PRODUCT CHANGE NOTIFICATION

PCN-000967

Date 13MAY2024

Change Details

Part Number(s) Affected:

RCLAMP0502A.TCT
RCLAMP0821P.TCT
RCLAMP0504N.TCT

Customer Part Number(s) Affected: ☒ N/A

Description, Purpose and Effect of Change:

This notification is to inform you that Semtech qualified:

a. **8 inch wafers for production of RClamp0502A.TCT and RClamp0504N.TCT Manufacturing flows, and**
b. **Towerjazz/ Greatek/Greatek Manufacturing flow for RCLAMP0821P.TCT**

Manufacturing flow for each part is charted below:

SPN	MFG Flow	FAB	Assembly	Test
RCLAMP0502A.TCT	POR	ASMC 5"	Diodes	Diodes
	New	ASMC 8"	No Change	No Change
RCLAMP0504N.TCT	POR	ASMC 5"	Diodes	Diodes
	New	ASMC 8"	No Change	No Change
RCLAMP0821P.TCT	POR	ASMC 5"	Diodes	Diodes
	New	TJT 8" USA	Greatek, TW	Greatek, TW

Change Classification	☒ **Major** ☐ **Minor**	**Impact to Form, Fit, Function**	☐ **Yes** ☒ **No**
Impact to Data Sheet	☐ **Yes** ☒ **No**	**New Revision or Date**	☒ **N/A**

Impact to Performance, Characteristics or Reliability:

- There is no impact to form, fit, function, performance, characteristics, or reliability of package.

Implementation Date	**12AUG2024**	**Work Week**	**TBA**
Last Time Ship (LTS) Of unchanged product	**N/A**	**Affecting Lot No. / Serial No. (SN)**	**N/A**
Sample Availability	**Immediate**	**Qualification Report Availability**	**Attached to Notification**

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Supporting Documents for Change Validation/Attachments:

- **RClamp0502A Reliability Report n Characterization Summary.r0 - Included**
- **RC0504N Reliability Report n Characterization Summary.r0 - Included**
- **RC0821P Reliability Report n Characterization Summary.r0 - Included**

Quality Assurance		
Semtech Business Unit	Protection	
Semtech Contact Info:	Name: Les Fang Yuen Email: lfangyuen@semtech.com Phn: +1 949-269-4443	
FOR FURTHER INFORMATION & WORLDWIDE SALES COVERAGE: http://www.semtech.com/contact/index.html#support		

RCLAMP0502A.TCT.P1 8IN WAFER QUAL	
Semtech Job#	7868
Accepted Date	07-10-2023
Job Type	5in to 8in conversion
Qualification Standard	JESD47
Business Unit	Protection
Package Type	SC89
Package Lead	6
Assembly Designator	Diode Inc
Master Process	21L
Fab Designator	ASMC21TVS
Rel Job Status	Rel Testing Complete Passes All Requirements

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Completed Tasks

Sub Lot #	Part	Lot	Assembly Lot	Date Code
1	RClamp0502A.TCT.P1	*	AER-009909	*

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
1	Data-Prep	None	None	0	09-08-2023
2	HTRB_Pre_Elect	77	Pass on Zero Fails	0	09-13-2023
3	HTRB_BD_Validation	77	Meet HTRB Schematics	0	09-12-2023
4	HTRB_150°C_0072	77	Pass on Zero Fails	0	09-15-2023
5	HTRB_150°C _0408	77	Pass on Zero Fails	0	09-18-2023
6	HTS_Pre_Elect	77	Pass on Zero Fails	0	09-13-2023
7	HTS_0168	77	Pass on Zero Fails	0	09-13-2023
8	HTS_1000	77	Pass on Zero Fails	0	09-20-2023
9	ROSE Clean/ Test	154	Pass on Zero Fails	0	09-12-2023
10	Pre_Elect_Precond	154	Pass on Zero Fails	0	09-19-2023
11	Precond_Temp_Cyc_5cyc	154	Pass on Zero Fails	0	09-19-2023
12	Precond_HTS_24hr	154	Pass on Zero Fails	0	09-19-2023
13	Precond_85/85_NoElec168hr	154	Pass on Zero Fails	0	09-20-2023
14	Precond_IR_Refl_Char	154	Pass on Zero Fails	0	09-27-2023
15	T/C_Pre_Elect	77	Pass on Zero Fails	0	09-27-2023
16	T/C_wPre_0500	77	Pass on Zero Fails	0	09-27-2023
17	T/C_wPre_1000	77	Pass on Zero Fails	0	10-09-2023
18	85°C/85%RH_W/Pre_Pre Elec	77	Pass on Zero Fails	0	09-27-2023
19	85°C/85%RH_BD_Valid	77	Pass on Zero Fails	0	09-18-2023
20	85°C/85%RH_Biased_168hrs	77	Pass on Zero Fails	0	09-27-2023
21	85°C/85%RH_Biased_500hrs	77	Pass on Zero Fails	0	10-04-2023

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Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
22	85°C/85%RH_Biased_1000hrs	77	Pass on Zero Fails	0	10-18-2023
23	Pack_Clos	0	0	0	11-13-2023

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Rclamp0502A Characterization Summary

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Char. Summary

RC0502A

Parameter	Symbol	Conditions		Units	Min.	Typ.	Max.	AER-9909 Ave.	POR_5" POR
Reverse Stand-Off Voltage	V_{RWM}	L-G, L-L		V			5		
Reverse Breakdown Voltage	V_{BR}	I_t = 1mA, L-G		V	6			8.51	7.74
Reverse Leakage Current	I_R	V_{RWM} = 5V, L-G or L-L		nA			1000	4.85	14
Clamping Voltage	V_C	tp = 8/20µs	I_{PP} = 1A, L-G	V			14	9.81	10.7
			I_{PP} = 3A, L-G				16	11.6	13.7
			I_{PP} = 3A, L-L				18	15.35	15.6
Junction Capacitance	C_J	Vr =0V, f = 1MHz	L-G	pF			0.9	0.513	0.87
			L-L			0.3	0.7	0.234	0.40
Peak Pulse Current (tp = 8/20µs)	I_{PP}			A			3	9	8.5
ESD per IEC 61000-4-2 (Contact)	V_{ESD} (L-G)			kV			±15	±29	±20
ESD per IEC 61000-4-2 (Air)							±20	±30	±30

Source: RClamp0502A Characterization Report AER-009909

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RCLAMP0504N 8IN WAFER QUAL

Semtech Job#	6885
Accepted Date	03-18-2019
Job Type	5in to 8in conversion
Qualification Standard	JESD47
Business Unit	Protection
Package Type	SLP2020P6
Package Lead	6
Assembly Designator	Diode Inc
Master Process	21L
Fab Designator	ASMC21TVS
Rel Job Status	Rel Testing Complete Passes All Requirements

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Completed Tasks

Sub Lot #	Part	Lot	Assembly Lot	Date Code
1	RClamp0504N	AER5790	AER5790	1909

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
1	Data-Prep	None	None	0	03-26-2019
2	HTRB_Pre_Elect_150°C_RT24	105	Pass on Zero Fails	0	03-28-2019
3	HTRB_150°C_Real Time_0024	105	Pass on Zero Fails	0	04-02-2019
4	HTRB Pre Ele 150°C RT24 B	105	Pass on Zero Fails	0	04-03-2019
5	HTRB_Pre_Elect	105	Pass on Zero Fails	0	03-28-2019
6	BI_BD_Valid	105	Meet HTOL Schematics	0	03-28-2019
7	HTRB_150°C_0072	105	Pass on Zero Fails	0	03-29-2019
8	HTRB_150°C _0408	105	Pass on Zero Fails	0	04-01-2019
9	HTS_Pre_Elect	77	Pass on Zero Fails	0	03-27-2019
10	HTS_0168	77	Pass on Zero Fails	0	03-27-2019
11	HTS_0500	77	Pass on Zero Fails	0	04-03-2019
12	HTS_1000	77	Pass on Zero Fails	0	04-17-2019
13	ROSE Clean/ Test	174	Pass on Zero Fails	0	03-27-2019
14	85°C/85%RH_N/Pre_Pre Elec	20	Pass with 0 fail	0	03-28-2019
15	85°C/85%RH_BD_Valid	20	Pass on Zero Fails	0	03-28-2019
16	85/85_120hr_On/Off	20	Pass on Zero Fails	0	03-28-2019
17	Pre_Conditioning_Level_1	NA	MSL 1	0	05-18-2023
18	Pre_Elect_Precond	154	Pass on Zero Fails	0	03-27-2019
19	Precond_Temp_Cyc_5cyc	154	Pass on Zero Fails	0	03-27-2019
20	Precond_HTS_24hr	154	Pass on Zero Fails	0	03-27-2019
21	Precond_85/85_NoElec168hr	154	Pass on Zero Fails	0	03-28-2019

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
22	Precond_260°C_IR_Ref_Char	154	Pass on Zero Fails	0	04-04-2019
23	T/C_Pre_Elect	77	Pass on Zero Fails	0	04-04-2019
24	T/C_wPre_0250	77	Pass on Zero Fails	0	04-04-2019
25	T/C_wPre_0500	77	Pass on Zero Fails	0	04-10-2019
26	T/C_wPre_1000	77	Pass on Zero Fails	0	04-15-2019
27	Cross_Section TC 1000 Cyc	5	Pass on Zero Fails	0	04-25-2019
28	85°C/85%RH_W/Pre_Pre Elec	77		0	04-04-2019
29	85°C/85%RH_BD_Valid	105	Pass on Zero Fails	0	04-05-2019
30	85°C/85%RH_Biased_168hrs	77	Pass on Zero Fails	0	04-05-2019
31	85°C/85%RH_Biased_500hrs	77	Pass on Zero Fails	0	04-12-2019
32	85°C/85%RH_Biased_1000hrs	77	Pass on Zero Fails	0	04-26-2019
33	Cross_Section 85°C/85%RH	5	Pass on Zero Fails	0	05-17-2019
34	CSAM Analysis	22	Pass on Zero Fails	0	04-02-2019
35	Precond_Temp_Cyc_5cyc	22	Pass on Zero Fails	0	04-03-2019
36	Precond_HTS_24hr	22	Pass on Zero Fails	0	04-03-2019
37	Precond_85/85_NoElec168hr	22	Pass on Zero Fails	0	04-04-2019
38	Precond_260°C_IR_Ref_Char	22	Pass on Zero Fails	0	04-11-2019
39	CSAM Analysis	22	Pass on Zero Fails	0	04-12-2019
40	Pack_Clos	0	0	0	05-20-2019

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RClamp0504N
5” to 8” Characterization Summary

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Char. Summary

RClamp0504N								6885.2 POR Ave.	6885.1 AER-5790 Ave.
Parameter	**Symbol**	**Conditions**		**Units**	**Min.**	**Typ.**	**Max.**		
Reverse Stand-Off Voltage	V_{RWM}	Pin 5 to 2		V			5		
Reverse Breakdown Voltage	V_{BR}	I_{BR} = 1mA, Pin 5 to 2		V	6			7.69	8.41
Reverse Leakage Current	I_R	V_{RWM} = 5V, Pin 5 to 2		uA			5	<0.1	<0.1
Forward Voltage	V_F	I_F = 15mA		V			1.2	0.77	0.86
Clamping Voltage	V_C	tp = 8/20µs Line-Ground	I_{PP} = 1A	V			12.5	9.8	8.9
			I_{PP} = 5A				17.5	13.6	9.8
Junction Capacitance	C_J	Vr =0V, f = 1MHz , Line-Ground		pF		3	5	2.9	2.7
		Vr =0V, f = 1MHz , Line-Line				1.5		1.4	1.3
Peak Pulse Current (tp = 8/20µs)	I_{PP}			A			12	20	22
ESD per IEC 61000-4-2 (Contact)	V_{ESD}			kV			±8	±30	±30
ESD per IEC 61000-4-2 (Air)							±15	±30	±30

Source: RC0504N AER-5790 vs POR Characterization

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RCLAMP0821P.TCT.P2	
Semtech Job#	7566
Accepted Date	02-10-2022
Job Type	New Device Qual
Qualification Standard	JESD47
Business Unit	Protection
Package Type	SLF1006N2P
Package Lead	2
Assembly Designator	Greatek
Master Process	PALM E
Fab Designator	TJT
Rel Job Status	Rel Testing Complete Passes All Requirements

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Completed Tasks

Sub Lot #	Part	Lot	Assembly Lot	Date Code
1	RCLAMP0821P.TCT.P2	AER-008784	AER-008784	1

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
1	Data-Prep	None	None	0	03-14-2022
2	HTRB_Pre_Elect_150°C_RT24	105	Pass on Zero Fails	0	03-29-2022
3	HTRB_150°C_Real Time_0024	105	Pass on Zero Fails	0	03-30-2022
4	HTRB_Pre_Elect	105	Pass on Zero Fails	0	04-01-2022
5	BI_BD_Valid	105	Meet HTOL Schematics	0	03-14-2022
6	HTRB_150°C_0072	105	Pass on Zero Fails	0	04-01-2022
7	HTRB_150°C _0408	105	Pass on Zero Fails	0	04-04-2022
8	HTS_Pre_Elect	77	Pass on Zero Fails	0	03-15-2022
9	HTS_0168	77	Pass on Zero Fails	0	03-15-2022
10	HTS_0500	77	Pass on Zero Fails	0	03-18-2022
11	HTS_1000	77	Pass on Zero Fails	0	04-01-2022
12	ROSE Clean/ Test	251	Pass on Zero Fails	0	03-14-2022
13	85°C/85%RH_N/Pre_Pre Elec	20	Pass with 0 fail	0	03-14-2022
14	85°C/85%RH_BD_Valid	20	Pass on Zero Fails	0	03-17-2022
15	85/85_120hr_On/Off	20	Pass on Zero Fails	0	03-17-2022
16	Pre_Conditioning_Level_1	NA	MSL 1	0	03-14-2022
17	Pre_Elect_Precond	231	Pass on Zero Fails	0	03-14-2022
18	Precond_Temp_Cyc_5cyc	231	Pass on Zero Fails	0	03-14-2022
19	Precond_HTS_24hr	231	Pass on Zero Fails	0	03-14-2022
20	Precond_85/85_NoElec168hr	231	Pass on Zero Fails	0	03-15-2022
21	Precond_260°C_IR_Ref_Char	231	Pass on Zero Fails	0	03-22-2022

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Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
22	T/C_Pre_Elect	77	Pass on Zero Fails	0	03-22-2022
23	T/C_wPre_0250	77	Pass on Zero Fails	0	03-22-2022
24	T/C_wPre_0500	77	Pass on Zero Fails	0	03-28-2022
25	T/C_wPre_1000	77	Pass on Zero Fails	0	04-04-2022
26	HAST Pre_Elect	77	Pass on Zero Fails	0	03-22-2022
27	HAST_BD_Validation	N/A	Pass on Zero Fails	0	03-22-2022
28	HAST_wPRE_264 Hrs 110°C	77	Pass on Zero Fails	0	03-23-2022
29	HAST Pre_Elect	77	Pass on Zero Fails	0	03-22-2022
30	HAST_unbias_264hrs_110°C	77	Pass on Zero Fails	0	03-23-2022
31	Pack_Clos	0	0	0	04-25-2022

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RClamp0821P.TCT Characterization Summary

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Char. Summary

RClamp0821P								AER-8784	POR
Parameter	**Symbol**	**Conditions**		**Units**	**Min.**	**Typ.**	**Max.**	**Ave.**	**POR**
Reverse Stand-Off Voltage	V_{RWM}			V			8		
Reverse Breakdown Voltage	V_{BR}	I_{BR} = 1mA		V	10			**13.7**	**15.3**
Reverse Leakage Current	I_R	V_{RWM} = 8V		uA			1	**0.17**	**0.04**
Clamping Voltage	V_C	tp = 8/20µs	I_{PP} = 1A	V			20	**14.7**	**17.9**
			I_{PP} = 4A				25	**17.3**	**23.1**
Junction Capacitance	C_J	Vr =0V, f = 1MHz		pF		0.3	0.5	**0.35**	**0.32**
Peak Pulse Current (tp = 8/20µs)	I_{PP}			A			4	**5.4**	**5.5**
ESD per IEC 61000-4-2 (Contact)	V_{ESD}			kV			±8	**±17**	**±8**
ESD per IEC 61000-4-2 (Air)							±15	**±22**	**±27**

Source: RC0821P AER-8784 Characterization

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