



# PRODUCT CHANGE NOTIFICATION

PCN-000567.r0

Date: 10OCT2019

P1/1

<input checked="" type="checkbox"/> Semtech Corporation, 200 Flynn Road, Camarillo CA 93012
<input type="checkbox"/> Semtech Canada Corporation, 4281 Harvester Road, Burlington, Ontario L7L 5M4 Canada
<input type="checkbox"/> Semtech Irvine, 5141 California Ave., Suite 100, Irvine CA 92617
<input type="checkbox"/> Semtech Neuchatel Sarl, Route des Gouttes d'Or 40, CH-2000 Neuchatel Switzerland
<input type="checkbox"/> Semtech Bristol - EMEA Limited, Block B, St James Court, Great Park Road, Bristol BS32 4QJ, UK
<input type="checkbox"/> Semtech Corpus Christi SA de CV, Carretera Matamorros Edificio 7, Reynosa, Tamaulipas, Mexico 88780
<input type="checkbox"/> Semtech Plano, 1101 Resource Drive, Suite 121, Plano TX 75074

### Change Details

<b>Part Number(s) Affected:</b>  μClamp3321ZATFT	<b>Part Number(s) Affected:</b> <input checked="" type="checkbox"/> N/A
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### Description, Purpose and Effect of Change:

For the benefit of our customers, Semtech has qualified additional manufacturing capacity for Protection Products. A second assembly facility has been brought on line that duplicates our current wafer and assembly manufacturing processes.

- a. Additional Assembly and Test Capacity – Huatian Electronics Co, Ltd, China  
Reference POR: Assembly: SCI[USA]; Test: Diodes[Shanghai]

<b>Change Classification</b>	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Minor	<b>Impact to Form, Fit, Function</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
<b>Impact to Data Sheet</b>	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<b>New Revision or Date</b>	<input checked="" type="checkbox"/> N/A

### Impact to Performance, Characteristics or Reliability:


- NO impact to data sheet content or package dimensions
- NO impact to performance, characteristics; or reliability

<b>Implementation Date</b>	10JAN2019	<b>Work Week</b>	Predicated upon receipt of customer approval
<b>Last Time Ship (LTS) Of unchanged product</b>	N/A Additional Capacity	<b>Affecting Lot No. / Serial No. (SN)</b>	N/A
<b>Sample Availability</b>	Immediate	<b>Reliability Report Availability</b>	Attached

### Supporting Documents for Change Validation/Attachments:

- a. Rel Report: - 6278\_UClamp3321ZA\_RClamp5011ZA\_RClamp3331ZA\_RClamp0521Z\_final  
b. Char Report: uClamp3321ZA RJ6247 2 AER-3571\_Validation R1

### Issuing Authority

<b>Semtech Business Unit:</b>	Protection	
<b>Semtech Contact Info:</b>	Les Fang Yuen Sr.Engineering Manager, QA Semtech Corporation  200 Flynn Road Camarillo, CA 93012 lfangyuen@semtech.com Office: (949) 269 4443 Fax: (805) 498-3804	

FOR FURTHER INFORMATION & WORLDWIDE SALES COVERAGE: <http://www.semtech.com/contact/index.html#support>

**NEW ASSEMBLY VENDORS QUAL FOR TEST TAPE AND REEL.**

<b>Semtech Job#</b>	6278
<b>Accepted Date</b>	03-20-2017
<b>Part Number</b>	UClamp3321ZA, RClamp5011ZA, RClamp3331ZA, RClamp0521Z
<b>Job Type</b>	New Product on qualified process and qualified package
<b>Business Unit</b>	Protection
<b>Package Type</b>	HTKS
<b>Package Lead</b>	2
<b>Assembly Designator</b>	HuaTian Kunshan
<b>Master Process</b>	Palm Process at TJT
<b>Fab Designator</b>	Tower Texas
<b>Rel Job Status</b>	Rel Testing Complete Passes All Requirements

## Completed Tasks

Sub Lot #	Part	Lot	Assembly Lot	Date Code	
1	uClamp3321ZA	DA5809	AER-003896	1701	
Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
1	Data-Prep	None	None		
2	HTRB_Pre_Elect_150°C_RT24	105	Pass on Zero Fails	0	02-10-2017
3	HTRB_150°C_Real Time_0024	105	Pass on Zero Fails	0	02-10-2017
4	HTRB_Pre_Elect	105	Pass on Zero Fails	0	01-13-2017
5	BI_BD_Valid	NA	Meet HTOL Schematics	0	01-13-2017
6	HTRB_150°C_0072	105	Pass on Zero Fails	0	01-13-2017
7	HTRB_150°C_0408	105	Pass on Zero Fails	0	01-16-2017
8	HTS_Pre_Elect	77	Pass on Zero Fails	0	01-13-2017
9	HTS_0168	77	Pass on Zero Fails	0	01-13-2017
10	HTS_0500	77	Pass on Zero Fails	0	01-20-2017
11	HTS_1000	77	Pass on Zero Fails	0	02-03-2017
12	85/85_W/Pre_Pre Elec	20	Pass on Zero Fails	0	04-18-2017
13	85°C/85%RH_BD_Valid	20	Pass on Zero Fails	0	04-18-2017
14	85/85_120hr_On/Off	20	Pass on Zero Fails	0	04-18-2017
15	Pre_Elect_Precond	154	Pass on Zero Fails	0	01-16-2017
16	Precond_Temp_Cyc_5cyc	154	Pass on Zero Fails	0	01-16-2017
17	Precond_HTS_24hr	154	Pass on Zero Fails	0	01-16-2017
18	Precond_85/85_NoElec168hr	154	Pass on Zero Fails	0	01-17-2017
19	Precond_IR_Refl_Char	154	Pass on Zero Fails	0	01-24-2017
20	T/C_Pre_Elect	77	Pass on Zero Fails	0	01-24-2017
21	T/C_wPre_0250	77	Pass on Zero Fails	0	01-24-2017
22	T/C_wPre_0500	77	Pass on Zero Fails	0	02-03-2017

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
23	T/C_wPre_1000	77	Pass on Zero Fails	0	02-03-2017
24	X_Sect	15	Pass on Zero Fails	0	03-07-2017
25	85°C/85%RH_W/Pre_Pre Elec	77	Pass on Zero Fails	0	01-24-2017
26	85°C/85%RH_BD_Valid	77	Pass on Zero Fails	0	01-24-201
27	85°C/85%RH_Biased_168hrs	77	Pass on Zero Fails	0	01-31-2017
28	85°C/85%RH_Biased_500hrs	77	Pass on Zero Fails	0	02-14-2017
29	85°C/85%RH_Biased_1000hrs	77	Pass on Zero Fails	0	03-07-2017
30	X_Sect	15	Pass on Zero Fails	0	03-07-2017
31	Rider_Card_Wash/Bake	154	Pass on Zero Fails	0	01-13-2017
32	Construct_Package	5 unique packaged devices minimum.	No Major Findings, Q&R to review construction analysis report.	0	03-14-2017
33	Pack_Clos	0	0		

Sub Lot #	Part	Lot	Assembly Lot	Date Code
2	RClamp5011ZA	T602940.5	AER-003882	1701

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
1	Data-Prep	None	None		
2	HTRB_Pre_Elect_150°C_RT24	210	Pass on Zero Fails	0	01-13-2017
3	HTRB_150°C_Real Time_0024	210	Pass on Zero Fails	0	01-19-2017
4	HTRB_Pre_Elect	105	Pass on Zero Fails	0	01-12-2017
5	BI_BD_Valid	NA	Meet HTOL Schematics	0	01-12-2017
6	HTRB_150°C_0072	105	Pass on Zero Fails	0	01-13-2017
7	HTRB_150°C_0408	105	Pass on Zero Fails	0	01-16-2017
8	HTS_Pre_Elect	77	Pass on Zero Fails	0	01-12-2017
9	HTS_0168	77	Pass on Zero Fails	0	01-12-2017
10	HTS_0500	77	Pass on Zero Fails	0	01-19-2017
11	HTS_1000	77	Pass on Zero Fails	0	02-02-2017
12	85/85_W/Pre_Pre Elec	20	Pass on Zero Fails	0	01-13-2017
13	85°C/85%RH_BD_Valid	20	Pass on Zero Fails	0	01-17-2017

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
14	85/85_120hr_On/Off	20	Pass on Zero Fails	0	01-17-2017
15	Pre_Elect_Precond	154	Pass on Zero Fails	0	01-13-2017
16	Precond_Temp_Cyc_5cyc	154	Pass on Zero Fails	0	01-13-2017
17	Precond_HTS_24hr	154	Pass on Zero Fails	0	01-13-2017
18	Precond_85/85_NoElec168hr	154	Pass on Zero Fails	0	01-16-2017
19	Precond_IR_Refl_Char	154	Pass on Zero Fails	0	01-23-2017
20	T/C_Pre_Elect	77	Pass on Zero Fails	0	01-23-2017
21	T/C_wPre_0250	77	Pass on Zero Fails	0	01-23-2017
22	T/C_wPre_0500	77	Pass on Zero Fails	0	01-30-2017
23	T/C_wPre_1000	77	Pass on Zero Fails	0	02-03-2017
24	X_Sect	15	Pass on Zero Fails	0	02-03-2017
25	85°C/85%RH_W/Pre_Pre Elec	77	Pass on Zero Fails	0	01-23-2017
26	85°C/85%RH_BD_Valid	77	Pass on Zero Fails	0	01-24-2017
27	85°C/85%RH_Biased_168hrs	77	Pass on Zero Fails	0	01-31-2017
28	85°C/85%RH_Biased_500hrs	77	Pass on Zero Fails	0	02-14-2017
29	85°C/85%RH_Biased_1000hrs	77	Pass on Zero Fails	0	03-07-2017
30	X_Sect	15	Pass on Zero Fails	0	02-14-2017
31	Rider_Card_Wash/Bake	154	Pass on Zero Fails	0	01-12-2017
32	Construct_Package	5 unique packaged devices minimum.	No Major Findings, Q&R to review construction analysis report.	0	03-14-2017
33	Pack_Clos	0	0		

Sub Lot #	Part	Lot	Assembly Lot	Date Code
3	RClamp3331ZA	T620217.1	AER-003888	1701

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
1	Data-Prep	None	None		
2	HTRB_Pre_Elect_150°C_RT24	105	Pass on Zero Fails	0	01-13-2017
3	HTRB_150°C_Real Time_0024	210	Pass on Zero Fails	0	01-23-2017
4	HTRB_Pre_Elect	105	Pass on Zero Fails	0	01-12-2017

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
5	BI_BD_Valid	NA	Meet HTOL Schematics	0	01-12-2017
6	HTRB_150°C_0072	105	Pass on Zero Fails	0	01-13-2017
7	HTRB_150°C_0408	105	Pass on Zero Fails	0	01-16-2017
8	HTS_Pre_Elect	77	Pass on Zero Fails	0	01-12-2017
9	HTS_0168	77	Pass on Zero Fails	0	01-12-2017
10	HTS_0500	77	Pass on Zero Fails	0	01-19-2017
11	HTS_1000	77	Pass on Zero Fails	0	02-02-2017
12	85/85_W/Pre_Pre Elec	20	Pass on Zero Fails	0	01-13-2017
13	85°C/85%RH_BD_Valid	20	Pass on Zero Fails	0	01-17-2017
14	85/85_120hr_On/Off	20	Pass on Zero Fails	0	01-17-2017
15	Pre_Elect_Precond	154	Pass on Zero Fails	0	01-13-2017
16	Precond_Temp_Cyc_5cyc	154	Pass on Zero Fails	0	01-13-2017
17	Precond_HTS_24hr	154	Pass on Zero Fails	0	01-13-2017
18	Precond_85/85_NoElec168hr	154	Pass on Zero Fails	0	01-16-2017
19	Precond_IR_Refl_Char	154	Pass on Zero Fails	0	01-23-2017
20	T/C_Pre_Elect	77	Pass on Zero Fails	0	01-23-2017
21	T/C_wPre_0250	77	Pass on Zero Fails	0	01-23-2017
22	T/C_wPre_0500	77	Pass on Zero Fails	0	01-30-2017
23	T/C_wPre_1000	77	Pass on Zero Fails	0	02-03-2017
24	X_Sect	15	Pass on Zero Fails	0	03-07-2017
25	85°C/85%RH_W/Pre_Pre Elec	77	Pass on Zero Fails	0	01-23-2017
26	85°C/85%RH_BD_Valid	77	Pass on Zero Fails	0	01-24-2017
27	85°C/85%RH_Biased_168hrs	77	Pass on Zero Fails	0	01-31-2017
28	85°C/85%RH_Biased_500hrs	77	Pass on Zero Fails	0	02-14-2017
29	85°C/85%RH_Biased_1000hrs	77	Pass on Zero Fails	0	03-07-2017
30	X_Sect	15	Pass on Zero Fails	0	03-07-2017
31	Rider_Card_Wash/Bake	154	Pass on Zero Fails	0	01-12-2017
32	Construct_Package	5 unique packaged devices minimum.	No Major Findings, Q&R to review construction analysis report.	0	03-14-2017
33	Pack_Clos	0	0		

Sub Lot #	Part	Lot	Assembly Lot	Date Code	
4	RClamp0521Z	EP4691	AER-003884	1701	
Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
1	Data-Prep	None	None		
2	HTRB_Pre_Elect_150°C_RT24	105	Pass on Zero Fails	0	01-23-2017
3	HTRB_150°C_Real Time_0024	210	Pass on Zero Fails	0	01-24-2017
4	HTRB_Pre_Elect	105	Pass on Zero Fails	0	01-13-2017
5	BI_BD_Valid	NA	Meet HTOL Schematics	0	01-13-2017
6	HTRB_150°C_0072	105	Pass on Zero Fails	0	01-13-2017
7	HTRB_150°C_0408	105	Pass on Zero Fails	0	01-30-2017
8	HTS_Pre_Elect	77	Pass on Zero Fails	0	01-13-2017
9	HTS_0168	77	Pass on Zero Fails	0	01-13-2017
10	HTS_0500	77	Pass on Zero Fails	0	01-20-2017
11	HTS_1000	77	Pass on Zero Fails	0	02-03-2017
12	85/85_W/Pre_Pre Elec	20	Pass on Zero Fails	0	01-17-2017
13	85°C/85%RH_BD_Valid	20	Pass on Zero Fails	0	01-17-2017
14	85/85_120hr_On/Off	20	Pass on Zero Fails	0	01-17-2017
15	Pre_Elect_Precond	154	Pass on Zero Fails	0	01-16-2017
16	Precond_Temp_Cyc_5cyc	154	Pass on Zero Fails	0	01-16-2017
17	Precond_HTS_24hr	154	Pass on Zero Fails	0	01-16-2017
18	Precond_85/85_NoElec168hr	154	Pass on Zero Fails	0	01-17-2017
19	Precond_IR_Refl_Char	154	Pass on Zero Fails	0	01-24-2017
20	T/C_Pre_Elect	77	Pass on Zero Fails	0	01-24-2017
21	T/C_wPre_0250	77	Pass on Zero Fails	0	01-24-2017
22	T/C_wPre_0500	77	Pass on Zero Fails	0	02-03-2017
23	T/C_wPre_1000	77	Pass on Zero Fails	0	02-13-2017
24	X_Sect	15	Pass on Zero Fails	0	03-07-2017
25	85°C/85%RH_W/Pre_Pre Elec	77	Pass on Zero Fails	0	01-24-2017
26	85°C/85%RH_BD_Valid	77	Pass on Zero Fails	0	01-24-2017
27	85°C/85%RH_Biased_168hrs	77	Pass on Zero Fails	0	01-31-2017
28	85°C/85%RH_Biased_500hrs	77	Pass on Zero Fails	0	02-14-2017

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
29	85°C/85%RH_Biased_1000hrs	77	Pass on Zero Fails	0	02-14-2017
30	X_Sect	15	Pass on Zero Fails	0	03-07-2017
31	Rider_Card_Wash/Bake	154	Pass on Zero Fails	0	01-13-2017
32	Construct_Package	5 unique packaged devices minimum.	No Major Findings, Q&R to review construction analysis report.	0	03-14-2017
33	Pack_Clos	0	0		





# SEMTECH



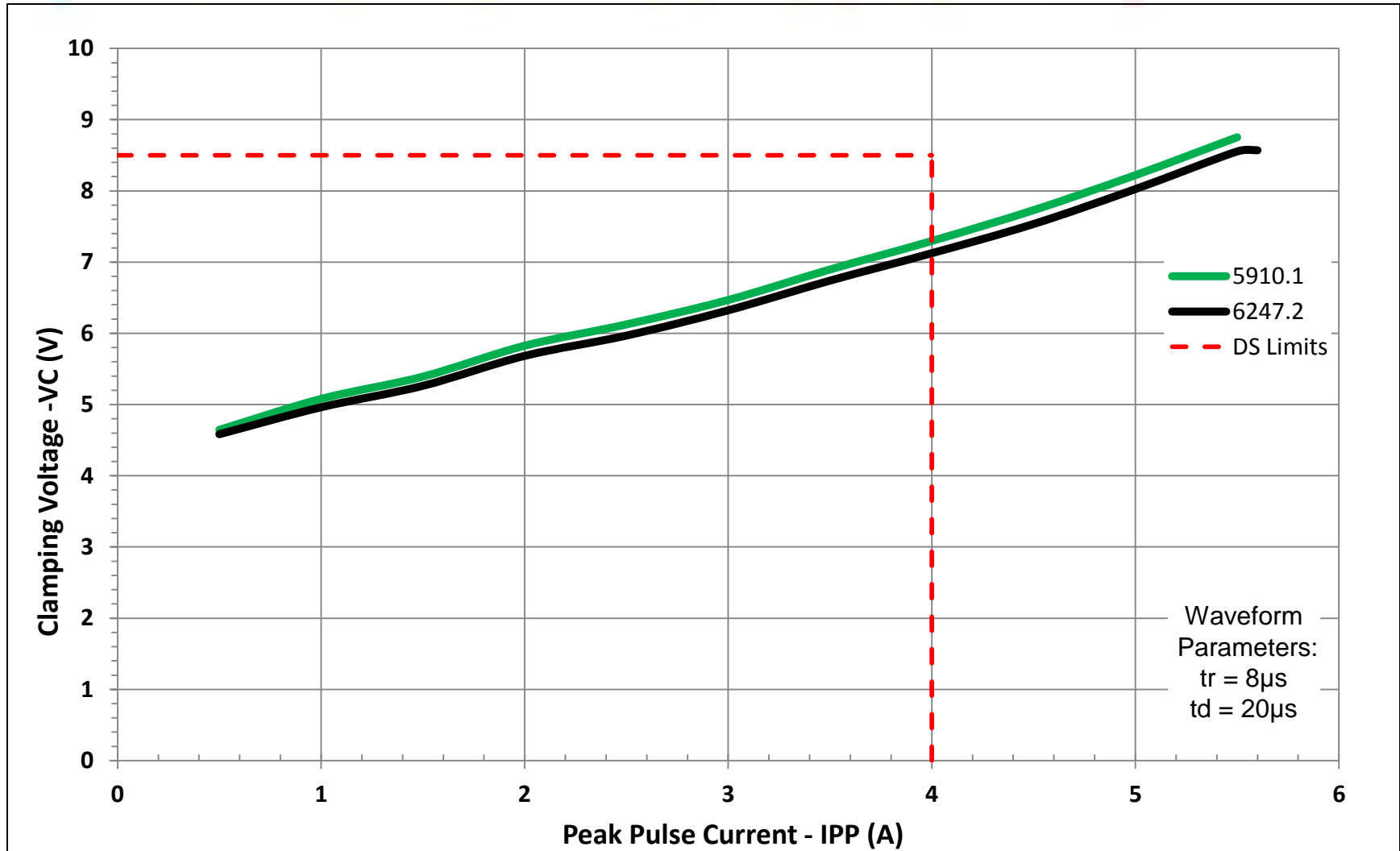
## uClamp3321ZA RJ6247.2 (HTKS) Validation Report 2/1/2017

# Build History

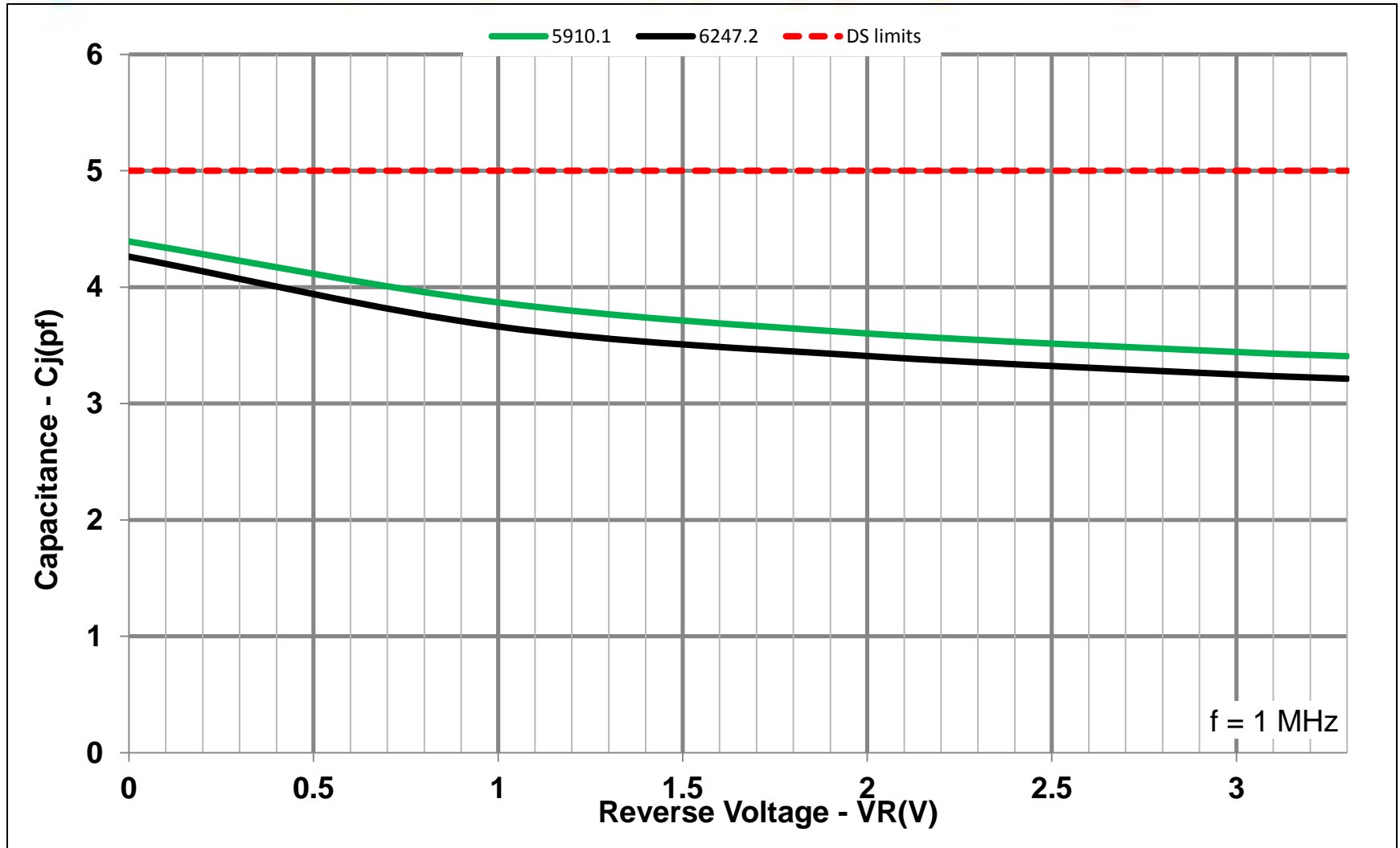


<b>Date Completed</b>	11/1/2016	12/9/2014
<b>Part Number:</b>	UClamp3321ZA	UClamp3321ZA
<b>AER:</b>	AER-003571	AER-002203/2204
<b>Build Number:</b>		GEP378900
<b>Lot Number:</b>	DA5801	GEP378900
<b>Wafer #:</b>	9	5
<b>Device:</b>	SPZ14021R2FCN	SPZ14021R1FCN
<b>Date Code:</b>	1636	1448
<b>Rel #:</b>	<b>6247.2</b>	<b>5910.1</b>
<b>Owner:</b>	Sam Jiang	Maykel Ghorbanzadeh
<b>Notes:</b>	Wafer fabrication - ASMC (China), Assembly – Huatian Kunshan (China)	Wafer fabrication - ASMC (China), Assembly - ICI (US), tape and reel - Diodes (China)

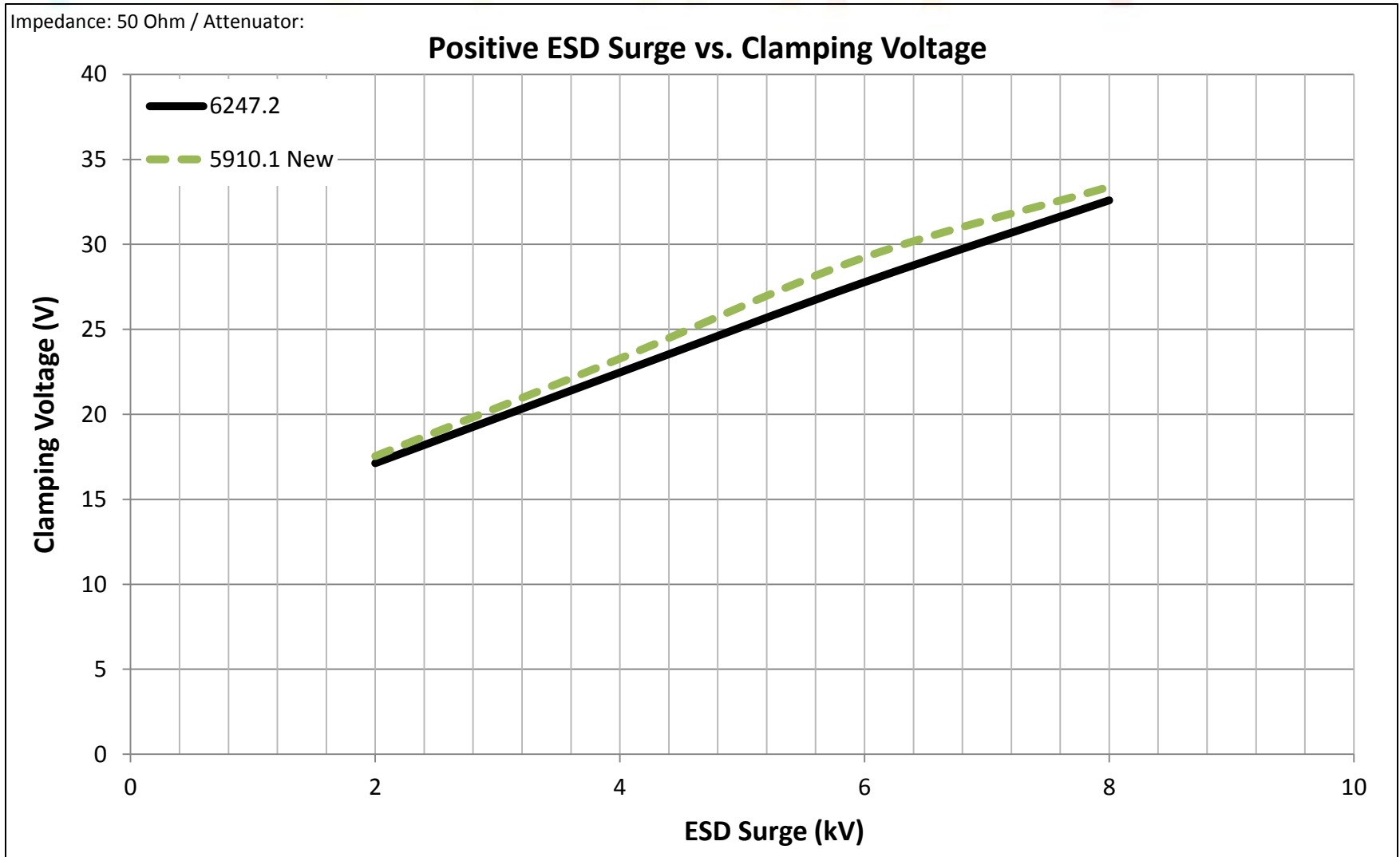
# 8x20uS Vc



# Cap over Bias



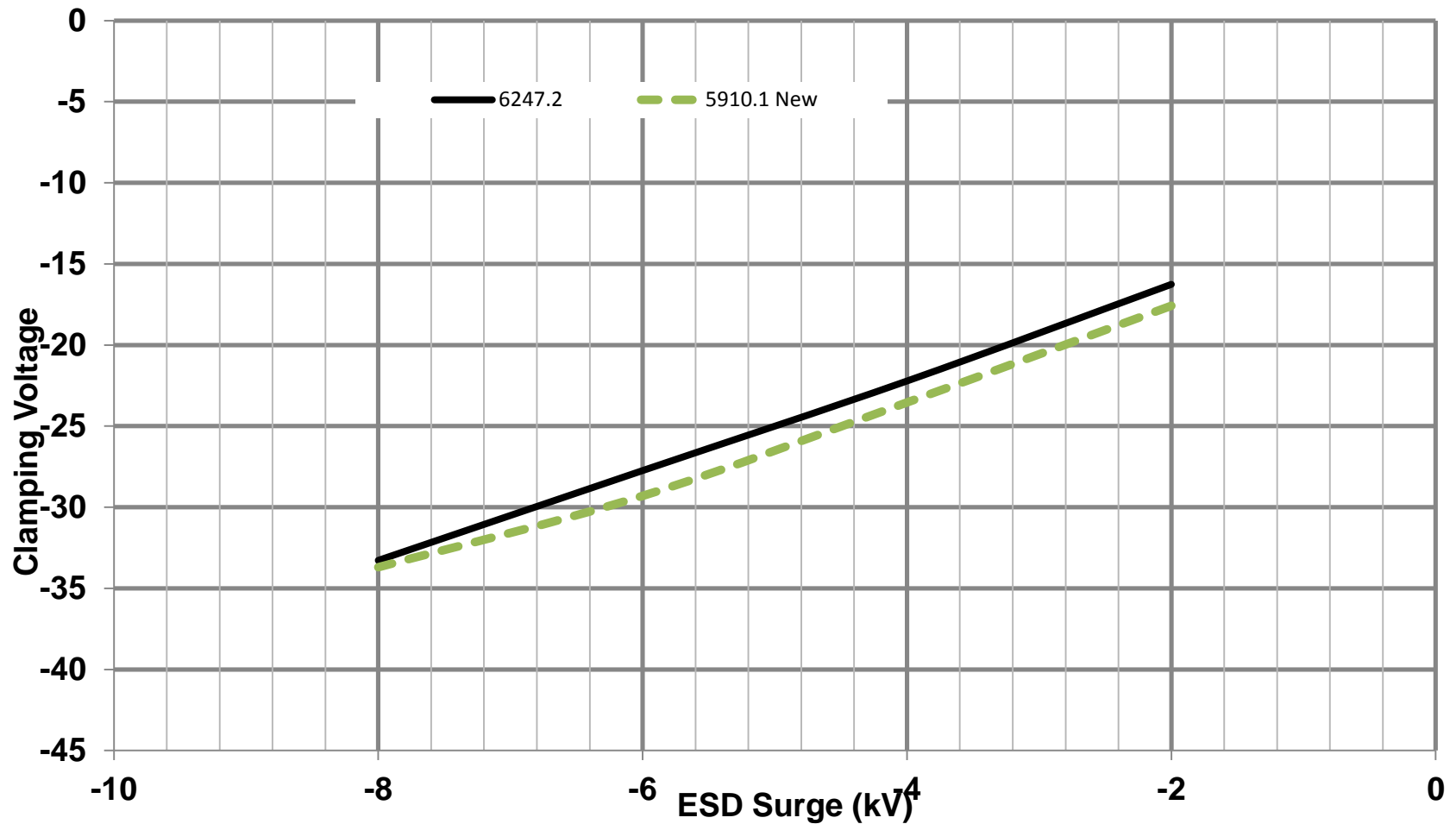
# Positive ESD



# Negative ESD

Impedance: 50 Ohm / Attenuator: 20dB

## Negative ESD Surge vs. Clamping Voltage



# ESD Reliability



RJ6247.2

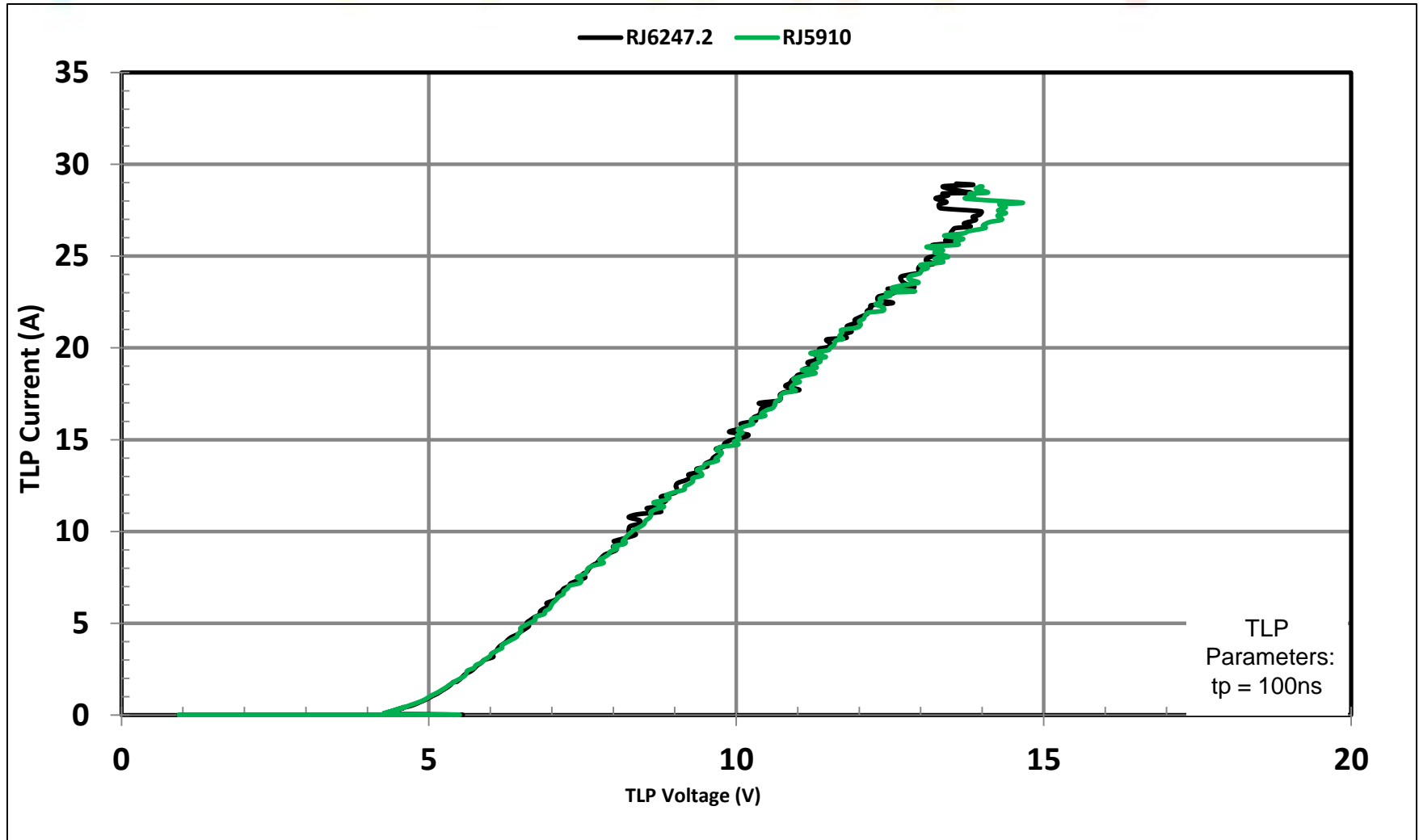
Contact (Line-Line)	Pass	Fail	Fail Type
Device 1: Pin 1-2	± 19kV	± 20kV	<i>vf</i>
Device 2: Pin 1-2	± 20kV	± 21kV	<i>vf</i>
Device 3: Pin 1-2	± 19kV	± 20kV	<i>vf</i>
Device 4: Pin 1-2	± 20kV	± 21kV	<i>short</i>
Device 5: Pin 1-2	± 19kV	± 20kV	<i>vf</i>

Air (Line-Line)	Pass	Fail	Fail Type
Device 1: Pin 1-2	± 23kV	± 24kV	<i>short</i>
Device 2: Pin 1-2	± 23kV	± 24kV	<i>short</i>
Device 3: Pin 1-2	± 23kV	± 24kV	<i>short</i>
Device 4: Pin 1-2	± 22kV	± 23kV	<i>short</i>
Device 5: Pin 1-2	± 23kV	± 24kV	<i>short</i>

5910.1 New				Data 11-30-2016			
Contact (Line-Line)	Pass	Fail	Fail Type	Air (Line-Line)	Pass	Fail	Fail Type
Device 1: Pin 1-2	± 19kV	± 20kV	<i>Lost VF</i>	Device 1: Pin 1-2	± 22kV	± 23kV	<i>Short</i>
Device 2: Pin 1-2	± 19kV	± 20kV	<i>Lost VF</i>	Device 2: Pin 1-2	± 21kV	± 22kV	<i>Short</i>
Device 3: Pin 1-2	± 20kV	± 21kV	<i>Lost VF</i>	Device 3: Pin 1-2	± 21kV	± 22kV	<i>Short</i>
Device 4: Pin 1-2	± 20kV	± 21kV	<i>Lost VF</i>	Device 4: Pin 1-2	± 22kV	± 23kV	<i>Short</i>
Device 5: Pin 1-2	± 19kV	± 20kV	<i>Lost VF</i>	Device 5: Pin 1-2	± 21kV	± 22kV	<i>Short</i>

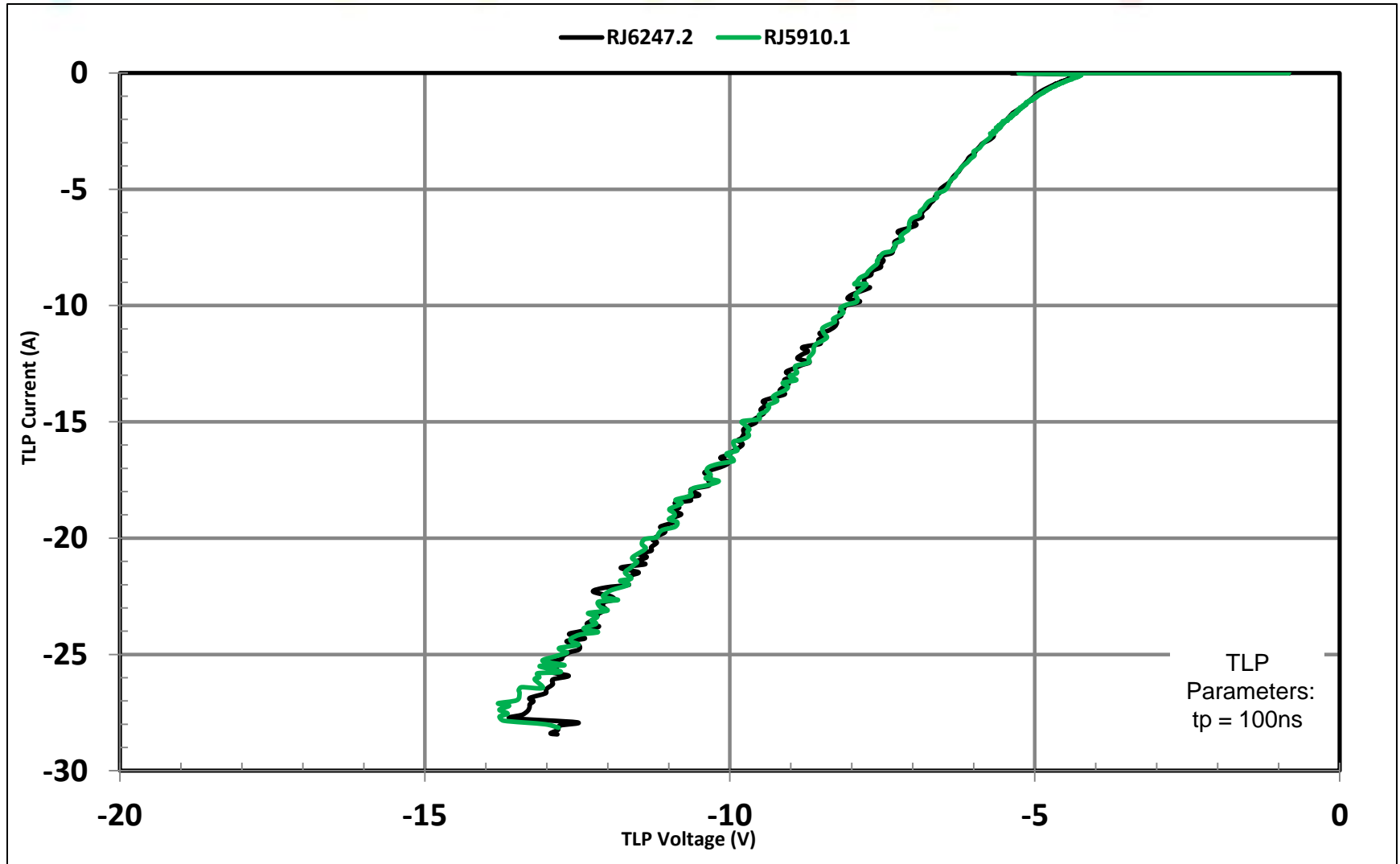
Datasheet	
Air	±17KV
Contact	±15KV

# Positive TLP





# Negative TLP





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