



**PRODUCT CHANGE NOTIFICATION**  
**PCN-000798**  
**Date: 25AUG2022**

P1/2

Semtech Corporation, 200 Flynn Road, Camarillo CA 93012

**Change Details**

<b>Part Number(s) Affected:</b> UClamp0502P.TCT	<b>Customer Part Number(s) Affected:</b> <input checked="" type="checkbox"/> N/A
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**Description, Purpose and Effect of Change:**

Due to worldwide lead frame shortage and to improve flexibility in Semtech's supply chain, Semtech has qualified an additional lead frame supplier for UClamp0502P.TCT.

There is no change in the assembly or test site.

Comparison of key attributes between POR = MHT, and HDS lead Frame

LDF Attribute	POR = MHT Leadframe	HDS Lead Frame	Remark
LDF material	A194 or C7025	A194 or C7025	No Change
LDF thickness	0.152mm or 0.203mm	0.152mm or 0.203mm	No Change
PPF plating thickness	Ni: 0.5-2.0um Pd: 0.02-0.15um Au: 0.003-0.015um	Ni: 0.25-1.25um Pd: 0.005-0.02um AuAg: 0.005-0.062um	MHT lead frame final plating is Au HDS lead frame final plating is AuAg alloy
Roughness (S-Ratio)	1.15-1.55	1.2-1.5	Comparable
Anti-EBO	Yes	Yes	Common (coating material may be different due to proprietary material used by each supplier)

<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 performance, characteristics; or reliability
- No Impact to data sheet content or package dimensions

<b>Implementation Date</b>	<b>25NOV2022</b>	<b>Work Week</b>	<b>TBD</b>
<b>Last Time Ship (LTS)</b> Of unchanged product	<b>Not Applicable</b>	<b>Affecting Lot No. / Serial No. (SN)</b>	<b>Not Applicable</b>
<b>Sample Availability</b>	<b>Immediate</b>	<b>Qualification Report Availability</b>	<b>Included</b>


**Supporting Documents for Change Validation/Attachments:**

- Final reliability Report: Result = Pass**
  - Solderability Report: Result = Pass
  - MSL1 Report: Result = Pass
- Test Characterization Summary Report: Pass**



**PRODUCT CHANGE NOTIFICATION**  
**PCN-000798**  
**Date: 25AUG2022**

P2/2

Issuing Authority		
<b>Semtech Business Unit:</b>	Protection Business Unit	
<b>Semtech Contact Info:</b>	QA representative: Les Fang Yuen lfangyuen@semtech.com +1 949-269-4443	Digital signature 
FOR FURTHER INFORMATION & WORLDWIDE SALES COVERAGE: <a href="http://www.semtech.com/contact/index.html#support">http://www.semtech.com/contact/index.html#support</a>		

**UCLAMP1002P.F, UCLAMP0502P**

<b>Semtech Job#</b>	7463
<b>Accepted Date</b>	10-15-2021
<b>Job Type</b>	Lead Frame Qualification
<b>Business Unit</b>	Protection
<b>Package Type</b>	1.00x0.60x0.50mm DFN
<b>Package Lead</b>	3
<b>Assembly Designator</b>	Huatian Xian
<b>Master Process</b>	12S
<b>Fab Designator</b>	ASMC 12S
<b>Rel Job Status</b>	Rel Testing Complete Passes All Requirements

## Comments:

- HTXA current LF supplier (MHT) cannot support uClamp1002P and uClamp0502P run rate, need to qualify HDS as second LF supplier to meet demand.
- Investigation for LF surface roughness in FA-011904.

## Completed Tasks

Sub Lot #	Part	Lot	Assembly Lot	Date Code	
1	uClamp1002P	AER-008517	AER-008517	2140	
Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
1	Data-Prep	None	None	0	10-21-2021
2	HTRB_Pre_Elect_150°C_RT24	105	Pass on Zero Fails	0	11-03-2021
3	HTRB_150°C_Real Time_0024	105	Pass on Zero Fails	0	11-08-2021
4	HTRB_Pre_Elect	105	Pass on Zero Fails	0	10-26-2021
5	BI_BD_Valid	105	Meet HTOL Schematics	0	10-26-2021
6	HTRB_150°C_0072	105	Pass on Zero Fails	0	10-26-2021
7	HTRB_150°C_0408	105	Pass on Zero Fails	0	10-29-2021
8	HTS_Pre_Elect	77	Pass on Zero Fails	0	10-22-2021
9	HTS_0168	77	Pass on Zero Fails	0	10-22-2021
10	HTS_0500	77	Pass on Zero Fails	0	10-29-2021
11	HTS_1000	77	Pass on Zero Fails	0	11-12-2021
12	85°C/85%RH_N/Pre_Pre Elec	20	Pass with 0 fail	0	10-22-2021
13	85°C/85%RH_BD_Valid	20	Pass on Zero Fails	0	10-28-2021
14	85/85_120hr_On/Off	20	Pass on Zero Fails	0	10-28-2021
15	Pre_Conditioning_Level_1	NA	MSL 1	0	10-26-2021
16	ROSE Clean/ Test	180	Pass on Zero Fails	0	10-22-2021
17	Pre_Elect_Precond	159	Pass on Zero Fails	0	10-26-2021
18	Precond_Temp_Cyc_5cyc	159	Pass on Zero Fails	0	10-26-2021
19	Precond_HTS_24hr	159	Pass on Zero Fails	0	10-26-2021
20	Precond_85/85_NoElec168hr	159	Pass on Zero Fails	0	10-27-2021
21	Precond_260°C_IR_Ref_Char	159	Pass on Zero Fails	0	11-03-2021

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
22	T/C_Pre_Elect	82	Pass on Zero Fails	0	11-03-2021
23	T/C_wPre_0250	82	Pass on Zero Fails	0	11-03-2021
24	T/C_wPre_0500	82	Pass on Zero Fails	0	11-09-2021
25	Cross_Section TC 500 Cyc	5	Pass on Zero Fails FA-011897	0	11-15-2021
26	T/C_wPre_1000	77	Pass on Zero Fails	0	11-15-2021
27	85°C/85%RH_W/Pre_Pre Elec	77	Pass on Zero Fails	0	11-03-2021
28	85°C/85%RH_BD_Valid	77	Pass on Zero Fails	0	11-04-2021
29	85°C/85%RH_Biased_168hrs	77	Pass on Zero Fails	0	11-12-2021
30	85°C/85%RH_Biased_500hrs	77	Pass on Zero Fails	0	11-12-2021
31	85°C/85%RH_Biased_1000hrs	77	Pass on Zero Fails	0	12-02-2021
32	Solder_8hr_Pb free	22 leads	Pass on Zero Fails	0	10-28-2021
33	CSAM Analysis	22	Pass on Zero Fails	0	10-27-2021
34	Precond_Temp_Cyc_5cyc	22	Pass on Zero Fails	0	10-28-2021
35	Precond_HTS_24hr	22	Pass on Zero Fails	0	10-28-2021
36	Precond_85/85_NoElec168hr	22	Pass on Zero Fails	0	10-29-2021
37	Precond_260°C_IR_Ref_Char	22	Pass on Zero Fails	0	11-05-2021
38	CSAM Analysis	22	Pass on Zero Fails	0	11-08-2021
39	Pack_Clos	0	0	0	12-20-2021

Sub Lot #	Part	Lot	Assembly Lot	Date Code
2	uClamp1002P	AER-008518	AER-008518	2140

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
1	Data-Prep	None	None	0	10-21-2021
2	HTRB_Pre_Elect_150°C_RT24	105	Pass on Zero Fails	0	11-03-2021
3	HTRB_150°C_Real Time_0024	105	Pass on Zero Fails	0	11-03-2021
4	HTRB_Pre_Elect	105	Pass on Zero Fails	0	10-26-2021
5	BI_BD_Valid	105	Meet HTOL Schematics	0	10-26-2021

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
6	HTRB_150°C_0072	105	Pass on Zero Fails	0	10-26-2021
7	HTRB_150°C_0408	105	Pass on Zero Fails	0	10-29-2021
8	HTS_Pre_Elect	77	Pass on Zero Fails	0	10-22-2021
9	HTS_0168	77	Pass on Zero Fails	0	10-22-2021
10	HTS_0500	77	Pass on Zero Fails	0	10-29-2021
11	HTS_1000	77	Pass on Zero Fails	0	11-12-2021
12	85°C/85%RH_N/Pre_Pre Elec	20	Pass with 0 fail	0	10-28-2021
13	85°C/85%RH_BD_Valid	20	Pass on Zero Fails	0	10-28-2021
14	85/85_120hr_On/Off	20	Pass on Zero Fails	0	10-28-2021
15	Pre_Conditioning_Level_1	NA	MSL 1	0	10-25-2021
16	ROSE Clean/ Test	154	Pass on Zero Fails	0	10-21-2021
17	Pre_Elect_Precond	154	Pass on Zero Fails	0	11-02-2021
18	Precond_Temp_Cyc_5cyc	154	Pass on Zero Fails	0	11-02-2021
19	Precond_HTS_24hr	154	Pass on Zero Fails	0	11-02-2021
20	Precond_85/85_NoElec168hr	154	Pass on Zero Fails	0	11-03-2021
21	Precond_260°C_IR_Ref_Char	154	Pass on Zero Fails	0	11-10-2021
22	T/C_Pre_Elect	77	Pass on Zero Fails	0	11-10-2021
23	T/C_wPre_0250	77	Pass on Zero Fails	0	11-10-2021
24	T/C_wPre_0500	77	Pass on Zero Fails	0	11-16-2021
25	Cross_Section TC 500 Cyc	5	Pass on Zero Fails - FA-011998	0	11-22-2021
26	T/C_wPre_1000	77	Pass on Zero Fails	0	11-22-2021
27	85°C/85%RH_W/Pre_Pre Elec	77	Pass on Zero Fails	0	11-10-2021
28	85°C/85%RH_BD_Valid	77	Pass on Zero Fails	0	11-10-2021
29	85°C/85%RH_Biased_168hrs	77	Pass on Zero Fails	0	11-11-2021
30	85°C/85%RH_Biased_500hrs	77	Pass on Zero Fails	0	11-18-2021
31	85°C/85%RH_Biased_1000hrs	77	Pass on Zero Fails	0	12-06-2021
32	Solder_8hr_Pb free	22 leads	Pass on Zero Fails	0	10-28-2021
33	CSAM Analysis	22	Pass on Zero Fails	0	10-27-2021
34	Precond_Temp_Cyc_5cyc	22	Pass on Zero Fails	0	10-28-2021
35	Precond_HTS_24hr	22	Pass on Zero Fails	0	10-28-2021

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
36	Precond_85/85_NoElec168hr	22	Pass on Zero Fails	0	10-29-2021
37	Precond_260°C_IR_Ref_Char	22	Pass on Zero Fails	0	11-05-2021
38	CSAM Analysis	22	Pass on Zero Fails	0	11-08-2021
39	Pack_Clos	0	0	0	01-07-2022

Sub Lot #	Part	Lot	Assembly Lot	Date Code
3	uClamp1002P	AER-008519	AER-008519	2140

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
1	Data-Prep	None	None	0	10-21-2021
2	HTRB_Pre_Elect_150°C_RT24	105	Pass on Zero Fails	0	10-28-2021
3	HTRB_150°C_Real Time_0024	105	Pass on Zero Fails	0	11-04-2021
4	HTRB_Pre_Elect	105	Pass on Zero Fails	0	10-26-2021
5	BI_BD_Valid	105	Meet HTOL Schematics	0	10-26-2021
6	HTRB_150°C_0072	105	Pass on Zero Fails	0	10-26-2021
7	HTRB_150°C_0408	105	Pass on Zero Fails	0	10-29-2021
8	HTS_Pre_Elect	77	Pass on Zero Fails	0	10-22-2021
9	HTS_0168	77	Pass on Zero Fails	0	10-22-2021
10	HTS_0500	77	Pass on Zero Fails	0	10-29-2021
11	HTS_1000	77	Pass on Zero Fails	0	11-12-2021
12	85°C/85%RH_N/Pre_Pre Elec	20	Pass with 0 fail	0	10-22-2021
13	85°C/85%RH_BD_Valid	20	Pass on Zero Fails	0	10-28-2021
14	85/85_120hr_On/Off	20	Pass on Zero Fails	0	10-28-2021
15	Pre_Conditioning_Level_1	NA	MSL 1	0	10-26-2021
16	ROSE Clean/ Test	154	Pass on Zero Fails	0	10-21-2021
17	Pre_Elect_Precond	154	Pass on Zero Fails	0	10-26-2021
18	Precond_Temp_Cyc_5cyc	154	Pass on Zero Fails	0	10-26-2021
19	Precond_HTS_24hr	154	Pass on Zero Fails	0	10-26-2021

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
20	Precond_85/85_NoElec168hr	154	Pass on Zero Fails	0	10-27-2021
21	Precond_260°C_IR_Ref_Char	154	Pass on Zero Fails	0	11-03-2021
22	T/C_Pre_Elect	77	Pass on Zero Fails	0	11-03-2021
23	T/C_wPre_0250	77	Pass on Zero Fails	0	11-03-2021
24	T/C_wPre_0500	77	Pass on Zero Fails	0	11-09-2021
25	Cross_Section TC 500 Cyc	5	Pass on Zero Fails	0	11-15-2021
26	T/C_wPre_1000	77	Pass on Zero Fails	0	11-15-2021
27	85°C/85%RH_W/Pre_Pre Elec	77	Pass on Zero Fails	0	11-03-2021
28	85°C/85%RH_BD_Valid	77	Pass on Zero Fails	0	11-04-2021
29	85°C/85%RH_Biased_168hrs	77	Pass on Zero Fails	0	11-04-2021
30	85°C/85%RH_Biased_500hrs	77	Pass on Zero Fails	0	11-12-2021
31	85°C/85%RH_Biased_1000hrs	77	Pass on Zero Fails	0	11-29-2021
32	Solder_8hr_Pb free	22 leads	Pass on Zero Fails	0	10-28-2021
33	CSAM Analysis	22	Pass on Zero Fails	0	10-27-2021
34	Precond_Temp_Cyc_5cyc	22	Pass on Zero Fails	0	10-28-2021
35	Precond_HTS_24hr	22	Pass on Zero Fails	0	10-28-2021
36	Precond_85/85_NoElec168hr	22	Pass on Zero Fails	0	10-29-2021
37	Precond_260°C_IR_Ref_Char	22	Pass on Zero Fails	0	11-05-2021
38	CSAM Analysis	22	Pass on Zero Fails	0	11-08-2021
39	Pack_Clos	0	0	0	12-20-2021

Sub Lot #	Part	Lot	Assembly Lot	Date Code
4	uClamp0502P	AER-008550	AER-008550	2142

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
1	Data-Prep	None	None	0	12-16-2021
2	HTRB_Pre_Elect_150°C_RT24	105	Pass on Zero Fails	0	01-25-2022
3	HTRB_150°C_Real Time_0024	105	Pass on Zero Fails	0	01-20-2022



Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
4	HTRB_Pre_Elect	105	Pass on Zero Fails	0	01-13-2022
5	BI_BD_Valid	NA	Meet HTOL Schematics	0	01-12-2022
6	HTRB_150°C_0072	105	Pass on Zero Fails	0	01-14-2022
7	HTRB_150°C_0408	105	Pass on Zero Fails	0	01-21-2022
8	HTS_Pre_Elect	77	Pass on Zero Fails	0	01-12-2022
9	HTS_0168	77	Pass on Zero Fails	0	01-12-2022
10	HTS_0500	77	Pass on Zero Fails	0	01-19-2022
11	HTS_1000	77	Pass on Zero Fails	0	02-02-2022
12	85°C/85%RH_N/Pre_Pre Elec	20	Pass with 0 fail	0	01-13-2022
13	85°C/85%RH_BD_Valid	20	Pass on Zero Fails	0	01-13-2022
14	85/85_120hr_On/Off	20	Pass on Zero Fails	0	01-13-2022
15	ROSE Clean/ Test	174	Pass on Zero Fails	0	12-16-2021
16	Pre_Elect_Precond	154	Pass on Zero Fails	0	01-06-2022
17	Precond_Temp_Cyc_5cyc	154	Pass on Zero Fails	0	01-06-2022
18	Precond_HTS_24hr	154	Pass on Zero Fails	0	01-06-2022
19	Precond_85/85_NoElec168hr	154	Pass on Zero Fails	0	01-07-2022
20	Precond_IR_Refl_Char	154	Pass on Zero Fails	0	01-14-2022
21	T/C_Pre_Elect	77	Pass on Zero Fails	0	01-14-2022
22	T/C_wPre_0250	77	Pass on Zero Fails	0	01-14-2022
23	T/C_wPre_0500	77	Pass on Zero Fails	0	01-20-2022
24	Cross_Section TC 500 Cyc	5	Pass on Zero Fails - FA-012159	0	01-27-2022
25	T/C_wPre_1000	77	Pass on Zero Fails	0	01-26-2022
26	85°C/85%RH_W/Pre_Pre Elec	77	Pass on Zero Fails	0	01-14-2022
27	85°C/85%RH_BD_Valid	77	Pass on Zero Fails	0	01-14-2022
28	85°C/85%RH_Biased_168hrs	77	Pass on Zero Fails	0	01-17-2022
29	85°C/85%RH_Biased_500hrs	77	Pass on Zero Fails	0	01-24-2022
30	85°C/85%RH_Biased_1000hrs	77	Pass on Zero Fails	0	02-07-2022
31	Solder_8hr_Pb free	22 leads	Pass on Zero Fails	0	01-18-2022
32	CSAM Analysis	22	Pass on Zero Fails	0	01-17-2022
33	Precond_Temp_Cyc_5cyc	22	Pass on Zero Fails	0	01-18-2022

Task#	Task Code	Sample Size	Criteria	Failures	Task On Actual
34	Precond_HTS_24hr	22	Pass on Zero Fails	0	01-18-2022
35	Precond_85/85_NoElec168hr	22	Pass on Zero Fails	0	01-19-2022
36	Precond_260°C_IR_Ref_Char	22	Pass on Zero Fails	0	01-26-2022
37	CSAM Analysis	22	Pass on Zero Fails	0	01-27-2022
38	Pack_Clos	0	0	0	03-01-2022



华天科技(西安)有限公司  
HuaTian Technology(Xi'an)Co., Ltd

# Reliability Test Report

## 可靠性试验报告

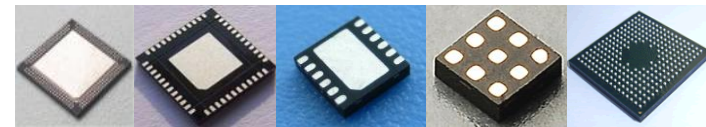
Rel. Report ID.: RA2111047N

Prepared By: RA Lab of QA Department

Test Date: 2021.11.05~2022.01.09

Address: No.105,5th FENGCHENG Road ,Econ.&Tech.

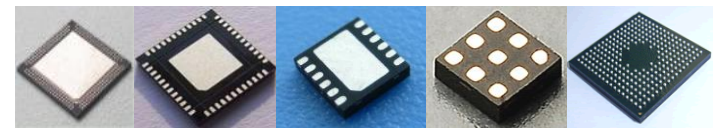
Verify the purpose : US337/DFN(1.00.6\*0.50-0.65)003 product reliability assessment





# Report Reviewed 报告审核

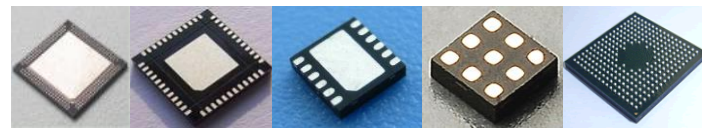
Report review	Signature	Date
Prepared By	赵珍珍	2022.01.10
Department manager	翟媛媛	2022.01.10
Technique Approval	吕海兰	2022.01.10



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# 1、Reliability Test Report 可靠性试验报告



## 1.1、试验目的 ( Test Purpose ) :

US337/DFN(1.00.6\*0.50-0.65)003产品的可靠性考核。

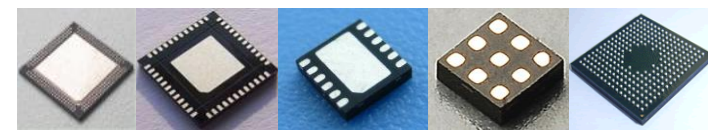
## 1.2、可靠性试验 ( Reliability Test ) :

## 1.3、试品资料 ( Sample Description ) :

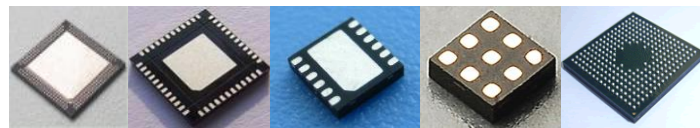
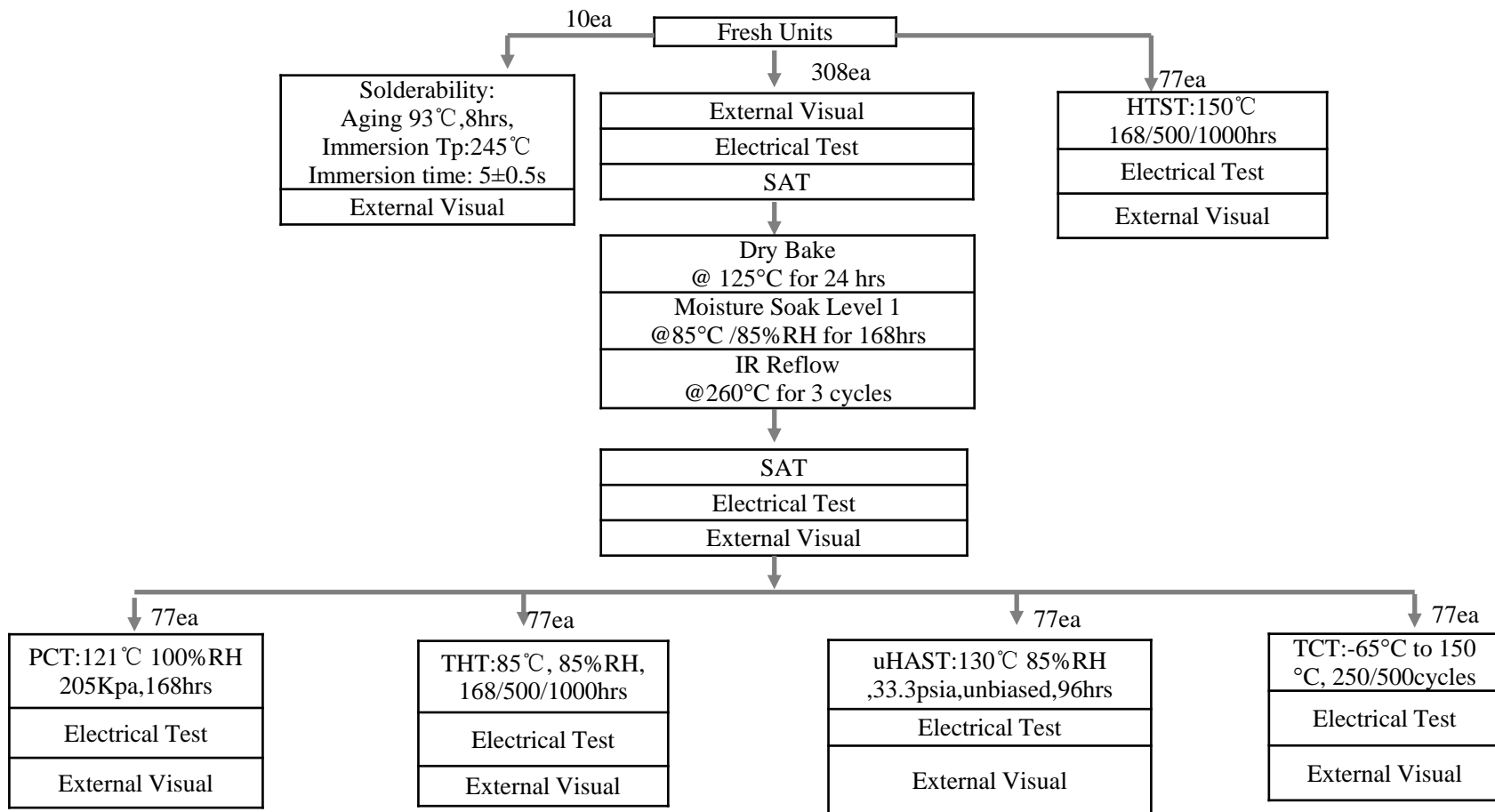
产品型号 Device Type	UCLAMP0502P. TCT. P2	工单号 Order No.	W1421LH0101	委托方 Entrusted By	US337
打印印字 Marking	/	用户批 LOT	AER-008550	试验依据 Test Basis	委托方提供
封装形式 Package	DFN(1.00.6*0.50-0.65)003	试品数量 Sample Size	395		

## 1.4、试品关键资料背景 ( Product BOM ) :

关键性材料 Critical Material	塑封料 Molding Compound	EME-G770H		
	粘片胶 Die Attach	8008HT		
	引线框架 Lead Frame	规格(mil) Spec	DFN(1.00.6-0.65)003	
		供应商 Supplier	HDS	
	芯片 Die	厚度 (um) Thickness	146	
	焊线 Wire Bonding	焊线材质 W/B Character	Copper wire (pd)	
焊线规格Φ (um)		20		



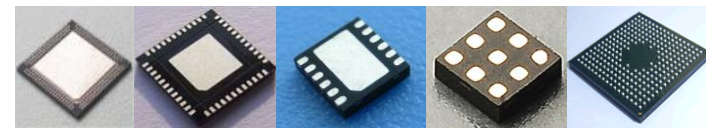
## 2、Test Flow Figure 试验流程图





2.1、试验项目及结果 ( Test item & result ) :

Test Item*	Qualification Test Condition	Test Result						conclusion
		EVI		SAM*		F/T		
		Sample size	Rej / S.S	Sample size	Rej / S.S	Sample size	Rej / S.S	
Before Test	/	395	0/395	22	0/22	395	0/395	PASS
MSL1	Baking:125, 24 hrs Moisture Soak: 85°C/85 %RH,168hrs ReflowTp.: 260 +0~5°C	308	0/308	22	0/22	308	0/308	PASS
PCT w/precon.	121°C, 100%RH , 205Kpa, 168hrs	77	0/77	N/A	N/A	77	0/77	PASS
TCT w/precon.	-65°C~150°C, 250 cycles	77	0/77	N/A	N/A	77	0/77	PASS
	-65°C~150°C, 500 cycles	77	0/77	N/A	N/A	77	0/77	PASS
HTST w/precon.	150°C, 168hrs	77	0/77	N/A	N/A	77	0/77	PASS
	150°C, 500hrs	77	0/77	N/A	N/A	77	0/77	PASS
	150°C, 1000hrs	77	0/77	N/A	N/A	77	0/77	PASS
THT w/precon.	85°C, 85%RH, 168hrs	77	0/77	N/A	N/A	77	0/77	PASS
	85°C, 85%RH, 500hrs	77	0/77	N/A	N/A	77	0/77	PASS
	85°C, 85%RH, 1000hrs	77	0/77	N/A	N/A	77	0/77	PASS
uHAST w/precon.	130°C, 85%RH, 96hrs,33.3psia,unbiased	77	0/77	N/A	N/A	77	0/77	PASS
Solderability Without precon.	Aging Steam:93°C,8hrs Solder Dip:245°C,5S	10	0/10	N/A				PASS





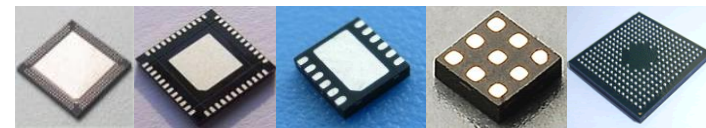


Note1: Test Items\* :

试验项目 Test Item			参考标准 Reference Standard	允收标准 Acc/Re
MSL	Moisture Soaking Level	吸湿敏感度等级	J-STD-020E	0/1
PCT	Pressure Cook Test	高温水蒸气压试验	JESD22-A102E	0/1
TCT	Temperature Cycle Test	温度循环试验	JESD22-A104E	0/1
THT	Thermal/Humidity Test	温湿度贮存试验	JESD22-A101D	0/1
HTSL	High Temperature Storage Life	高温贮存试验	JESD22-A103E	0/1
uHAST	Accelerated Temperature Resistance-Unbiased HAST	无偏置加速应力试验	JESD22-A118B	0/1
Solderability	Solderability	可焊性试验	JESD22-B102E	0/1

Note2: C-SAM\* :

Test item.	SAM data	Sample Size	DLMN. (MIN-MAX%)					
			Die		Die paddle		Leadframe	
			rej./failure	%	rej./failure	%	rej./failure	%
Before test		22	0	0	0	0	0	0
After MSL3		22	0	0	0	0	0	0



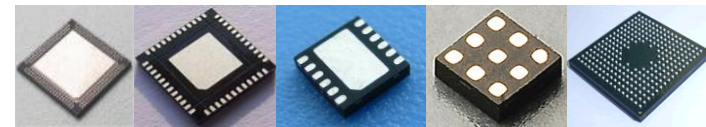


## 2.2、结论 ( Conclusion ) :

US337/DFN(1.00.6\*0.50-0.65)003产品的可靠性考核:


- 1、MSL1试验前后扫描均合格, MSL1试验后功能测试均合格;
- 2、HTST168/500/1000hrs、PCT168hrs、TCT250/500cycles、THT168/500/1000hrs、uHAST96hrs试验后功能测试均合格;
- 3、Solderability试验后外观检查均合格(粘锡大于95%)。

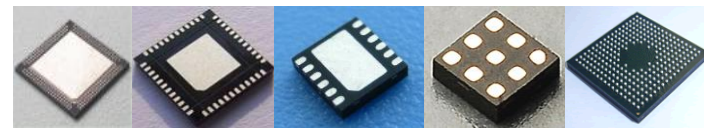
即: US337/DFN(1.00.6\*0.50-0.65)003产品通过以上的可靠性考核。




### 3、附录一: 超声波扫描图片 Annex I : SAM Picture

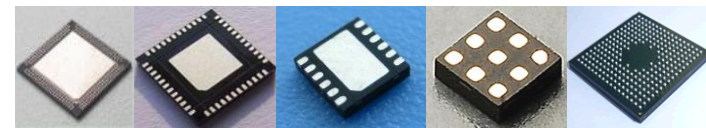
>> Before Test:

C-SCAN Picture	检测结果Description
	<p>MSL1前SAT检测无异常 There is no abnormality by SAT before MSL1.</p>



>> After MSL1:

C-SCAN Picture	检测结果Description
	<p>MSL1后SAT检测无异常 There is no abnormality by SAT after MSL1.</p>

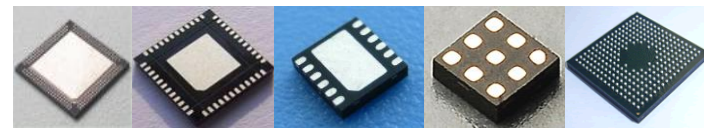


## 4、附录二：可焊性图片 Annex II: Solderability Picture



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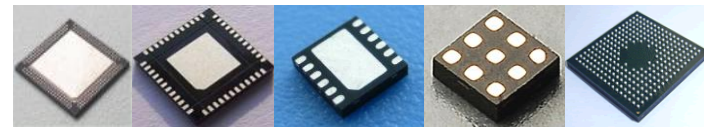
Solderability Picture	检测结果Description
 A photograph showing a grid of small, rectangular metal components, likely test pieces, arranged on a dark surface. Each component has a bright, reflective area, indicating successful soldering.	<p>Solderability试验后外观检查均合格(粘锡大于95%) Solderability test after the appearance of inspection are qualified.</p>





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The End!





# Qualify HDS as Second Source PPF Lead Frame Electrical Characterization Summary

Les 25AUG2022

# Test Characterization Summary



## uClamp0502P

							AER-8550	AER-7719	
							HDS_LF	POR	
Parameter	Symbol	Conditions		Unit	Min.	Typ.	Max.	Ave.	Ave.
Reverse Stand-Off Voltage	$V_{RWM}$			V			5		
Reverse Breakdown Voltage	$V_{BR}$	$I_t = 1\text{mA}$ , L-G		V	6	7	8	7.08	7.13
Reverse Leakage Current	$I_R$	$V_{RWM} = 5\text{V}$ , L-G		nA		<10	250	6.1	5.9
Forward Voltage	$V_F$	$I_F = 10\text{mA}$ , G-L		V		0.8	1.2	0.86	0.86
Clamping Voltage	$V_C$	$t_p = 8/20\mu\text{s}$ , L-G	$I_{PP} = 2\text{A}$	V			12.5	8.8	8.9
ESD Clamping Voltage	$V_C$	$t_p = 0.2/100\text{ns}$ , L-G	$I_{PP} = 4\text{A}$	V		13.4		9.1	9.1
			$I_{PP} = 16\text{A}$			15.2		13.4	13.3
Dynamic Resistance	$R_{DYN}$	$t_p = 0.2/100\text{ns}$ (TLP)		Ohm		0.15		0.36	0.35
Junction Capacitance	$C_J$	$V_r = 0\text{V}$ , $f = 1\text{MHz}$	L-G	pF			10	9.51	9.22
		$V_r = 3.3\text{V}$ , $f = 1\text{MHz}$				4.5		5.03	4.81
Peak Pulse Current ( $t_p = 8/20\mu\text{s}$ )		$I_{PP}$		A			2	2.6	2.4
ESD per IEC 61000-4-2 (Contact)		$V_{ESD}$		kV			$\pm 15$	$\pm 18$	$\pm 17$
ESD per IEC 61000-4-2 (Air)							$\pm 20$	$\pm 20$	$\pm 21$

### Conclusion:

Characterization performance comparison between HDS qualification and process of record (POR) shows no significant differences and meets all data sheet requirements.



*End of Report*