



# Product Change Notification



Product Group: Diodes Division / April 1, 2020 / PCN-DD-007-2020 Rev 0

## Manufacturing Location Change and FRED Die Passivation Improvement for Commercial Grade of TO-3PF Package

**DESCRIPTION OF CHANGE:** Vishay Diode Division is transferring the assembly & final test of commercial grade of TO-3PF package from current site to a new subcontractor. The new subcontractor has received international quality system and environmental compliance certification ISO9001, ISO14001 and IATF16949. An additional Silicon Nitride layer on FRED part numbers will be introduced to improve die Passivation. Bill of material is shown in annex 2 while Package Outline Dimension will be consolidated as illustrated in annex 3. Taking the chance, product nomenclature will be harmonized: Vishay Diodes Division will discontinue the Part Numbers with -E3 suffix and keep active the Halogen free version only (-M3 suffix).

**CLASSIFICATION OF CHANGE:** Assembly Site  
Wafer/Chip/Pellet Process/Structure  
Form, Fit, Function  
Product Obsolescence

**REASON FOR CHANGE:** Assembly Site: Production line consolidation.  
Passivation: Continuous improvement

**EXPECTED INFLUENCE ON QUALITY/RELIABILITY/PERFORMANCE:** There will be no effect on quality, reliability or electrical performance.

**PRODUCT CATEGORY:** Diodes

### PART NUMBERS/SERIES/FAMILIES AFFECTED:

TO-3PF				
Family	New Halogen-free nomenclature		Old nomenclature	
	New Part Number	New Datasheet	Old (Obsolete) Part Number	Old (Obsolete) Datasheet
Fred	VS-C4ZU3006FP-M3	96686	VS-C4ZU3006FP-E3	95644
Fred	VS-C4ZU6006FP-M3	96687	VS-C4ZU6006FP-E3	95642

**VISHAY BRAND(s):** Vishay Semiconductors

**TIME SCHEDULE:** Last time buy date: October 1, 2020  
Last time shipment date: April 1, 2021  
Last time return date: October 1, 2020  
Expiration of ship and debit: April 1, 2021

**SAMPLE AVAILABILITY:** On customer request

**PRODUCT IDENTIFICATION:** Products manufactured at new location will be identified by the new plant digit of the date code marked on 2<sup>nd</sup> line of the part.

**QUALIFICATION DATA:** See annex 1

**This PCN is considered approved, without further notification, unless we receive specific customer written concerns before June 1, 2020 or as specified by contract.**

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**For further information, please contact your regional Vishay office**

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## ANNEX 1 – Qualification Data

<b>P/N</b> <b>PACKAGE PROCESS</b> <b>Metalization</b>	VS-C4ZU3006FP-M3 TO3P-FP Al	VS-C4ZU3006FP-M3 TO3P-FP Al	VS-C4ZU6006FP-M3 TO3P-FP Al
<b>FAB PROCESS</b> <b>Wafer Passivation</b>	FRED AmSi	FRED AmSi + SiN	FRED AmSi

		3608	3608	3609
<b>Test Item &amp; Condition</b>	<b>Duration</b>			
<b><u>HTRB</u></b>	Condition			
<b><u>Max Tj @ 100% Vr</u></b>	168 Hrs	0/154	0/77	0/77
	500 Hrs	0/154	0/77	0/77
	1000 Hrs	0/154	0/77	0/77
<b><u>Temperature Cycling</u></b>	Condition			
@-55°C / +150°C / 30min.	250 Cycles	0/154	0/77	0/77
	500 Cycles	0/154	0/77	0/77
	1000 Cycles	0/154	0/77	0/77
<b><u>UHAST</u></b>	Condition			
@Ta= 130°C , 85%R.H.	48 Hrs	0/154	0/77	0/77
	96 Hrs	0/154	0/77	0/77
<b><u>IOL</u></b>	Condition			
Delta Tj=100°C T0n/Toff >= 2min	500 Hrs	0/154	0/77	0/77
	1000 Hrs	0/154	0/77	0/77
<b><u>H3TRB</u></b>	Condition			
85°C 85% HR @ 100V	168 Hrs	0/154	0/77	0/77
	500 Hrs	0/154	0/77	0/77
	1000 Hrs	0/154	0/77	0/77
<b><u>Solder Dip (TH)</u></b>	Condition			
280°C/10sec		0/30		0/30
<b><u>Solderability</u></b>	Condition			
		0/15		0/15

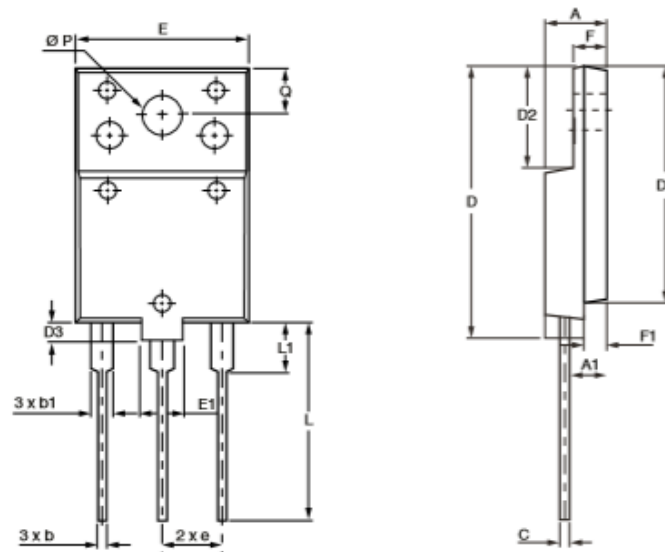
## ANNEX 2 – Bill of Materials

	Before	After
Die & Wafer	/	Additional Silicon Nitride introduced
Die Attach Solder	Pb93.5Sn5Ag1.5	Pb95.5Sn2Ag2.5
Mold Compound	ST-7100HF	EME-E190M

## ANNEX 3 - POD

### TO-3PF

**DIMENSIONS** in millimeters



SYMBOL	MIN.	NOM.	MAX.
A	5.30	5.50	5.70
A1	3.10	3.30	3.50
b	0.65	0.85	0.95
b1	1.80	2.00	2.20
c	0.80	0.90	1.10
D	26.30	26.50	26.70
D1	22.80	23.00	23.20
D2	9.80	10.00	10.20
D3	1.80	2.00	2.20
E	15.30	15.50	15.70
E1	3.80	4.00	4.20
e	5.45 BSC		
F	2.80	3.00	3.20
F1	1.80	2.00	2.20
L	19.10	19.30	19.50
L1	4.20	4.50	5.20
Q	4.30	4.50	4.70
$\varnothing P$	3.40	3.60	3.80