



PRODUCT CHANGE NOTIFICATION

PCN-000944

Date 31MAR2024

Change Details			
Part Number(s) Affected: RClamp0504S.TCT RClamp0554S.TCT RClamp3354S.TCT		Customer Part Number(s) Affected: ☒ N/A	
Description, Purpose and Effect of Change: Semtech has qualified additional manufacturing capacity for above Protection Products at Huatian [Tian Shui] Electronics Co, Ltd, China.			
Line	Description	POR	Added
1.	FAB	ASMC, Shanghai	ASMC, Shanghai
2.	Assembly	Diodes, Shanghai	Hua Tian, Tian Shui
2a.	Wire Bond Material	Au	Cu
3.	Test	Diodes, Shanghai	Hua Tian, Tian Shui
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 devices			
Implementation Date	1JUL2024	Work Week	TBA
Last Time Ship (LTS) Of unchanged product	Does not Apply	Affecting Lot No. / Serial No. (SN)	N/A
Sample Availability	Immediate	Qualification Report	Attached to Notification
Supporting Documents for Change Validation/Attachments: - RJ#7817 - Test Char Reports			



PRODUCT CHANGE NOTIFICATION

PCN-000944

Date 31MAR2024

Quality Assurance		
Semtech Business Unit	Protection	
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FOR FURTHER INFORMATION & WORLDWIDE SALES COVERAGE: http://www.semtech.com/contact/index.html#support		

SOT23 PACKAGE SECOND SOURCE QUAL AT HTTS

Semtech Job#	7817
Accepted Date	03-22-2023
Job Type	package second source Qual
Qualification Standard	JESD47
Business Unit	Protection
Package Type	SOT-23
Package Lead	
Assembly Designator	Huatian Tianshui
Master Process	-
Fab Designator	-
Rel Job Status	Rel Testing Complete Passes All Requirements

Note : RClamp0554S is qualified by similarity

Completed Tasks

Sub Lot #		Part	Lot	Assembly Lot		Date Code	
1		RClamp0504S	*	AER-009776		2315	
Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual	Task Off Actual	Comments
1	Data-Prep	None	None	0	05-31-2023	05-31-2023	
2	Cross_Section T0	5	No Major Findings, Q&R to review construction analysis report.	0	06-05-2023	06-05-2023	
3	HTRB_Pre_Elect	105	Pass on Zero Fails	0	06-05-2023	06-05-2023	
4	HTRB_BD_Validation	105	Meet HTRB Schematics	0	06-05-2023	06-05-2023	
5	HTRB_150°C_0072	105	Pass on Zero Fails	0	06-05-2023	06-08-2023	
6	HTRB_150°C_0408	105	Pass on Zero Fails	0	06-08-2023	06-22-2023	
7	HTS_Pre_Elect	77	Pass on Zero Fails	0	06-01-2023	06-01-2023	
8	HTS_0168	77	Pass on Zero Fails	0	06-01-2023	06-08-2023	
9	HTS_0500	77	Pass on Zero Fails	0	06-08-2023	06-22-2023	
10	HTS_1000	77	Pass on Zero Fails	0	06-22-2023	07-13-2023	
11	ROSE Clean/ Test	154	Pass on Zero Fails	0	06-05-2023	06-05-2023	
12	Pre_Elect_Precond	154	Pass on Zero Fails	0	06-06-2023	06-06-2023	
13	Precond_Temp_Cyc_5cyc	154	Pass on Zero Fails	0	06-06-2023	06-06-2023	
14	Precond_HTS_24hr	154	Pass on Zero Fails	0	06-06-2023	06-07-2023	
15	Precond_85/85_NoElec168hr	154	Pass on Zero Fails	0	06-07-2023	06-14-2023	
16	Precond_IR_Refl_Char	154	Pass on Zero Fails	0	06-14-2023	06-15-2023	
17	T/C_Pre_Elect	77	Pass on Zero Fails	0	06-16-2023	06-16-2023	
18	T/C_wPre_0250	77	Pass on Zero Fails	0	06-16-2023	06-21-2023	
19	T/C_wPre_0500	77	Pass on Zero Fails	0	06-21-2023	06-27-2023	
20	Cross_Section TC 500 Cyc	5	Pass on Zero Fails	0	06-27-2023	06-27-2023	

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual	Task Off Actual	Comments
21	T/C_wPre_1000	77	Pass on Zero Fails	0	06-27-2023	07-10-2023	
22	85°C/85%RH_W/Pre_Pre Elec	77	Pass on Zero Fails	0	06-16-2023	06-16-2023	
23	85°C/85%RH_BD_Valid	77	Pass on Zero Fails	0	06-12-2023	06-12-2023	
24	85°C/85%RH_Biased_168hrs	77	Pass on Zero Fails	0	06-16-2023	06-23-2023	
25	85°C/85%RH_Biased_500hrs	77	Pass on Zero Fails	0	06-23-2023	07-10-2023	
26	85°C/85%RH_Biased_1000hrs	77	Pass on Zero Fails	0	07-10-2023	07-28-2023	
27	CSAM Analysis	22	Pass on Zero Fails	0	06-15-2023	06-15-2023	
28	Precond_Temp_Cyc_5cyc	22	Pass on Zero Fails	0	06-15-2023	06-15-2023	
29	Precond_HTS_24hr	22	Pass on Zero Fails	0	06-15-2023	06-16-2023	
30	Precond_85/85_NoElec168hr	22	Pass on Zero Fails	0	06-16-2023	06-23-2023	
31	Precond_260°C_IR_Ref_Char	22	Pass on Zero Fails	0	06-23-2023	06-23-2023	
32	CSAM Analysis	22	Pass on Zero Fails	0	06-23-2023	06-23-2023	
33	Pack_Clos	0	0	0	07-31-2023	07-31-2023	

Sub Lot #	Part	Lot	Assembly Lot	Date Code
2	RClamp3354S	*	AER-009777	2315

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual	Task Off Actual	Comments
1	Data-Prep	None	None	0	06-08-2023	06-08-2023	
2	HTRB_Pre_Elect	105	Pass on Zero Fails	0	06-09-2023	06-09-2023	
3	HTRB_BD_Validation	105	Meet HTRB Schematics	0	06-08-2023	06-08-2023	
4	HTRB_150°C_0072	105	Pass on Zero Fails	0	06-09-2023	06-12-2023	
5	HTRB_150°C_0408	105	Pass on Zero Fails	0	06-12-2023	06-28-2023	
6	HTS_Pre_Elect	77	Pass on Zero Fails	0	06-09-2023	06-09-2023	
7	HTS_0168	77	Pass on Zero Fails	0	06-09-2023	06-15-2023	
8	HTS_0500	77	Pass on Zero Fails	0	06-15-2023	06-29-2023	
9	HTS_1000	77	Pass on Zero Fails	0	06-29-2023	07-20-2023	
10	ROSE Clean/ Test	154	Pass on Zero Fails	0	06-12-2023	06-12-2023	

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual	Task Off Actual	Comments
11	Pre_Elect_Precond	154	Pass on Zero Fails	0	06-13-2023	06-13-2023	
12	Precond_Temp_Cyc_5cyc	154	Pass on Zero Fails	0	06-13-2023	06-13-2023	
13	Precond_HTS_24hr	154	Pass on Zero Fails	0	06-13-2023	06-14-2023	
14	Precond_85/85_NoElec168hr	154	Pass on Zero Fails	0	06-14-2023	06-21-2023	
15	Precond_IR_Refl_Char	154	Pass on Zero Fails	0	06-21-2023	06-21-2023	
16	T/C_Pre_Elect	77	Pass on Zero Fails	0	06-21-2023	06-21-2023	
17	T/C_wPre_0250	77	Pass on Zero Fails	0	06-21-2023	06-28-2023	
18	T/C_wPre_0500	77	Pass on Zero Fails	0	06-28-2023	07-05-2023	
19	Cross_Section TC 500 Cyc	5	Pass on Zero Fails	0	07-05-2023	07-06-2023	
20	T/C_wPre_1000	77	Pass on Zero Fails	0	07-05-2023	07-11-2023	
21	85°C/85%RH_W/Pre_Pre Elec	77	Pass on Zero Fails	0	06-21-2023	06-21-2023	
22	85°C/85%RH_BD_Valid	77	Pass on Zero Fails	0	06-20-2023	06-20-2023	
23	85°C/85%RH_Biased_168hrs	77	Pass on Zero Fails	0	06-21-2023	06-28-2023	
24	85°C/85%RH_Biased_500hrs	77	Pass on Zero Fails	0	06-28-2023	07-12-2023	
25	85°C/85%RH_Biased_1000hrs	77	Pass on Zero Fails	0	07-12-2023	08-02-2023	
26	CSAM Analysis	22	Pass on Zero Fails	0	06-19-2023	06-19-2023	
27	Precond_Temp_Cyc_5cyc	22	Pass on Zero Fails	0	06-19-2023	06-19-2023	
28	Precond_HTS_24hr	22	Pass on Zero Fails	0	06-19-2023	06-20-2023	
29	Precond_85/85_NoElec168hr	22	Pass on Zero Fails	0	06-20-2023	06-27-2023	
30	Precond_260°C_IR_Ref_Char	22	Pass on Zero Fails	0	06-27-2023	06-27-2023	
31	CSAM Analysis	22	Pass on Zero Fails	0	06-27-2023	06-27-2023	
32	Pack_Clos	0	0	0	08-07-2023	08-07-2023	

Sub Lot #		Part		Lot	Assembly Lot			Date Code	
3		SM712		*	AER-009778			2317	
Task#	Task Code		Sample Size	Criteria		Failures	Task On Actual	Task Off Actual	Comments
1	Data-Prep		None	None		0	06-22-2023	06-22-2023	

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual	Task Off Actual	Comments
2	HTRB_Pre_Elect	210	Pass on Zero Fails	0	06-27-2023	06-27-2023	
3	HTRB_BD_Validation	210	Meet HTRB Schematics	0	06-23-2023	06-23-2023	
4	HTRB_150°C_0072	210	Pass on Zero Fails	0	06-27-2023	06-30-2023	
5	HTRB_150°C_0408	210	Pass on Zero Fails	0	06-30-2023	07-14-2023	
6	HTS_Pre_Elect	77	Pass on Zero Fails	0	06-26-2023	06-26-2023	
7	HTS_0168	77	Pass on Zero Fails	0	06-26-2023	07-06-2023	
8	HTS_0500	77	Pass on Zero Fails	0	07-06-2023	07-20-2023	
9	HTS_1000	77	Pass on Zero Fails	0	07-20-2023	08-10-2023	
10	ROSE Clean/ Test	231	Pass on Zero Fails	0	07-05-2023	07-05-2023	
11	Pre_Elect_Precond	231	Pass on Zero Fails	0	07-10-2023	07-10-2023	
12	Precond_Temp_Cyc_5cyc	231	Pass on Zero Fails	0	07-10-2023	07-10-2023	
13	Precond_HTS_24hr	231	Pass on Zero Fails	0	07-10-2023	07-11-2023	
14	Precond_85/85_NoElec168hr	231	Pass on Zero Fails	0	07-11-2023	07-18-2023	
15	Precond_IR_Refl_Char	231	Pass on Zero Fails	0	07-18-2023	07-18-2023	
16	T/C_Pre_Elect	77	Pass on Zero Fails	0	07-18-2023	07-18-2023	
17	T/C_wPre_0250	77	Pass on Zero Fails	0	07-18-2023	07-24-2023	
18	T/C_wPre_0500	77	Pass on Zero Fails	0	07-24-2023	07-31-2023	
19	Cross_Section TC 500 Cyc	15	Pass on Zero Fails	0	07-31-2023	07-31-2023	
20	T/C_wPre_1000	77	Pass on Zero Fails	0	07-31-2023	08-14-2023	
21	85°C/85%RH_W/Pre_Pre Elec	154	Pass on Zero Fails	0	07-18-2023	07-18-2023	
22	85°C/85%RH_BD_Valid	154	Pass on Zero Fails	0	06-30-2023	06-30-2023	
23	85°C/85%RH_Biased_168hrs	154	Pass on Zero Fails	0	07-18-2023	07-25-2023	
24	85°C/85%RH_Biased_500hrs	154	Pass on Zero Fails	0	07-25-2023	08-09-2023	
25	85°C/85%RH_Biased_1000hrs	154	Pass on Zero Fails	0	08-09-2023	08-29-2023	
26	CSAM Analysis	22	Pass on Zero Fails	0	07-10-2023	07-10-2023	
27	Precond_Temp_Cyc_5cyc	22	Pass on Zero Fails	0	07-10-2023	07-10-2023	
28	Precond_HTS_24hr	22	Pass on Zero Fails	0	07-10-2023	07-11-2023	
29	Precond_85/85_NoElec168hr	22	Pass on Zero Fails	0	07-11-2023	07-18-2023	
30	Precond_260°C_IR_Ref_Char	22	Pass on Zero Fails	0	07-18-2023	07-18-2023	
31	CSAM Analysis	22	Pass on Zero Fails	0	07-18-2023	07-18-2023	

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual	Task Off Actual	Comments
32	Pack_Clos	0	0	0	08-31-2023	08-31-2023	Completed

Sub Lot #	Part	Lot	Assembly Lot	Date Code
4	SM712	*	AER-009779	2317

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual	Task Off Actual	Comments
1	Data-Prep	None	None	0	06-22-2023	06-22-2023	
2	HTRB_Pre_Elect	210	Pass on Zero Fails	0	06-27-2023	06-27-2023	
3	HTRB_BD_Validation	105	Meet HTRB Schematics	0	06-23-2023	06-23-2023	
4	HTRB_150°C_0072	210	Pass on Zero Fails	0	06-27-2023	06-30-2023	
5	HTRB_150°C_0408	210	Pass on Zero Fails	0	06-30-2023	07-14-2023	
6	HTS_Pre_Elect	77	Pass on Zero Fails	0	06-26-2023	06-26-2023	
7	HTS_0168	77	Pass on Zero Fails	0	06-26-2023	07-06-2023	
8	HTS_0500	77	Pass on Zero Fails	0	07-06-2023	07-25-2023	
9	HTS_1000	77	Pass on Zero Fails	0	07-25-2023	08-15-2023	
10	ROSE Clean/ Test	231	Pass on Zero Fails	0	07-05-2023	07-05-2023	
11	Pre_Elect_Precond	231	Pass on Zero Fails	0	07-10-2023	07-10-2023	
12	Precond_Temp_Cyc_5cyc	231	Pass on Zero Fails	0	07-10-2023	07-10-2023	
13	Precond_HTS_24hr	231	Pass on Zero Fails	0	07-10-2023	07-11-2023	
14	Precond_85/85_NoElec168hr	231	Pass on Zero Fails	0	07-11-2023	07-18-2023	
15	Precond_IR_Refl_Char	231	Pass on Zero Fails	0	07-18-2023	07-18-2023	
16	T/C_Pre_Elect	77	Pass on Zero Fails	0	07-18-2023	07-18-2023	

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual	Task Off Actual	Comments
17	T/C_wPre_0250	77	Pass on Zero Fails	0	07-18-2023	07-25-2023	
18	T/C_wPre_0500	77	Pass on Zero Fails	0	07-25-2023	08-01-2023	
19	Cross_Section TC 500 Cyc	15	Pass on Zero Fails	0	08-01-2023	08-02-2023	
20	T/C_wPre_1000	77	Pass on Zero Fails	0	08-01-2023	08-14-2023	
21	85°C/85%RH_W/Pre_Pre Elec	154	Pass on Zero Fails	0	07-18-2023	07-18-2023	
22	85°C/85%RH_BD_Valid	154	Pass on Zero Fails	0	06-30-2023	06-30-2023	
23	85°C/85%RH_Biased_168hrs	154	Pass on Zero Fails	0	07-18-2023	07-25-2023	
24	85°C/85%RH_Biased_500hrs	154	Pass on Zero Fails	0	07-25-2023	08-08-2023	
25	85°C/85%RH_Biased_1000hrs	154	Pass on Zero Fails	0	08-08-2023	08-29-2023	
26	CSAM Analysis	22	Pass on Zero Fails	0	07-10-2023	07-10-2023	
27	Precond_Temp_Cyc_5cyc	22	Pass on Zero Fails	0	07-10-2023	07-10-2023	
28	Precond_HTS_24hr	22	Pass on Zero Fails	0	07-10-2023	07-11-2023	
29	Precond_85/85_NoElec168hr	22	Pass on Zero Fails	0	07-11-2023	07-18-2023	
30	Precond_260°C_IR_Ref_Char	22	Pass on Zero Fails	0	07-18-2023	07-18-2023	
31	CSAM Analysis	22	Pass on Zero Fails	0	07-18-2023	07-18-2023	
32	Pack_Clos	0	0	0	08-31-2023	08-31-2023	



PCN-000944 HTTS ASSEMBLY
QUALIFICATION
CHARACTERIZATION SUMMARY
REPORT

1/18/24

RClamp0504S Characterization Summary

RClamp0504S							HTTS Assembly	Diodes Assembly
Parameter	Symbol	Conditions	Units	Min.	Typ.	Max.	Ave.	
Reverse Stand-Off Voltage	V_{RWM}	Pin 5 to 2	V			5		
Reverse Breakdown Voltage	V_{BR}	$I_{BR} = 1\text{mA}$, Pin 5 to 2	V	6			8.25	7.87
Reverse Leakage Current	I_R	$V_{RWM} = 5\text{V}$, $T = 25\text{C}$, Pin 5 to 2	uA			3	0.005	0.006
Clamping Voltage	V_C	$t_p = 8/20\mu\text{s}$ I/O to GND	V			15	9.4	11.7
						25	11.8	19.4
Junction Capacitance	C_J	$V_r = 0\text{V}$, $f = 1\text{MHz}$	pF			3	1.41	1.10
						1.5	0.64	0.47
Peak Pulse Current ($t_p = 8/20\mu\text{s}$)		I_{PP}	A			6	13	8
ESD per IEC 61000-4-2 (Contact)		V_{ESD}	kV			± 8	± 30	± 20
ESD per IEC 61000-4-2 (Air)						± 15	± 30	± 30

RClamp0554S Characterization Summary

RClamp0554S							HTTS Assembly	Diodes Assembly	
Parameter	Symbol	Conditions		Units	Min.	Typ.	Max.	Ave.	Ave.
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			7.64	8.20
Reverse Leakage Current	I _R	V _{RWM} = 5V , T = 25C, Pin 5 to 2		uA			0.5	0.039	0.041
Clamping Voltage	V _C	tp = 8/20μs Any I/O to GND	I _{PP} = 1A	V			9.8	8.99	8.93
			I _{PP} = 10A				12	10.39	10.44
			I _{PP} = 25A				15	12.21	12.50
Junction Capacitance	C _J	V _r =0V, f = 1MHz	I/O pin to GND	pF			5	2.50	2.72
			Between I/O pins			3		1.32	1.25
Peak Pulse Current (tp = 8/20μs)	I _{PP}			A			25	46	42
ESD per IEC 61000-4-2 (Contact)	V _{ESD}			kV			±25	±30	±30
ESD per IEC 61000-4-2 (Air)							±30	±30	±30

RClamp3354S Characterization Summary

RClamp3354S							HTTS Assembly	Diodes Assembly	
Parameter	Symbol	Conditions		Units	Min.	Typ.	Max.	Ave.	POR
Reverse Stand-Off Voltage	V _{RWM}			V			3.3		
Punch Through Voltage	V _{PT}	I _{PT} = 2uA		V	3.5		5.3	4.93	4.56
Snap-Back Voltage	V _{SB}	I _{SB} = 50mA		V	2.8			3.99	3.90
Reverse Leakage Current	I _R	V _{RWM} = 3.3V		nA			500	5	25
Clamping Voltage	V _C	tp = 8/20μs L-G	I _{PP} = 1A	V			5.5	4.59	4.59
			I _{PP} = 10A				10	5.92	6.19
			I _{PP} = 25A				16	8.54	9.07
Junction Capacitance	C _J	Vr =0V, f = 1MHz	L-G	pF			5	2.7	3.1
			L-L			2		1.3	1.1
Peak Pulse Current (tp = 8/20μs)	I _{PP}			A			25	28.0	26.0
ESD per IEC 61000-4-2 (Contact)	V _{ESD}			kV			±30	±30	±30
ESD per IEC 61000-4-2 (Air)							±30	±30	±30

THANK YOU
