



# TEST REPORT

LAB NO. : (6620)254-1091  
 DATE : September 15, 2020  
 PAGE : 1 OF 5

Applicant:  
**VISHAY SEMICONDUCTOR SHANGHAI CO., LTD**  
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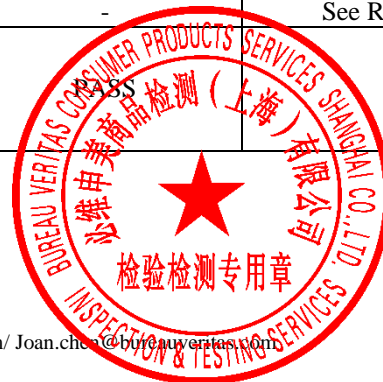
Date of Submission: 2020-09-10  
 Test Period: 2020-09-10 to 2020-09-15  
 Sample Mode: Sample Presentation  
 BV EE Ref. No.: /

Sample Description :		Sample(s) received is(are) stated to be: Lead frame	
Manufacturer:	/	Buyer:	/
Style No(s):	Lead frame	PO No.:	/
Country of Origin:	/	Country of Destination:	Oversea Country

Test Item(s): Details see page 2

## SUMMARY OF TEST RESULTS

TEST REQUESTED	CONCLUSION	REMARK
Total Beryllium Content	-	See Result
Heavy Metals, Flame Retardants, Phthalate Content - European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendments & As Applicant's requirement		



### REMARK

If there are questions or concerns on this report, please contact the following persons:

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**BUREAU VERITAS**  
**CONSUMER PRODUCTS SERVICES DIVISION (SHANGHAI)**

Laboratory Test Location:  
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PREPARED BY : \_\_\_\_\_ Liza

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LAB NO. : (6620)254-1091  
DATE : September 15, 2020  
PAGE : 2 OF 5

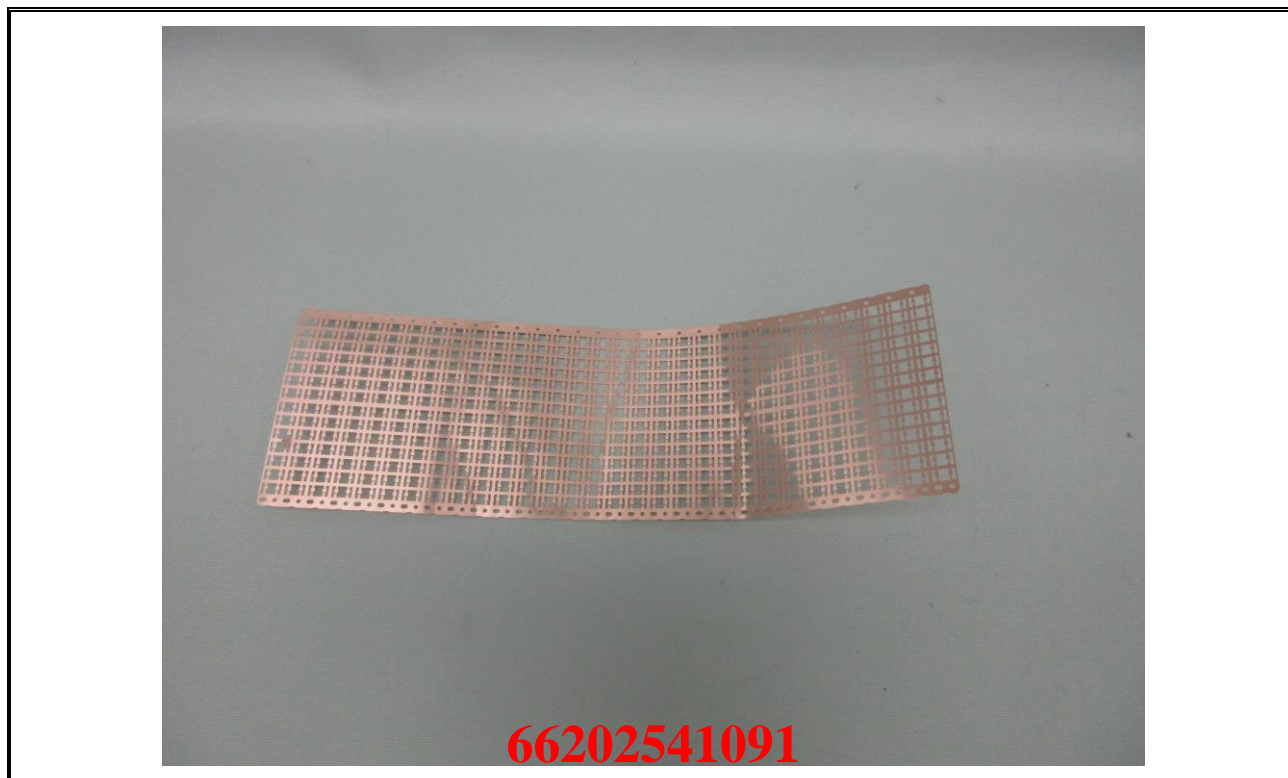
**Sample Description Assigned by Laboratory:**

Test Item	Description
1	Metal

Note:

g = gram(s)	% = percentage
mcg = microgram(s)	1 mg/kg = 0.0001%
mg/kg = milligram per kilogram	"<" = less than
mg/L = milligram per litre	">" = Greater than
g/kg = gram(s) per kilogram	Req. = Requirement
MDL = Method Detection Limit	"-" = Not Regulated
ND = Not Detected (< MDL)	NA = Not applicable
EX = Exempted	

**Photo of the Submitted Sample**





**BUREAU**  
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LAB NO. : (6620)254-1091  
DATE : September 15, 2020  
PAGE : 3 OF 5

### TEST RESULT

#### I.Total Beryllium Content

Test methods: The sample is comminuted and digested with acid mixtures, then analyzed by ICP-AES technique

Parameter	Unit	MDL	Result
			1
Beryllium (Be)	mg/kg	10	ND



**BUREAU  
VERITAS**

LAB NO. : (6620)254-1091  
DATE : September 15, 2020  
PAGE : 4 OF 5

### TEST RESULT

**II. Heavy Metals, Flame Retardants, Phthalate Content - European Parliament and Council Directive 2011/65/EU on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS) with its Amendments & As Applicant's requirement**

Test Method : See Appendix.

-	Unit	MDL	Maximum Allowable Limit (Req.)	Result
<b>Test Item</b>	-	-	-	<b>1</b>
<b>Parameter</b>	-	-	-	-
Lead (Pb)	mg/kg	2	1000	10.6
Cadmium (Cd)	mg/kg	2	100	ND
Mercury (Hg)	mg/kg	2	1000	ND
Chromium VI (Cr VI)	mg/kg	-	Negative	Negative
MonoBB	mg/kg	5		ND
DiBB	mg/kg	5		ND
TriBB	mg/kg	5		ND
TetraBB	mg/kg	5		ND
PentaBB	mg/kg	5		ND
HexaBB	mg/kg	5		ND
HeptaBB	mg/kg	5		ND
OctaBB	mg/kg	5		ND
NonaBB	mg/kg	5		ND
DecaBB	mg/kg	5		ND
Sum of PBBs	mg/kg	-	1000	ND
MonoBDE	mg/kg	5		ND
DiBDE	mg/kg	5		ND
TriBDE	mg/kg	5		ND
TetraBDE	mg/kg	5		ND
PentaBDE	mg/kg	5		ND
HexaBDE	mg/kg	5		ND
HeptaBDE	mg/kg	5		ND
OctaBDE	mg/kg	5		ND
NonaBDE	mg/kg	5		ND
DecaBDE	mg/kg	5		ND
Sum of PBDEs	mg/kg	-	1000	ND
Dibutyl phthalate (DBP)	mg/kg	50	1000	ND
Butyl benzyl phthalate (BBP)	mg/kg	50	1000	ND
Di-2-ethylhexyl phthalate (DEHP)	mg/kg	50	1000	ND
Diisobutyl phthalate (DIBP)	mg/kg	50	1000	ND
<b>Conclusion</b>	-	-	-	<b>PASS</b>

**Remark:**

- The list of analytes is summarized in table of Appendix.
- Result(s) of Cr VI for metallic material(s) was (were) expressed in term of positive and negative. Negative means the absence of Cr VI on the tested areas and the result(s) was (were) regarded as in compliance with European Parliament and Council Directive 2011/65/EU, Article 4(1). While, positive means the presence of Cr VI on tested areas and the result(s) was (were) regarded as in conflict with European Parliament and Council Directive 2011/65/EU, Article 4(1).
- According to European Parliament and Council Directive 2011/65/EU, Article 5 "Adaptation of the Annexes to scientific and technical progress", exemption(s) should be granted to the materials and components of Test Item(s) in the lists in Annexes III and IV of this directive.

END



**BUREAU  
VERITAS**

LAB NO. : (6620)254-1091  
DATE : September 15, 2020  
PAGE : 5 OF 5

## APPENDIX

### List of Analytes and their Corresponding Test Methods [ European Parliament and Council Directive 2011/65/EU ] :

No.	Name of Analytes	Test Method(s)
1	Lead (Pb)	With reference to IEC 62321-5: 2013.
2	Cadmium (Cd)	
3	Mercury (Hg)	With reference to IEC 62321-4: 2013+AMD1: 2017 CSV.
4	Chromium VI (Cr VI)	Metal: With reference to IEC 62321-7-1:2015. Polymers & Electronics: With reference to IEC 62321-7-2: 2017.
5	Polybromobiphenyls (PBBs) - Bromobiphenyl (MonoBB) - Dibromobiphenyl (DiBB) - Tribromobiphenyl (TriBB) - Tetrabromobiphenyl (TetraBB) - Pentabromobiphenyl (PentaBB) - Hexabromobiphenyl (HexaBB) - Heptabromobiphenyl (HeptaBB) - Octabromobiphenyl (OctaBB) - Nonabromobiphenyl (NonaBB) - Decabromobiphenyl (DecaBB)	With reference to IEC 62321-6:2015.
6	Polybromodiphenyl ethers (PBDEs) - Bromodiphenyl ether (MonoBDE) - Dibromodiphenyl ether (DiBDE) - Tribromodiphenyl ether (TriBDE) - Tetrabromodiphenyl ether (TetraBDE) - Pentabromodiphenyl ether (PentaBDE) - Hexabromodiphenyl ether (HexaBDE) - Heptabromodiphenyl ether (HeptaBDE) - Octabromodiphenyl ether (OctaBDE) - Nonabromodiphenyl ether (NonaBDE) - Decabromodiphenyl ether (DecaBDE)	
7	Dibutyl phthalate (DBP) Butyl benzyl phthalate (BBP) Di-2-ethylhexyl phthalate (DEHP) Diisobutyl phthalate (DIBP)	Reference to IEC 62321-8: 2017.