



800 E. Northwest Highway Des Plaines, IL 60016

## Product/Process Change Notice (PCN)

**PCN#:** ESW490-50    **Date:** Oct 17th, 2021

**Product Identification:**

Diode ISOPLUS220 & ISOPLUS264 Package Products

**Implementation Date for Change:**

Jan 17th , 2024

### Contact Information

**Name:** Salvador M. Cortez Jr.

**Title:** Product Marketing Engineer

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**Fax#:** N/A

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

### Category of Change:

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

### Description of Change:

Littelfuse wants to inform you that we have an alternative Backend Assembly Site for our Diode ISOPLUS220 & ISOPLUS264 Package Products that is located in our new in-house factory in Lipa, Philippines.

- 1) Silicon Die: No change
- 2) Backend Assembly Bill of Materials: No change
- 3) Backend Assembly Process Flow: No change
- 4) Backend Assembly Equipment: Equal or better
- 5) Marking & Labeling: Yes. (refer to PCN letter)

Product form, fit, function changes: None

Part number changes: None

### 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,
- ☐ Other,

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

None

### LF Qualification Plan/Results:

Available

**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.



8755 W. Higgins Road  
Suite 500  
Chicago, Illinois USA 60631

October 17<sup>th</sup>, 2023

## PCN # ESW490-50 – Diode ISOPLUS220 & ISOPLUS264 Packaging Products Alternative Assembly Location









To our valued customers,

Littelfuse wants to inform you that we have an alternative backend assembly site for our Diode products ISOPLUS220 & ISOPLUS264 Package. The new in-house assembly factory is located in Lipa, Philippines. This brand-new assembly factory is to fulfill our strategy to invest in state-of-the-art power semiconductor assembly capabilities to dramatically improve our service levels to customers. Our target is to build this factory as a world-class facility with automated, error-proof processes to meet the highest quality standards. Contact our local Sales team in case you would like to understand more about this new factory.





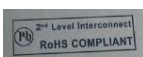



Below are the detailed changes associated with Littelfuse's alternative Assembly Site:

- 1) **Silicon Die:** No change
- 2) **Backend Assembly Bill of Materials:** No change
- 3) **Backend Assembly Process Flow:** No change
- 4) **Backend Assembly Equipment:** Equal or better
- 5) **Marking & Labeling:** Yes. Changes pls refer to below details.

### ISOPLUS220 Package products:

DESCRIPTION	EXISTING LOCATION	SBU-LIPA	CHANGE (Y/N)	RISK	REMARKS
<b>Unit Marking</b>					
Logo			Y	LOW	Change to Littelfuse Logo
UL Sign	Yes	Yes	N	NR	No change
Trademark Sign	Yes	Yes	N	NR	No change
Product Name	Yes	Yes	N	NR	No change
Date Code	YYWW	YYWW	N	NR	No change
Assembly Line	L	M	Y	LOW	Site location code
Lot ID	FKT #	Lipa Lot ID format	Y	NR	SBU-Lipa uses global format
<b>Tube Label</b>					
Logo			Y	NR	Change to Littelfuse Logo
Qty per tube	Yes	Yes	N	NR	No change
Part Number	Yes	Yes	N	NR	No change
Country of Origin	Yes	Yes	N	NR	No change
Code Type	Barcode	Barcode + 2D Code	Y	LOW	SBU-Lipa uses global format
Lot No	No	Yes	Y	LOW	SBU-Lipa uses global format
Lot ID	FKT #	Lipa Lot ID format	Y	NR	SBU-Lipa uses global format
Date Code	Yes	Yes	N	NR	No change
Assy Line Code	L	M	Y	LOW	Site location code
<b>Box Label</b>					
RoHS Label			Y	LOW	Both have printed RoHS compliance label
Logo			Y	NR	Change to Littelfuse Logo
Qty per Box	Yes	Yes	N	NR	No change
Part Number	Yes	Yes	N	NR	No change
Country of Origin	Yes	Yes	N	NR	No change
Code Type	Barcode	Barcode + 2D Code	Y	LOW	SBU-Lipa uses global format
Lot ID	FKT #	Lipa Lot ID format	Y	NR	SBU-Lipa uses global format
Date Code	Yes	Yes	N	NR	No change
Assy Line Code	L	M	Y	LOW	Site location code
Product code	Yes	No	Y	LOW	SBU-Lipa uses global format

**ISOPLUS264 Package products:**

DESCRIPTION	EXISTING LOCATION	SBU-LIPA	CHANGE (Y/N)	RISK	REMARKS
<b>Unit Marking</b>					
Logo			Y	NR	Change to Littelfuse Logo
UL Sign	Yes	Yes	N	NR	No change
Product Name	Yes	Yes	N	NR	No change
Date Code	YYWW	YYWW	N	NR	No change
Assembly Line Code	P	M	Y	LOW	Site location code
Lot ID	FKT #	Lipa Lot ID format	N	NR	No Change
<b>Tube Label</b>					
Logo			Y	NR	Change to Littelfuse Logo
Qty per tube	Yes	Yes	N	NR	No change
Part Number	Yes	Yes	N	NR	No change
Country of Origin	Yes	Yes	N	NR	No change
Code Type	Barcode	Barcode + 2D Code	Y	LOW	SBU-Lipa uses global format
Lot No	No	Yes	Y	LOW	Additional information from SBU-Lipa
Lot ID	FKT #	Lipa Lot ID format	Y	NR	SBU-Lipa uses global format
Date Code	Yes	Yes	N	NR	No change
Assy Line Code	P	M	Y	LOW	Site location code
Product code	Yes	No	Y	LOW	SBU-Lipa uses global format
<b>Box Label</b>					
RoHS Label			Y	LOW	Both boxes having the notification of compliance with RoHS
Logo			Y	NR	Change to Littelfuse Logo
Qty per Box	Yes	Yes	N	NR	No change
Part Number	Yes	Yes	N	NR	No change
Country of Origin	Yes	Yes	N	NR	No change
Code Type	Barcode	Barcode + 2D Code	Y	LOW	SBU-Lipa uses global format
Lot ID	FKT #	Lipa Lot ID format	Y	NR	SBU-Lipa uses global format
Date Code	Yes	Yes	N	NR	No change
Assy Line Code	P	M	Y	LOW	Site location code
Product code	Yes	No	Y	LOW	SBU-Lipa uses global format

**For both ISOPLUS220 & ISOPLUS264 Package products:****Form, fit, function changes:** None**Part number changes:** None**Effective date:** January 17<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 Salvador M. Cortez Jr., Product Marketing Engineer for Power Bipolar Discrete.

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

Thank you very much!

Best Regards,

Salvador M. Cortez Jr.  
 Global Product Marketing Engineer  
 Power Bipolar Discrete (Thyristor+Diode)  
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Littelfuse Phils, Inc. Lipa, Philippines



- Established since November 1997
- New Building 3 be opened in March 2020
- A two stories building (EBU & SBU)
- Total production space ~8400 m<sup>2</sup>
- 3400 m<sup>2</sup> used in phase 1
- Dedicated to semiconductor products



Saw, Die Bond, Wirebond, & Assy Line



Mold, Oven, Deflash & Plating



Tester & Handler

# PCN Report

**Prepared By** : Salvador M. Cortez Jr., Product Marketing Engineer  
**Date** : Oct 17<sup>th</sup>, 2023  
**Products** : Diode ISOPLUS220 & ISOPLUS264 Package Products  
**Revision** : A

## 1.0 Objective:



This qualification report covers Diode ISOPLUS220 & ISOPLUS264 Package Products Alternative Assembly Location.

## 2.0 Applicable Products:

Diode ISOPLUS220 & ISOPLUS264 Package Products. Refer to Appendix A for a detailed part number list.

## 3.0 Physical Differences/Changes:

ISOPLUS264: Small change on Tube but will not affect customer usage. No change for ISOPLUS220.

Point of Comparison	Existing Location	SBU-LIPA	GAP	RISK
Length, mm	529.7 - 532.3	531.0 - 533.0	No gap	No risk
Width, mm	52.3 - 52.9	52.5 - 53.1	Yes	Low risk. Gap is not significant
Height, mm	7.57 - 7.63	7.57 - 7.63	No gap	No risk
Material Thickness, mm	0.77 - 0.83	0.77 - 0.83	No gap	No risk
Tube Opening, mm	6 x 51	6 x 51	No gap	No risk
Quantity	25	25	No gap	No risk
Anti-static	Yes	Yes	No gap	No risk
Design			No gap	No risk

## 4.0 Electrical Parameter Test Result

Package	Part Number	Blocking Voltage	Reverse Current	Forward Voltage
ISOPLUS220	DPG10P400PJ	Pass	Pass	Pass
ISOPLUS264	DNA120E2200KO	Pass	Pass	Pass



## 5.0 Qualification Test Result

All samples passed parametric and reliability test standard by Littelfuse/IXYS.

PACKAGE/ DEVICE	REL-TEST	CONDITIONS	SAMPLE SIZE PER LOT	STATUS	E23C9P1	E23C9P2	E23C9P3	RESULT
ISOPLUS220/ DPG10P400PC	HTRB	1000hrs, 320V, DC, 150°C	20	Finished	Passed	Passed	Passed	Completed: Passed reliability
	uHAST	96hrs, 130°C, 85%r.H.	20	Finished	Passed	Passed	Passed	Completed: Passed reliability
	TC	100 cycles, -55/+150°C	20	Finished	Passed	Passed	Passed	Completed: Passed reliability
	P/C	4000 cycles, I=10A DC, P~9W/Chip, T_J=145°C, delta T = 100K, T_H=45- 115°C, t_on=90s, t_off=130s	20	Finished	Passed	Passed	Passed	Completed: Passed reliability
	ITSM	Datasheet	5	Finished	Passed	Passed	Passed	Completed: Passed reliability

PACKAGE/ DEVICE	REL-TEST	CONDITIONS	SAMPLE SIZE PER LOT	STATUS	E22H31L1	E22H31L2	E22H31L3	RESULT
ISOPLUS264/ DNA120E2200KO	HTRB	1000hrs, 1540V, AC half sine, 150°C	20	Finished	Passed	Passed	Passed	Completed: Passed reliability
	uHAST	96hrs, 130°C, 85%r.H.	20	Finished	Passed	Passed	Passed	Completed: Passed reliability
	TC	100 cycles, -55/+150°C	20	Finished	Passed	Passed	Passed	Completed: Passed reliability
	P/C	4000 cycles	20	Finished	Passed	Passed	Passed	Completed: Passed reliability
	ITSM	Datasheet	5	Finished	Passed	Passed	Passed	Completed: Passed reliability

## 6.0 Recommendations & Conclusions:

Based on the above qualification tests results, Littelfuse/IXYS has determined that the SBU Lipa Assembly Location meets the release criteria and is ready to start mass production of the affected products.



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

Package Type	SAP Part Number		Package Type	SAP Part Number
ISOPLUS220	DPG10P400PJ		ISOPLUS264	DNA120E2200KO
ISOPLUS220	DPG30P300PJ		ISOPLUS264	DHG40I4500KO
ISOPLUS220	DPG30P400PJ			
ISOPLUS220	DSEC16-06AC			
ISOPLUS220	DSEC29-06AC			
ISOPLUS220	DSEC59-06BC			
ISOPLUS220	DSEE15-12CC			
ISOPLUS220	DSEE29-12CC			