

Laboratory Analysis Report

Report Number: Date: Customer: Customer Address: Customer PO Number: Customer Internal P/N: Manufacturer: Manufacturer Part Number: Quantity: Date Code: Lot Code: Part Description: 2000-XXXXXX 202X-XX-XX

MARVELL SEMICONDUCTOR 88E6321-A0-NAZ2I000 1,520 2223 PVG925.11JW ETHERNET SWITCH 7-PORT





Global ETS USA

1-727-807-7991 2631 Success Dr Odessa, FL. 33556 USA

www.gets-usa.com

	Analysis Report - 2000-XXXXXX							
	Customer Name:		Purchase Order:					
	Part Number:	88E6321-A0-NAZ2I000	Customer P/N:					
GLOBAL ETS	Manufacturer:	MARVELL SEMICONDUCTOR	Devices Received:	1,520				
	Date Code:	2223	Lot Code:	PVG925.11JW				

Summary Of Inspection Results

	Tast Process Operation	Quantity	Dace	Fail		Comments / Observations	Increator
	Test-Process Operation	Inspected	Pass	Fall	N/A	Comments / Observations	inspector
1.0.0	Incoming - Documentation and Packaging	Inspection	(AS6171,	/2A) (No	ו-Dest	ructive)	
	Incoming Packaging Conditions	1520	1520	0		1,520 Devices were received in acceptable condition.	N/A
2.0.0	External Visual inspection - Detailed (AS6	5171/2A) (No	on-Destru	ctive)			
	External Visual, Detailed Criteria	10	10	0		10 devices were visually inspected under 40x microscopy. No secondary coating was observed. Markings are acceptable. Terminals are in acceptable condition. Devices passed visual inspection.	N/A
3.0.0	Mechanical Inspection - Dimensions (AS6171/2A) (Non-Destructive)						
	Part Dimensions	1	1	0		Dimensions match datasheet specification. Ethernet Switch 7- Port	N/A
4.0.0	X-Ray - Standard 2D (AS6081 (4.2.6.4.4),	(AS6171/5)	(Non-De	structive)		
	X-Ray Analysis	10	10	0		10 devices were X-rayed. Construction and size are the same. No anomalies were found.	N/A
5.0.0	Electrical - Curve Trace Testing, at ambie	nt temp. (M	IL-STD-88	33) (Non	Destru	uctive)	
	Electrical Test	10	10	0		Tested 10 via pin correlation at 25C using Curve Tracer method. Passed: 10. Power's applied to DUT to check for current surge at 25C.	N/A
6.0.0	Delid/Decapsulation - Thermomechanical	(AS6171/4)	(Destruc	tive)			
	Physical (INTERNAL)	1	1	0		Internal inspection was performed on 1 device. Device revealed Marvell logo with 2013 copyright. Die marking E6320 was also found. Die marking correlates with devices family marking.	N/A

(End Of Summary. Continue Reviewing Test Report On Next Page.)

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	Analysis Report - 2000-XXXXXX							
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	Part Number:	88E6321-A0-NAZ2I000	Customer P/N:					
GLOBAL ETS	Manufacturer:	MARVELL SEMICONDUCTOR	Devices Received:	1,520				
	Date Code:	2223	Lot Code:	PVG925.11JW				

Incoming - Documentation and Packaging Inspection (AS6171/2A) (Non-Destructive) 1.0.0

Results Summary 1,520 Devices were received in acceptable condition.

	Criteria	Acceptable	Suspect	Not Acceptable	Not Available	Comments / Observations
1.1.0	Incoming Packaging Conditions (Non-Destructive)					
1.1.1	ESD Protection	x				YES
1.1.2	Quantity Match Document	x				YES
1.1.3	Box Damaged	x				No sign of water damage
1.1.4	Type of Package	x				Trays
1.1.5	Invalid or Missing Identification Indicator on the Part Packaging	x				Acceptable
1.1.6	Invalid Part Packaging Labels	х				Yes, part packaging labels match what is expected but some information has been redacted on the label prior to arriving at GETS.
1.1.7	Invalid Part Packaging	x				Acceptable
1.1.8	Missing or Non-Functional Packaging	x				Acceptable
1.1.9	Missing/Forged Paperwork	x				Acceptable
1.1.10	Multiple Date Codes Identified in Documentation	x				No, one date code identified.
1.1.11	Multiple Date Codes within a Lot	x				No, one date code identified.
1.1.12	Part Orientation within Part Packaging	x				Acceptable
1.1.13	Missing or Non-Functional Condition Indicator	x				No, one date code identified.
1.1.14	Missing or Non-Functional Part Protector	x				Acceptable
1.1.15	Invalid Identification Indicator on the Part Package	x				Manufacturer label available.
1.1.16	Multiple Identification Indicator within an Expected Homogenous Lot	x				No, one date code identified.
1.1.17	Correct MSL Packaging	x				Moisture Sensitivity Level (MSL) 3 (168 Hours).

Images For Incoming - Documentation and Packaging Inspection.







Figure 1. INCOMING 1

Figure 2. INCOMING 2

Figure 3. INCOMING 3

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Figure 4. INCOMING 4

Figure 5. INCOMING 5

Figure 6. INCOMING 6

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	Part Number:	88E6321-A0-NAZ2I000	Customer P/N:					
GLOBAL ETS	Manufacturer:	MARVELL SEMICONDUCTOR	Devices Received:	1,520				
	Date Code:	2223	Lot Code:	PVG925.11JW				

External Visual inspection - Detailed (AS6171/2A) (Non-Destructive) 2.0.0

Results Summary 10 devices were visually inspected under 40x microscopy. No secondary coating was observed. Markings are acceptable. Terminals are in acceptable condition. Devices passed visual inspection.

	Crite	ria	Acceptable	Suspect	Not Acceptable	Not Available	Comments / Observations		
2.1.0	External Visual, Detailed Cr	iteria (Non-Destructive)							
2.1.1	External Visual, Detailed Cr	iteria	х				10 devices were visually inspected under 40x microscopy. No secondary coating was observed. Markings are acceptable. Terminals are in acceptable condition. Devices passed visual inspection.		
2.2.0	Suspect/Counterfeit Report	s) (Non-Destructive)							
2.2.1	Status						Active		
2.2.2	Search of GIDEP or Anti-Cou database found suspect/cou	Interfeiting Forum Interfeit report(s)					No high risk parts were found		
2.2.3	Search of GETS database fo report(s)	und suspect/counterfeit					GETS database was checked for high risk parts were found	or history of the part number. No	
2.3.0	Overview of Part Inspection	(Device specification) (No	n-Destructive)					
2.3.1	Number of leads per part		х				108		
2.3.2	Package Type		Х				Ethernet Switch 7-Port		
2.3.3	Correctly marked part numl applicable)	per for the package (if	x				Acceptable		
2.4.0	Package Body Inspection (N	on-Destructive)							
2.4.1	Different marking styles for date and lot codes	parts with the same	х				None were observed		
2.4.2	Different country of origin for date and lot codes	or parts with the same	х				None were observed		
2.4.3	Different body molds for pa and lot codes	rts with the same date	x				None were observed		
2.4.4	Previous marking partially v	risible on the surface	х				None were observed		
2.4.5	Excessive, deep, or inconsis laser burn marks	stent laser marking, or	x				None were observed		
2.5.0	External Package Inspection	n (Non-Destructive)							
2.5.1	Visible package variations for date and lot codes	or parts with the same	x				None were observed		
2.5.2	Visible scratch marks or uni	directional abrasions	х				None were observed		
2.5.3	Cracks, chip-outs, or visible marks	damage such as burn	х				None were observed		
2.5.4	Glue, adhesive, or other res the package Also, signs of c water or other residue, une shading.	idues on the surface of lebris such as ink, dirt, ven discoloration or	x				None were observed		
2.5.5	Signs of corrosion on the bo exposed areas of the lead f	dy of the part or rame	х				None were observed		
2.5.6	Evidence of blacktop		х				None were observed		
2.5.7	Mold indents filled or blackt	opped	х				None were observed		
2.5.8	Solder residue on packages		х				None were observed		
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2.5.9	Uneven thickness of the packages	x		None were observed
2.5.10	Dimples with uneven depth	x		None were observed
2.5.11	Differences in the corner radius between the top, bottom, and side surfaces	x		None were observed
2.5.12	Color discrepancy between the top, bottom, and sides of the part. On ceramic packages with metal top and frit seal, note differences in the frit color across the part	x		None were observed
2.5.13	Texture discrepancy between the top, bottom, and sides of the part	x		None were observed
2.5.14	Evidence of color fade on the body of the part	x		None were observed
2.6.0	Leads/Terminations inspection (Non-Destructive)			
2.6.1	Nonuniform color	x		None was observed
2.6.2	Lack of tooling marks (for formed leads)	x		None was observed
2.6.3	Lack of exposed copper or other base material on the ends of the leads (typically, the base material will be visible on the ends of the leads for a new, unused component)	x		None was observed
2.6.4	Repaired leads	x		None was observed
2.6.5	Bent or noncoplanar leads	х		None was observed
2.6.6	Excessive or uneven plating	х		None was observed
2.6.7	Missing leads	x		None was observed
2.6.8	Discoloration, dirt, or residues on the leads	x		None was observed
2.6.9	Scratches (or insertion marks) on the inside and/or outside faces of the leads	x		None was observed
2.6.10	Gross oxidation	х		None was observed
2.6.11	Corrosion	x		None was observed

Images For External Visual inspection - Detailed .



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GLOBAL ETS	Manufacturer:	MARVELL SEMICONDUCTOR		Devices Received:	1,520
	Date Code:	2223		Lot Code:	PVG925.11JW
	Figure 7. TOP			Figure	8 . BOTTOM
	Figure 9. SIDE			Figure	10 . TOP PIN

Figure 11. TERMINAL VIEW

Figure 12. TERMINAL ENDS

Images For External Visual inspection - Detailed . (Continued From Previous Page)

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	Date Code:	2223	Lot Code:	PVG925.11JW



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	Date Code:	2223	Lot Code:	PVG925.11JW		

3.0.0	Mechanical Inspection - Dimensions (AS6171/2A) (Non-Destructive)							
Resul Dimer Etherr	Results Summary Dimensions match datasheet specification. Ethernet Switch 7-Port							
	Criteria	Acceptable	Suspect	Not Acceptable	Not Available	Comments / Observations		
3.1.0	3.1.0 Part Dimensions (Non-Destructive)							
3.1.1	Part Dimensions	x						
	Equipment Used CALIPER-26 Asset Tag: 221 Calibration Due Date: 2024-05-09 Cert: A5041913							
Imag	es For Mechanical Inspection - Dimensions.							

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GLOBAL ETS	Manufacturer:	MARVELL SEMICONDUCTOR	Devices Received:	1,520
	Date Code:	2223	Lot Code:	PVG925.11JW



	MINIMUM	TYPICAL	MAXIMUM	UNIT
LENGTH	11.90	12.00	12.10	mm
WIDTH	11.90	12.00	12.10	mm
THICKNESS	0.80	0.85	0.90	mm

PACKAGE DRAWING 1

RECORD:

#	LENGTH	WIDTH	THICKNESS	RESULT	OPERATOR
1	12.00	11.99	0.88	Pass	DP
			1		
			-		
			-		
			-		
				-	
MAXIMUM	12	11.99	0.88		
MINIMUM	12	11.99	0.88		
AVERAGE	12	11.99	0.88		
DEVIATION	NaN	NaN	NaN		

Symbol Dimension in min Min Nom Max A 0.80 0.85 0.90 A1 0.90 0.02 0.05 A2 0.60 0.65 0.70 A3 0.20 REF 0.15 0.20 0.25	Symbol Dimension in mm Min Nom Max A 0.80 0.85 0.90 A1 0.00 0.02 0.05 A2 0.50 0.65 0.70 A3 0.20 REF 0.15 0.20 0.25 D/E 11.90 12.00 12.10 Dy/E 11.75 BSC 0.20 4.5 4.50 4.75
2x 3 0.00 0.02 0.05 A 0.00 0.02 0.05 A1 0.00 0.65 0.70 A2 0.60 0.65 0.70 A3 0.15 0.20 0.25	2x Image: Construction of the end of
Symbol Dimension in min Min Nom Max A 0.80 0.85 0.90 A1 0.00 0.02 0.05 A2 0.60 0.65 0.70 A3 0.20 REF 0.15 0.20 0.25	Symbol Dimension in mm Min Nom Max A 0.80 0.85 0.90 A1 0.90 0.02 0.05 A2 0.60 0.65 0.70 A3 0.20 REF 0 0.15 0.20 0.25 D/E 11.90 12.00 12.10 12.10 Dy/E1 11.75 BSC 0.20 4.5 4.50 4.75
Symbol Dimension in min Min Nom Max A 0.80 0.85 0.90 A1 0.90 0.02 0.05 A2 0.60 0.65 0.70 A3 0.20 REF 0.15 0.20 0.25	Symbol Dimension in mm Min Nom Max A 0.80 0.85 0.90 A1 0.00 0.02 0.05 A2 0.50 0.65 0.70 A3 0.20 REF 0.20 REF 0.15 0.20 0.25 D/E 11.90 12.00 12.10 12.10 Dy/E1 11.75 BSC 0.20 0.25
Symbol Dimension in mm Min Nom Max A 0.80 0.85 0.90 A1 0.90 0.02 0.05 A2 0.60 0.65 0.70 A3 0.15 0.20 REF 0.20 0.25	Symbol Dimension in mm Min Nom Max A 0.80 0.85 0.90 A1 0.00 0.02 0.05 A2 0.60 0.65 0.70 A3 0.20 REF 0 0.15 0.20 0.25 D/E 11.90 12.00 12.10 12.10
Symbol Dimension in mm Min Nom Max A 0.80 0.85 0.90 A1 0.00 0.02 0.05 A2 0.60 0.65 0.70 A3 0.20 REF 0.15 0.20 0.25	Symbol Dimension in mm Min Nom Max A 0.80 0.85 0.90 A1 0.90 0.02 0.05 A2 0.60 0.65 0.70 A3 0.20 REF 0.20 REF 0.20 0.25 D/E 11.90 12.00 12.10 12.10 Dy/E1 11.75 BSC 0.20 4.5 4.50 4.75
Symbol Dimension in mm Min Nom Max A 0.80 0.85 0.90 A1 0.00 0.02 0.05 A2 0.60 0.65 0.70 A3 0.15 0.20 REF 0.20 0.25	A O.80 O.85 O.90 A1 0.80 0.65 0.70 A2 0.60 0.65 0.70 A3 0.15 0.20 REF 0.15 D/E 11.90 12.00 12.10 D/E 11.75 BSC 11.75 BSC 11.75 BSC
Symbol Dimension in mm Min Nom Max A 0.80 0.85 0.90 A1 0.90 0.02 0.05 A2 0.60 0.65 0.70 A3 0.20 REF 0.15 0.20 0.25	Symbol Dimension in mm Min Nom Max A 0.80 0.85 0.90 A1 0.00 0.02 0.05 A2 0.60 0.65 0.70 A3 0.20 REF 0.20 REF 0.15 0.20 0.25 D/E 11.90 12.00 12.10 12.10 D/F1 11.75 BSC 0.20 0.25
A 0.80 0.85 0.90 A1 0.90 0.02 0.05 A2 0.60 0.65 0.70 A3 0.15 0.20 REF 0.25	A 0.80 0.85 0.90 A1 0.90 0.02 0.05 A2 0.60 0.65 0.70 A3 0.20 REF 0.20 0.25 D/E 11.90 12.00 12.10 Dy/E1 11.75 BSC 0.20 0.25
A 0.80 0.85 0.90 A1 0.00 0.02 0.05 A2 0.60 0.65 0.70 A3 0.20 REF 0.15 0.20 0.25	A 0.80 0.85 0.90 A1 0.90 0.02 0.05 A2 0.60 0.65 0.70 A3 0.20 REF 0.20 REF 0.20 b 0.15 0.20 0.25 D/E 11.90 12.00 12.10 Dy/E1 11.75 BSC 0.20 0.25
A1 0.00 0.02 0.05 A2 0.60 0.65 0.70 A3 0.20 REF 0.20 REF b 0.15 0.20 0.25	A1 0.00 0.02 0.05 A2 0.60 0.65 0.70 A3 0.20 REF 0.20 REF b 0.15 0.20 0.25 D/E 11.90 12.00 12.10 Dy/E1 11.75 BSC 0.20 0.25
A2 0.60 0.65 0.70 A3 0.20 REF 0.20 REF 0.20 0.25	A2 0.60 0.65 0.70 A3 0.20 REF 0.20 REF 0.20 REF b 0.15 0.20 0.25 D/E 11.90 12.00 12.10 Dy/E1 11.75 BSC 0.20 0.475
A ₃ 0.20 REF b 0.15 0.20 0.25	A3 0.20 REF b 0.15 0.20 0.25 D/E 11.90 12.00 12.10 Dy/E1 11.75 BSC 0.20 0.25
b 0.15 0.20 0.25	b 0.15 0.20 0.25 D/E 11.90 12.00 12.10 Dy/E1 11.75 BSC D2 4.45 4.50 4.75
	D/E 11.90 12.00 12.10 D√E1 11.75 BSC 11.75 BSC 11.75 BSC
D/E 11.90 12.00 12.10	D ₁ /E ₁ 11.75 BSC
D./C 11.75 BSC	D2 445 460 475
[Upt] 11.75 03C	DE 4.43 4.00 4.73
D/E 11.90 12.00	D2 445 460
11.75 050	02 4.45 4.00 4.75

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	Manufacturer:	MARVELL SEMICONDUCTOR	Devices Received:	1,520					
	Date Code:	2223	Lot Code:	PVG925.11JW					

4.0.0 X-Ray - Standard 2D (AS6081 (4.2.6.4.4), (AS6171/5) (Non-Destructive)

 Results Summary

 10 devices were X-rayed. Construction and size are the same. No anomalies were found.

	Criteria	Acceptable	Suspect	Not Acceptable	Not Available	Comments / Observations
4.1.0	X-Ray Analysis (Non-Destructive)					
4.1.1	Inconsistent Die Construction	х				
	Equipment Used	X-RAY SYS	TEM As:	set Tag: 154	Calibratio	on Due Date: 2025-01-02 Cert: C10077
4.1.2	Wire Bond Layout/Quality	х				
4.1.3	Inconsistent Lead Frame	х				
4.1.4	Missing Bond Wires	х				

Images For X-Ray - Standard 2D.



Figure 15. X-RAY-2223-PVG925.11JW-01

Figure 16. X-RAY-2223-PVG925.11JW-02

Figure 17. X-RAY-2223-PVG925.11JW-03

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Figure 21. X-RAY-2223-PVG925.11JW-07

Figure 22. X-RAY-2223-PVG925.11JW-08

Figure 23. X-RAY-2223-PVG925.11JW-09

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	Part Number:	88E6321-A0-NAZ2I000	Customer P/N:	
GLOBAL ETS	Manufacturer:	MARVELL SEMICONDUCTOR	Devices Received:	1,520
	Date Code:	2223	Lot Code:	PVG925.11JW
		MARVELL 88E6321-NAZ2 PVG925.11JW 2223 A0P TW I		kV 49 49 • uA 49 49 • lock Warm 3846 isock Filter 15 ab 1327 Config Defaul ~

Figure 24. X-RAY-2223-PVG925.11JW-10	
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Figure 25. X-RAY ORIENTATION



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	Analysis Report - 2000-XXXXXX								
GLOBAL ETS	Customer Name:		Purchase Order:						
	Part Number:	88E6321-A0-NAZ2I000	Customer P/N:						
	Manufacturer:	MARVELL SEMICONDUCTOR	Devices Received:	1,520					
	Date Code:	2223	Lot Code:	PVG925.11JW					

Electrical - Curve Trace Testing, at ambient temp. (MIL-STD-883) (Non-Destructive) 5.0.0

Results Summary Tested 10 via pin correlation at 25C using Curve Tracer method. Passed: 10.

Power's applied to DUT to check for current surge at 25C.

	Test-Process Operation	Quantity Inspected	Pass	Fail	N/A	Comments / Observations			
5.1.0	5.1.0 Electrical Test (MIL-STD-883, (AS6171/7) (Non-Destructive)								
5.1.1	Curve Trace Test TA = 25° C	10	10	0					
	Equipment Used NI VIRTUAL BENCH Asset Tag: 289 Calibration Due Date: 2024-03-27 Cert: 7584059								

Images For Electrical - Curve Trace Testing, at ambient temp..



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		Analysis Report	- 2000-XXXXXX	
	Customer Name:		Purchase Order:	
	Part Number:	88E6321-A0-NAZ2I000	Customer P/N:	
GLOBAL ETS	Manufacturer:	MARVELL SEMICONDUCTOR	Devices Received:	1,520
	Date Code:	2223	Lot Code:	PVG925.11JW
50 # 120249 Operator MRMMA Current Time 13/11/2023 07:95:15 13/11/2023 07:95:15	On sectory Schweider Structure 29. 3 VDDO V.	The section of the se		

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	Analysis Report - 2000-XXXXXX					
	Customer Name:		Purchase Order:			
	Part Number:	88E6321-A0-NAZ2I000	Customer P/N:			
GLOBAL ETS	Manufacturer:	MARVELL SEMICONDUCTOR	Devices Received:	1,520		
	Date Code:	2223	Lot Code:	PVG925.11JW		

6.0.0 Delid/Decapsulation - Thermomechanical (AS6171/4) (Destructive)

Results Summary
Internal inspection was performed on 1 device. Device revealed Marvell logo with 2013 copyright. Die marking E6320 was also found. Die marking correlates with devices
family marking.

	Criteria	Acceptable	Suspect	Not Acceptable	Not Available	Comments / Observations
6.1.0	Physical (INTERNAL) (Destructive)					
6.1.1	Die Topography	x				
	Equipment Used	DECAP OV	N Asse	t Tag: 243	Calibration	Due Date: 2024-09-15 Cert: A5219795
6.1.2	Die Marking Verification	x				

Images For Delid/Decapsulation - Thermomechanical.



Figure 30. DIE TOPOGRAPHY

Figure 31. DIE MARKING

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