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

Dec 17th, 2024

[Phase 4] ESW490-42 – IXYS Brand Schottky Diode Discrete Alternative Qual Status

To our valued customers,

Littelfuse would like to notify the completion of Phase 4 IXYS Brand Schottky Diode Alternative Qualification and would like to supply the latest datasheet for the 27 parts in the Phase 4 group.
You can ask your local sales team or CSR for the new version datasheets.

All the affected parts have been fully qualified following 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: There will be changes to alternative parts. Please refer to the latest datasheets.
Part number changes: None
Effective date: Jan 17th, 2025
Replacement products: N/A
Last time buy: N/A

Below is the latest status for the Schottky Diode qualification groups:

	PCN Time	Qualification
Phase 1	Nov-22	Completed
Phase 2	May-23	Completed
Phase 3	Jan-24	Completed
Phase 4	**Dec-24**	**Completed**

If you have any other questions or concerns, please contact your local sales team or Jessie Zhang, Product Marketing Engineer of Power Bi-polar 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 Bi-polar Discrete (Diode)
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800 E. Northwest Highway Des Plaines, IL 60016

Product/Process Change Notice (PCN)

PCN#: ESW490-42 Date: Dec 17th , 2024

Product Identification:

IXYS Brand Schottky Diode Discrete Alternative Qual Status

Implementation Date for Change:

Jan 17th , 2025

Contact Information

Name: Jessie Zhang

Title: Product Marketing Engineer

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Fax#: N/A

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Category of Change:

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

Description of Change:

Littelfuse would like to notify the completion of Phase 4 IXYS Brand Schottky DIode Alternative Qualification. Detail affected product list please refer to attached file.

All affected parts have been fully qualified following established performance ar reliability criteria.

Form, fit, function changes: The major change is the wafer and fab/assembly production plant.

Part number changes: None

Effective date: Jan 17th , 2025

Replacement products: N/A

Last time buy: N/A

Important Dates:

- ☒ Qualification Samples Available: 12/17/2024
- ☐ Last Time Buy:
- ☒ Final Qualification Data Available: 12/17/2024
- ☐ Date of Final Product Shipment:

Method of Distinguishing Changed Product

- ☒ Product Mark, Logo format change only for SOT227B&ISO247
- ☒ Date Code, Different Site Code
- ☐ Other,

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

The major change is the wafer and fab/assembly production plant.

LF Qualification Plan/Results:

All affected products have been fully qualified following 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

Prepared By : Jessie Zhang, Product Marketing Engineer
Date : Dec 17th, 2024
Products : [Phase 4] IXYS Brand Schottky Diodes
Revision : A

1.0 Objective:

This qual report covers all the phase 4 IXYS Brand Schottky diode discrete alternative parts.

2.0 Applicable Products:

[Phase 4] IXYS Brand Schottky Diodes
Refer to Appendix A for a detailed part number list.

3.0 Physical Differences/Changes:

- Wafer changed.

  All parts' wafers are changed, and detailed performance refers to the latest datasheets.

  For chip quantity per unit, the following four parts have changed. Use a larger chip to reduce the number of chips used for a more stable output.

Part Num	Chip Qty per Unit (EA)	
	Before	After
DSS2x101-015A	4	2
DSS2x101-02A	4	2
DSS2x111-008A	4	2
DSS2x121-0045B	4	2

  Conclusion: Reliability tests performed on 8 QV lots of TO-247, 4 QV lots of SOT-227B, and 1 QV lot of ISO-247, all passed. All parameters meet our new datasheet specification.

- Marking and Labeling related changed.

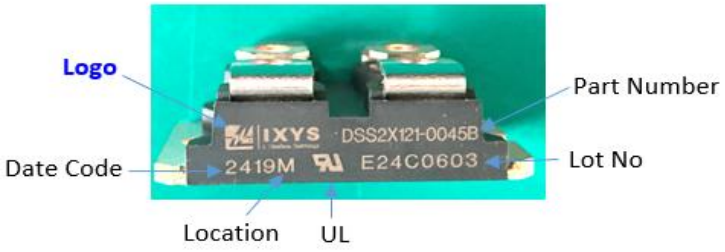
  For TO-247 package Schottky: No changed.

  For SOT-227B and ISO-247 package Schottky: Below is the detailed change information.

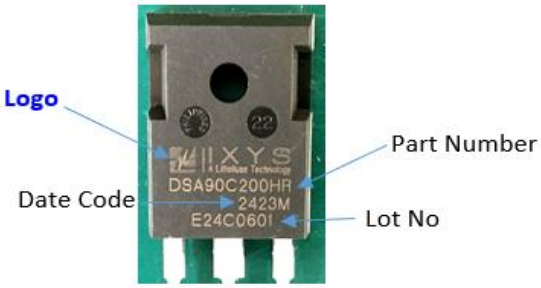
Item		Existing	New
Unit Marking	Logo	IXYS	IXYS
Box Label	RoHS Label	2nd Level Interconnect 1. Category: e1 2. Max. safe temperature: 260°C RoHS COMPLIANT e1	2nd Level Interconnect 1. Category: e3 2. Max. Safe temperature: 260°C RoHS COMPLIANT e3
Box Label	Logo	IXYS	IXYS
	Lot No	No	Yes
	Code Type	Barcode	Barcode + 2D Code
Tube Label	Logo	IXYS	IXYS
	Lot No	No	Yes
	Code Type	Barcode	Barcode + 2D Code

Example for the new version:

Marking:

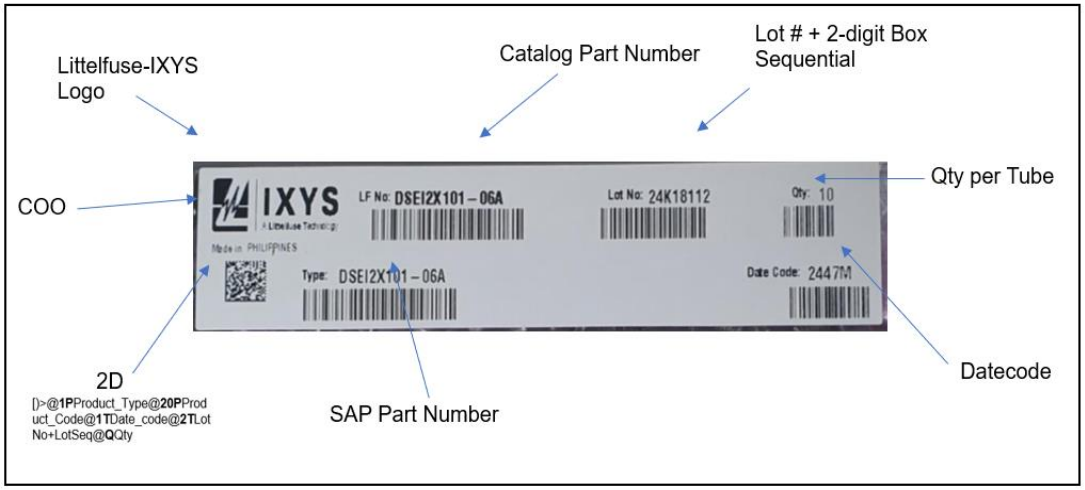


SOT-227B package Schottky



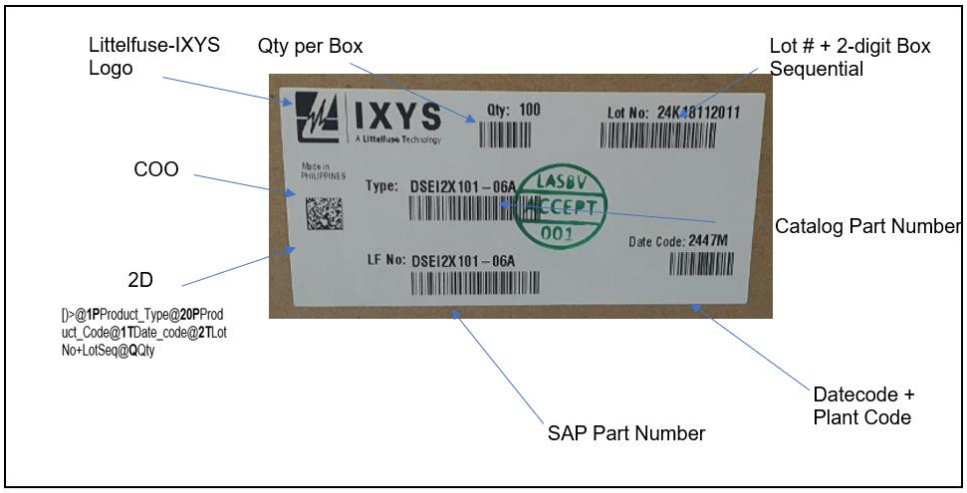
ISO-247 package Schottky

Tube Label:



Note: Sample Label using SOT-227 Package

Box Label:



Note: Sample Label using SOT-227 Package

Conclusion: Actual marking confirms with marking set up at Datasheet.
For Tube and Box labels, no significant impact on the application.

4.0 Qualification Test Result

All samples passed the parametric and reliability test standard by Littelfuse.

➢ Reliability test result summary

Sample P/N	Test Item	Sample QTY	Littelfuse test Ref#	Contents/Conditions	Duration	Result Summary
DSSK80-0045B	HTRB	1 x 20	TR23-04-001130	125°C, 45V	1008 hrs	0 failure
	T/C	1 x 20	185687	-55 °C /150 °C	100 cycles	0 failure
	IOL	1 x 20	185687	ΔTvj=100°C, TON/OFF: 2 minutes	1008 hrs	0 failure
	UHAST	1 x 20	185687	130°C, 85% humidity	96hrs	0 failure
DSSK80-0008D	HTRB	1 x 20	TR23-04-001129	125°C, 8V	1008 hrs	0 failure
	T/C	1 x 20	185691	-55 °C /150 °C	100 cycles	0 failure
	IOL	1 x 20	185691	ΔTvj=100°C, TON/OFF: 2 minutes	1008 hrs	0 failure
	UHAST	1 x 20	185691	130°C, 85% humidity	96hrs	0 failure
DSSK80-006B	HTRB	1 x 20	TR24-03-007274	125°C, 60V	1008 hrs	0 failure
	T/C	1 x 20	TR24-03-007271	-55 °C /150 °C	100 cycles	0 failure
	IOL	1 x 20	TR24-03-007271	ΔTvj=100°C, TON/OFF: 2 minutes	1008 hrs	0 failure
	UHAST	1 x 20	TR24-03-007271	130°C, 85% humidity	96hrs	0 failure
DSSK80-0025B	HTRB	1 x 20	TR24-03-007275	125°C, 25V	1008 hrs	0 failure
	T/C	1 x 20	TR24-03-007272	-55 °C /150 °C	100 cycles	0 failure
	IOL	1 x 20	TR24-03-007272	ΔTvj=100°C, TON/OFF: 2 minutes	1008 hrs	0 failure
	UHAST	1 x 20	TR24-03-007272	130°C, 85% humidity	96hrs	0 failure
DSB60C45HB	HTRB	1 x 20	TR24-03-007276	125°C, 45V	1008 hrs	0 failure
	T/C	1 x 20	TR24-03-007273	-55 °C /150 °C	100 cycles	0 failure
	IOL	1 x 20	TR24-03-007273	ΔTvj=100°C, TON/OFF: 2 minutes	1008 hrs	0 failure
	UHAST	1 x 20	TR24-03-007273	130°C, 85% humidity	96hrs	0 failure
DSA50C100HB	HTRB	1 x 20	TR24-03-007264	125°C, 100V	1008 hrs	0 failure
	T/C	1 x 20	TR24-03-007264	-55 °C /150 °C	100 cycles	0 failure
	IOL	1 x 20	TR24-03-007264	ΔTvj=100°C, TON/OFF: 2 minutes	1008 hrs	0 failure
	UHAST	1 x 20	TR24-03-007264	130°C, 85% humidity	96hrs	0 failure
DSA60C60HB	HTRB	1 x 20	TR24-03-007267	125°C, 60V	1008 hrs	0 failure
	T/C	1 x 20	TR24-03-007267	-55 °C /150 °C	100 cycles	0 failure
	IOL	1 x 20	TR24-03-007267	ΔTvj=100°C, TON/OFF: 2 minutes	1008 hrs	0 failure
	UHAST	1 x 20	TR24-03-007267	130°C, 85% humidity	96hrs	0 failure
DSA60C45HB	HTRB	1 x 20	TR24-03-007270	125°C, 45V	1008 hrs	0 failure
	T/C	1 x 20	TR24-03-007270	-55 °C /150 °C	100 cycles	0 failure
	IOL	1 x 20	TR24-03-007270	ΔTvj=100°C, TON/OFF: 2 minutes	1008 hrs	0 failure
	UHAST	1 x 20	TR24-03-007270	130°C, 85% humidity	96hrs	0 failure
DSS2X101-015A	HTRB	1 x 10	TR24-04-008310	125°C, 120V DC	1000 hrs	0 failure
	T/C	1 x 20	TR24-04-008310	-40°C to 150°C	50 cycles	0 failure
	P/C	1 x 10	TR24-04-008310	I=60A DC, Tvj=125°C	10000cycles	0 failure
	UHAST	1 x 20	TR24-04-008310	130°C, 85% humidity	96hrs	0 failure
DSS2X101-02A	HTRB	1 x 10	TR24-04-008313	125°C, 160V DC	1000 hrs	0 failure
	T/C	1 x 20	TR24-04-008313	-40°C to 150°C	50 cycles	0 failure
	P/C	1 x 10	TR24-04-008313	I=68A DC, Tvj=125°C	10000cycles	0 failure
	UHAST	1 x 20	TR24-04-008313	130°C, 85% humidity	96hrs	0 failure
DSS2X61-0045A	HTRB	1 x 10	TR24-06-009190	125°C, 36V DC	1000 hrs	0 failure
	T/C	1 x 20	TR24-06-009190	-40°C to 150°C	50 cycles	0 failure
	P/C	1 x 10	TR24-06-009190	I=55A DC, Tvj=125°C	10000cycles	0 failure
	UHAST	1 x 20	TR24-06-009190	130°C, 85% humidity	96hrs	0 failure
DSS2X121-0045B	HTRB	1 x 10	TR24-06-009189	125°C, 36V DC	1000hrs	0 failure
	T/C	1 x 20	TR24-06-009189	-40°C to 150°C	50 cycles	0 failure
	P/C	1 x 10	TR24-06-009189	I=70A DC, Tvj=125°C	4000cycles	0 failure
	UHAST	1 x 20	TR24-06-009189	130°C, 85% humidity	96hrs	0 failure
DSA90C200HR	HTRB	1 x 20	TR24-07-009705	150°C, 200V DC	1008hrs	0 failure
	T/C	1 x 20	TR24-07-009705	-55°C/150°C	100 cycles	0 failure
	P/C	1 x 20	TR24-07-009705	I=45A DC, Tvj=145°C	4000cycles	0 failure
	UHAST	1 x 20	TR24-07-009705	130°C, 85% humidity	96hrs	0 failure

➢ Parametric test result summary

Sample P/N	Test Item	Sample Qty	Contents/Conditions	Result Summary
DSSK80-0045B	Electrical Parameters	1 x 10	IR, VF	Meet datasheet spec
	I_{FSM}	1 x 3	T_J = 45°C; t = 10 ms (50 Hz), half sine	
	Thermal Resistance	1 x 10	R_{thJC} Junction-to-Case, R_{thCH} Case to Heatsink	
	VF0, rF	1 x 10	$T_{VJ} = T_{VJM}$	
DSSK80-0008D	Electrical Parameters	1 x 10	IR, VF	Meet datasheet spec
	I_{FSM}	1 x 3	T_J = 45°C; t = 10 ms (50 Hz), half sine	
	Thermal Resistance	1 x 10	R_{thJC} Junction-to-Case, R_{thCH} Case to Heatsink	
	VF0, rF	1 x 10	$T_{VJ} = T_{VJM}$	
DSSK80-006B	Electrical Parameters	1 x 10	IR, VF	Meet datasheet spec
	I_{FSM}	1 x 3	T_J = 45°C; t = 10 ms (50 Hz), half sine	
	Thermal Resistance	1 x 10	R_{thJC} Junction-to-Case, R_{thCH} Case to Heatsink	
	VF0, rF	1 x 10	$T_{VJ} = T_{VJM}$	
DSA60C60HB	Electrical Parameters	1 x 10	IR, VF	Meet datasheet spec
	I_{FSM}	1 x 3	T_J = 45°C; t = 10 ms (50 Hz), half sine	
	Thermal Resistance	1 x 10	R_{thJC} Junction-to-Case, R_{thCH} Case to Heatsink	
	VF0, rF	1 x 10	TVJ = TVJM	
DSA60C45HB	Electrical Parameters	1 x 10	IR, VF	Meet datasheet spec
	I_{FSM}	1 x 3	TJ = 45°C; t = 10 ms (50 Hz), half sine	
	Thermal Resistance	1 x 10	RthJC Junction-to-Case, RthCH Case to Heatsink	
	VF0, rF	1 x 10	TVJ = TVJM	
DSSK80-0025B	Electrical Parameters	1 x 10	IR, VF	Meet datasheet spec
	I_{FSM}	1 x 3	TJ = 45°C; t = 10 ms (50 Hz), half sine	
	Thermal Resistance	1 x 10	RthJC Junction-to-Case, RthCH Case to Heatsink	
	VF0, rF	1 x 10	TVJ = TVJM	
DSA50C100HB	Electrical Parameters	1 x 10	IR, VF	Meet datasheet spec
	I_{FSM}	1 x 3	TJ = 45°C; t = 10 ms (50 Hz), half sine	
	Thermal Resistance	1 x 10	RthJC Junction-to-Case, RthCH Case to Heatsink	
	VF0, rF	1 x 10	TVJ = TVJM	
DSB60C45HB	Electrical Parameters	1 x 10	IR, VF	Meet datasheet spec
	I_{FSM}	1 x 3	TJ = 45°C; t = 10 ms (50 Hz), half sine	
	Thermal Resistance	1 x 10	RthJC Junction-to-Case, RthCH Case to Heatsink	
	VF0, rF	1 x 10	TVJ = TVJM	
DSA50C150HB	Electrical Parameters	1 x 10	IR, VF	Meet datasheet spec
	I_{FSM}	1 x 3	TJ = 45°C; t = 10 ms (50 Hz), half sine	
	Thermal Resistance	1 x 10	RthJC Junction-to-Case, RthCH Case to Heatsink	
	VF0, rF	1 x 10	TVJ = TVJM	
DSSK80-003B	Electrical Parameters	1 x 10	IR, VF	Meet datasheet spec
	I_{FSM}	1 x 3	TJ = 45°C; t = 10 ms (50 Hz), half sine	
	Thermal Resistance	1 x 10	RthJC Junction-to-Case, RthCH Case to Heatsink	
	VF0, rF	1 x 10	TVJ = TVJM	

DSA30C100HB	Electrical Parameters	1 x 10	IR, VF	Meet datasheet spec
	I_{FSM}	1 x 3	TJ = 45°C; t = 10 ms (50 Hz), half sine	
	Thermal Resistance	1 x 10	RthJC Junction-to-Case, RthCH Case to Heatsink	
	VF0, rF	1 x 10	TVJ = TVJM	
DSSK40-0015B	Electrical Parameters	1 x 10	IR, VF	Meet datasheet spec
	I_{FSM}	1 x 3	TJ = 45°C; t = 10 ms (50 Hz), half sine	
	Thermal Resistance	1 x 10	RthJC Junction-to-Case, RthCH Case to Heatsink	
	VF0, rF	1 x 10	TVJ = TVJM	
DSA80C45HB	Electrical Parameters	1 x 10	IR, VF	Meet datasheet spec
	I_{FSM}	1 x 3	TJ = 45°C; t = 10 ms (50 Hz), half sine	
	Thermal Resistance	1 x 10	RthJC Junction-to-Case, RthCH Case to Heatsink	
	VF0, rF	1 x 10	TVJ = TVJM	
DSSK60-0045A	Electrical Parameters	1 x 10	IR, VF	Meet datasheet spec
	I_{FSM}	1 x 3	TJ = 45°C; t = 10 ms (50 Hz), half sine	
	Thermal Resistance	1 x 10	RthJC Junction-to-Case, RthCH Case to Heatsink	
	VF0, rF	1 x 10	TVJ = TVJM	
DSS60-0045B	Electrical Parameters	1 x 10	IR, VF	Meet datasheet spec
	I_{FSM}	1 x 3	TJ = 45°C; t = 10 ms (50 Hz), half sine	
	Thermal Resistance	1 x 10	RthJC Junction-to-Case, RthCH Case to Heatsink	
	VF0, rF	1 x 10	TVJ = TVJM	
DSS40-0008D	Electrical Parameters	1 x 10	IR, VF	Meet datasheet spec
	I_{FSM}	1 x 3	TJ = 45°C; t = 10 ms (50 Hz), half sine	
	Thermal Resistance	1 x 10	RthJC Junction-to-Case, RthCH Case to Heatsink	
	VF0, rF	1 x 10	TVJ = TVJM	

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.

Part Number	Package	Disposition	Related Phase	Qual Status
DSSK80-006B	TO-247	Qualify alternative source	Phase 4	Completed
DSA60C60HB	TO-247	Qualify alternative source	Phase 4	Completed
DSA60C45HB	TO-247	Qualify alternative source	Phase 4	Completed
DSSK80-0025B	TO-247	Qualify alternative source	Phase 4	Completed
DSA50C100HB	TO-247	Qualify alternative source	Phase 4	Completed
DSB60C45HB	TO-247	Qualify alternative source	Phase 4	Completed
DSA50C150HB	TO-247	Qualify alternative source	Phase 4	Completed
DSSK80-003B	TO-247	Qualify alternative source	Phase 4	Completed
DSA30C100HB	TO-247	Qualify alternative source	Phase 4	Completed
DSSK40-0015B	TO-247	Qualify alternative source	Phase 4	Completed
DSA80C45HB	TO-247	Qualify alternative source	Phase 4	Completed
DSSK60-0045A	TO-247	Qualify alternative source	Phase 4	Completed
DSSK80-0045B	TO-247	Qualify alternative source	Phase 4	Completed
DSSK80-0008D	TO-247	Qualify alternative source	Phase 4	Completed
DSS60-0045B	TO-247	Qualify alternative source	Phase 4	Completed
DSS40-0008D	TO-247	Qualify alternative source	Phase 4	Completed
DSS2x101-015A	SOT-227B	Qualify alternative source	Phase 4	Completed
DSS2x101-02A	SOT-227B	Qualify alternative source	Phase 4	Completed
DSS2x121-0045B	SOT-227B	Qualify alternative source	Phase 4	Completed
DSS2x41-01A	SOT-227B	Qualify alternative source	Phase 4	Completed
DSS2x81-0045B	SOT-227B	Qualify alternative source	Phase 4	Completed
DSS2x111-008A	SOT-227B	Qualify alternative source	Phase 4	Completed
DSS2x61-0045A	SOT-227B	Qualify alternative source	Phase 4	Completed
DSS2x61-01A	SOT-227B	Qualify alternative source	Phase 4	Completed
DSA240X200NA	SOT-227B	Qualify alternative source	Phase 4	Completed
DSA240X150NA	SOT-227B	Qualify alternative source	Phase 4	Completed
DSA90C200HR	ISO-247	Qualify alternative source	Phase 4	Completed