



Final Product/Process Change Notification

Document #:FPCN27054Z

Issue Date:25 Jun 2026

Title of Change:	FRD 650V Stealth diode new wafer thickness and back metal qualification									
Proposed Changed Material First Ship Date:	01 Jan 2027 or earlier if approved by customer									
Current Material Last Order Date:	N/A <i>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.</i>									
Current Material Last Delivery Date:	N/A <i>The Current Material Last Delivery Date may be subject to change based on build and depletion of the current (unchanged) material inventory</i>									
Product Category:	Active components – Discrete components									
Contact information:	Contact your local onsemi Sales Office									
PCN Samples Contact:	Contact your local onsemi Sales Office to place sample order. 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:	08 May 2026									
PPAP Availability Date:	30 Jun 2026									
Additional Reliability Data:	Contact your local onsemi Sales Office									
Type of Notification:	This is a Final Product/Process Change Notification (FPCN) sent to customers. The change will be implemented at 'Proposed Change Material First Ship Date' in compliance to J-STD-46 or ZVEI, or earlier upon customer approval, or per our signed agreements. onsemi 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									
Process - Wafer Production	SEM-PW-06: New / change of backside operation (grinding / metallization), SEM-PW-03: New final wafer thickness									
Description and Purpose: onsemi wishes to inform customers that it has qualified a new back metal composition and increased wafer thickness for the FRD 650V Stealth diode. These changes are part of onsemi's continuous improvement initiatives aimed at enhancing product performance, manufacturability, and supply chain flexibility. The following table summarizes the changes:										
	<table border="1"> <thead> <tr> <th></th><th>From</th><th>To</th></tr> </thead> <tbody> <tr> <td>Die thickness</td><td>77um</td><td>120um</td></tr> <tr> <td>Back metal composition</td><td>NiV / Ag</td><td>Ti / NiV / Ag</td></tr> </tbody> </table>		From	To	Die thickness	77um	120um	Back metal composition	NiV / Ag	Ti / NiV / Ag
	From	To								
Die thickness	77um	120um								
Back metal composition	NiV / Ag	Ti / NiV / Ag								

Reason / Motivation for Change:	Capacity improvement			
Anticipated impact on fit, form, function, reliability, product safety or manufacturability:	The device has been qualified and validated based on the same Product Specification. The device has successfully passed the qualification tests. Potential impacts can be identified, but due to testing performed by onsemi in relation to the PCN, associated risks are verified and excluded. No anticipated impacts.			
Sites Affected:				
onsemi Sites		External Foundry/Subcon Sites		
onsemi Bucheon, Korea		None		
onsemi Roznov, Czech Republic				
Marking of Parts/ Traceability of Change:	No change on marking, have the clean datecode for current wafer with old die.			
Reliability Data Summary:				
QV DEVICE NAME : FGY120T65SPD-F085 RMS : V106582 / V107649 PACKAGE : TO247				
Test	Specification	Condition	Interval	Results
High Temperature Reverse Bias	JESD22-A108	Tj=175°C, 100% max rated V	1008 hrs	0/154
High Temperature Storage Life	JESD22-A103	Ta= 175°C	1008 hrs	0/154
Intermittent Operating Life	MIL-STD-750 (M1037) AEC-Q101	Ta=+25°C, delta Tj=100°C On/off = 5min	6000 cyc	0/154
Temperature Cycling	JESD22-A104	Ta= -55°C to +150°C	1000 cyc	0/154
High Temp High Humidity Reverse Bias	JESD22-A101	85°C, 85% RH, bias	1008 hrs	0/154
Resistance to Solder Heat	JESD22- B106	Ta = 265°C, 10 sec Required for through hole devices only		0/20
Note:AEC-1pager is attached. <i>To view attachments:</i> 1. Download pdf copy of the PCN to your computer 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.				
Electrical Characteristics Summary:				
Electrical characteristics are not impacted.				



Final Product/Process Change Notification

Document #:FPCN27054Z

Issue Date:25 Jun 2026

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
FGY120T65SPD-F085	#NONE	FGY120T65SPD-F085
AFGY120T65SPD	#NONE	FGY120T65SPD-F085
AFGY160T65SPD-B4	#NONE	FGY120T65SPD-F085
FGY160T65SPD-F085	#NONE	FGY120T65SPD-F085
AFGY100T65SPD	#NONE	FGY120T65SPD-F085

PCN Product List Addendum for:

Customer Contact Name: Premier Farnell Dropbox

Customer Contact Email: productchangenotices@newark.com

Appendix A: Changed Products

PCN#: FPCN27054Z
Issue Date: Jun 25, 2026

NWKC: PREMIER FARNELL

Product	Customer Part Number	Qualification Vehicle	New Part Number	Replacement Supplier
AFGY120T65SPD	3588811	FGY120T65SPD-F085	#NONE	
FGY160T65SPD-F085	2610672	FGY120T65SPD-F085	#NONE	
AFGY100T65SPD	3588810	FGY120T65SPD-F085	#NONE	
FGY120T65SPD-F085	3253705	FGY120T65SPD-F085	#NONE	

Supplier: onsemi
 Supplier PN: FGY120T65SPD-F085
 Product Description: IGBT, 650V, 120A Field Stop, Trench With Soft Fast Recovery Diode
 Supplier Fab info: BK, Korea / CZ4, Czech Republic
 Supplier Assy info: ONSZ, China
 Reason for Qual: FPCN270542

Customer PN: -
 General Specification: AEC-Q101

Reliability Report Review: 6/7/2026
 Family Type: FS3-Stealth / TO247 AI



#	Test	Stress Name	Reference	Test Conditions	Comments	# Lots	S.S.	Results Fail/Total	Comments/ Test Results
Test Group A- Accelerated Environment Stress Tests									
A1	PC	Preconditioning	JEDS22 A113, J-STD-020	Performed on surface mount devices prior to TC, AC, H3TRB or HAST, and IOL.	MSL1 @ 260 temp	3	77	-	Not applicable for TO247 package
A2	HAST	Highly Accelerated Stress Test	JESD22 A110	130C/85%RH, ~18.8 psig, 80% max rated V up to a voltage above which arcing may occur. xxx hours		3	77	-	Refer H3TRB
A2 alt	H3TRB	High Humidity, High Temperature Reverse Bias	JEDS22 A101	85°C, 85% RH, V=100V, 1008 Hours		2	77	0/154	
A3	UHAST	Unbiased HAST	JESD22 A118	Ta=130C, 85% RH, ~18.8 psig, no bias, 96 hrs		3	77	-	
A3 alt	AC	Autoclave	JESD22 A102	Ta = 121°C, P= 15 PSIG, RH = 100%, xx Hours		3	77	-	Refer uHAST
A4	TC	Temperature Cycling	JESD22 A104	-55°C to +150°C, t(dwell)>15 min, 1000 Cycles		2	77	0/154	
A4a	TCHT	Temperature Cycling Hot Test	JESD22 A104	125C Hot Test after TC, followed by wire pull on all wires from 5 part	Non Cu wire only - Cu wire follow AEC-Q006	3	77	-	Refer TCDT
A4a ALT	TCDT	Temperature Cycling Delamination Test	JESD22 A104, J STD 035	100% C-SAM inspection after TC, followed by decap, inspection or wire pull on all wires from 5 parts for 5 highest delaminated parts.	Non Cu wire only - Cu wire follow AEC-Q006	2	22	0/44	
A5	IOL	Intermittent Operational Life	MIL-STD-750 Method 1037	Ta=25C DeltaTj=100C°, t(on)=t(off)= 5 min, 6000 Cycles		2	77	0/154	
A5 alt	PTC	Power and Temperature Cycle	JESD22 A105	Performed if IOL cannot be achieved		3	77	-	Refer IOL
Test Group B- Accelerated Lifetime Simulation Tests									
B1	HTRB	High Temperature Reverse Bias	MILSTD750-1 method M1038A	Tj= max, V=100% rated V, 1008 Hrs		2	77	0/154	JESD22 A108 , Electrical CZ data
B1a	ACBV	AC Blocking Voltage	MILSTD750-1 M1040 A	Tj=max, AC blocking V = max, xxx Hrs		3	77	-	For Thyristors only.
B1b	SSOP	Steady State Operational Life	MILSTD750-1 method M1038B	Tj= max, V=100% rated IZ max, xxx Hrs		3	77	-	For Voltage Stabilizers (Zeners) only.
B2	HTGB	High Temperature Gate Bias	JESD22 A108	Ta= max, Vgs=100% +Vgs, xxx Hrs -OR- Ta= max, Vgs=100% +/-Vgs, xxx Hrs -OR- Ta= max, Vgs=100% +Vgs, 80% -Vgs, xxx Hrs		3	77	-	Gated Devices only
Test Group C- Package Assembly Integrity Tests									
C1	DPA	DPA	AEC Q101-004 Section 4	Post H3TRB or HAST and TC		2	2	0/4	
C2	PD	Physical Dimension	JESD22 B100	Verify physical dimensions to specifications		1	30	-	
C3	WBP	Wire Bond Pull	MIL-STD-750 Method 2037	Pre & post process change		2	30	0/60	
C4	WBS	Wire Bond Shear	AEC Q101-003			2	30	0/60	
C5	DS	Die Shear	MIL-STD-750 Method 2017			2	10	0/20	
C6	TS	Terminal Strength	MIL-STD-750 Method 2036	Evaluate lead integrity on leaded parts only		1	30	-	through hole mounted devices only.
C7	RTS	Resistance to Solvents	JESD22 B107	Verify marking permanency. Not required for laser marking		1	30	-	Not for laser marked parts
C8	RSH	Resistance to Solder Heat	JESD22 B106	per AEC - Q101		2	10	0/20	through hole mounted devices only
C9	TR	Thermal Resistance	JESD-24-3, 24-4, 24-6 as appropriate	per device specification, pre & post process change		2	10	0/20	
C10	SD	Solderability	J-STD-002	50X		3	10	-	
C11	WG	Whisker Growth	JESD22-A121, JESD201	Test to be completed on family basis (plating metallization, lead configuration)		-	-	-	
C12	CA	Constant Acceleration	MIL-STD-750 Method 2006	Y1 plane, 15Kg force		1	30	-	For Cavity package only
C13	VVF	Vibration Variable Frequency	JESD22 B103	displacement 0.06" 20Hz to 100Hz and 50g peak acceleration 100Hz to 2KHz		1	30	-	For Cavity package only
C14	MS	Mechanical Shock	JESD22 B104	1500g's for 0.5ms, 5 blows, 3 orientations		1	30	-	For Cavity package only
C15	HER	Hermeticity	JESD22 A109	Fine and gross leak		1	30	-	For Hermetic pkgs only
Test Group D - Die Fabrication Reliability Tests									
D1	DI	Dielectric Integrity	AEC Q101-004 Section 3			1	5	-	MOSFET and IGBT ONLY.
Test Group E - Electrical Verification Tests									
E0	EV	External Visual	JEDS22 B101	Device construction, marking, and workmanship				Pass	
E1	TEST	Pre and post stress electrical test	Device specification			All	All	Pass	
E2	PV	Parametric Verification	per Device specification	Tested to device specification requirements across guaranteed temp range		2	25	0/50	
E3	ESDH	ESD - CDM/HBM	AEC Q101-001			3	10	-	
E4	ESDC	ESD - CDM/HBM	AEC Q101-005			3	10	-	
E5	UIS	Unclamped Inductive Switching	AEC Q101-004 Section 2			1	5	-	
E6	SC	Short Circuit Reliability	AEC Q101 - 006			3	10	-	For Smart Power parts only
Board Level Reliability									
	BLTC	Board Level Temp Cycle	IPC-9701A/JESD22-A104E	-40°C to +125°C; Duration: xxx cycles		3	60	-	For new package
	BLDT	Drop test - Duration: 1000 drops	JESD22-B111A	Duration: 1000 drops		3	45	-	For new package
	BLCBT	Cyclic Bend Test	JESD113A	200,000 cyc		3	36	-	For new package
	BLMBT	Monotonic Bend Test	IPC/JESD22-9702			3	36	-	For new package

Notes: V106582 / V107649

NOT Recommended for Military, Medical or Aerospace