

## Product Change Notice (PCN)

**Subject:** Alternate wafer fab site of Schottky Diode used in the listed Renesas HDA module

**Publication Date:** 2/11/2022

**Effective Date:** 5/8/2022

**Revision Description:**

Initial Release

**Description of Change:**

This notice is to inform you Diodes Incorporated (Diode Incorp) announced Wafer Fab production transfer from Phenitec’s ‘HQ Fab’ to ‘1st Fab’. Diode Incorp supplies Schottky Diode to Renesas Electronics Americas (REA), that is currently used for assembly of the listed Renesas HDA Module. Renesas Electronics Americas will begin to use new Schottky Diode from 1st Fab.

**Affected Device List**

ZL9006MAIRZ	ZL9010MAIRZ-T
ZL9006MAIRZ-T	ZL9010MAIRZ-TR5686
ZL9006MAIRZ-TS2490	ZL9010MAIRZ-TS2490
ZL9006MAIRZR5755	ZL9010MAIRZR5686
ZL9006MIRZ	ZL9010MIRZ
ZL9006MIRZ-T	ZL9010MIRZ-T
ZL9010MAIRZ	< blank >

**Reason for Change:**

The qualification plan for new Wafer Fab of Schottky Diode follows JEDEC and other applicable industry standards to confirm there is no impact to form, fit, function or interchangeability of the product. Qualification result of the Schottky Diode (supplier result) and Renesas HDA module are included for reference. Refer Appendix A and B.

**Impact on fit, form, function, quality & reliability:**

The change will have no impact on the form, fit, function, quality, reliability and environmental compliance of the devices.

**Product Identification:**

Product affected by this change is identifiable via Renesas’s internal traceability system.

**Qualification status:** Complete, see attached

**Sample availability:** 2/28/2022

**Device material declaration:** Available upon request

Note : Due to limited availability of sample, Sample request will subject to Renesas’s approval. Please contact local Sales Representative should any clarification be required.

Note:

1. Acknowledgement must be received by Renesas within 30 days or Renesas will consider the change as approved.
2. If timely acknowledgement is provided by Customer, then Customer shall have 90 days from the date of receipt of this PCN to make any objections to this PCN. If Customer fails to make objections to this PCN within 90 days of the receipt of the PCN then Renesas will consider the PCN changes as approved.
3. If customer cannot accept the PCN then customer must provide Renesas with a last time buy demand and purchase order.

Questions or requests pertaining to this change notice, including additional data or samples, must be sent to Renesas within 30 days of the publication date.


For additional information regarding this notice, please contact your regional change coordinator (below)			
Americas: <a href="mailto:PCN-US@renesas.com">PCN-US@renesas.com</a>	Europe: <a href="mailto:PCN-EU@renesas.com">PCN-EU@renesas.com</a>	Japan: <a href="mailto:PCN-JP@renesas.com">PCN-JP@renesas.com</a>	Asia Pac: <a href="mailto:PCN-APAC@renesas.com">PCN-APAC@renesas.com</a>

Appendix A – Diode Incorporate Schottky Diode (Component level) Qualification Results (see attached)

Category				QBS Source Device 1			
	Product	Part Number				BATS4LPS	
	Assembly	Package Type				DFN1006H4-2	
# in AEC-Q101 (D)	Test	Test Conditions	Duration / Limits	Accept on # Failed/ Sample Size per Lot	# of Lots	X = Test Needed	Results Pass/Fail
2	MSL1 Pre-conditioning	Bake 125C	24 Hrs	SMD only, for Test #7, 8, 9 & 10	3 Assembly lots	X	Pass
		Soak 85C, 85% RH	168Hrs			X	Pass
		IR reflow 260C	3 cycles			X	Pass
3	EXTERNAL VISUAL (EV)	MIL-STD-750 METHOD 2071	PER SPEC	All qualification parts submitted for testing		X	Pass
4	PARAMETRIC VERIFICATION (PV)	Test all parameters per Data Sheet including AC & DC across data sheet temperature range	Operating Range, Per Data Sheet (AC, DC)	0/25	3 wafer lots	X	Pass
	FORWARD SURGE	MIL-750D, METHOD 4066	PER DATA SHEET	0/50	3 wafer lots	X	Pass
5	HTRB	Ta=150°C or Max Tj, Vd=100%, PER MIL-STD-750-1	168 Hrs	0/77	3 wafer lots	X	Pass
			500 Hrs	0/77		X	Pass
			1000 Hrs	0/77		X	Pass
7	TC	Ta=-55C to 150C or Max Tj, PER JESD22A-104	168 Cycles	0/77	3 Assembly lots	X	Pass
			500 Cycles	0/77		X	Pass
			1000 Cycles	0/77		X	Pass
8 (alt)	PCT/AC	Ta=121°C 15PSIG 100%RH; PER JESD22-A102	96 Hrs	0/77	3 Assembly lots	X	Pass
9 alt	H3TRB	Ta=85°C, 85% RH, with 80% Maximum Reverse Bias. JESD22A-101	168 Hrs	0/77	3 wafer lots	X	Pass
			500 Hrs	0/77		X	Pass
			1000 Hrs	0/77		X	Pass
10	IOL	MIL-STD-750 Method 1037 (Not required for TVS)	2520 Cycles	0/77	3 wafer lots	X	Pass
			7560 Cycles	0/77		X	Pass
			15000 Cycles	0/77		X	Pass
11	ESD	HBM (AEC-Q101-001)	PER DATA SHEET	0/30	1 wafer lot	X	Pass
		CDM (AEC-Q101-005)	PER DATA SHEET	0/30	1 wafer lot		
12	DPA	AEC Q101-004 SEC. 4		0/2	1 Assembly lot	X	Pass
20	RESISTANCE TO SOLDER HEAT (RSH)	JESD22 A-111 (SMD), B-106 (PTH) (260C @10S)	PER SPEC	0/30	1 Assembly lot	X	Pass
21	Solderability	J-STD-002; JESD22B102 (245C +0/5S)	5 Seconds	0/10	1 Assembly lot	X	Pass
22	THERMAL RESISTANCE (TR)	JESD 24-3, 24-4, 24-6 AS APPROPRIATE	PER SPEC	0/10	1 Assembly lot	X	Pass
23	Wire Bond Strength	MIL-STD-750 METHOD 2037 (JESD22-B116B)	Cpk>1.66	0/ min of 5	1 Assembly lot	X	Pass
24	BOND SHEAR	AEC-Q101-003	Cpk>1.66	0/ min of 5	1 Assembly lot	X	Pass
25	Die Shear	MIL-STD-750 (2017)	Cpk>1.66	0/5	1 Assembly lot	X	Pass

Appendix B – Renesas HDA module Qualification Results (see attached)

Test Description	Condition	ZL9006MAIRZ 32 Lead HDA Module , 17.2mm x 11.45mm x 2.5mm Custom HDA
Hot Temperature Operating Life (HTOL)	168 hours	N=80 Acc=0
	1000 hours	N=80 Acc=0
Moisture Sensitivity Classification	Level 3	N=156 Acc=0 L3 Pb-Free
Unbias High Accelerated Stress Test +130°C / 85% RH	96 hours	N=78 Acc=0 L3 Pb-Free
Hot Temperature Storage (HTS) +150°C	48 hours	N=80 Acc=0
	500 hours	N=80 Acc=0
	1000 hours	N=80 Acc=0
Temperature Cycling Test (TCT) -55°C / +125°C	200 cycles	N=78 Acc=0
	500 cycles	N=78 Acc=0

 Completed and Passed