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TP8, R case Construction Modification

For further information, please contact your regional Vishay office.

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Description of Change: Modify FR4 substrate structure by adding silver plated copper clad on its top surface.

Classification of Change: Technology improvement.

Expected Influence on Quality/Reliability/Performance: This change does not affect Fit, Form and Function of subject product.

Part Numbers/Series/Families Affected: TP8R106K016C, TP8R106M016C,

Vishay Brand(S): Vishay Sprague

Time Schedule:

Start Shipment Date: Thu Apr 20, 2023

Sample Availability: Upon Request

Product Identification: Per product lot number and/or date code.

Qualification Data: Upon Request

This PCN is considered approved, without further notification, unless we receive specific customer concerns before Wed Mar 1, 2023 or as specified by contract.

Issued By: Iliia Litvachuk, ilia.litvachuk@vishay.com



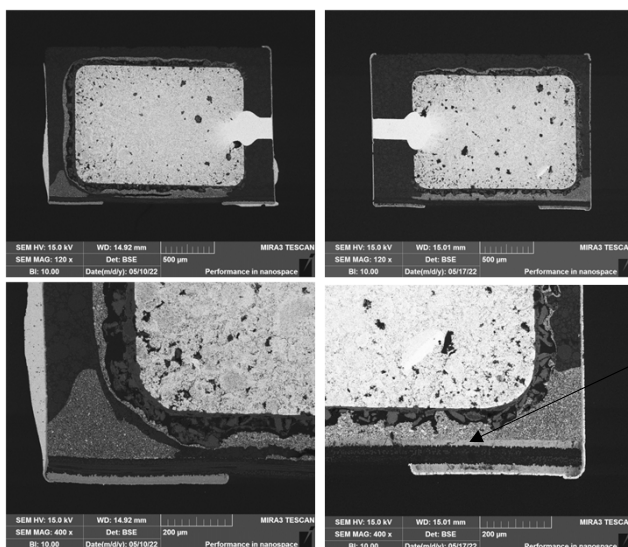
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VISHAY TA CAPACITORS DIVISION

TP8R106M016C Construction Modification

19-Jan-2023 Rev. 1

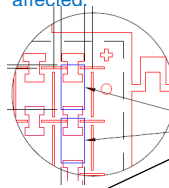
Comparison of current vs modified FR4 substrates



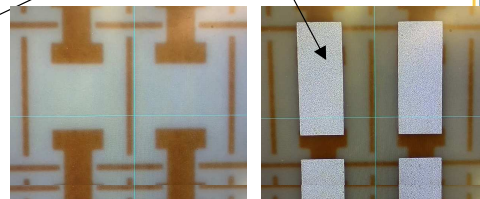
Currently used FR4 substrate

Modified FR4 substrate with silver-plated copper clad

The purpose of silver-plated copper clad is to extend interface between silver coated pellet (cathode), adhesive silver material and external cathode termination. In this case, even there is a partial delamination between pellet and adhesive silver dot, good outside connection will not be affected.



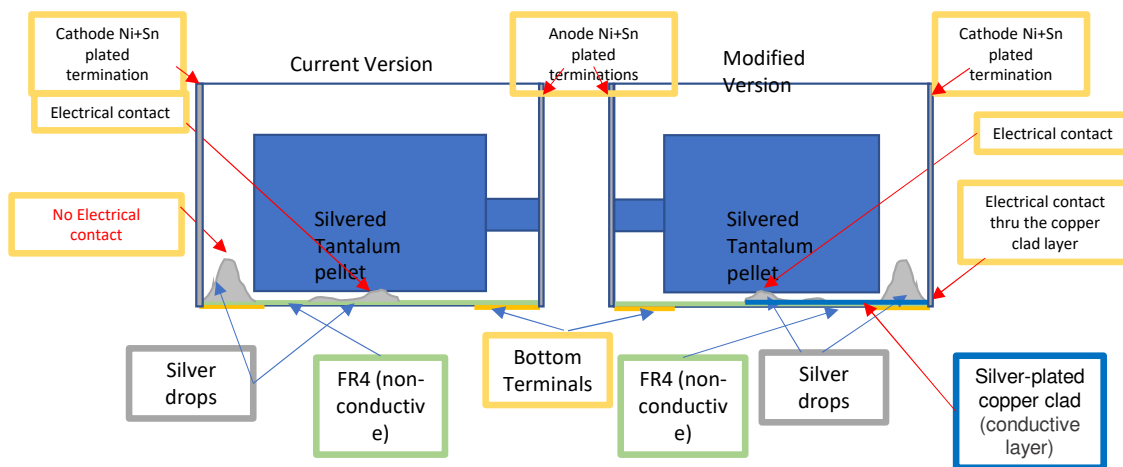
Silver-plated copper clad



Current FR4 substrate

Modified FR4 substrate with silver-plated copper clad

Modified FR4 substrate with silver-plated copper clad



Electrical test results (modified LF)

Family	Case	Rating	Lot #	VI	El. test	QC, 96 pcs
				Yield, %	Yield, %	
TP8	R	10-16	13615982	97.1%	90.7%	Pass

Electrical test and QC ESR limits for engineering lot 13615982 (Modified FR4 substrate with silver-plated copper clad):

1. ESR sort (test) limit: 3.5 Ohm.
2. QC test limit: 8 Ohm.

Electrical test and QC ESR limits for current production lots (ECN 2022-2293):

1. ESR sort (test) limit for production lots is dynamic, or statistical limit (Average+3Sigma) based on 1st el. test.
2. QC limit for production lots is 4 Ohm.

Samples from lot 13615982 were submitted to Reliability testing (reference: test # 22.08.132), all tests completed without failures, see summary report on slide 5.



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Reliability lab results for lot with modified FR4 substrate

Reliability Laboratory Be'er Sheva

Test No.: 22.08.132 Issue: 24-Aug-22

TEST REPORT SUMMARY

Reason for test: EEN (modified LF) Division: Ta-csp

Test program specification: STC-XXX-28.2, Appendix 4; AEC-Q200 Originator: G.Kozhkin

Receiving date: 22-Aug-22 Start date: 31-Aug-22 Completion: 24-Aug-22

PRODUCT DATA

Military style/Family	Part #	Lot #	Data Code
TP8	TP8108M016R2T	13615982	N/A

Test Group/ Subgroup	Test Name	Test conditions / Test method reference	Test Group	Test # in Group	Lot #	Sample size	Test limits						Failures		Notes
							DCL µA, max	ΔCIC, % ±	DF, % max	ESR, Ω, max	Z, Ω, max	Allowed	Actual	Pass / Fail	
	LT +125°C 7.0 V 1000h	AEC-Q200	1	1	13615982	77	16	20	8	10	N/A	0	0	Pass	
	Humidity test 85°C/85%RH/10.DV/1000h	A3D000291AAA Rev E	2			77	16	20	24	30	N/A	0	0	Pass	
	High temperature exposure 1000h	AEC-Q200	3			77	1.6	20	8	10	N/A	0	0	Pass	
	Temperature cycling	AEC-Q200	4			77	1.6	20	8	10	N/A	0	0	Pass	
	Vibration / Mechanical Shock	AEC-Q200	5			30	1.6	20	8	N/A	N/A	0	0	Pass	
	Resistance to soldering heat	AEC-Q200	6			30	1.6	20	8	N/A	N/A	0	0	Pass	
	Terminal strength	AEC-Q200-006	7			30	N/A	N/A	N/A	N/A	N/A	0	0	Pass	

Note: Based on data of the test report #22.06.010

Result: **Pass**

Test technician: NNKT initials: [Signature] signature: [Signature]

Lab manager or designee: OB initials: [Signature] signature: [Signature] date: 24.08.22

Summary test report and test data were placed in wsb65re@labreports folder on

Test technician: [Signature] signature: [Signature]