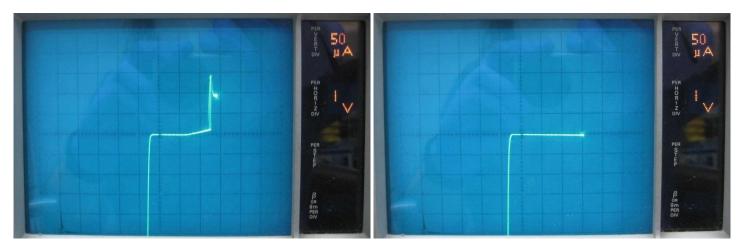
**Pin Configuration** 



Passing I-V Curve - PIN 1 (BOOT) to PIN 7 (GND)

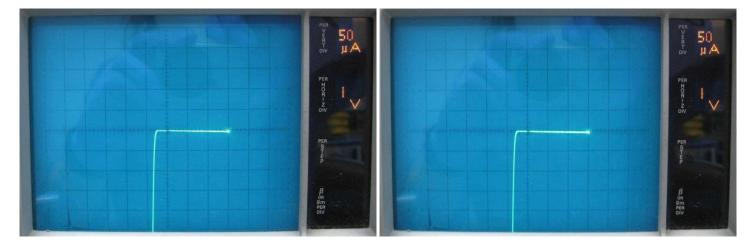


# **Electrical Testing (Continued)**



Passing I-V Curve - PIN 2 (VIN) to PIN 7 (GND)

Passing I-V Curve - PIN 3 (EN) to PIN 7 (GND)



Passing I-V Curve - PIN 4 (RT/CLK) to PIN 7 (GND)

Passing I-V Curve - PIN 5 (VSENSE) to PIN 7 (GND)



Passing I-V Curve - PIN 6 (COMP) to PIN 7 (GND)

Passing I-V Curve - PIN 8 (PH) to PIN 7 (GND)



## **Shipping**

Carrier UPS Service Standard to and from Canada

# **Revision History**

Revision #0 Date: 2/8/2022

Approved by:

Gary Heyes General Manager

AAA Test Lab is dedicated to ensuring the highest standard of product testing in the industry; it is not always possible within the scope of any given test to completely and exhaustively validate every variation of capabilities and / or functionality of any particular product tested and / or guarantees that any particular product tested is fit for any given purpose. All test results represent a snapshot of capability and not a guarantee of future product effectiveness. AAA Test Lab provides test results for any particular product tested and within the specified scope of testing and relative to the specifie data sheet during the specific test process. AAA Test Lab is unable to directly endorse or certify the overall reliability of any particular product tested for any given situation or deployment. In no event shall AAA Test Lab in c. be liable to any special, indirect or consequential damages or any damages whatsoever resulting from loss of any kind including profits, in any action arising out of or in connection with the test report or data associated with the report. This report shall not be reproduced, except in full without the approval of AAA.

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