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Suite 500  
Chicago, Illinois USA 60631

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Nov 27<sup>th</sup>, 2023

**PCN # ESW490-56 – Alternate Assembly Location for IXYS Avalanche Diode FP-case products**

To our valued customers,

Littelfuse would like to notify you that we qualified alternate assembly location for IXYS Avalanche Diode FP-case products with BCP consideration. Detail affected product list please refer to attached file.

All affected products have been fully qualified in accordance with established performance and reliability criteria. The attached pages summarize the qualification results. Full qualification data and/or samples will be available upon request.

**Form, fit, function changes:** Major process change is from clip bond to wire bond. Assembly BOM and equipment changed accordingly. Slight dimension difference but all in JEDEC spec.

**Part number changes:** None

**Effective date:** Feb 27<sup>th</sup>, 2024

**Replacement products:** N/A

**Last time buy:** N/A

This notification is for your information and acknowledgement. If you have any other questions or concerns, please contact your local sales team or Jessie Zhang, Product Marketing Engineer of Power Bipolar Discrete (Diode).

We value your business and look forward to assisting you whenever possible.

Thank you very much!

Best Regards,

Jessie Zhang  
Product Marketing Engineer of Power Bipolar Discrete (Diode)  
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800 E. Northwest Highway Des Plaines, IL 60016

## Product/Process Change Notice (PCN)

**PCN#:** ESW490-56    **Date:** Nov 27<sup>th</sup>, 2023

**Product Identification:**

Alternate Assembly Location for IXYS Avalanche Diode FP-case products

**Implementation Date for Change:**

Feb 27<sup>th</sup>, 2024

### Contact Information

**Name:** Jessie Zhang

**Title:** Product Marketing Engineer

**Phone #:** +86 510 85277701 - 7635

**Fax#:** N/A

**E-mail:** jzhang34@littelfuse.com

### Category of Change:

- Assembly Process
- Data Sheet
- Technology
- Discontinuance/Obsolescence
- Equipment
- Manufacturing Site
- Raw Material
- Testing
- Fabrication Process
- Other: \_\_\_\_\_

### Description of Change:

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**Replacement products:** N/A

**Last time buy:** N/A

### Important Dates:

- Qualification Samples Available:  Last Time Buy:
- Final Qualification Data Available:
- Date of Final Product Shipment:

### Method of Distinguishing Changed Product

- Product Mark,
- Date Code, Different Site Code
- Other,

### Demonstrated or Anticipated Impact on Form, Fit, Function or Reliability:

Major process change is clip bond to wire bond. Assembly BOM and Equipment changed accordingly. Slight dimension difference but all in JEDEC spec

### LF Qualification Plan/Results:

All affected products have been fully qualified in accordance with established performance and reliability criteria.

**Customer Acknowledgement of Receipt:** Littelfuse requests you acknowledge receipt of this PCN. In your acknowledgement, you can grant approval or request additional information. Littelfuse will assume the change is acceptable if no acknowledgement is received within 30 days of this notice. Lack of any additional response within 90 days of PCN issuance further constitutes acceptance of the change.

# PCN Report

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**Prepared By** : Jessie Zhang, Product Marketing Engineer  
**Date** : Nov 27<sup>th</sup>, 2023  
**Products** : IXYS Avalanche Diode Full Package Products  
**Revision** : A

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## 1.0 Objective:

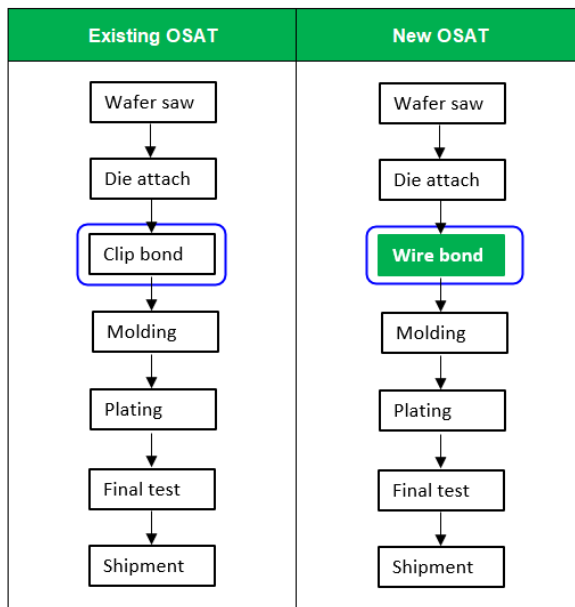
This qual report covers IXYS Avalanche Diode FP-case Products Alternative Assembly location qualification.

## 2.0 Applicable Products:

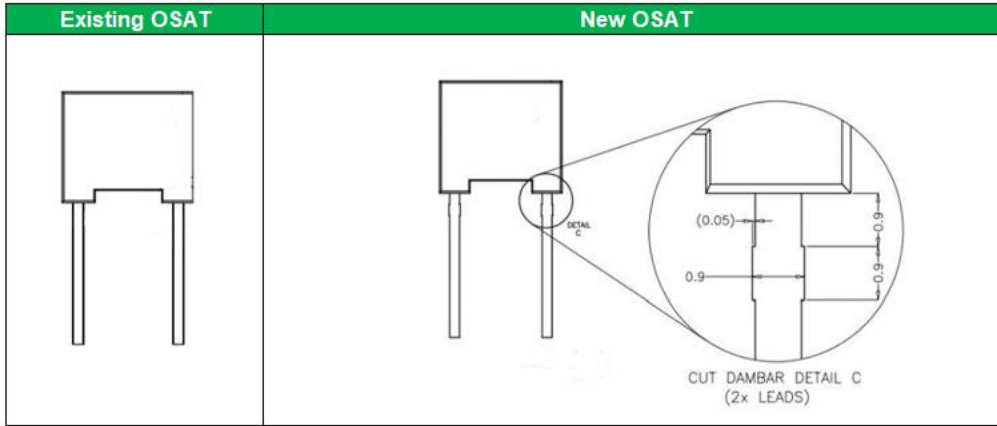
IXYS Power Avalanche Diode FP-case Products.  
Refer to Appendix A for detail part number list.

## 3.0 Physical Differences/Changes:

- Comparison of Assembly process flow between Existing Assy Site and Alternative Assy Site.  
Major process change is from clip bond to wire bond. Assembly BOM and equipment changed accordingly.






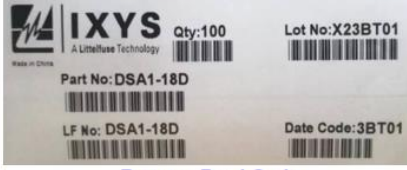


- Comparison of Package Dimension between Existing Assy Site and Alternative Assy Site.



Conclusion: The variance is not critical which has no significant impact on customer application.

- Comparison in detail Packing Spec between Existing Assy Site and Alternative Assy Site  
Anti-static pouch/ box/ label dimension change

Item	Existing OSAT	New OSAT
Anti-static pouch	 Pouch size: 100 x 150 x 0.10 mm (LxWxT)	 Pouch size: 100 x <b>155</b> x 0.1 mm (LxWxT)
RoHS sticker	 Sticker size: 80 x 50 mm (LxW)	 Sticker size: <b>96 x 40</b> mm (LxW)
Pouch/box label	 Label size: 80 x 30 mm (LxW)	 <b>Remove Prod Code</b> Label size: <b>96 x 40</b> mm (LxW)

Conclusion: The variance is not critical which has no significant impact on customer application.

#### 4.0 Qualification Test Result

All samples passed parametric and reliability test standard by Littelfuse.

➤ Reliability test result summary

Test Item	Sample P/N	Sample QTY	Littelfuse test Ref#	Contents/Conditions	Duration	Result Summary
HTRB	DSA 1-18D	6 x 20	TR23-04-001036	125°C, 1260V, AC half sine	1,008hrs	0 failure
T/C	DSA 1-18D	6 x 20	TR23-04-001036	-40 °C /150 °C	100 cycles	0 failure
Autoclave	DSA 1-18D	6 x 20	TR23-04-001036	121°C, 100% r.h., 48h recovery Time @RT	96hrs	0 failure
P/C	DSA 1-18D	6 x 20	TR23-04-001036	$I_{FAV}=1.3A$ , $I_{FRMS}=2.4A$ , $T_J<150^{\circ}C$ , $t_{Aufh.}=10$ Min., $t_{Abk.}=5$ Min., ( $T_{Kathode}$ max. ~ 82°C)	4,000 cycles	0 failure
UHAST	DSA 1-18D	6 x 20	TR23-04-001036	130°C, 85% r.h., 48h recovery Time @RT	96hrs	0 failure

➤ Parametric test

There is no change in absolute ratings and parametric specifications.

Test Item	Sample P/N	Sample Qty	Littelfuse test Ref#	Contents/Conditions	Result Summary
Electrical Parameters	DSA 1-18D	6 x 5	23-09-004094/23-09-004096/23-09-004100	HVICEO /HVBCEO /VFEC	Meet datasheet spec
$I_{FSM}$	DSA 1-18D	6 x 5	23-09-004094/23-09-004096/23-09-004100	$T_J = 45^{\circ}C$ ; $t = 10$ ms (50 Hz), sine	
Thermal Resistance	DSA 1-18D	1 x 1 (repeated 4 times)	1764	$R_{thJA}$ Junction-to-Ambient	
$V_{TO}, I_T$	DSA 1-18D	6 x 5	23-09-004094/23-09-004096/23-09-004100	$T_{VJ} = T_{VJM}$	
$I_R$	DSA 1-18D	6 x 5	23-09-004094/23-09-004096/23-09-004100	$V_R = V_{RRM}$ $T_{VJ} = T_{VJM}$	

#### 5.0 Recommendations & Conclusions:

Based on the above qualification test results, Littelfuse concluded new Alternative Assembly Location can pass the release criterion and ready to start mass production for affected products.



**Appendix A: Detail Part Number list affected**

Material	Package
DSA1-12D	FP-case
DSA1-16D	FP-case
DSA1-18D	FP-case

