



Certificate of non-use of The Controlled Substances

Company name Littelfuse, LP (Subsidiary of Littelfuse, Inc.)

Product Covered Thyristor TO-251 Package (V-PAK)

Issue Date October 16, 2006

It is hereby certified by Littelfuse, LP, that there is neither RoHS (EU Directive 2002/95/EC)-restricted substance nor such use, for materials to be used for unit parts, for packing/package materials, and for additives and the like in the manufacturing processes.

In addition, it is hereby reported to you that the parts and sub-materials, the materials to be used for unit parts, the packing/package materials, and the additives and the like in the manufacturing processes, are all composed of the following components.

Issued by

< Product Engineer, Littelfuse, L.P.>

(1) Parts, sub-materials and unit parts

This document covers Thyristor TO-251 Package (V-PAK) manufactured by Littelfuse, LP. Actual values in this report are taken from S8012V and the result is generally applicable to all Thyristor TO-251 Package (V-PAK) supplied by Littelfuse, LP.

Please see page 2 for the complete list of part number covered by this report.

< Homogeneous Materials used >

Please see figure and table 1 on page 3 and table 2 on page 4 of this document.

(2) The analytical data on all measurable substances

Please see annex 1 through 12, attached to this document

Remarks :

1. Pb (lead) contained in die bonding solder (item 8 on page 3) and passivation glass (item 7) to be categorized as exempt in RoHS Annex 5 and 7.

Please refer to Annex 13 of this report for the extract of the applicable exemptions of RoHS (EU Directive 2002/95/EC)



Littelfuse Part Number covered by this report

Standard (Catalog) Part Number					SPECIAL DEVICE P/N
L2004V3	L6008V6	Q8006VH4	S2008VS3	S6010V	Any Special P/N that has base standard P/N listed in this table
L2004V5	L6008V8	Q8008VH4	S2010V	S6010VS2	
L2004V6		QK004V4	S2010VS2	S6010VS3	
L2004V8	Q2004V3	QK006VH4	S2010VS3	S6012V	
L2006V5	Q2004V4	QK008VH4	S2012V	S8006V	
L2006V6	Q2006VH3		S4004VS1	S8008V	
L2006V8	Q2006VH4	S1004VS1	S4004VS2	S8010V	
L2008V6	Q2008VH3	S1004VS2	S4006V	S8012V	
L2008V8	Q2008VH4	S1006V	S4006VS2	SK006V	Any Part Number listed here may be followed by suffix for packing options, such as "TP".
L4004V3	Q4004V3	S1006VS2	S4006VS3	SK008V	
L4004V5	Q4004V4	S1006VS3	S4008V	SK010V	
L4004V6	Q4006VH3	S1008V	S4008VS2	SK012V	
L4004V8	Q4006VH4	S1008VS2	S4008VS3		
L4006V5	Q4008VH3	S1008VS3	S4010V		
L4006V6	Q4008VH4	S1010V	S4010VS2		
L4006V8	Q5004V3	S1010VS2	S4010VS3		
L4008V6	Q5004V4	S1010VS3	S4012V		
L4008V8	Q6004V3	S1012V	S6004VS1		
L6004V3	Q6004V4	S2004VS1	S6004VS2		
L6004V5	Q6006VH3	S2004VS2	S6006V		
L6004V6	Q6006VH4	S2006V	S6006VS2		
L6004V8	Q6008VH3	S2006VS2	S6006VS3		
L6006V5	Q6008VH4	S2006VS3	S6008V		
L6006V6	Q7004V4	S2008V	S6008VS2		
L6006V8	Q8004V4	S2008VS2	S6008VS3		

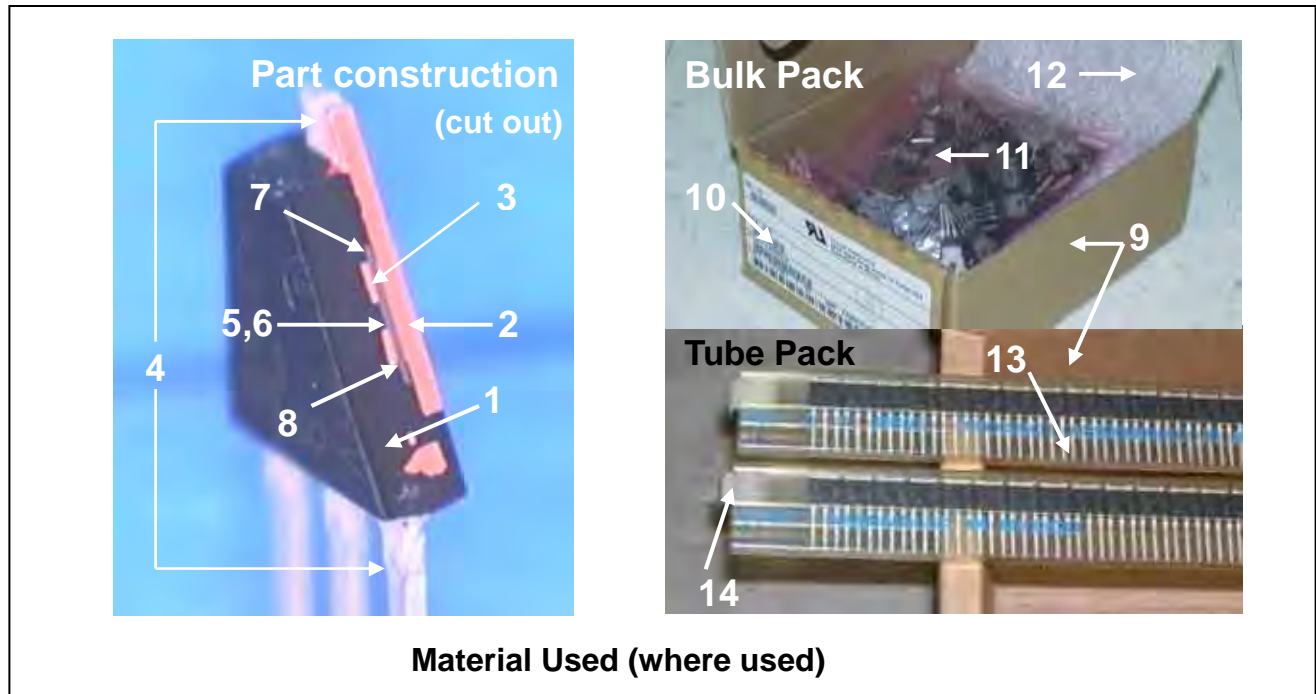


Table 1: Homogeneous Material Used

#	Description	Name of Material	Type	Analysis data
1	Molding compound	epoxy resin	plastic	annex 1
2	Lead frame	copper alloy	metal	annex 2 V-PAK uses the same lead frame material as DO-214. ICP report is from DO-214 Material.
3	Preform (clip)	copper alloy	metal	annex 3 V-PAK uses the same preform material as DO-214. ICP report is from DO-214 Material.
4	Matte-Tin plating	Tin	metal	annex 4, tested as plating cathode
5	Silicon die	silicon	metal	annex 5, tested as Nickel-plated wafer.
6	Nickel electrode	nickel	metal	
7	Passivation glass	glass	glass	annex 6. Pb in this glass is exempted by RoHS Annex 7.
8	Die bonding solder	solder	metal	annex 7. Pb in this solder is exempted by RoHS Annex 5.
9	Cardboard Box	cardboard	paper	annex 8, tested with label
10	Product label	paper	paper	annex 8, tested with box, the prints (ink) on it
11	Bulk bag	polyethylene	plastic	annex 9
12	Packing foam	polystyrene	plastic	annex 10
13	Loading Tube	PVC	plastic	annex 11 V-PAK uses the same tube material as TO-220. ICP report is from TO-220 Material.
14	End Plug	rubber	plastic	annex 12 V-PAK uses the same plug material as TO-220. ICP report is from TO-220 Material.




Table 2: RoHS-regulated substance in raw materials

Components	Analysis Result						
	Weight (typical)	Cd Cadmium	Cr Chromium	Hg Mercury	Pb Lead	PBB	PBDE
As Component Total (Values of S8012V * ¹ , as representative of Thyristor TO-251 Package)	405mg	< 2ppm	< 2ppm	< 2ppm	<10 ppm* ² (1.3%* ³)	< 5 ppm	< 5 ppm
Epoxy Resin compound (mixture of phenolix resin, epoxy resin, filler and Sb ₂ O ₃ as fire retardant) See Annex 1 for the detail.	125mg	< 1ppm	< 1ppm	< 1ppm	< 1ppm	< 5ppm	<5 ppm
Lead frame / Preform (Copper Alloy, CDA194 / 110) See Annex 2 & 3 for the detail.	253mg	< 2ppm	< 2ppm	< 2ppm	14.1ppm	---	---
Outside lead finish (Matte-Tin plated, Sn 100%) See Annex 4 for the detail.	15mg	< 1ppm	< 1ppm	< 0.5ppm	58ppm* ⁴	---	---
Silicon Die (Silicon + Ni electrode) See Annex 5 for the detail.	5.8mg	< 2ppm	< 2ppm	< 2ppm	52ppm* ⁴	---	---
Passivation Glass See Annex 6 for the detail.	0.2mg	< 2ppm	< 2ppm	< 2ppm	40% * ⁵	---	---
Die Bonding Solder (Pb/Sn=90/10) See Annex 7 for the detail.	6mg	< 2ppm	< 2ppm	< 2ppm	90% * ⁶	---	---
Packing Materials (Box, Reel, Tapes) See Annex 8-12 for the detail	---	< 2ppm	< 2ppm	< 2ppm	< 2ppm	< 5ppm	< 5ppm

- *1 Other group 1 products may contain equal or less amount of Pb as S8012V value shown here, but not more than the value shown here.
- *2 Less than 10ppm Pb content overall, excluding Pb from the die bonding solder and the passivation glass on the silicon die.
- *3 1.3wt% or 5.5mg of Pb (lead) content overall, including the RoHS-exempted use of Pb
- *4 Pb (lead) contained in outside finish and Nickel-plated silicon wafer is not exempted from restriction by RoHS, but considered as process contamination. Littelfuse does not add Pb (lead) intentionally.
- *5 Pb (lead) contained in passivation glass is exempted from restriction by RoHS Annex 5.
- *6 Pb (lead) contained in die bonding solder is exempted from restriction by RoHS Annex 7, first item.

Please refer to Annex 13 of this report for the applicable exemptions of RoHS (EU Directive 2002/95/EC)

Annex 1: Analysis Result of Molding Compound (Page 2 of 3)



Test Report

REPORT NO. : LPC10751206
 CTS REF. : CTS/08/1967/Nitto
 DATE REPORTED : MAY 09, 2006
 PAGE : 2 of 3

Company : Nitto Denko Electronics (M) Sdn. Bhd.
 No. 2, Persiaran Budiman, Section 23, 40300 Shah Alam, Selangor

Test Result


Sample Description : MP-8000C Series

Test Item (s) :	Unit	Method	Instrument	MDL	Results
Chromium VI (Cr6+)	ppm	EPA 3050 A / 7196 A	UV Vis - Spectrophotometer	1	N.D.
Cadmium (Cd)	ppm	EN 1122, method B:2001	ICP AES	1	N.D.
Mercury (Hg)	ppm	US EPA 3052	ICP AES	1	N.D.
Lead (Pb)	ppm	US EPA 3050B	ICP AES	1	N.D.

NOTE: (1) N.D. = Not detected (<MDL)
 (2) ppm = mg/kg
 (3) MDL = Method Detection Limit

Analyst: Audrey Kua

SGS LABORATORY SERVICES (M) SDN. BHD.



CHONG KIEN LEN
 B.Sc.(HONS) AMIC
 LAB MANAGER

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Annex 1: Analysis Result of Molding Compound (Page 3 of 3)



Test Report

REPORT NO. : LPC10751206
 CTS REF. : CTS/06/1967/Nitto
 DATE REPORTED : MAY 09, 2006
 PAGE : 3 of 3

Company : Nitto Denko Electronics (M) Sdn. Bhd.
 No. 2, Persiaran Budiman, Section 23, 40300 Shah Alam, Selangor

Test Result

Sample Description : MP-8000C Series

Test Item (s) :	Unit	Method	Instrument	MDL	Result
PBBs (Polybrominated Biphenyls)					
Monobromo Biphenyl	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Dibromo Biphenyl	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Tribromo Biphenyl	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Tetrabromo Biphenyl	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Pentabromo Biphenyl	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Hexabromo Biphenyl	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Heptabromo Biphenyl	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Octabromo Biphenyl	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Nonabromo Biphenyl	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Decabromo Biphenyl	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
PBDEs (Polybrominated Diphenyl ethers)					
Monobromo Diphenyl Ether	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Dibromo Diphenyl Ether	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Tribromo Diphenyl Ether	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Tetrabromo Diphenyl Ether	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Pentabromo Diphenyl Ether	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Hexabromo Diphenyl Ether	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Heptabromo Diphenyl Ether	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Octabromo Diphenyl Ether	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Nonabromo Diphenyl Ether	%	EPA 3540C/3550B	GCMS	0.0005	N.D.
Decabromo Diphenyl Ether	%	EPA 3540C/3550B	GCMS	0.0005	N.D.

NOTE: (1) N.D. = Not detected (<MDL)
 (2) MDL = Method Detection Limit

Analyst: Jocelyn

SGS LABORATORY SERVICES (M) SDN. BHD.





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 B.Sc.(HONS) AMIC
 LAB MANAGER

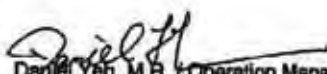
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Annex 2: Analysis Result of Lead frame (Page 1 of 3)

	
Test Report	
Report No : CE/2006/91764 Date : 2006/09/12	Page: 1 of 3
LITTELFUSE INC.	
800 E. NORTHWEST HWY. DES PLAINES, IL 60016	
The following sample(s) was/were submitted and identified by/on behalf of the client as :	
Sample Description	: LEAD FRAME
Part No	: 710181300
Manufacturer/Supplier Name	: LITTELFUSE INC.
Country of Destination	: TAIWAN
Country of Origin	: USA
Sample Received	: 2006/9/6
Testing Period	: 2006/9/6 TO 2006/09/12

Test Requested	: With reference to the RoHS Directive 2002/95/EC, and its amendment directives.
Test Method	: (1) With reference to BS EN 1122:2001, Method B for Cadmium Content. Analysis was performed by ICP-AES. (2) With reference to US EPA Method 3050B for Lead Content. Analysis was performed by ICP-AES. (3) With reference to US EPA Method 3052 for Mercury Content. Analysis was performed by ICP-AES. (4) With reference to US EPA Method 3060A & 7196A for Hexavalent Chromium. Analysis was performed by UV/Vis Spectrometry.
Test Result(s)	: - Please see the next page(s) -
 Daniel Yeh, M.R. / Operation Manager Signed for and on behalf of SGS TAIWAN LTD.	
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Annex 2: Analysis Result of Lead frame (Page 3 of 3)

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Test Report

Report No : CE/2006/91764 Date : 2006/09/12 Page: 3 of 3
LITTELFUSE INC. 
800 E. NORTHWEST HWY. DES PLAINES, IL 60016





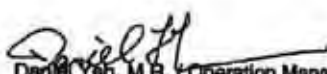
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Annex 3: Analysis Result of Preform (Page 1 of 3)


	
Test Report	
Report No : CE/2006/91765 Date : 2006/09/12	Page: 1 of 3
LITTELFUSE INC.	
800 E. NORTHWEST HWY. DES PLAINES, IL 60016	
The following sample(s) was/were submitted and identified by/on behalf of the client as :	
Sample Description	: PREFORM
Part No	: 7101814-00
Manufacturer/Supplier Name	: LITTELFUSE INC.
Country of Destination	: TAIWAN
Country of Origin	: USA
Sample Received	: 2006/9/6
Testing Period	: 2006/9/6 TO 2006/09/12

Test Requested	: With reference to the RoHS Directive 2002/95/EC, and its amendment directives.
Test Method	: (1) With reference to BS EN 1122:2001, Method B for Cadmium Content. Analysis was performed by ICP-AES. (2) With reference to US EPA Method 3050B for Lead Content. Analysis was performed by ICP-AES. (3) With reference to US EPA Method 3052 for Mercury Content. Analysis was performed by ICP-AES. (4) With reference to US EPA Method 3060A & 7196A for Hexavalent Chromium. Analysis was performed by UV/Vis Spectrometry.
Test Result(s)	: - Please see the next page(s) -
 Daniel Yeh, M.P., Operation Manager Signed for and on behalf of SGS TAIWAN LTD.	
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Annex 3: Analysis Result of Preform (Page 2 of 3)



Test Report

Report No : CE/2006/91765 Date : 2006/09/12 Page: 2 of 3
 LITTELFUSE INC. 
 800 E. NORTHWEST HWY. DES PLAINES, IL 60016

Test Result(s)
 Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result	MDL
		No. 1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	n.d.	2
Mercury (Hg)	(3)	n.d.	2
Chromium VI (Cr+6)	(4)	n.d.	2

Test Part Description
 PART NAME NO.1 : COPPER COLORED METAL

Note : (1) mg/kg = ppm, 0.1% = 1000 ppm(mg/kg), 0.0005% = 5 ppm(mg/kg)
 (2) n.d. = N.D. = ND = Not Detected
 (3) MDL = Method Detection Limit
 (4) Sample was totally digested for Pb, Cd, Hg

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Annex 3: Analysis Result of Preform (Page 3 of 3)

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Test Report

Report No : CE/2006/91765 Date : 2006/09/12 Page: 3 of 3
LITTELFUSE INC. 
800 E. NORTHWEST HWY. DES PLAINES, IL 60016

CE / 2006 / 91765





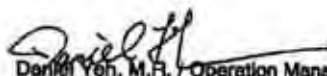
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Annex 4: Analysis Result of Tin plating cathode (page 1 of 3)

	
Test Report	
Report No : CE/2006/96119 Date : 2006/09/29	Page: 1 of 3
LITTELFUSE INC.	
800 E. NORTHWEST HWY. DES PLAINES, IL 60016	
The following sample(s) was/were submitted and identified by/on behalf of the client as :	
Sample Description	: TIN PLATING CATHODE BALL
Style/Item No	: TIN PLATING CATHODE BALL
Manufacturer/Supplier Name	: LITTELFUSE INC.
Country of Destination	: TAIWAN
Country of Origin	: USA
Sample Received	: 2006/09/22
Testing Period	: 2006/09/22 TO 2006/09/29

Test Requested	: With reference to the RoHS Directive 2002/95/EC, and its amendment directives.
Test Method	: (1) With reference to BS EN 1122:2001, Method B for Cadmium Content. Analysis was performed by ICP-AES. (2) With reference to US EPA Method 3050B for Lead Content. Analysis was performed by ICP-AES. (3) With reference to US EPA Method 3052 for Mercury Content. Analysis was performed by ICP-AES. (4) With reference to US EPA Method 3060A & 7196A for Hexavalent Chromium. Analysis was performed by UV/Vis Spectrometry.
Test Result(s)	: - Please see the next page(s) -
 Daniel Yeh, M.F., Operation Manager Signed for and on behalf of SGS TAIWAN LTD.	
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Annex 4: Analysis Result of Tin plating cathode (page 2 of 3)




Test Report

Report No : CE/2006/96119 Date : 2006/09/29

LITTELFUSE INC.

800 E. NORTHWEST HWY. DES PLAINES, IL 60016

Page: 2 of 3



Test Result(s)

Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result	MDL
		No.1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	58.2	2
Mercury (Hg)	(3)	n.d.	2
Chromium VI (Cr+6)	(4)	n.d.	2

Test Part Description

PART NAME NO.1 : SILVER COLORED TIN BALL

Note : (1) mg/kg = ppm, 0.1% = 1000 ppm(mg/kg), 0.0005% = 5 ppm(mg/kg)
 (2) n.d. = N.D. = ND = Not Detected
 (3) MDL = Method Detection Limit
 (4) Sample was totally digested for Pb, Cd, Hg

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Annex 4: Analysis Result of Tin plating cathode (page 3 of 3)

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Test Report

Report No : CE/2006/96119 Date : 2006/09/29 Page: 3 of 3
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800 E. NORTHWEST HWY. DES PLAINES, IL 60016

CE / 2006 / 96119






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0066-2-22083319 (906.7) 2-299-2237 www.sgs.com.tw

Annex 5: Analysis Result of Ni-plated Wafer (Page 1 of 3)

	
Test Report	
Report No : CE/2006/91815A Date : 2006/09/14	Page: 1 of 3
LITTELFUSE INC.	
800 EAST NORTHWEST HIGHWAY DES PLAINES, IL 60016	
The following sample(s) was/were submitted and identified by/on behalf of the client as :	
Sample Description	: SILICON WAFER ELECTRODE
Style/Item No	: 7101505xx
Manufacturer/Supplier Name	: LITTELFUSE INC.
Country of Destination	: TAIWAN
Country of Origin	: USA
Sample Received	: 2006/09/07
Testing Period	: 2006/09/07 TO 2006/09/14


Test Requested	: With reference to the RoHS Directive 2002/95/EC, and its amendment directives.
Test Method	: (1) With reference to BS EN 1122:2001, Method B for Cadmium Content. Analysis was performed by ICP-AES. (2) With reference to US EPA Method 3050B for Lead Content. Analysis was performed by ICP-AES. (3) With reference to US EPA Method 3052 for Mercury Content. Analysis was performed by ICP-AES. (4) With reference to US EPA Method 3060A & 7196A for Hexavalent Chromium. Analysis was performed by UV/Vis Spectrometry.
Test Result(s)	: - Please see the next page(s) -
 Daniel Yeh, M.P., Operation Manager Signed for and on behalf of SGS TAIWAN LTD.	
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Annex 5: Analysis Result of Ni-plated Wafer (Page 2 of 3)



Test Report

Report No : CE/2006/91815A Date : 2006/09/14
 LITTELFUSE INC.
 800 EAST NORTHWEST HIGHWAY DES PLAINES,
 IL 60016

Page: 2 of 3


Test Result(s)
 Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result	MDL
		No.1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	52.4	2
Mercury (Hg)	(3)	n.d.	2
Chromium VI (Cr+6)	(4)	n.d.	2

Test Part Description
 PART NAME NO.1 : SILICON WAFER WITH NICKEL ELECTRODE

Note : (1) mg/kg = ppm, 0.1% = 1000 ppm(mg/kg), 0.0005% = 5 ppm(mg/kg)
 (2) n.d. = N.D. = ND = Not Detected
 (3) MDL = Method Detection Limit
 (4) Sample was totally digested for Pb, Cd, Hg
 (5) The report number of CE/2006/91815 is invalid.

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Annex 5: Analysis Result of Ni-plated Wafer (Page 3 of 3)

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Test Report

Report No : CE/2006/91815A Date : 2006/09/14 Page: 3 of 3
LITTELFUSE INC. 
800 EAST NORTHWEST HIGHWAY DES PLAINES,
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Annex 6: Analysis Result of Passivation Glass (Page 1 of 4)

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Test Report

LETTELFUSE, INC.
800 E. NORTHWEST HIGHWAY DES PLAINES, IL 60016
USA


Report No. : CE/2006/34224
Date : 2006/03/29
Page : 1 of 4

The following merchandise was (were) submitted and identified by the client as :

Type of Product : PASSIVATION GLASS POWDER
Style/Item No : 110233600
Manufacturer/Supplier : LITTELFUSE INC.
Name
Country of Destination : TAIWAN
Country of Origin : USA
Sample Received : 2006/03/14
Testing Date : 2006/03/14 TO 2006/03/21 &
2006/03/26 TO 2006/03/29

=====


Test Result : - Please see the next page -


Daniel Yen, M.R., Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.

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Annex 6: Analysis Result of Passivation Glass (Page 3 of 4)



Test Report


LETTETFUSE, INC.
800 E. NORTHWEST HIGHWAY DES PLAINES, IL 60016
USA

Report No. : CE/2006/34224
Date : 2006/03/29
Page : 3 of 4

Test Item (s):	Unit	Method	MDL	Result
				No.1
Chromium VI (Cr+6)	ppm	UV-VIS(US EPA 7196A) after reference to US EPA 3060A.	2	N.D.
Cadmium (Cd)	ppm	ICP-AES after reference to EN 1122, method B:2001 or other acid digestion.	2	N.D.
Mercury (Hg)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	N.D.
Lead (Pb)	ppm	ICP-AES after reference to US EPA 3050B or other acid digestion.	2	385475.0

NOTE: (1) N.D. = Not detected (<MDL)
 (2) ppm = mg/kg
 (3) MDL = Method Detection Limit
 (4) Decabromodiphenyl ether (DecaBDE) in polymeric applications is exempted by
 Commission Decision of 13 Oct 2005 amending Directive 2002/95/EC notified
 under document 2005/717/EC.
 (5) PBBEs=PBDEs=Polybrominated Diphenyl Ethers=PBDOs=PBBOs.
 (6) * - * = Not Regulation

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Annex 6: Analysis Result of Passivation Glass (Page 4 of 4)

Test Report

LETTETFUSE, INC.
800 E. NORTHWEST HIGHWAY DES PLAINES, IL 60016
USA



Report No. : CE/2006/34224
Date : 2006/03/29
Page : 4 of 4

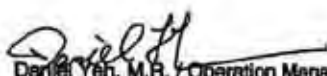


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Annex 7: Analysis Result of Die Bonding Solder (Page 1 of 3)

	
Test Report	
Report No : CE/2006/91816 Date : 2006/09/14	Page: 1 of 3
LITTELFUSE INC. 800 EAST NORTHWEST HIGHWAY DES PLAINES, IL 60016	
The following sample(s) was/were submitted and identified by/on behalf of the client as :	
Sample Description	: SOLDER PASTE (HIGH Pb)
Style/Item No	: 4102844-06
Manufacturer/Supplier Name	: LITTELFUSE INC.
Country of Destination	: TAIWAN
Country of Origin	: USA
Sample Received	: 2006/09/07
Testing Period	: 2006/09/07 TO 2006/09/14

Test Requested	: With reference to the RoHS Directive 2002/95/EC, and its amendment directives.
Test Method	: (1) With reference to BS EN 1122:2001, Method B for Cadmium Content. Analysis was performed by ICP-AES. (2) With reference to US EPA Method 3050B for Lead Content. Analysis was performed by ICP-AES. (3) With reference to US EPA Method 3052 for Mercury Content. Analysis was performed by ICP-AES. (4) With reference to US EPA Method 3060A & 7196A for Hexavalent Chromium. Analysis was performed by UV/Vis Spectrometry.
Test Result(s)	: - Please see the next page(s) -
 Daniel Yeh, M.R. / Operation Manager Signed for and on behalf of SGS TAIWAN LTD.	
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Annex 7: Analysis Result of Die Bonding Solder (Page 2 of 3)

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Test Report

Report No : CE/2006/91816 Date : 2006/09/14
LITTELFUSE INC.
800 EAST NORTHWEST HIGHWAY DES PLAINES,
IL 60016

Page: 2 of 3



Test Result(s)

Test results by chemical method (Unit: mg/kg)

Test Item (s):	Method (Refer to)	Result	MDL
		No.1	
Cadmium (Cd)	(1)	n.d.	2
Lead (Pb)	(2)	821635.5	2
Mercury (Hg)	(3)	n.d.	2
Chromium VI (Cr+6)	(4)	n.d.	2

Test Part Description

PART NAME NO.1 : DARK-GRAY SOLDER PASTE

Note : (1) mg/kg = ppm, 0.1% = 1000 ppm(mg/kg), 0.0005% = 5 ppm(mg/kg)
(2) n.d. = N.D. = ND = Not Detected
(3) MDL = Method Detection Limit
(4) Sample was totally digested for Pb, Cd, Hg

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Annex 7: Analysis Result of Die Bonding Solder (Page 3 of 3)

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Test Report

Report No : CE/2006/91816 Date : 2006/09/14 Page: 3 of 3
LITTELFUSE INC.
800 EAST NORTHWEST HIGHWAY DES PLAINES,
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**CE / 2006
/ 91816**

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Annex 8: Analysis Result of Packing Box (Page 1 of 4)

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Test Report

Report No : CE/2006/91636 Date : 2006/09/13 Page: 1 of 4
LITTELFUSE INC. 
800 E. NORTHWEST HWY. DES PLAINES, IL 60016

The following sample(s) was/were submitted and identified by/on behalf of the client as :

Sample Description : REEL BOX
Style/Item No : 110233200
Manufacturer/Supplier : LITTELFUSE INC.
Name
Country of Destination : TAIWAN
Country of Origin : USA
Sample Received : 2006/09/06
Testing Period : 2006/09/06 TO 2006/09/13

Test Requested : With reference to the RoHS Directive 2002/95/EC, and its amendment directives.

Test Method : (1) With reference to BS EN 1122:2001, Method B for Cadmium Content. Analysis was performed by ICP-AES.
(2) With reference to US EPA Method 3050B for Lead Content. Analysis was performed by ICP-AES.
(3) With reference to US EPA Method 3052 for Mercury Content. Analysis was performed by ICP-AES.
(4) With reference to US EPA Method 3060A & 7196A for Hexavalent Chromium. Analysis was performed by UV/Vis Spectrometry.
(5) With reference to US EPA 3540C, Analysis was performed by GC/MS and screening via US EPA 3550C with HPLC/DAD/MS.

Test Result(s) : - Please see the next page(s) -


Daniel Yeh, M.P., Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.

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Annex 8: Analysis Result of Packing Box (Page 4 of 4)

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Test Report

Report No : CE/2006/91636 Date : 2006/09/13 Page: 4 of 4
LITTELFUSE INC. 
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Annex 9: Analysis Result of Poly Tubing Bag (Page 1 of 4)


	
Test Report	
Report No : CE/2006/91635 Date : 2006/09/13	Page: 1 of 4
LITTELFUSE INC.	
800 E. NORTHWEST HWY. DES PLAINES, IL 60016	
The following sample(s) was/were submitted and identified by/on behalf of the client as :	
Sample Description	: PKOLY TUBING BAG
Style/Item No	: 110428901
Manufacturer/Supplier Name	: LITTELFUSE INC.
Country of Destination	: TAIWAN
Country of Origin	: USA
Sample Received	: 2006/09/06
Testing Period	: 2006/09/06 TO 2006/09/13
=====	
Test Requested	: With reference to the RoHS Directive 2002/95/EC, and its amendment directives.
Test Method	: (1) With reference to BS EN 1122:2001, Method B for Cadmium Content. Analysis was performed by ICP-AES. (2) With reference to US EPA Method 3050B for Lead Content. Analysis was performed by ICP-AES. (3) With reference to US EPA Method 3052 for Mercury Content. Analysis was performed by ICP-AES. (4) With reference to US EPA Method 3060A & 7196A for Hexavalent Chromium. Analysis was performed by UV/Vis Spectrometry. (5) With reference to US EPA 3540C, Analysis was performed by GC/MS and screening via US EPA 3550C with HPLC/DAD/MS.
Test Result(s)	: - Please see the next page(s) -
 Daniel Yeh, M.P., Operation Manager Signed for and on behalf of SGS TAIWAN LTD.	
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Annex 9: Analysis Result of Poly Tubing Bag (Page 3 of 4)




Test Report

Report No : CE/2006/91636 Date : 2006/09/13
LITTELFUSE INC.
800 E. NORTHWEST HWY. DES PLAINES, IL 60016

Page: 3 of 4


Note : (1) mg/kg = ppm, 0.1% = 1000 ppm(mg/kg), 0.0005% = 5 ppm(mg/kg)
(2) n.d. = N.D. = ND = Not Detected
(3) MDL = Method Detection Limit
(4) Sample was totally digested for Pb, Cd, Hg
(5) Sum of Mono to NonaBDE & according to 2005/717/EC DecaBDE is exempt.
(6) "-" = Not Regulated

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Annex 9: Analysis Result of Poly Tubing Bag (Page 4 of 4)

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Test Report

Report No : CE/2006/91635 Date : 2006/09/13 Page: 4 of 4
LITTELFUSE INC. 
800 E. NORTHWEST HWY. DES PLAINES, IL 60016




CE / 2006
/ 91635

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Annex 10: Analysis Result of Packing Foam (Page 2 of 4)



Test Report

LITTELFUSE, INC.
 800 E. NORTHWEST HIGHWAY DES PLAINES, IL 60016
 USA


Report No. : CE/2006/34166
 Date : 2006/03/21
 Page : 2 of 4

Test Result


PART NAME NO.1 : PINK FOAM

Test Item (s):	Unit	Method	MDL	Result	Spec.
				No.1	
Monobromobiphenyl	ppm	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	5	N.D.	-
Dibromobiphenyl	ppm		5	N.D.	-
Tribromobiphenyl	ppm		5	N.D.	-
Tetrabromobiphenyl	ppm		5	N.D.	-
Pentabromobiphenyl	ppm		5	N.D.	-
Hexabromobiphenyl	ppm		5	N.D.	-
Heptabromobiphenyl	ppm		5	N.D.	-
Octabromobiphenyl	ppm		5	N.D.	-
Nonabromobiphenyl	ppm		5	N.D.	-
Decabromobiphenyl	ppm		5	N.D.	-
Total PBBs (Polybrominated biphenyls)/Sum of above	ppm		-	N.D.	-
Monobromobiphenyl ether	ppm	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	5	N.D.	-
Dibromobiphenyl ether	ppm		5	N.D.	-
Tribromobiphenyl ether	ppm		5	N.D.	-
Tetrabromobiphenyl ether	ppm		5	N.D.	-
Pentabromobiphenyl ether	ppm		5	N.D.	-
Hexabromobiphenyl ether	ppm		5	N.D.	-
Heptabromobiphenyl ether	ppm		5	N.D.	-
Octabromobiphenyl ether	ppm		5	N.D.	-
Nonabromobiphenyl ether	ppm		5	N.D.	-
Decabromobiphenyl ether	ppm		5	N.D.	-
Total PBBEs(PBDEs) (Polybrominated biphenyl ethers)/Sum of above	ppm		-	N.D.	-
Total of Mono to Nonabrominated biphenyl ether. (Note 4)	ppm	-	N.D.	-	

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Annex 10: Analysis Result of Packing Foam (Page 3 of 4)



Test Report

LITTELFUSE, INC.
800 E. NORTHWEST HIGHWAY DES PLAINES, IL 60016
USA


Report No. : CE/2006/34166
Date : 2006/03/21
Page : 3 of 4

PASS

Test Item (s):	Unit	Method	MDL	Result	Spec.
				No.1	
94/62/EC (Heavy metal content)					
Chromium VI (Cr+6)	ppm	UV-VIS(US EPA 7196A) after reference to US EPA 3060A.	2	N.D.	-
Cadmium (Cd)	ppm	ICP-AES after as per EN 1122, method B:2001 or other acid digestion.	2	N.D.	-
Lead (Pb)	ppm	ICP-AES after as per US EPA 3050B or other acid digestion.	2	N.D.	-
Mercury (Hg)	ppm	ICP-AES after as per US EPA 3052 or other acid digestion.	2	N.D.	-
Total Lead+Cadmium+Mercury+Chromium VI	ppm	Total Lead+Cadmium+Mercury+Chromium VI (94/62/EC)	-	N.D.	100

NOTE: (1) N.D. = Not detected (<MDL)
 (2) ppm = mg/kg
 (3) MDL = Method Detection Limit
 (4) Decabromodiphenyl ether (DecaBDE) in polymeric applications is exempted by Commission Decision of 13 Oct 2005 amending Directive 2002/95/EC notified under document 2005/717/EC.
 (5) PBBEs=PBDEs=Polybrominated Diphenyl Ethers=PBDOs=PBBOs.
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Annex 10: Analysis Result of Packing Foam (Page 4 of 4)

Test Report

LITTELFUSE, INC.
800 E. NORTHWEST HIGHWAY DES PLAINES, IL 60016
USA

Report No. : CE/2006/34166
Date : 2006/03/21
Page : 4 of 4



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Annex 11: Analysis Result of Packing Tube (page 1 of 4)

SGS

Test Report

LITTELFUSE, INC.
800 E. NORTHWEST HWY. DES PLAINES, IL 60016

Report No. : CE/2006/34186
Date : 2006/03/21
Page : 1 of 4

The following merchandise was (were) submitted and identified by the client as :

Type of Product : LOADING TUBE, TO-220
Sample Received : 2006/03/14
Testing Date : 2006/03/14 TO 2006/03/21

=====


Test Result : - Please see the next page -


Daniel Yeh, M.R., Operation Manager
Signed for and on behalf of
SGS TAIWAN LTD.

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Annex 11: Analysis Result of Packing Tube (page 2 of 4)



Test Report


LITTELFUSE, INC. Report No. : CE/2006/34186
 800 E. NORTHWEST HWY. DES PLAINES, IL 60016 Date : 2006/03/21
Page : 2 of 4

Test Result


PART NAME NO.1 : TRANSPARENT-GRAY PLASTIC

Test Item (s):	Unit	Method	MDL	Result	Spec.
				No.1	
Monobromobiphenyl	ppm	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	5	N.D.	-
Dibromobiphenyl	ppm		5	N.D.	-
Tribromobiphenyl	ppm		5	N.D.	-
Tetrabromobiphenyl	ppm		5	N.D.	-
Pentabromobiphenyl	ppm		5	N.D.	-
Hexabromobiphenyl	ppm		5	N.D.	-
Heptabromobiphenyl	ppm		5	N.D.	-
Octabromobiphenyl	ppm		5	N.D.	-
Nonabromobiphenyl	ppm		5	N.D.	-
Decabromobiphenyl	ppm		5	N.D.	-
Total PBBs (Polybrominated biphenyls)/Sum of above	ppm		-	N.D.	-
Monobromobiphenyl ether	ppm	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	5	N.D.	-
Dibromobiphenyl ether	ppm		5	N.D.	-
Tribromobiphenyl ether	ppm		5	N.D.	-
Tetrabromobiphenyl ether	ppm		5	N.D.	-
Pentabromobiphenyl ether	ppm		5	N.D.	-
Hexabromobiphenyl ether	ppm		5	N.D.	-
Heptabromobiphenyl ether	ppm		5	N.D.	-
Octabromobiphenyl ether	ppm		5	N.D.	-
Nonabromobiphenyl ether	ppm		5	N.D.	-
Decabromobiphenyl ether	ppm		5	N.D.	-
Total PBBEs(PBDEs) (Polybrominated biphenyl ethers)/Sum of above	ppm		-	N.D.	-
Total of Mono to Nonabrominated biphenyl ether. (Note 4)	ppm	-	N.D.	-	

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Annex 11: Analysis Result of Packing Tube (page 3 of 4)



Test Report

LITTELFUSE, INC.
800 E. NORTHWEST HWY. DES PLAINES, IL 60016


Report No. : CE/2006/34186
Date : 2006/03/21
Page : 3 of 4

PASS

Test Item (s):	Unit	Method	MDL	Result	Spec.
				No.1	
94/62/EC (Heavy metal content)					
Chromium VI (Cr+6)	ppm	UV-VIS(US EPA 7196A) after reference to US EPA 3060A.	2	N.D.	-
Cadmium (Cd)	ppm	ICP-AES after as per EN 1122, method B:2001 or other acid digestion.	2	N.D.	-
Lead (Pb)	ppm	ICP-AES after as per US EPA 3050B or other acid digestion.	2	N.D.	-
Mercury (Hg)	ppm	ICP-AES after as per US EPA 3052 or other acid digestion.	2	N.D.	-
Total Lead+Cadmium+Mercury+Chromium VI	ppm	Total Lead+Cadmium+Mercury+Chromium VI [94/62/EC]	-	N.D.	100

NOTE: (1) N.D. = Not detected (<MDL)
 (2) ppm = mg/kg
 (3) MDL = Method Detection Limit
 (4) Decabromodiphenyl ether (DecaBDE) in polymeric applications is exempted by Commission Decision of 13 Oct 2005 amending Directive 2002/95/EC notified under document 2005/717/EC.
 (5) PBBEs=PBDEs=Polybrominated Diphenyl Ethers=PBDOs=PBBOs.
 (6) " - " = Not Regulation

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Annex 11: Analysis Result of Packing Tube (page 4 of 4)

SGS

Test Report

LITTELFUSE, INC.
800 E. NORTHWEST HWY. DES PLAINES, IL 60016


Report No. : CE/2006/34186
Date : 2006/03/21
Page : 4 of 4




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Annex 12: Analysis Result of End Plug (Page 1 of 4)

	
Test Report	
LITTELFUSE, INC. 800 E. NORTHWEST HIGHWAY DES PLAINES, IL 60016 USA	Report No. : CE/2006/34172 Date : 2006/03/21 Page : 1 of 4
The following merchandise was (were) submitted and identified by the client as :	
<u>Type of Product</u>	: END PLUG, TO-220 TUBE
<u>Style/Item No</u>	: 410245000
<u>Manufacturer/Supplier Name</u>	: LITTELFUSE INC.
<u>Country of Destination</u>	: TAIWAN
<u>Country of Origin</u>	: USA
<u>Sample Received</u>	: 2006/03/14
<u>Testing Date</u>	: 2006/03/14 TO 2006/03/21

<u>Test Result</u>	: - Please see the next page -
  Daniel Yen, M.R., Operation Manager Signed for and on behalf of SGS TAIWAN LTD.	
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<small>SGS Taiwan Ltd.</small>	<small>NO. 136-1, Wu Kong Road, WuHu Industrial Zone, Taipei county, Taiwan 8986-2) 2299-3939 (986-7) 2299-3237 www.sgs.com.tw</small>

Annex 12: Analysis Result of End Plug (Page 2 of 4)



Test Report

LITTELFUSE, INC.
 800 E. NORTHWEST HIGHWAY DES PLAINES, IL 60016
 USA

Report No. : CE/2006/34172
 Date : 2006/03/21
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Test Result


PART NAME NO.1 : GRAY RUBBER

Test Item (s):	Unit	Method	MDL	Result No.1
Monobromobiphenyl	ppm	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	5	N.D.
Dibromobiphenyl	ppm		5	N.D.
Tribromobiphenyl	ppm		5	N.D.
Tetrabromobiphenyl	ppm		5	N.D.
Pentabromobiphenyl	ppm		5	N.D.
Hexabromobiphenyl	ppm		5	N.D.
Heptabromobiphenyl	ppm		5	N.D.
Octabromobiphenyl	ppm		5	N.D.
Nonabromobiphenyl	ppm		5	N.D.
Decabromobiphenyl	ppm		5	N.D.
Total PBBs (Polybrominated biphenyls)/Sum of above	ppm		-	N.D.
Monobromobiphenyl ether	ppm	With reference to USEPA3540C or USEPA3550C. Analysis was performed by HPLC/DAD, LC/MS or GC/MS. (prohibited by 2002/95/EC (RoHS), 83/264/EEC, and 76/769/EEC)	5	N.D.
Dibromobiphenyl ether	ppm		5	N.D.
Tribromobiphenyl ether	ppm		5	N.D.
Tetrabromobiphenyl ether	ppm		5	N.D.
Pentabromobiphenyl ether	ppm		5	N.D.
Hexabromobiphenyl ether	ppm		5	N.D.
Heptabromobiphenyl ether	ppm		5	N.D.
Octabromobiphenyl ether	ppm		5	N.D.
Nonabromobiphenyl ether	ppm		5	N.D.
Decabromobiphenyl ether	ppm		5	N.D.
Total PBBEs(PBDEs) (Polybrominated biphenyl ethers)/Sum of above	ppm		-	N.D.
Total of Mono to Nona-brominated biphenyl ether. (Note 4)	ppm	-	N.D.	

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Annex 12: Analysis Result of End Plug (Page 3 of 4)



Test Report


LITTELFUSE, INC.
800 E. NORTHWEST HIGHWAY DES PLAINES, IL 60016
USA


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Test Item (s):	Unit	Method	MDL	Result
				No.1
Chromium VI (Cr+6)	ppm	UV-VIS(US EPA 7196A) after reference to US EPA 3060A.	2	N.D.
Cadmium (Cd)	ppm	ICP-AES after reference to EN 1122, method B:2001 or other acid digestion.	2	N.D.
Mercury (Hg)	ppm	ICP-AES after reference to US EPA 3052 or other acid digestion.	2	N.D.
Lead (Pb)	ppm	ICP-AES after reference to US EPA 3050B or other acid digestion.	2	N.D.

NOTE: (1) N.D. = Not detected (<MDL)
 (2) ppm = mg/kg
 (3) MDL = Method Detection Limit
 (4) Decabromodiphenyl ether (DecaBDE) in polymeric applications is exempted by
 Commission Decision of 13 Oct 2005 amending Directive 2002/95/EC notified
 under document 2005/717/EC.
 (5) PBBEs=PBDEs=Polybrominated Diphenyl Ethers=PBDOs=PBBOs.
 (6) " - " = Not Regulation

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Annex 12: Analysis Result of Cover Tape (Page 4 of 4)

Test Report

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USA

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Annex 13: Applicable RoHS exemptions

