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Suite 500
Chicago, Illinois USA 60631

Nov 27th, 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: See below

Effective date: Feb 27th, 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,

Product Marketing Engineer of Power Bipolar Discrete (Diode)
Semiconductor Business Unit, Wuxi, China

PCN Report

Prepared By : Product Marketing Engineer
Date : Nov 27th, 2023
Products : IXYS Avalanche Diode Full Package Products
Revision : A

1.0 Objective:

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

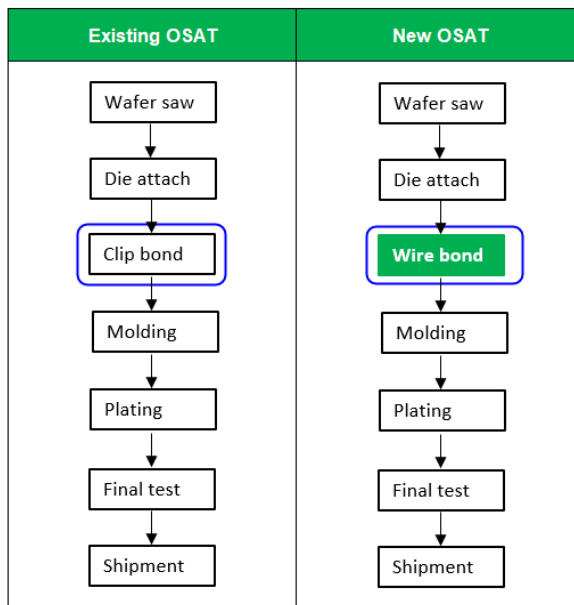
2.0 Applicable Products:

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

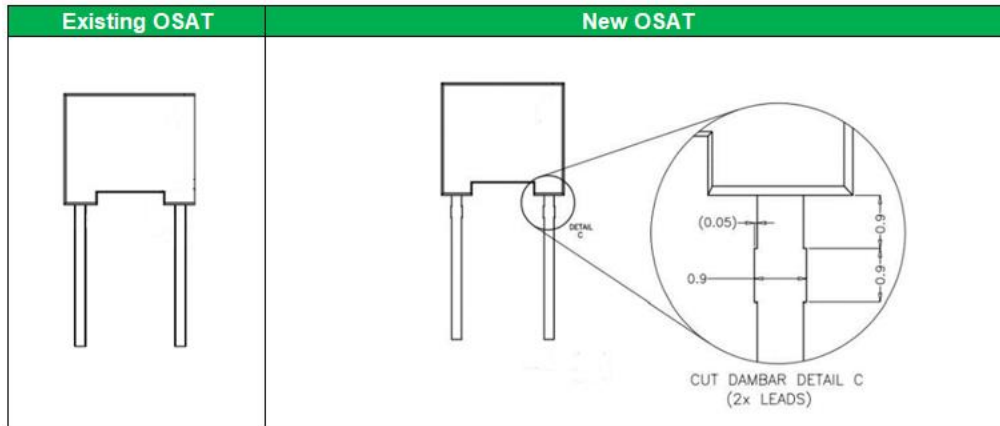
3.0 Physical Differences/Changes:

- 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.





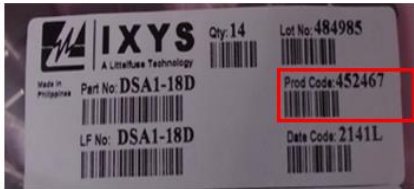
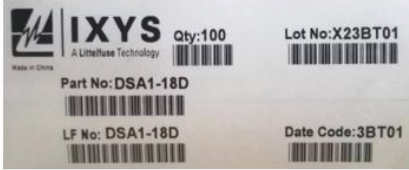


- Comparison of Package Dimension between Existing Assy Site and Alternative Assy Site.



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	 <p>Pouch size: 100 x 150 x 0.10 mm (LxWxT)</p>	 <p>Pouch size: 100 x 155 x 0.1 mm (LxWxT)</p>
RoHS sticker	 <p>Sticker size: 80 x 50 mm (LxW)</p>	 <p>Sticker size: 96 x 40 mm (LxW)</p>
Pouch/box label	 <p>Label size: 80 x 30 mm (LxW)</p>	 <p>Remove Prod Code Label size: 96 x 40 mm (LxW)</p>

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. $\sim 82^{\circ}C$)	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	HVCEO /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}, r_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