## **ON Semiconductor®**



Title of Change:	Qualification of DPAK 4 Row Transfer from Cebu to OSV and change in Green Mold compound.		
Proposed Changed Material First Ship Date:	01 May 2021 or earlier if approved by customer		
Current Material Last Order Date:	01 Feb 2021 Orders received after the Current Material Last Order Date expiration are to be considered as orders for new changed material as described in this PCN. Orders for current (unchanged) material after this date will be per mutual agreement and current material inventory availability.		
Current Material Last Delivery Date:	30 Apr 2021 The Current Material Last Delivery Date may be subject to change based on build and depletion of the current (unchanged) material inventory		
Product Category:	Active components – Discrete components		
Contact information:	Contact your local ON Semiconductor Sales Office or Trung.Dang@onsemi.com		
PCN Samples Contact:	Contact your local ON Semiconductor Sales Office to place sample order or <u>PCN.samples@onsemi.com</u> Sample requests are to be submitted no later than 45 days after publication of this change notification. Samples delivery timing will be subject to request date, sample quantity and special customer packing/label requirements.		
Sample Availability Date:	30 Jun 2020		
PPAP Availability Date:	31 May 2020		
Additional Reliability Data:	Contact your local ON Semiconductor Sales Office or <u>ffxg4t@onsemi.com</u>		
Type of Notification:	This is a Final Product/Process Change Notification (FPCN) sent to customers. FPCNs are issued 12 months prior to implementation of the change or earlier upon customer approval. ON Semiconductor will consider this proposed change and it's conditions acceptable, unless an inquiry is made in writing within 45 days of delivery of this notice. To do so, contact PCN.Support@onsemi.com.		
Change Category	-		
Category	Type of Change		
Test Flow	Move of all or part of electrical wafer test and/or final test to a different location/site/subcontractor		
Equipment	Production from a new equipment/tool which uses the same basic technology (replacement equipment or extension of existing equipment pool) without change of process.		
Process - Assembly	Move of all or part of assembly to a different location/site/subcontractor., Change of mold compound		

#### **Description and Purpose:**

This is a Final Change Notification to inform customers of the qualification of DPAK 4 Row transfer from ON Semiconductor Philippine (Cebu) to ON Semiconductor Vietnam (OSV) following changing in mold compound G700HF without plasma and AP coating process.

Change of mold compound

	Before Change Description	After Change Description	
Assy and Final Test site	On semiconductor Philippine (Cebu)	On Semiconductor Vietnam (OSV)	
Mold Compound	CEL8240HF10 (Hitachi)	G700HF (Sumitomo)	
Process flow	Plasma, AP coating	No plasma, AP coating	

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Reason / Mot	tivation for Change:	Capacity improvement					
unction, relia	npact on fit, form, ability, product nufacturability:	The device has been qualified and validated based on the same Product Specification. The device successfully passed the qualification tests. Potential impacts can be identified, but due to test performed by ON Semiconductor in relation to the PCN, associated risks are verified and excluded.					
•	,	No anticipate	ed impacts.				
ites Affected	1:						
N Semicond	uctor Sites			External Foundry/Subco	n Sites		
N Semiconduc	ctor Vietnam			None			
Marking of Parts/ Traceability of affected products with this Change:			ducts with this ch	his changing will be identified with date code			
-	ta Summary: ME: FDD9510L-F085 (PT : V52986	8P)					
ACKAGE	: DPAK						
Test	Specification			ondition	Interval	Result	
HTRB HTGB	JESD22-A108 JESD22-A108		, -	as = 100% of rated V 00% max rated Vgss	1008 hrs 1008 hrs	0/231 0/231	
HTSL	JESD22-A108 JESD22-A103			a = 175 °C	1008 hrs	0/231	
HIJL	MIL-STD-750		1a = 175 C		1008 1115	0/251	
IOL			Ta = +25°C, deltaTj = 100°C max, Ton = Toff = 2min		15000 сус	0/231	
тс	JESD22-A104		Ta = -55°C to +150°C		1000 cyc	0/231	
UHAST	JESD22-A102		130°C, 100% RH, 18.8psig, unbiased		96 hrs	0/231	
H3TRB	JESD22-A101		85°C, 85% RH, bias = 100% of rated V		1008 hrs	0/231	
PC	J-STD-020 JESD-A	113	MSL	1 @ 260 °C		0/924	
RSH	JESD22- B106		Ta = 2	265°C, 10 sec		0/90	
SD	JSTD002		Ta = 2	Ta = 245°C, 10 sec		0/45	
	ME: FDD9407-F085 (MV : V52983 : DPAK	8N)	1a=.	245°C, 10 sec	<u> </u>	0/45	
Test	Specification		C	ondition	Interval	Result	
HTRB	JESD22-A108		Ta = 175°C, b	as = 100% of rated V	1008 hrs	0/231	
HTGB	JESD22-A108			00% max rated Vgss	1008 hrs	0/231	
HTSL	JESD22-A103	, , ,		1008 hrs	0/231		
MIL-STD-750							
		)37) la = +25°		leltaTj = 100°C max,	15000 cyc	0/231	
IOL	(M1037) AEC-Q101		Ton =	Toff = 2min			
IOL TC	(M1037)			= Toff = 2min 5°C to +150°C	1000 cyc	0/231	
	(M1037) AEC-Q101		Ta = -5		1000 cyc 96 hrs	0/231 0/231	
тс	(M1037) AEC-Q101 JESD22-A104		Ta = -5 130°C, 100% F	5°C to +150°C			
TC UHAST	(M1037) AEC-Q101 JESD22-A104 JESD22-A102	113	Ta = -5 130°C, 100% F 85°C, 85% RH,	5°C to +150°C H, 18.8psig, unbiased	96 hrs	0/231	
TC UHAST H3TRB	(M1037) AEC-Q101 JESD22-A104 JESD22-A102 JESD22-A101		Ta = -5 130°C, 100% F 85°C, 85% RH, MSL	5°C to +150°C H, 18.8psig, unbiased bias = 100% of rated V	96 hrs	0/231 0/231	



1000 cyc

96 hrs

1008 hrs

Test   Specification   Condition   Interval   Result     HTRB   JESD22-A108   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTGB   JESD22-A108   Ta = 175°C, 100% max rated Vgss   1008 hrs   0/231     HTGB   JESD22-A103   Ta = 175°C   1008 hrs   0/231     HTSL   JESD22-A103   Ta = 175°C   1008 hrs   0/231     IOL   (M1037)   Ta = +25°C, deltaTj = 100°C max, Ton = Toff = 2min   15000 cyc   0/231     ICC   JESD22-A104   Ta = -55°C to +150°C   1000 cyc   0/231     UHAST   JESD22-A102   130°C, 100% RH, 18.8psig, unbiased   96 hrs   0/231     H3TRB   JESD22-A101   85°C, 85% RH, bias = 100V max   1008 hrs   0/231     PC   J-STD-020 JESD-A113   MSL 1 @ 260 °C   0/924   0/920     SD   JSTD002   Ta = 265°C, 10 sec   0/90   0/90     SD   JSTD002   Ta = 245°C, 10 sec   0/45   0/45     S#   : V52960   KAGE   : V52960   KAGE   10008 h		: V52961			
HTRB   JESD22-A108   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTGB   JESD22-A103   Ta = 175°C, 100% max rated Vgss   1008 hrs   0/231     HTSL   JESD22-A103   Ta = 175°C   1008 hrs   0/231     IOL   MIL-STD-750   Ta = +25°C, deltaTj = 100°C max, AEC-Q101   15000 cyc   0/231     TC   JESD22-A104   Ta = -55°C to +150°C   1000 cyc   0/231     UHAST   JESD22-A102   130°C, 100% RH, 18.8psig, unbiased   96 hrs   0/231     HTRB   JESD22-A101   85°C, 85% RH, bias = 100V max   1008 hrs   0/231     PC   J-STD-020 JESD-A113   MSL 1 @ 260 °C   0/924   0/924     RSH   JESD22- B106   Ta = 265°C, 10 sec   0/90   0/90     SD   JSTD002   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTRB   JESD22-A108   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     S#   : V52960   :   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTRB   JESD22-A108	CKAGE				
HTGB   JESD22-A108   Ta = 175°C, 100% max rated Vgss   1008 hrs   0/231     HTGB   JESD22-A103   Ta = 175°C   1008 hrs   0/231     HTGB   JESD22-A103   Ta = 175°C   1008 hrs   0/231     IOL   (M1037)   Ta = 175°C   1008 hrs   0/231     IOL   (M1037)   Ta = +25°C, deltaTj = 100°C max, Ton = Toff = 2min   15000 cyc   0/231     TC   JESD22-A104   Ta = -55°C to +150°C   1000 cyc   0/231     UHAST   JESD22-A102   130°C, 100% RH, 18.8psig, unbiased   96 hrs   0/231     HTGB   JESD22-A101   85°C, 85% RH, bias = 100V max   1008 hrs   0/231     PC   J-STD-020 JESD-A113   MSL 1 @ 260 °C   0/924   0/924     RSH   JESD22-B106   Ta = 265°C, 10 sec   0/90   SD   JSTD002   Ta = 245°C, 10 sec   0/90     SD   JSTD002   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTRB   JESD22-A108   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTGB   JES	Test	Specification	Condition	Interval	Result
HTSL   JESD22-A103   Ta = 175 °C   1008 hrs   0/231     IOL   (M1037) AEC-Q101   Ta = +25°C, deltaTj = 100°C max, Ton = Toff = 2min   15000 cyc   0/231     TC   JESD22-A104   Ta = -55°C to +150°C   1000 cyc   0/231     UHAST   JESD22-A102   130°C, 100% RH, 18.8psig, unbiased   96 hrs   0/231     H3TRB   JESD22-A101   85°C, 85% RH, bias = 100V max   1008 hrs   0/231     H3TRB   JESD22-A101   85°C, 85% RH, bias = 100V max   1008 hrs   0/231     PC   J-STD-020 JESD-A113   MSL 1 @ 260 °C   0/924   0/924     RSH   JESD22-B106   Ta = 265°C, 10 sec   0/90   5D   JSTD002   Ta = 245°C, 10 sec   0/90     SD   JSTD002   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTRB   JESD22-A108   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTB   JESD22-A108   Ta = 175°C, cleat Tj = 100°C max,   1008 hrs   0/231     HTGB   JESD22-A103   Ta = 175°C, deltaTj = 100°C max,   1008 hrs   0/231 <td>HTRB</td> <td>JESD22-A108</td> <td>Ta = 175°C, bias = 100% of rated V</td> <td>1008 hrs</td> <td>0/231</td>	HTRB	JESD22-A108	Ta = 175°C, bias = 100% of rated V	1008 hrs	0/231
IOL   MIL-STD-750 (M1037) AEC-Q101   Ta = +25°C, deltaTj = 100°C max, Ton = Toff = 2min   15000 cyc   0/231     TC   JESD22-A104   Ta = -55°C to +150°C   1000 cyc   0/231     UHAST   JESD22-A102   130°C, 100% RH, 18.8psig, unbiased   96 hrs   0/231     H3TRB   JESD22-A101   85°C, 85% RH, bias = 100V max   1008 hrs   0/231     PC   J-STD-020 JESD-A113   MSL 1 @ 260 °C   0/924     RSH   JESD22-B106   Ta = 265°C, 10 sec   0/90     SD   JSTD002   Ta = 245°C, 10 sec   0/90     SD   JSTD002   Ta = 245°C, 10 sec   0/45     VDEVICE NAME: FGD3050G2 (EcoSpark2) MS#   : V52960   V/45     VCKAGE   : DPAK   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTRB   JESD22-A108   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTGB   JESD22-A108   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTGB   JESD22-A103   Ta = 175°C   1008 hrs   0/231     HTSL   JESD22-A103	HTGB	JESD22-A108	Ta = 175°C, 100% max rated Vgss	1008 hrs 0/	
IOL   (M1037) AEC-Q101   Ta = +25°C, deltaTj = 100°C max, Ton = Toff = 2min   15000 cyc   0/231     TC   JESD22-A104   Ta = -55°C to +150°C   1000 cyc   0/231     UHAST   JESD22-A102   130°C, 100% RH, 18.8psig, unbiased   96 hrs   0/231     H3TRB   JESD22-A101   85°C, 85% RH, bias = 100V max   1008 hrs   0/231     PC   J-STD-020 JESD-A113   MSL 1 @ 260 °C   0/924     RSH   JESD22-B106   Ta = 265°C, 10 sec   0/90     SD   JSTD002   Ta = 245°C, 10 sec   0/45     VDEVICE NAME: FGD3050G2 (EcoSpark2)   MS#   : V52960   0/45     VS#   : V52960   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTRB   JESD22-A108   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTGB   JESD22-A103   Ta = 175°C, 100% max rated Vgss   1008 hrs   0/231     HTSL   JESD22-A103   Ta = 175°C   1008 hrs   0/231     HTSL   JESD22-A103   Ta = 175°C   1008 hrs   0/231     IOL   <	HTSL	JESD22-A103	Ta = 175 °C	1008 hrs	0/231
UHAST   JESD22-A102   130°C, 100% RH, 18.8psig, unbiased   96 hrs   0/231     H3TRB   JESD22-A101   85°C, 85% RH, bias = 100V max   1008 hrs   0/231     PC   J-STD-020 JESD-A113   MSL 1 @ 260 °C   0/924     RSH   JESD22- B106   Ta = 265°C, 10 sec   0/90     SD   JSTD002   Ta = 245°C, 10 sec   0/45     V DEVICE NAME: FGD3050G2 (EcoSpark2)   MS#   : V52960     ACKAGE   : DPAK   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTRB   JESD22-A108   Ta = 175°C, 100% max rated Vgss   1008 hrs   0/231     HTGB   JESD22-A103   Ta = 175°C   1008 hrs   0/231     HTGB   JESD22-A108   Ta = 175°C, 100% max rated Vgss   1008 hrs   0/231     HTGL   JESD22-A103   Ta = 175°C   1008 hrs   0/231     HTGL   JESD22-A103   Ta = 175°C   1008 hrs   0/231     IOL   (M1037)   Ta = +25°C, deltaTj = 100°C max, Ton = Toff = 2min   15000 cyc   0/231	IOL	(M1037)	· · · · · · · · · · · · · · · · · · ·	15000 cyc	0/231
H3TRB   JESD22-A101   85°C, 85% RH, bias = 100V max   1008 hrs   0/231     PC   J-STD-020 JESD-A113   MSL 1 @ 260 °C   0/924     RSH   JESD22- B106   Ta = 265°C, 10 sec   0/90     SD   JSTD002   Ta = 245°C, 10 sec   0/90     SD   JSTD002   Ta = 245°C, 10 sec   0/45     V DEVICE NAME: FGD3050G2 (EcoSpark2)   MS#   : V52960   ACKAGE   : DPAK     Test   Specification   Condition   Interval   Result     HTRB   JESD22-A108   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTGB   JESD22-A108   Ta = 175°C, 100% max rated Vgss   1008 hrs   0/231     HTGB   JESD22-A103   Ta = 175°C   1008 hrs   0/231     HTGB   JESD22-A103   Ta = 175°C   1008 hrs   0/231     HTSL   JESD22-A103   Ta = 175°C   1008 hrs   0/231     IOL   (M1037)   Ta = +25°C, deltaTj = 100°C max, Ton = Toff = 2min   15000 cyc   0/231	тс	JESD22-A104	Ta = -55°C to +150°C	1000 cyc	0/231
PC   J-STD-020 JESD-A113   MSL 1 @ 260 °C   0/924     RSH   JESD22- B106   Ta = 265°C, 10 sec   0/90     SD   JSTD002   Ta = 245°C, 10 sec   0/45     V DEVICE NAME: FGD3050G2 (EcoSpark2)   MS#   : V52960   0/45     ACKAGE   : DPAK	UHAST	JESD22-A102	130°C, 100% RH, 18.8psig, unbiased	96 hrs	0/231
RSH   JESD22- B106   Ta = 265°C, 10 sec   0/90     SD   JSTD002   Ta = 245°C, 10 sec   0/45     V DEVICE NAME: FGD3050G2 (EcoSpark2)   MS#   : V52960     ACKAGE   : DPAK   End of the second secon	H3TRB	JESD22-A101	85°C, 85% RH, bias = 100V max	1008 hrs	0/231
SD   JSTD002   Ta = 245°C, 10 sec   0/45     V DEVICE NAME: FGD3050G2 (EcoSpark2)   MS#   : V52960   VSEC   0/45     MS#   : V52960   VSEC   VSEC   0/45   0/45     MS#   : V52960   VSEC   0/45   0/45   0/231     HTRB   JESD22-A108   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTSL   JESD22-A103   Ta = 175°C, 100% max rated Vgss   1008 hrs   0/231     HTSL   JESD22-A103   Ta = 175°C, deltaTj = 100°C max, (M1037)   15000 cyc   0/231	PC	J-STD-020 JESD-A113	MSL 1 @ 260 °C		0/924
V DEVICE NAME: FGD3050G2 (EcoSpark2)     MS#   : V52960     ACKAGE   : DPAK     Test   Specification   Condition   Interval   Result     HTRB   JESD22-A108   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTGB   JESD22-A108   Ta = 175°C, 100% max rated Vgss   1008 hrs   0/231     HTSL   JESD22-A103   Ta = 175°C   1008 hrs   0/231     IOL   MIL-STD-750 (M1037)   Ta = +25°C, deltaTj = 100°C max, Ton = Toff = 2min   15000 cyc   0/231	RSH	JESD22- B106	Ta = 265°C, 10 sec		0/90
MS# : V52960   ACKAGE : DPAK   Test Specification Condition Interval Result   HTRB JESD22-A108 Ta = 175°C, bias = 100% of rated V 1008 hrs 0/231   HTGB JESD22-A108 Ta = 175°C, 100% max rated Vgss 1008 hrs 0/231   HTSL JESD22-A103 Ta = 175°C, deltaTj = 100°C max, (M10-STD-750 Ta = +25°C, deltaTj = 100°C max, Ton = Toff = 2min 15000 cyc 0/231	SD	JSTD002	Ta = 245°C, 10 sec		0/45
HTRB   JESD22-A108   Ta = 175°C, bias = 100% of rated V   1008 hrs   0/231     HTGB   JESD22-A108   Ta = 175°C, 100% max rated Vgss   1008 hrs   0/231     HTGB   JESD22-A108   Ta = 175°C, 100% max rated Vgss   1008 hrs   0/231     HTSL   JESD22-A103   Ta = 175°C   1008 hrs   0/231     IOL   MIL-STD-750 (M1037)   Ta = +25°C, deltaTj = 100°C max, Ton = Toff = 2min   15000 cyc   0/231					
HTGB   JESD22-A108   Ta = 175°C, 100% max rated Vgss   1008 hrs   0/231     HTSL   JESD22-A103   Ta = 175°C   1008 hrs   0/231     MIL-STD-750   MIL-STD-750   Ta = +25°C, deltaTj = 100°C max, (M1037)   Ta = 175 °C   15000 cyc   0/231	MS#	: V52960			
HTSL   JESD22-A103   Ta = 175 °C   1008 hrs   0/231     IOL   MIL-STD-750 (M1037)   Ta = +25°C, deltaTj = 100°C max, Ton = Toff = 2min   15000 cyc   0/231	MS# ACKAGE	: V52960 : DPAK	Condition	Interval	Result
MIL-STD-750   Ta = +25°C, deltaTj = 100°C max,   15000 cyc   0/231     IOL   (M1037)   Ton = Toff = 2min   15000 cyc   0/231	MS# ACKAGE Test	: V52960 : DPAK Specification			<b>Result</b> 0/231
IOL (M1037) $Ta = +25^{\circ}C, deltaTj = 100^{\circ}C max,$ 15000 cyc 0/231	NS# ACKAGE Test HTRB	: V52960 : DPAK Specification JESD22-A108	Ta = 175°C, bias = 100% of rated V	1008 hrs	
	NS# ACKAGE Test HTRB HTGB	: V52960 : DPAK Specification JESD22-A108 JESD22-A108	Ta = 175°C, bias = 100% of rated V Ta = 175°C, 100% max rated Vgss	1008 hrs 1008 hrs	0/231 0/231

Ta = -55°C to +150°C

130°C, 100% RH, 18.8psig, unbiased

85°C, 85% RH, bias = 100V max

MSL 1 @ 260 °C

Ta = 265°C, 10 sec

Ta = 245°C, 10 sec

# 1. Download pdf copy of the PCN to your computer

JESD22-A104

JESD22-A102

JESD22-A101

J-STD-020 JESD-A113

JESD22- B106

JSTD002

- 2. Open the downloaded pdf copy of the PCN
- 3. Click on the paper clip icon available on the menu provided in the left/bottom portion of the screen to reveal the Attachment field
- 4. Then click on the attached file/s

NOTE: AEC-1pager is attached.

ΤС

UHAST

H3TRB

PC

RSH

SD

To view attachments:

0/231

0/231

0/231

0/924

0/90

0/45

## **ON Semiconductor®**



#### **Electrical Characteristics Summary:**

Electrical characteristics are not impacted.

#### **List of Affected Parts:**

**Note:** Only the standard (off the shelf) part numbers are listed in the parts list. Any custom parts affected by this PCN are shown in the customer specific PCN addendum in the PCN email notification, or on the **PCN Customized Portal**.

Current Part Number	New Part Number	Qualification Vehicle
FDD9510L-F085	NA	FDD9510L-F085
FGD3050G2	NA	FGD3050G2
FGD2736G3-F085	NA	FGD2736G3-F085
FDD86580-F085	NA	FDD9407-F085
FDD9407L-F085	NA	FDD9407-F085
FDD86581-F085	NA	FDD9407-F085
FDD9410L-F085	NA	FDD9407-F085
FDD86567-F085	NA	FDD9407-F085
FDD9411L-F085	NA	FDD9407-F085
FDD9409L-F085	NA	FDD9407-F085
FDD86250-F085	NA	FDD9407-F085
FDD9507L-F085	NA	FDD9407-F085
FDD9509L-F085	NA	FDD9510L-F085
FDD9511L-F085	NA	FDD9510L-F085

# Appendix A: Changed Products

# D

Product	Customer Part Number	Qualification Vehicle	New Part Number	Replacement Supplier
FDD9510L-F085		FDD9510L-F085	NA	
FDD9407L-F085		FDD9407-F085	NA	
FDD86581-F085		FDD9407-F085	NA	
FDD86567-F085		FDD9407-F085	NA	
FDD9411L-F085		FDD9407-F085	NA	
FDD9409L-F085		FDD9407-F085	NA	
FGD2736G3-F085		FGD2736G3-F085	NA	
FDD86250-F085		FDD9407-F085	NA	
FDD9507L-F085		FDD9407-F085	NA	
FDD86580-F085		FDD9407-F085	NA	
FDD9509L-F085		FDD9510L-F085	NA	
FDD9511L-F085		FDD9510L-F085	NA	