



PRODUCT / PROCESS CHANGE NOTIFICATION

PCN-000260

Date: May 9, 2014

P1/2

<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"/>	Nanotech Semiconductor, Semtech Corporation, 2 West Point Court, Bristol, United Kingdom, BS32 4PY
<input type="checkbox"/>	Semtech Corpus Christi SA de CV, Carretera Matamorros Edificio 7, Reynosa, Tamaulipas, Mexico 88780
<input type="checkbox"/>	

Change Details

Part Number(s) Affected: EClamp2122S.TCT RClamp0504S.TCT RClamp0524S.TCT RClamp0554S.TCT RClamp1224S.TCT RClamp3354S.TCT SMS05.TCT SMS05C.TCT SMS12.TCT SMS12C.TCT SMS15.TCT SMS15C.TCT SMS24.TCT SMS24C.TCT SMS3.3.TCT SRV05-4.TCT SRV05-4ATCT SRV08-4.TCT STF201-22.TCT STF201-30.TCT STF202-22.TCT STF202-30.TCT TClamp1201S.TCT	Customer Part Number(s) Affected: <input checked="" type="checkbox"/> N/A
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Description, Purpose and Effect of Change:

SOT25 & SOT26 lead frame material change from EFTEC-64T to CDA194 due to worldwide shortage of EFTEC-64T raw material from Furukawa plant shutdown. Current SOT25/26 lead frame supplier is MHT, adding NBKQ (current supplier of QFN lead frame) as another supplier.

Furukawa plant shutdown due to building collapse from heavy snow. This event was not reasonably foreseeable by the lead frame supplier. Therefore this is a Force Majeur event.

Due to this Force Majeur event, there is insufficient EFTEC-64T lead frames available for current orders.

Change Classification	<input checked="" type="checkbox"/> Major <input type="checkbox"/> Minor	Impact to Form, Fit, Function	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
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Impact to Data Sheet	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	New Revision or Date	<input checked="" type="checkbox"/> N/A
Impact to Performance, Characteristics or Reliability: <ul style="list-style-type: none"> There is no impact to performance, reliability or product characteristics. 			
Implementation Date	5/12/2014	Work Week	1420
Last Time Ship (LTS) Of unchanged product	5/12/2014	Affecting Lot No. / Serial No. (SN)	Starting 5/12/2014
Sample Availability	Now	Qualification Report Availability	Now
Supporting Documents for Change Validation/Attachments: <ul style="list-style-type: none"> SOT25/26 Material Change Qual Report from Diodes 			
Issuing Authority			
Semtech Business Unit:	Protection Products Group		
Semtech Contact Info:	Pat Sanchez Semtech Corporation Sr. Manager, Corporate Quality 200 Flynn Road Camarillo, CA 93012 Psanchez@semtech.com Office: (805) 480-2074 Fax: (805) 498-3804		
FOR FURTHER INFORMATION & WORLDWIDE SALES COVERAGE: http://www.semtech.com/contact/index.html#support			



SOT25/26 Material Change Qual Report

Presenter: Moore Mao

Date: 3/28/13 update

This presentation contains Diodes proprietary and confidential information



- All Assembly Data Meet Spec
- Assembly Data CPK>1.67
- Test Yield Performance
- Reliability Test Schedule

This presentation contains Diodes proprietary and confidential information



www.diodes.com

➤ 1. Background:

SAT facing EFTEC-64T raw material shortage crisis caused by the supplier (Furukawa) snow disaster resulting in plant shutdown.

FURUKAWA is sole source for supply EFTEC-64T in whole world.

There are 23 SEMTECH devices will be affected (Epoxy process), here is purpose to change the material from EFTEC-64T to CDA194.



PCN of SOT26&26
DF change materi:

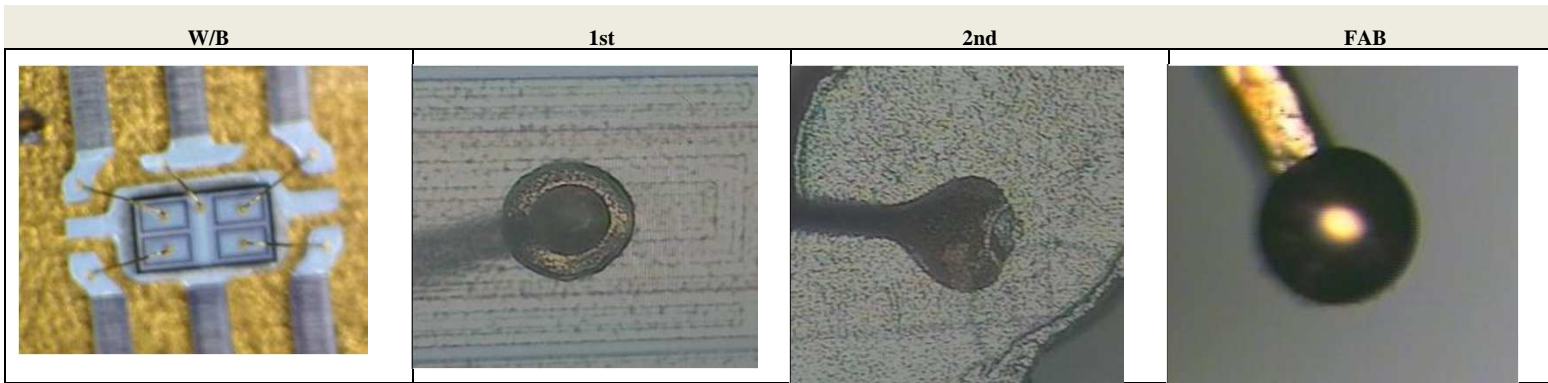
➤ 2. Qualification Matrix

Lot NO	Purposal	P/N	Quantity (k)	Package	LDF type	Comments
SWR1403078	SEMTECH AER (E64 to A194) - 1st lot	SRV05-4.TCT	3.0	SOT-26	SOT-26A	Qual lot
SWR1403079	SEMTECH AER (E64 to A194) - 2nd lot	SRV05-4.TCT	3.0	SOT-26	SOT-26A	Qual lot
SWR1403080	SEMTECH AER (E64 to A194) - 3rd lot	SRV05-4.TCT	3.0	SOT-26	SOT-26A	Qual lot
SWR1403081	SEMTECH AER (E64 to A194)	SRV05-4.TCT	2.0	SOT-26	SOT-26A	Control lot

➤ 3. Assy result compare with existing material

3.1 Assy data wire pull & die shear all match the SPEC. Die shear >500g. Assy yield show good performance.

Lot NO	Purposal	P/N	Cpk		Die Shear(g)	Assy Yield(%)	Comments
			Wire Pull	Ball Shear			
SWR1403078	SEMTECH AER (E64 to A194) - 1st lot	SRV05-4.TCT	5.67	2.23	>500	99.45	Qual lot
SWR1403079	SEMTECH AER (E64 to A194) - 2nd lot	SRV05-4.TCT	N/A	N/A	N/A	99.84	Qual lot
SWR1403080	SEMTECH AER (E64 to A194) - 3rd lot	SRV05-4.TCT	N/A	N/A	N/A	99.88	Qual lot
SWR1403081	SEMTECH AER (E64 to A194)	SRV05-4.TCT	4.31	3.20	>500	99.84	Control lot



SWR assy report

➤ 4. Test Result

4.1 Compare the qual lots with control lot, qual lot got the better FT yield performance(AVG:98.26%).

L/N	Customer	P/N	Package	TEST SITE	Input	Output	Yield	Major rejects						Comments
								Cont	Open	Short	BIN5-Vf-FAIL	BIN6-Vbr-FAIL	BIN8-Ir-FAIL	
SWR1403078	Semtech	SRV05-4.TCT	SOT-26	FT	2590	2528	97.61%	10	23	9	9	2	9	Qual Lot
SWR1403079	Semtech	SRV05-4.TCT	SOT-26	FT	2539	2490	98.07%	10	4	8	7	0	20	Qual Lot
SWR1403080	Semtech	SRV05-4.TCT	SOT-26	FT	2525	2502	99.09%	5	3	5	4	1	5	Qual Lot
SWR1403081	Semtech	SRV05-4.TCT	SOT-26	FT	1599	1546	96.69%	23	3	3	14	0	10	Control lot



FT raw data

➤ 5. Dim. data for SOT-26 (CDA194)

封装: SOT-26

	尺寸	A	B	C	D	G	H	J	K	L	M	N	a
	SPEC (mm)	0.35-0.50	1.50-1.70	2.70-3.00	0.95	1.90	2.90-3.10	0.013-0.10	1.00-1.30	0.35-0.55	0.10-0.20	0.70-0.80	8°
Data	1	0.410	1.609	2.869	0.949	1.906	3.019	0.061	1.112	0.468	0.153	0.720	2° 52
	2	0.417	1.613	2.861	0.954	1.898	3.029	0.074	1.101	0.475	0.162	0.734	4° 16
	3	0.415	1.620	2.892	0.946	1.903	3.033	0.050	1.110	0.457	0.165	0.738	5° 03
	4	0.408	1.624	2.881	0.953	1.906	3.052	0.055	1.115	0.450	0.168	0.725	4° 34
	5	0.412	1.614	2.879	0.956	1.898	3.036	0.063	1.099	0.452	0.159	0.727	2° 40
	6	0.410	1.603	2.860	0.955	1.896	3.044	0.068	1.095	0.468	0.155	0.734	3° 27
	7	0.393	1.619	2.850	0.946	1.902	3.027	0.068	1.106	0.480	0.162	0.733	4° 46
	8	0.399	1.625	2.872	0.951	1.907	3.023	0.058	1.115	0.459	0.167	0.724	5° 12
	9	0.425	1.623	2.871	0.956	1.905	3.038	0.062	1.117	0.473	0.150	0.734	4° 29
	10	0.400	1.615	2.883	0.955	1.896	3.011	0.099	1.108	0.482	0.165	0.738	6° 17
	11	0.419	1.611	2.879	0.949	1.893	3.031	0.050	1.102	0.461	0.168	0.723	4° 42
	12	0.410	1.606	2.876	0.951	1.901	3.025	0.071	1.112	0.464	0.156	0.716	6° 35
	13	0.403	1.618	2.874	0.954	1.904	3.028	0.086	1.118	0.473	0.162	0.725	3° 39
	14	0.399	1.624	2.888	0.947	1.895	3.030	0.076	1.087	0.474	0.160	0.735	4° 48
	15	0.406	1.612	2.883	0.953	1.907	3.031	0.081	1.092	0.472	0.151	0.724	6° 30
	16	0.415	1.606	2.874	0.948	1.902	3.042	0.083	1.100	0.452	0.166	0.732	6° 49
	17	0.403	1.618	2.870	0.950	1.897	3.033	0.067	1.107	0.473	0.164	0.736	3° 27
	18	0.407	1.603	2.882	0.950	1.906	3.019	0.060	1.115	0.466	0.151	0.722	5° 40
	19	0.413	1.614	2.876	0.953	1.903	3.043	0.067	1.096	0.470	0.161	0.725	5° 21
	20	0.418	1.627	2.881	0.953	1.899	3.034	0.074	1.104	0.473	0.170	0.730	6° 39
	21	0.403	1.621	2.893	0.950	1.905	3.022	0.083	1.112	0.461	0.157	0.734	4° 42
	22	0.418	1.615	2.877	0.957	1.893	3.043	0.081	1.100	0.477	0.166	0.723	5° 18
	23	0.406	1.610	2.874	0.954	1.903	3.029	0.068	1.098	0.472	0.176	0.731	4° 45
	24	0.407	1.619	2.868	0.948	1.907	3.034	0.079	1.103	0.476	0.175	0.728	5° 27
	25	0.416	1.625	2.875	0.946	1.902	3.039	0.090	1.111	0.474	0.164	0.721	3° 30
	26	0.428	1.617	2.880	0.949	1.898	3.022	0.088	1.116	0.465	0.162	0.734	3° 22
	27	0.422	1.607	2.864	0.950	1.905	3.038	0.079	1.105	0.472	0.176	0.720	4° 11
	28	0.405	1.608	2.870	0.957	1.901	3.039	0.075	1.118	0.476	0.165	0.733	4° 56
	29	0.401	1.623	2.875	0.949	1.896	3.021	0.088	1.108	0.467	0.152	0.738	5° 33
	30	0.398	1.618	2.866	0.950	1.901	3.026	0.083	1.097	0.466	0.167	0.731	6° 24



Dim.data of
SOT-26 package

➤ 6. Reliability Schedule:

P/N	LDF type	Request NO	Qual or control lot	Qual steps and tests							
				Precondition	PCT	TC 168	TC 500	HTS 168	HTS 500	HTS 1000	SD
SRV05-4.TCT	SOT-26A	SWR1403078	Qual lot	(0/154)	(0/77)	(0/77)	(0/77)	(0/77)	04/11/14	05/02/14	(0/10)
SRV05-4.TCT	SOT-26A	SWR1403079	Qual lot	(0/154)	(0/77)	(0/77)	(0/77)	-	-	-	(0/10)
SRV05-4.TCT	SOT-26A	SWR1403080	Qual lot	(0/154)	(0/77)	(0/77)	(0/77)	-	-	-	(0/10)



SRV05-4.TCT
SWR1403078



SRV05-4.TCT
SWR1403079



SRV05-4.TCT
SWR1403080



Thank you

This presentation contains Diodes proprietary and confidential information

Solderability Test Report

1. Background:

To evaluate the solderability of device package terminations .

2. Sample Description:

Package	P/N	L/N	Sample size	Solder	Flux Type
SOT-26	SRV05-4.TCT	SWR1403078	22pcs	96.5Sn/3.0Ag/0.5Cu	Kester 182

3. Reference standard:

JESD22-B102 TEST Method 1 - Dip and Look Test.

4. Test Condition:

Preconditioning: Steam aging 93°C+3°C/-5°C, 8 hrs

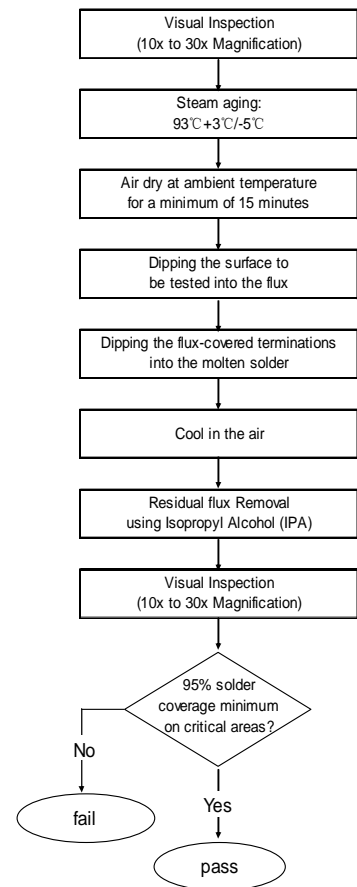
Solder dip: SnAgCu 245°C ± 5°C, 5 ± 0.5s

5. Test step:

- Preconditioning the test parts by steam soak.
- Air dry at ambient temperature for a minimum of 15 minutes.
- Dipping the surface to be tested into the flux.
- Dipping the flux-covered terminations into the molten solder.
- Cool in the air, Residual flux shall be removed.
- Use magnifying glass examination and evaluation of the tested terminations.

6. Test Results

- All leads exhibited a continuous solder coverage for a minimum of 95% of the critical surface area.
- All samples passed visual inspection criteria after solderability testing at its designated temperatures.
- Please refer to the attached picture of 10pcs samples.



Prepared by: Bin Shen 4/1/14

Reviewed by: Adam Gu 4/1/14

Solderability Test Report

Post Test Photos:

Sample 1



Sample 4



Sample 3



Sample 4



Sample 5



Sample 6



Sample 7



Sample 8



Sample 9



Sample 10



Sample 11



Sample 12



Sample 13



Sample 14



Sample 15



Sample 16



Sample 17



Sample 18



Sample 19



Sample 20



Sample 21



Sample 22

