



6th Aug. 2026

To: Valued Customers

From: Littelfuse Product Management

Subject: Additional location of production for certain fuses and fuse holder combinations for assurance of supply

With regards to the above reference, Littelfuse would like to inform you that we would be increasing our production capacity via another plant in Taiwan for assurance of supply for certain fuse+ fuse holder combinations.

There are no changes to the electrical specs as defined in the datasheet,. There are also no changes in the form, fit and function of the fuse and fuse holders.

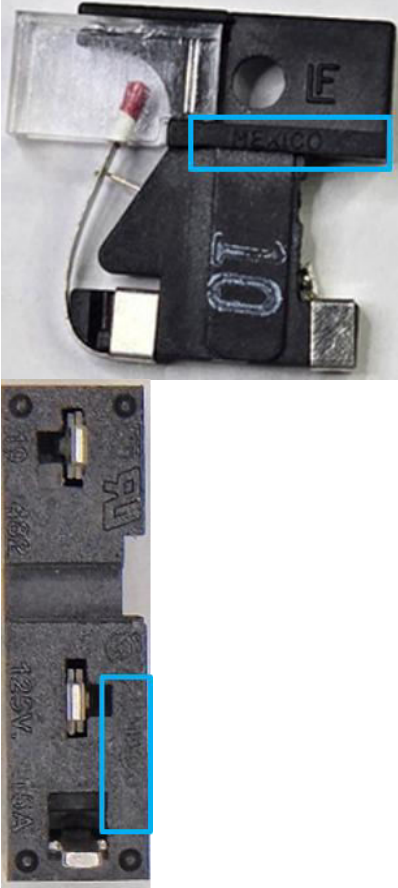
Please see attached for validation report.

There are 2 differences between the fuse+holder combinations,

1. For fuse ratings with double color code, it is one tubing with color painting for current supply, whereas it is 2 different color tubings for the future supply.
2. For the COO on the fuse, fuse holder and label, it is "MEXICO" for current supply, whereas it is "TW" for the future supply.

Please refer to below for details.

Part Numbers	Current Part	Part from new plant
048107.5HXP 048107.5HXLP 0481010.HXP 0481015.HXP 0481010.HXLP 0481015.HXLP 0481010.VXLP 0481015.VXLP 0481020.H 0481020.HXL 0481020.HXP 0481020.VXL 0481020.VXLP 0481020.HXLP 0481012.HXP	 1 tubing with color painting	 2 different color tubings

All affected part numbers as shown on next page	 COO "MEXICO" on fuse, holder, label	 COO "TW" on fuse, holder, label
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There are no changes to the part number.

We would do the running change for shipments from Oct.6th, 2026 in the plant.

Part numbers affected are shown on the next page.

Please let us know should you have further queries.

Best Regards;

Style Liu
 Sr. Manager, Product Management
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 Tel - +86 512 67613189-2251

0481002.HXP	04820001ZXBFH
0481003.H	04820001ZXPf
0481003.HXP	04820002ZXBF
0481003.HXLP	04820002ZXB
048107.5HXP	04820003ZXB
0481005.HXP	04820004ZXBF
048107.5HXLP	04820004ZXB
0481005.HXLP	04820005ZXB
0481010.HXP	04820006ZXB
0481012.HXP	04820006ZXBF
0481015.HXP	04820008ZXBF
0481010.HXLP	04820009ZXBF
0481015.HXLP	04820010ZXB
0481010.VXLP	04820010ZXBF
0481015.VXLP	04820010ZXBFH
0481020.H	04820011ZXBF
0481020.HXL	04820012ZXBF
0481020.HXP	04820013ZXBF
0481020.VXL	04820014ZXBF
0481020.VXLP	04820015ZXBF
0481020.HXLP	04820018ZXBF
04822001ZXPf	04820019ZXBF
04822001ZXPfSH	04820020ZXBF
04820001ZXB	04820021ZXBF
04820001ZXBF	

Validation Report

Product Category	Status	Test Description
Specialty Fuses	Production	Product Validation

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Engineering Test Report	Additional Manufacture Location	HBCTR0026077
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Owner	Creation Date	Release Date	Released by	Approved by	Rev.	Signature
R. Vasquez	May 28 '26	May 28 '26	J. Guerrero	J. Guerrero	A	



Validation Report

1 Introduction

Additional manufacturing location developed, materials, design, form, fit or function were not affected.

2 Standards

All tests according to:

UL Standards

3 Test equipment

Test	Instrument	Device No.
Dimensional	Mitutoyo Caliper	PCA-074
Overload	TDK - Lambda Power Supply	PPS-002
Life	TDK - Lambda Power Supply	PPS-002
	TEGAM Model: 1750	POH-068
Vibration	Low and High Frequency Vibration	7500514
Thermal Shock	Thermal Shock Chamber	MD-330

Engineering Test Report	Additional Manufacture Location	HBCTR0026077
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Owner	Creation Date	Release Date	Released by	Approved by	Rev.	Signature
R. Vasquez	May 28 '26	May 28 '26	J. Guerrero	J. Guerrero	A	



Validation Report
4 Specimen

- Fuses
 - 0481002.HXP
 - 0481003.HXP
 - 0481005.HXLP
 - 048107.5HXLP
 - 0481010.HXLP
 - 0481015.HXLP
 - 0481020.HXLP

Engineering Test Report		Additional Manufacture Location		HBCTR0026077		
Owner	Creation Date	Release Date	Released by	Approved by	Rev.	Signature
R. Vasquez	May 28 '26	May 28 '26	J. Guerrero	J. Guerrero	A	

Littelfuse Inc.

Confidential



Validation Report

5 Tests

5.1 Dimensional Test

The values of measurements shall be within the tolerances specified.

5.2 Overload Test

Overload test was performed in a fuseholder with an appropriate ampere rating for the specified fuse. The rated current is determined on the basis of the fuse. Fuses shall carry the 150% of ampere rating and open at 300 seconds maximum, then fuseholders shall not exhibit physical, mechanical or electrical damage.

5.3 Life Test

Life test was performed in a fuseholder with an appropriate ampere rating for the specified fuse. The rated current is determined on the basis of the fuse. Fuses shall carry the 100% of ampere rating for 600 seconds minimum without opening and shall not exhibit physical, mechanical or electrical damage.

5.4 Vibration Test

Fuses shall be subjected to a vibration amplitude and frequency sweep for 2 hours in each plane.

5.5 Thermal Shock Test

Fuses shall be subjected to 5 thermal shock cycles at the minimum and maximum operating temperature of the fuse, soak time per temperature: 15 minutes. Measure fuse resistance after thermal shock test. Insulation resistance shall be 10 MΩ minimum and fuse resistance shall be within specifications.

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R. Vasquez	May 28 '26	May 28 '26	J. Guerrero	J. Guerrero	A	



Validation Report

6 Results

6.1 Dimensional Test

The values of the measurements were within tolerances

Specimen	Remarks
0481002.HXP	Pass
0481003.HXP	
0481005.HXLP	
048107.5HXLP	
0481010.HXLP	
0481015.HXLP	
0481020.HXLP	

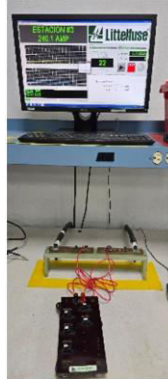
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Validation Report

6.2 Overload Test

Fuses were equipped on fuseholders for Overload Test, according to the required fuse ampere rating.



After being exposed to a 150% ampere rating, opening time (300 Sec. Max.) were within specifications

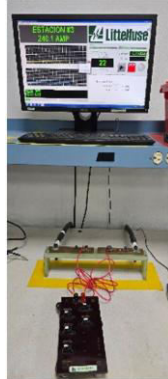
Specimen	Testing Amperage (Amp)	Aver. Opening Time (Sec)	Remarks
0481002.HXP	3	25.7	Pass, opening on time
0481003.HXP	4.5	11.4	
0481005.HXLP	7.5	10.3	
048107.5HXLP	11.25	7.5	
0481010.HXLP	15	25.9	
0481015.HXLP	22.5	6.2	
0481020.HXLP	30	4.5	

Engineering Test Report	Additional Manufacture Location	HBCTR0026077
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Owner	Creation Date	Release Date	Released by	Approved by	Rev.	Signature
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Validation Report
6.3 Life Test

Fuses were equipped on fuseholders for Life Test, according to the required fuse ampere rating



After being exposed to a 100% ampere rating, fuses shall not open within 600 Sec.

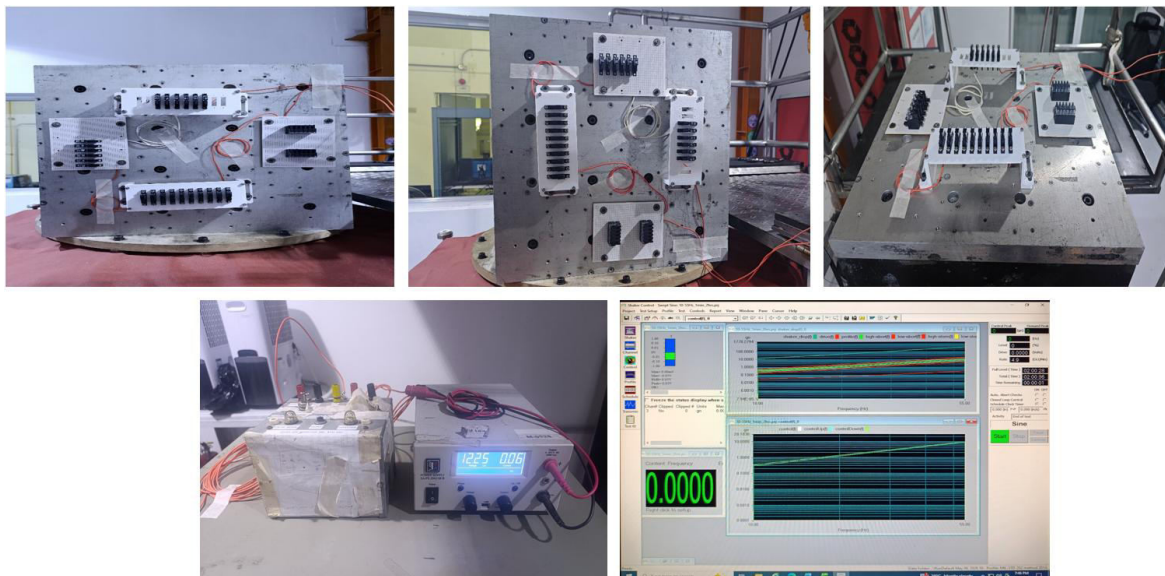
Specimen	Testing Amperage (Amp)	Remarks
0481002.HXP	2	Pass, do not open before 600 Seconds
0481003.HXP	3	
0481005.HXLP	5	
048107.5HXLP	7.5	
0481010.HXLP	10	
0481015.HXLP	15	
0481020.HXLP	20	

Engineering Test Report		Additional Manufacture Location		HBCTR0026077		
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Validation Report

6.4 Vibration Test

Fuses remain mechanically and electrically operative.



Specimen	Remarks
0481015.HXLP	Pass, fuse did not present damage, remained fully functional and no disconnections occurred during the test
0481020.HXLP	

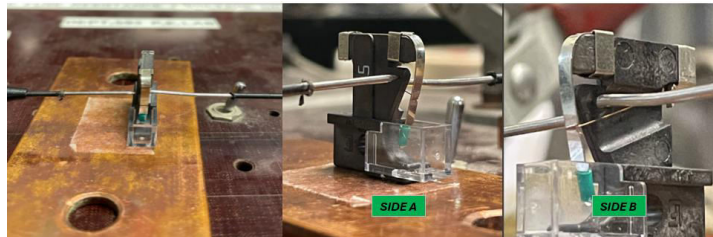
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Validation Report

6.5 Thermal Shock Test

Values for insulation resistance were upper the minimum specification and fuse resistance were within specification of each ampere rating



Specimen	Minimum Insulation Resistance (MΩ)	Remarks
0481002.HXP	10	Pass, minimum value recorded was 22,500MΩ
0481003.HXP		
0481005.HXLP		
048107.5HXLP		
0481010.HXLP		
0481015.HXLP		
0481020.HXLP		

Specimen	Resistance Shift (%)	Remarks
0481002.HXP	0.64	Pass, No fuses open
0481003.HXP	2.63	
0481005.HXLP	1.05	
048107.5HXLP	1.88	
0481010.HXLP	1.31	
0481015.HXLP	3.70	
0481020.HXLP	5.12	

Engineering Test Report	Additional Manufacture Location	HBCTR0026077
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Owner	Creation Date	Release Date	Released by	Approved by	Rev.	Signature
R. Vasquez	May 28 '26	May 28 '26	J. Guerrero	J. Guerrero	A	



Validation Report

7 Conclusion

Based on product validation performed according to fuse specifications , products have passed all the tests. There is no change on form, fit and function.

Engineering Test Report		Additional Manufacture Location		HBCTR0026077		
Owner	Creation Date	Release Date	Released by	Approved by	Rev.	Signature
R. Vasquez	May 28 '26	May 28 '26	J. Guerrero	J. Guerrero	A	

Validation Report

Product Category	Status	Test Description
Fuseholder	Production	Product Validation

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Engineering Test Report	Additional manufacture location	HBCTR0026073
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Owner	Creation Date	Release Date	Released by	Approved by	Rev.	Signature
C. Guerrero	Jun 02 '26	Jun 02 '26	J. Guerrero	J. Guerrero	A	



Validation Report

1 Introduction

Additional manufacturing location developed, materials, design, form, fit or function were unaffected.

2 Standards

All tests according to:

UL Standards

3 Test equipment

Test	Instrument	Device No.
Contact Resistance	TEGAM Model: 1750	POH-068
Overload	TDK - Lambda Power Supply	PPS-002
Temperature Rise	TDK - Lambda Power Supply	PPS-002
Compatibility	TEGAM Model: 1750	POH-068

4 Specimen

- Fuseholder

04820001ZXB
04820003ZXB
04820006ZXB
04820001ZXBF
04820002ZXBF
04820006ZXBF
04820001ZXPf
04822001ZXPf
04822001ZXPfSH

Engineering Test Report	Additional manufacture location	HBCTR0026073
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Owner	Creation Date	Release Date	Released by	Approved by	Rev.	Signature
C. Guerrero	Jun 02 '26	Jun 02 '26	J. Guerrero	J. Guerrero	A	



Validation Report

5 Tests

5.1 Contact Resistance Test

The resistance shall be measured between the leads of the holder with a dummy fuse installed. The values of measurements shall be within specification.

5.2 Overload Test

Overload test was performed in a fuse holder with an appropriate ampere rating for the specified fuse. The rated current is determined based on the fuse. Fuses shall carry the 150% of ampere rating and open at 300 seconds maximum, then fuses and fuse holders shall not exhibit physical, mechanical or electrical damage.

5.3 Temperature Rise Test

Temperature Rise test is performed by using unplated copper dummy fuses to power the fuse holders to 100% of the rated current of the fuse holder, temperature rise shall be measured on the leads / contacts.

5.4 Compatibility

Compatibility Test is performed inserting in and withdrawing a Max gauge into the fuse holder ten times. Dummy fuse link or Min fuse gauge shall be inserted and don't fall from the fuse holder, contact resistance must be taken before and after the test is applied.

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Validation Report

6 Results

6.1 Contact resistance Test

The average value of contact resistance from each sample tested was within specification (Max value 5mΩ).



Specimen	Minimum (mΩ)	Maximum (mΩ)	Aver. Value (mΩ)	Remarks
04820001ZXB	.737	.928	.809	Contact Resistance within specification.
04822001ZXPFSH	.798	.922	.862	
04820001ZXPF	.770	.823	.800	
04822001ZXPF	.760	.910	.820	

Engineering Test Report	Additional manufacture location	HBCTR0026073
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Validation Report

6.2 Overload Test

Fuses were installed on the fuse holders for Overload Test, according to the required fuse ampere rating.



After being exposed to a 150% ampere rating, fuse holders remained mechanically and electrically operative.

Contact resistance before & after performing the test remained within specification.

Specimen	Fuse Link	Testing Amperage	CR Before (mΩ)	CR After (mΩ)	Remarks
04820001ZXB	0481015.HXLP	22.5	0.80	0.81	Pass, No Damage Observed
04822001ZXPFSH	0481020.HXLP	30	0.85	0.97	Pass, No Damage Observed
04820001ZXP	0481015.HXLP	22.5	0.77	1.05	Pass, No Damage Observed
04822001ZXP	0481020.HXLP	30	0.79	1.08	Pass, No Damage Observed

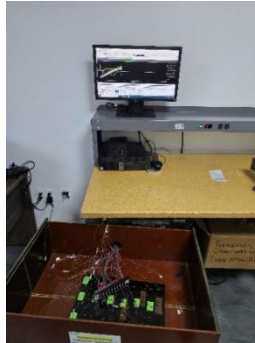
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Validation Report

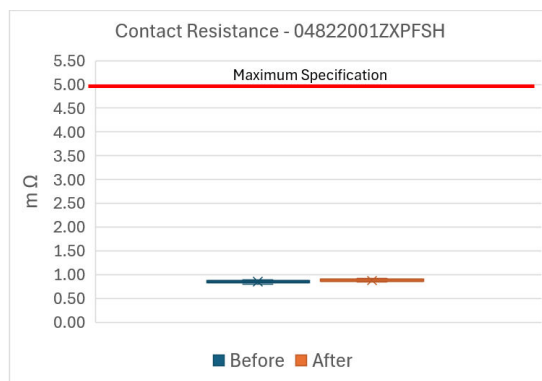
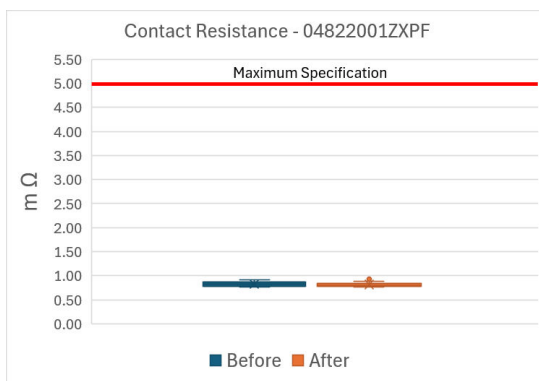
6.3 Temperature Rise Test

Fuses were equipped on fuseholders for Temperature Rise Test, according to the required fuse ampere rating.



Temperature Rise (°C)						
Specimen	1	2	3	4	5	6
04820001ZXPF	41	50	50	48	48	32
04822001ZXPF	14	27	18	28	21	18

Specimen	Fuseholder	Testing Amperage (A)	Remarks
0481015.HXLP	04820001ZXPF	11.25	PASS
0481020.HXLP	04822001ZXPF	15	PASS



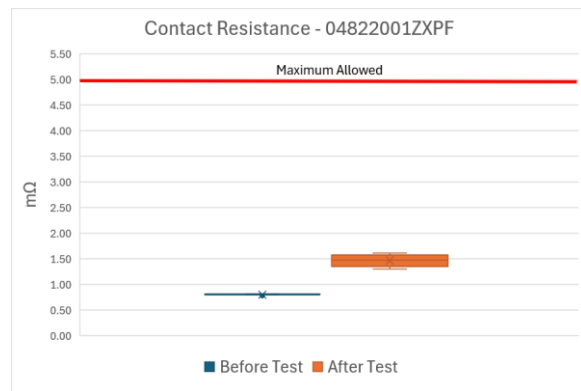
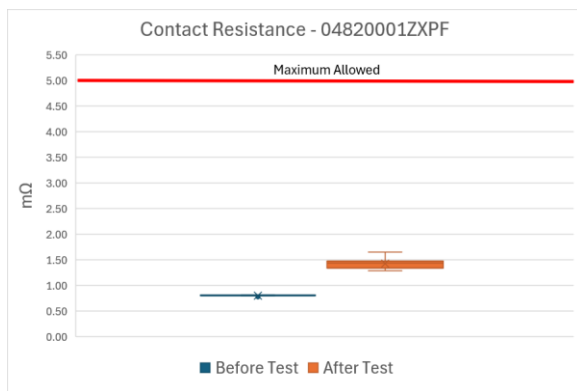
Engineering Test Report	Additional manufacture location	HBCTR0026073
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Owner	Creation Date	Release Date	Released by	Approved by	Rev.	Signature
C. Guerrero	Jun 02 '26	Jun 02 '26	J. Guerrero	J. Guerrero	A	

Validation Report

6.4 Compatibility Test

Dummy at Fuse Max dimension was inserted and withdrawn 10 times, contact resistance is taken before and after to verify any changes.



Fuse Holder	Remarks
04822001ZXPF	PASS
04822001ZXPFSH	PASS

Engineering Test Report	Additional manufacture location	HBCTR0026073
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Owner	Creation Date	Release Date	Released by	Approved by	Rev.	Signature
C. Guerrero	Jun 02 '26	Jun 02 '26	J. Guerrero	J. Guerrero	A	



Validation Report
7 Conclusion

Based on product validation performed according to the fuseholder specification, products have passed all the tests. There is no change in form, fit and function.

Engineering Test Report		Additional manufacture location		HBCTR0026073		
Owner	Creation Date	Release Date	Released by	Approved by	Rev.	Signature
C. Guerrero	Jun 02 '26	Jun 02 '26	J. Guerrero	J. Guerrero	A	