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# Product Change Notification



Product Group: DD/Mon Dec 19, 2022/PCN-DD-036-2022-REV-0

## Fred Pt® 200V wafers photomasking and metallization changes

For further information, please contact your regional Vishay office.

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**Description of Change:** Vishay Diode Division is implementing some changes in the photo-masking and metal deposition process steps, in order to consolidate and harmonize the manufacturing flows in the Wafer Fab. As a result, the relevant changes are:

-The total top metallization thickness on solderable top metal chips will be changed by reduced Al layer thickness. No change in the thickness of the die-to-clip layer metal interfaces (Ag-Ni-Ti). (See Annex 2)

-Die corner plugs will be introduced on wire bondable top metal chips (See Annex 3).

Die sizes and active areas will not change and the affected products will remain fully compliant to the existing Datasheets

**Classification of Change:** Process consolidation to optimize production shop-floor control and manufacturing equipments utilization.  
Continuous improvement

**Expected Influence on Quality/Reliability/Performance:** There will be no effect on quality, reliability or electrical performance.

**Part Numbers/Series/Families Affected:** Please see materials list on the succeeding page.

**Vishay Brand(S):** Vishay Semiconductors

#### Time Schedule:

Start Shipment Date: Wed Mar 1, 2023

**Sample Availability:** Available upon request starting from the 2nd of January 2023

**Product Identification:** N/A

**Qualification Data:** See Annex 1

**This PCN is considered approved, without further notification, unless we receive specific customer concerns before Tue Feb 28, 2023 or as specified by contract.**

**Issued By:** Fabio Modaro, fabio.modaro@vishay.com



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VS-10CSH01-M3/86A	VS-10CSH01-M3/87A	VS-10CSH02-M3/86A	VS-10CSH02-M3/87A	VS-10CVH01-M3/I
VS-10CVH02-M3/I	VS-10CWH02FN-M3	VS-10CWH02FNTRL-M3	VS-10CWH02FNTR-M3	VS-10CWH02FNTRR-M3
VS-16CDH02-M3/I	VS-16EDH02-M3/I	VS-1EFH01-M3/I	VS-1EFH02-M3/I	VS-1EMH01-M3/5AT
VS-1EMH02-M3/5AT	VS-20CDH02-M3/I	VS-2EFH01-M3/I	VS-2EFH02-M3/I	VS-2EGH01-M3/5BT
VS-2EGH02-M3/5BT	VS-2EJH01-M3/6A	VS-2EJH01-M3/6B	VS-2EJH02-M3/6A	VS-2EJH02-M3/6B
VS-2EMH01-M3/5AT	VS-2EMH02-M3/5AT	VS-2EYH01-M3/H	VS-2EYH01-M3/I	VS-2EYH02-M3/H
VS-2EYH02-M3/I	VS-30CTH02-1-M3	VS-30CTH02FP-N3	VS-30CTH02-M3	VS-30CTH02S-M3
VS-30CTH02STRL-M3	VS-30CTH02STRR-M3	VS-3ECH01-M3/9AT	VS-3ECH02-M3/9AT	VS-3EJH01-M3/6A
VS-3EJH01-M3/6B	VS-3EJH02-M3/6A	VS-3EJH02-M3/6B	VS-3EYH01-M3/H	VS-3EYH01-M3/I
VS-3EYH02-M3/H	VS-3EYH02-M3/I	VS-4CSH01-M3/86A	VS-4CSH01-M3/87A	VS-4CSH02-M3/86A
VS-4CSH02-M3/87A	VS-4ESH01-M3/86A	VS-4ESH01-M3/87A	VS-4ESH02-M3/86A	VS-4ESH02-M3/87A
VS-4EVH01-M3/I	VS-4EVH02-M3/I	VS-4EWH02FN-M3	VS-4EWH02FNTRL-M3	VS-4EWH02FNTR-M3
VS-4EWH02FNTRR-M3	VS-60APU02-N3	VS-60CPU02-N3	VS-60EPU02-N3	VS-6CSH01-M3/86A
VS-6CSH01-M3/87A	VS-6CSH02-M3/86A	VS-6CSH02-M3/87A	VS-6CVH01-M3/I	VS-6CVH02-M3/I
VS-6CWH02FN-M3	VS-6CWH02FNTRL-M3	VS-6CWH02FNTR-M3	VS-6CWH02FNTRR-M3	VS-6DKH02-M3/H
VS-6DKH02-M3/I	VS-6ESH01-M3/86A	VS-6ESH01-M3/87A	VS-6ESH02-M3/86A	VS-6ESH02-M3/87A
VS-6ESH02-M3H/I	VS-80CPU02-N3	VS-8CSH01-M3/86A	VS-8CSH01-M3/87A	VS-8CSH02-M3/86A
VS-8CSH02-M3/87A	VS-8CVH01-M3/I	VS-8CVH02-M3/I	VS-8CWH02FN-M3	VS-8CWH02FNTRL-M3
VS-8CWH02FNTR-M3	VS-8CWH02FNTRR-M3	VS-8DKH02-M3/H	VS-8DKH02-M3/I	VS-8ESH01-M3/H
VS-8ESH01-M3/I	VS-8ESH02-M3/H	VS-8ESH02-M3/I	VS-8EWH02FN-M3	VS-8EWH02FNTRL-M3
VS-8EWH02FNTR-M3	VS-8EWH02FNTRR-M3	VS-MUR1020CT-M3	VS-MUR1520-M3	VS-MUR1620CT-M3
VS-MUR2020CT-M3	VS-MUR3020WT-N3	VS-MUR820-M3	VS-MURB1020CT-1-M3	VS-MURB1020CTL-M3
VS-MURB1020CT-M3	VS-MURB1020CTR-M3	VS-MURB1520-1-M3	VS-MURB1520-M3	VS-MURB1520TRL-M3
VS-MURB1520TRR-M3	VS-MURB1620CT-1-M3	VS-MURB1620CTL-M3	VS-MURB1620CT-M3	VS-MURB1620CTR-M3
VS-MURB2020CR-M3H	VS-MURB2020CT-1-M3	VS-MURB2020CTL-M3	VS-MURB2020CT-M3	VS-MURB2020CTR-M3
VS-MURB820-1-M3	VS-MURB820-M3	VS-MURB820TRL-M3	VS-MURB820TRR-M3	VS-MURD620CT-M3
VS-MURD620CTTRL-M3	VS-MURD620CTTR-M3	VS-MURD620CTTRR-M3		

# ANNEX 1

## Qualification Data

P/N PACKAGE PROCESS Metalization	VS-60APU02-N3 TO-247 Al	VS-MUR2020CT-M3 TO-220 Al	VS-8EWH02FNTRM3 DPAK Al	VS-2EGH02-M3 SMB Ag	VS-2EQH02-M3 μSMP Ag
<b>FAB PROCESS</b>	FRED	FRED	FRED	FRED	FRED

		Rel ref.	3947	3948	3956	3957	3968
<b>Test Item &amp; Condition</b>	<b>Duration</b>						
<b>HTRB</b>	Condition						
<b>Max Tj @ 100% Vr</b>	168 Hrs	0/77	0/77	0/77	0/77	0/77	0/77
	500 Hrs	0/77	0/77	0/77	0/77	0/77	0/77
	1000 Hrs	0/77	0/77	0/77	0/77	0/77	0/77
	2000 Hrs	0/77	0/77	0/77	0/77	0/77	0/77
<b>TC</b>	Condition						
<b>@-55°C / +150°C / 30min.</b>	250 Cyc.	0/77	0/77	0/77	0/77	0/77	0/77
	500 Cyc.	0/77	0/77	0/77	0/77	0/77	0/77
	1000 Cyc.	0/77	0/77	0/77	0/77	0/77	0/77
	2000 Cyc.		0/77	0/77	0/77	0/77	0/77
<b>IOL</b>	Condition						
Delta Tj=100°C T0n/Toff >= 2min	500 Hrs	0/77	0/77	0/77	0/77	0/77	0/77
	1000 Hrs	0/77	0/77	0/77	0/77	0/77	0/77
<b>H3TRB</b>	Condition						
85°C 85% HR @ 100V	168 Hrs	0/77	0/77	0/77	0/77	0/77	0/77
	500 Hrs	0/77	0/77	0/77	0/77	0/77	0/77
	1000 Hrs	0/77	0/77	0/77	0/77	0/77	0/77
<b>UHAST</b>	Condition						
85°C 85% HR @ 100V	48 Hrs	0/77	0/77	0/77	0/77	0/77	0/77
	96 Hrs	0/77	0/77	0/77	0/77	0/77	0/77
<b>RSH</b>	Condition						
Resistance to solder Heat (JESD22)	275°C 10sec	0/30	0/30	0/30	0/30	0/30	0/30
<b>Solderability</b>	Condition						
JESD22 B-102	245°C 5sec	0/10	0/10	0/10	0/10	0/10	0/10
<b>DPA</b>	Condition						
Acc. to AEC Q101-004 section 4		pass	pass				pass

## ANNEX 2

### Top metallization of solderable metal chips

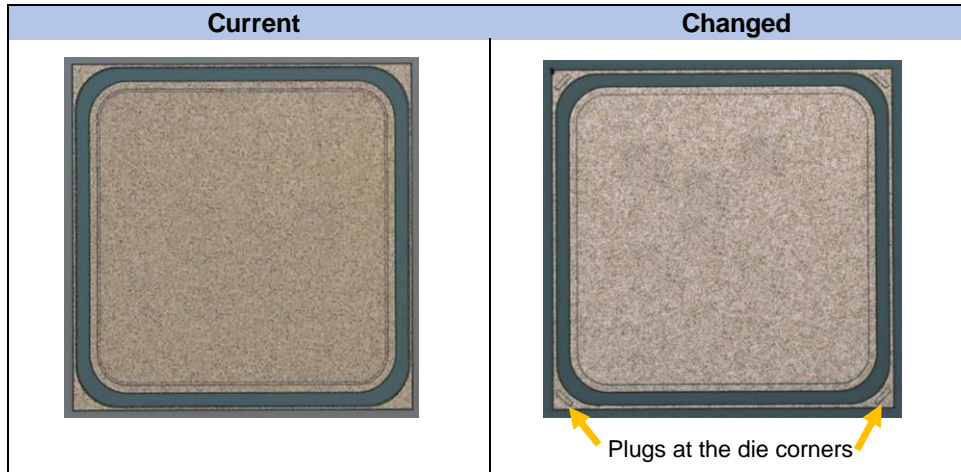
Current		Changed		
<b>Schematic of top side metallization layer</b>	Ag	Contact layer to bond clip (no change)	Ag	Contact layer to bond clip (no change)
	Ni	Intermediate layer (no change)	Ni	Intermediate layer (no change)
	Ti	Intermediate layer (no change)	Ti	Intermediate layer (no change)
	Al	Contact layer to Si (3 μm)	Al	Contact layer to Si (0.3 μm)

Part Numbers affected listed below

Part Number	Part Number	Part Number	Part Number
VS-1EFH01-M3/I	VS-2EJH01-M3/6B	VS-3EYH02-M3/I	VS-6DKH02-M3/I
VS-1EFH02-M3/I	VS-2EJH02-M3/6A	VS-4CSH01-M3/86A	VS-6ESH01-M3/86A
VS-2EFH01-M3/I	VS-2EJH02-M3/6B	VS-4CSH01-M3/87A	VS-6ESH01-M3/87A
VS-2EFH02-M3/I	VS-2EMH01-M3/5AT	VS-4CSH02-M3/86A	VS-6ESH02-M3/86A
VS-10CSH01-M3/86A	VS-2EMH02-M3/5AT	VS-4CSH02-M3/87A	VS-6ESH02-M3/87A
VS-10CSH01-M3/87A	VS-2EYH01-M3/H	VS-4ESH01-M3/86A	VS-6ESH02-M3H/I
VS-10CSH02-M3/86A	VS-2EYH01-M3/I	VS-4ESH01-M3/87A	VS-8CSH01-M3/86A
VS-10CSH02-M3/87A	VS-2EYH02-M3/H	VS-4ESH02-M3/86A	VS-8CSH01-M3/87A
VS-10CVH01-M3/I	VS-2EYH02-M3/I	VS-4ESH02-M3/87A	VS-8CSH02-M3/86A
VS-10CVH02-M3/I	VS-3ECH01-M3/9AT	VS-4EVH01-M3/I	VS-8CSH02-M3/87A
VS-16CDH02-M3/I	VS-3ECH02-M3/9AT	VS-4EVH02-M3/I	VS-8CVH01-M3/I
VS-16EDH02-M3/I	VS-3EJH01-M3/6A	VS-6CSH01-M3/86A	VS-8CVH02-M3/I
VS-1EMH01-M3/5AT	VS-3EJH01-M3/6B	VS-6CSH01-M3/87A	VS-8DKH02-M3/H
VS-1EMH02-M3/5AT	VS-3EJH02-M3/6A	VS-6CSH02-M3/86A	VS-8DKH02-M3/I
VS-20CDH02-M3/I	VS-3EJH02-M3/6B	VS-6CSH02-M3/87A	VS-8ESH01-M3/H
VS-2EGH01-M3/5BT	VS-3EYH01-M3/H	VS-6CVH01-M3/I	VS-8ESH01-M3/I
VS-2EGH02-M3/5BT	VS-3EYH01-M3/I	VS-6CVH02-M3/I	VS-8ESH02-M3/H
VS-2EJH01-M3/6A	VS-3EYH02-M3/H	VS-6DKH02-M3/H	VS-8ESH02-M3/I

## ANNEX 3

### Bondable Metal chips



Part Numbers affected listed below

Part Number
VS-30CTH02-1-M3
VS-30CTH02-M3
VS-30CTH02S-M3
VS-30CTH02STRL-M3
VS-30CTH02STRR-M3
VS-MUR1020CT-M3
VS-MUR1520-M3
VS-MUR1620CT-M3
VS-MUR2020CT-M3
VS-MUR820-M3
VS-MURB1020CT-1-M3
VS-MURB1020CTL-M3
VS-MURB1020CT-M3
VS-MURB1020CTR-M3
VS-MURB1520-1-M3
VS-MURB1520-M3

Part Number
VS-MURB1520TRL-M3
VS-MURB1520TRR-M3
VS-MURB1620CT-1-M3
VS-MURB1620CTL-M3
VS-MURB1620CT-M3
VS-MURB1620CTR-M3
VS-MURB2020CR-M3H
VS-MURB2020CT-1-M3
VS-MURB2020CTL-M3
VS-MURB2020CT-M3
VS-MURB2020CTR-M3
VS-MURB820-1-M3
VS-MURB820-M3
VS-MURB820TRL-M3
VS-MURB820TRR-M3
VS-30CTH02FP-N3

Part Number
VS-60APU02-N3
VS-60CPU02-N3
VS-60EPU02-N3
VS-80CPU02-N3
VS-MUR3020WT-N3
VS-10CWH02FN-M3
VS-10CWH02FNTRL-M3
VS-10CWH02FNTR-M3
VS-10CWH02FNTRR-M3
VS-4EWH02FN-M3
VS-4EWH02FNTRL-M3
VS-4EWH02FNTR-M3
VS-4EWH02FNTRR-M3
VS-6CWH02FN-M3
VS-6CWH02FNTRL-M3
VS-6CWH02FNTR-M3

Part Number
VS-6CWH02FNTRR-M3
VS-8CWH02FN-M3
VS-8CWH02FNTRL-M3
VS-8CWH02FNTR-M3
VS-8CWH02FNTRR-M3
VS-8EWH02FN-M3
VS-8EWH02FNTRL-M3
VS-8EWH02FNTR-M3
VS-8EWH02FNTRR-M3
VS-MURD620CT-M3
VS-MURD620CTTRL-M3
VS-MURD620CTTR-M3
VS-MURD620CTTRR-M3