Standardized Information for Process/Product Change Notification (PCN)

1. PCN basic data		
1.1 Company		STMicroelectronics International N.V
1.2 PCN No.		ADG/18/11316
1.3 Title of PCN		VIPower in PowerSO-10/16: Qualification of TANAKA as Additional Supplier for the 10 mils Aluminum Wire
1.4 Product Category		Active Components – Discrete Components
1.5 Issue date		

1.6 PCN revision history (optional)	1.7 Issue date of previous revision (optional)	1.8 Delta to previous revision (optional)

2. PCN Team		
2.1 Contact supplier		
2.1.1 Name	Dominique GIGOU Vinay Kumar KODATI	
2.1.2 Phone	+49 89460062396 '+49 89460062225	
2.1.3 Email	dominique.gigou@st.com vinay-kumar.kodati@st.com	
2.2 Team supplier (optional)		

2.2.1 Name (optional)	2.2.2 Phone (optional)	2.2.3 Email (optional)

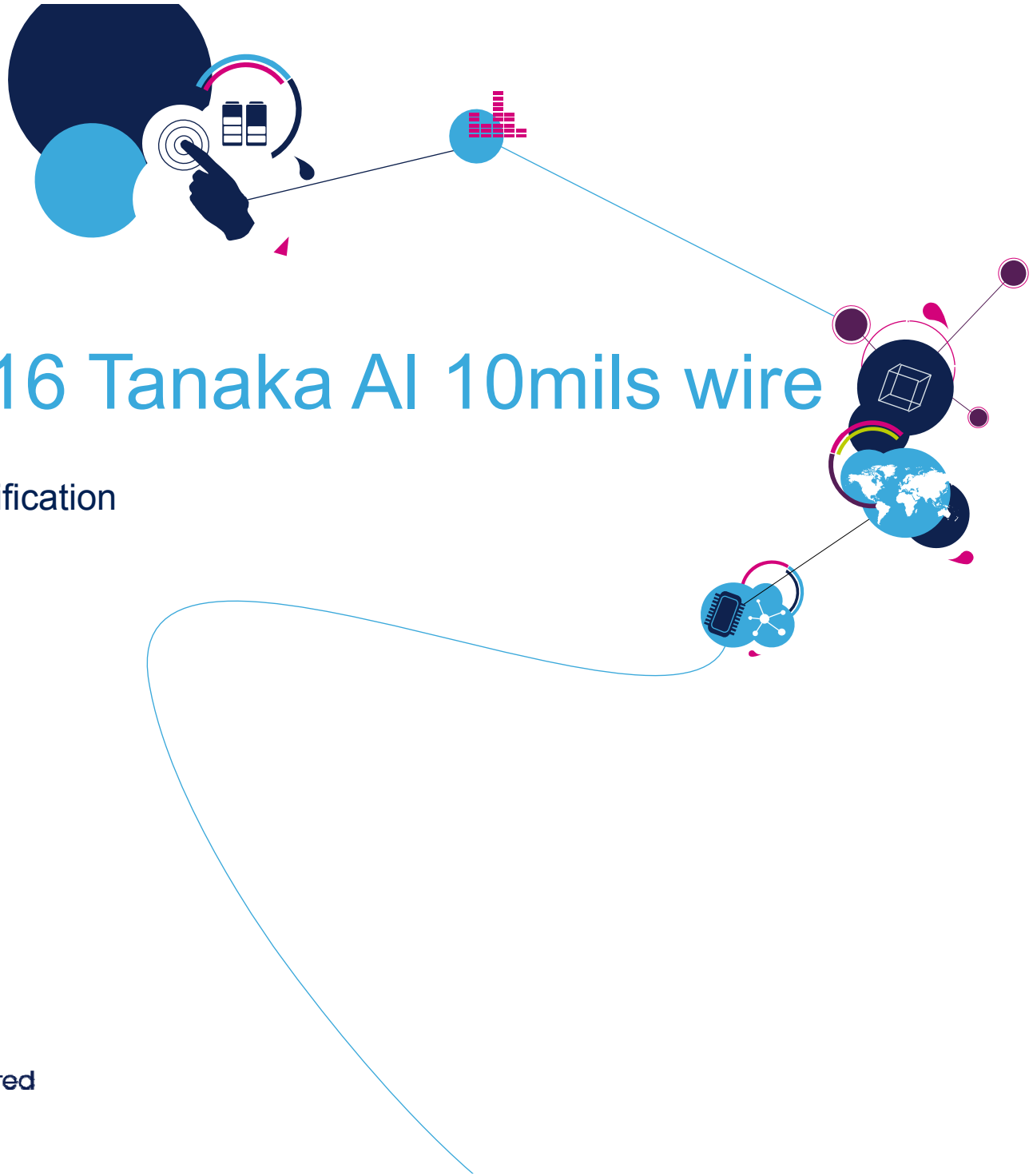
3. Changes

No.	3.0 Ident	3.1 Category	3.2 Type of change
#1	SEM-PA-16	PROCESS - ASSEMBLY	Change of direct material supplier
#2			
#3			
#4			
#5			

4. Description of change

	Old	New
Change #1	Heraeus 10 mils Al wire bonding	Tanaka 10 mils Al wire bonding
Change #2		
Change #3		
Change #4		
Change #5		
4.6 Anticipated impact on form, fit, function, reliability or processability?	No impact	
4.7 Reference parts with customer number (optional)		

Form provided by ZVEI - Revision 3.0.0



PwSO10/16 Tanaka Al 10mils wire

- New supplier qualification

January, 2019

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Outline

Change description

Qualification of Tanaka as alternative Al 10 mils wire supplier to be used in the PSO10/16 line in Muar

The proposed wire is already used in Muar.

Despite the Tanaka wire has got exactly the same composition as the current Heraeus wire (99.99% Aluminum), the Tanaka wire is softer thanks to a thermal annealing process implemented by the supplier

The main advantages of Tanaka wire vs Heraeus wire are two:

1. Quality improvement: the usage of a softer wire ultimately results in a less stressed bonding pad
2. Material standardization inside the assembly plant

Selected Test Vehicles

VN5E006ASPTR-E (Silicon Line **VH22**)

VN920SPTR-E (Silicon Line **VN92**)

BOM comparison PSO10

Product Lines:
VH04 → CP: VN5D05-E / VN5D05TR-E
VH22 → CP: VN5E006ASP-E / VN5E006ASPTR-E
VH35 → CP: VN5T006ASP-E / VN5T006ASPTR-E

Current Bill of Material	
ITEM	**MATERIAL**
WIRE	Gold 1.3 mils
WIRE	Al D10 BL450-550g EL10-18%
RESIN	SUMITOMO G700LS
GLUE	TAPE ADWILL LE-5000P8AS
FRAME	FRAME PSO-10 4riv 1-5Fused PlNi/NiP-Ag
PREFORM	Pb/Ag/Sn 97.5/1.5/1

New Bill of Material	
ITEM	**MATERIAL**
WIRE	Gold D1.3 mils
WIRE	Al D10 BL210-300g EL10-30%
RESIN	SUMITOMO G700LS
GLUE	TAPE ADWILL LE-5000P8AS
FRAME	FRAME PSO-10 4riv 1-5Fused PlNi/NiP-Ag
PREFORM	Pb/Ag/Sn 97.5/1.5/1

Product Line:
VN92 CP: VN920SP-E / VN920SPTR-E
VN83 CP: VND830SPTR-E

Current Bill of Material	
ITEM	**MATERIAL**
WIRE	Gold 1.3 mils
WIRE	Al D10 BL450-550g EL10-18%
RESIN	SUMITOMO G700LS
PREFORM	Pb/Ag/Sn 97.5/1.5/1
FRAME	FRAME PSO-10 4riv 1-2/4-5Fus PlNi/NiP-Ag

New Bill of Material	
ITEM	**MATERIAL**
WIRE	Gold 1.3 mils
WIRE	Al D10 BL210-300g EL10-30%
RESIN	SUMITOMO G700LS
PREFORM	Pb/Ag/Sn 97.5/1.5/1
FRAME	FRAME PSO-10 4riv 1-2/4-5Fus PlNi/NiP-Ag

BOM comparison PSO10

Product Line: VN61
CP: VN610SPTR-E

Current Bill of Material	
ITEM	**MATERIAL**
WIRE	Gold 1.3 mils
WIRE	Al D10 BL450-550g EL10-18%
RESIN	SUMITOMO G700LS
PREFORM	Pb/Ag/Sn 97.5/1.5/1
FRAME	FRAME PSO-10 4riv 1-5Fused PlNi/NiP-Ag

New Bill of Material	
ITEM	**MATERIAL**
WIRE	Gold 1.3 mils
WIRE	Al D10 BL210-300g EL10-30%
RESIN	SUMITOMO G700LS
PREFORM	Pb/Ag/Sn 97.5/1.5/1
FRAME	FRAME PSO-10 4riv 1-5Fused PlNi/NiP-Ag

BOM comparison PSO16

Product Line: VH33
CP: VND5T016ASPTR - VND5T016ASP-E

Current Bill of Material	
ITEM	**MATERIAL**
WIRE	Gold 1.3 mils
WIRE	Al D10 BL450-550g EL10-18%
RESIN	SUMITOMO G700LS
GLUE	TAPE ADWILL LE-5000P8AS
FRAME	FRAME PSO-16 4riv 1-4/5-8fused PlNi/NiP
PREFORM	Pb/Ag/Sn 97.5/1.5/1

New Bill of Material	
ITEM	**MATERIAL**
WIRE	Gold D1.3 mils
WIRE	Al D10 BL210-300g EL10-30%
RESIN	SUMITOMO G700LS
GLUE	TAPE ADWILL LE-5000P8AS
FRAME	FRAME PSO-16 4riv 1-4/5-8fused PlNi/NiP
PREFORM	Pb/Ag/Sn 97.5/1.5/1

Wire Comparison

ITEM	EXISTING	NEW
Diameter	10 mils	10 mils
Break load	450-550g	210-300g
Elongation	10 – 18%	10 – 30%
Spool Wire length	400 meters	400 meters
Supplier	Heraeus	Tanaka
Part Number	5XW14314	5XW50876
Material	Al 99.99%	Al 99.99%

VN5E006ASPTR-E
10 mils Tanaka qualification

Prepared By: Muar BEM&T QA Reliability Laboratory

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Note: Sampling 251 pcs/lot – taken from tested good units after FT.

Reliability Test Status									
No	Test Name	Prec	Condition/ Method	Steps	Steps	Fails/SS			Notes
						9980927801 Control NN	99809278RR Qual LL	99809278RQ Qual NN	
1	PC (JL3 STD)		Bake 24 hrs @ 125°C Soak 192 hrs @ 30°C / 60% RH Reflow Profile = J-STD-020D (Tmax = 250°C)	Final	TSAM (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	0 delam / 60 pcs	
					CSAM TOP (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	0 delam / 60 pcs	
					ATE	0 def / 169 pcs	0 def / 169 pcs	0 def / 169 pcs	
					TSAM	0 delam / 40 pcs	0 delam / 40 pcs	0 delam / 40 pcs	
					CSAM TOP	0 delam / 40 pcs	0 delam / 40 pcs	0 delam / 40 pcs	
2	TC	Yes	TA = -55°C / +150°C	500 Cycle	ATE	0 def / 92 pcs	0 def / 92 pcs	0 def / 92 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	Pass	
				1000 Cycle	ATE	0 def / 87 pcs	0 def / 87 pcs	0 def / 87 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	Pass	

Note: Sampling 251 pcs/lot – taken from tested good units after FT.

Reliability Test Status									
No	Test Name	Prec	Condition/ Method	Steps	Steps	Fails/SS			Notes
						9980927801 Control NN	99809278RR Qual LL	99809278RQ Qual NN	
3	Env Seq	Yes	TA = -65°C / +150°C PPT 121°C/ 2Atm	100 cycle 96 hrs	ATE	0 def / 77 pcs	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
4	HTS	No	TA = 150°C	1000 hrs	ATE	0 def / 82 pcs	0 def / 82 pcs	0 def / 82 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	Pass	

Note: Sampling 251 pcs/lot – taken from tested good units after FT.

Reliability Test Status									
No	Test Name	Prec	Condition/ Method	Steps	Steps	Fails/SS			Notes
						99809278RP Qual HH	99809278RN Qual LH	99809278RM Qual HL	
1	PC (JL3 STD)		Bake 24 hrs @ 125°C Soak 192 hrs @ 30°C / 60% RH Reflow Profile = J-STD-020D (Tmax = 250°C)	Final	TSAM (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	0 delam / 60 pcs	
					CSAM TOP (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	0 delam / 60 pcs	
					ATE	0 def / 169 pcs	0 def / 169 pcs	0 def / 169 pcs	
					TSAM	0 delam / 40 pcs	0 delam / 40 pcs	0 delam / 40 pcs	
					CSAM TOP	0 delam / 40 pcs	0 delam / 40 pcs	0 delam / 40 pcs	
2	TC	Yes	TA = -55°C / +150°C	500 Cycle	ATE	0 def / 92 pcs	0 def / 92 pcs	0 def / 92 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	Pass	
				1000 Cycle	ATE	0 def / 87 pcs	0 def / 87 pcs	0 def / 87 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	Pass	

Note: Sampling 159 pcs/lot – taken from tested good units after FT.

Reliability Test Status									
No	Test Name	Prec	Condition/ Method	Steps	Steps	Fails/SS			Notes
						99809278RP Qual HH	99809278RN Qual LH	99809278RM Qual HL	
3	Env Seq	Yes	TA = -65°C / +150°C PPT 121°C/ 2Atm	100 cycle 96 hrs	ATE	0 def / 77 pcs	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
4	HTS	No	TA = 150°C	1000 hrs	ATE	0 def / 82 pcs	0 def / 82 pcs	0 def / 82 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	Pass	
				2000 hrs	ATE	0 def / 77 pcs	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	Pass	

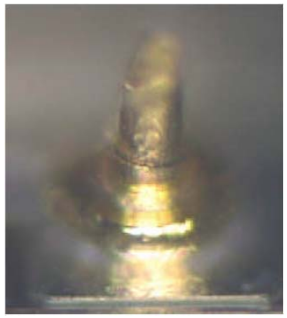
After TMC 1000Cycle

RELIABILITY MONITORING RESULTS

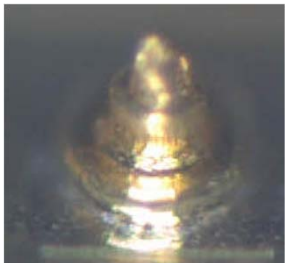
Wire pull test after TMC 1000Cycle

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	99809278RM	Au 1.3mils	6gm	20.02	16.69	18.29	0.96	Wire Break & Ball Neck Break
2	99809278RN			20.19	16.09	18.24	1.03	Wire Break & Ball Neck Break
3	99809278RP			21.89	16.55	18.61	1.25	Wire Break & Ball Neck Break
4	99809278RQ			21.68	16.14	18.47	1.26	Wire Break & Ball Neck Break
5	99809278RR			21.57	16.29	18.51	1.19	Wire Break & Ball Neck Break
6	9980927801			20.67	16.46	18.51	1.07	Wire Break & Ball Neck Break



Au 1.30mils_Wire Break



Au 1.30mils_Ball Neck Break

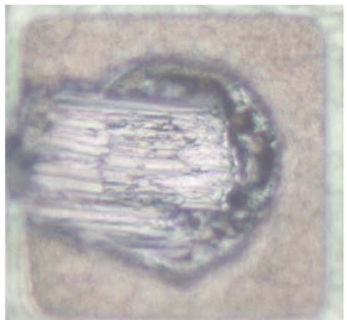
After TMC 1000Cycle

RELIABILITY MONITORING RESULTS

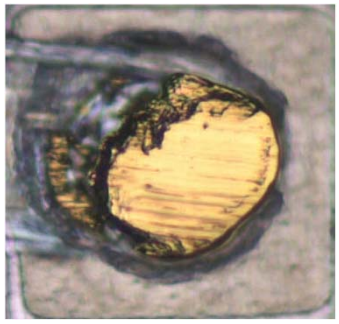
Ball Shear test after TMC 1000Cycle

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	99809278RM	Au 1.3mils	42.60gm	81.01	54.18	67.70	5.53	Ball Shear
2	99809278RN			81.77	57.14	69.64	8.27	Aluminium Shear
3	99809278RP			67.54	48.10	59.71	4.66	Aluminium Shear & Ball Shear
4	99809278RQ			78.34	58.07	69.13	5.01	Aluminium Shear & Ball Shear
5	99809278RR			76.78	58.35	66.01	4.05	Aluminium Shear & Ball Shear
6	9980927801			65.21	45.19	59.11	3.95	Ball Shear



Au 1.30mils_Aluminium Shear



Au 1.30mils_Ball Shear

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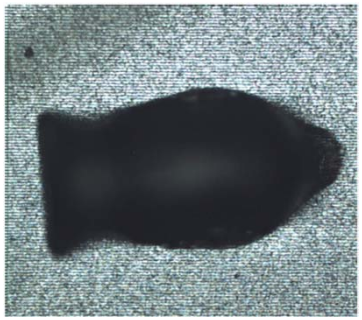
After TMC 1000Cycle

RELIABILITY MONITORING RESULTS

Wire pull test after TMC 1000Cycle

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	99809278RM	AL 10mils	140gm	348.65	276.54	310.18	22.54	Weld Neck Break
2	99809278RN			376.87	244.87	307.09	30.37	Weld Neck Break
3	99809278RP			398.87	277.54	330.57	35.06	Weld Neck Break
4	99809278RQ			387.43	239.76	337.94	36.77	Weld Neck Break
5	99809278RR			398.76	307.65	347.84	23.46	Weld Neck Break
6	9980927801			387.68	234.09	327.28	43.86	Weld Neck Break



AL 10mils_Wire Break

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After Env Seq

RELIABILITY MONITORING RESULTS

Ball Shear test after Env Seq (TMC 100cycle+PPT 96hrs)

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	99809278RM	AL 10mils	280gm	782.67	659.76	721.79	31.91	Aluminium Shear
2	99809278RN			799.56	629.87	704.29	34.07	Aluminium Shear
3	99809278RP			773.65	653.99	716.76	34.13	Aluminium Shear
4	99809278RQ			786.65	654.57	726.04	37.84	Aluminium Shear
5	99809278RR			725.09	629.08	687.92	26.98	Aluminium Shear
6	9980927801			769.79	654.99	704.29	25.97	Aluminium Shear

AL 10mils_Aluminium Shear

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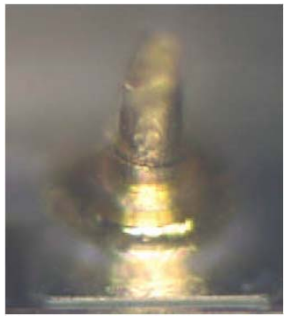
RELIABILITY MONITORING RESULTS

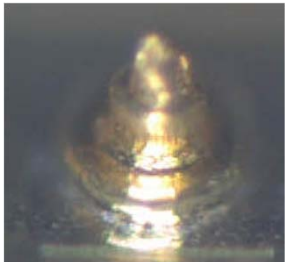
Wire pull test after Env Seq (TMC 100cycle+PPT 96hrs)

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	99809278RM	Au 1.3mils	6gm	19.91	15.90	17.64	1.21	Wire Break & Ball Neck Break
2	99809278RN			20.22	16.30	17.94	0.91	Wire Break & Ball Neck Break
3	99809278RP			20.30	15.57	18.00	0.99	Wire Break & Ball Neck Break
4	99809278RQ			19.44	15.91	17.89	0.78	Wire Break & Ball Neck Break
5	99809278RR			20.04	15.52	17.90	1.10	Wire Break & Ball Neck Break
6	9980927801			21.13	16.06	18.48	1.29	Wire Break & Ball Neck Break



Au 1.30mils_Wire Break



Au 1.30mils_Ball Neck Break

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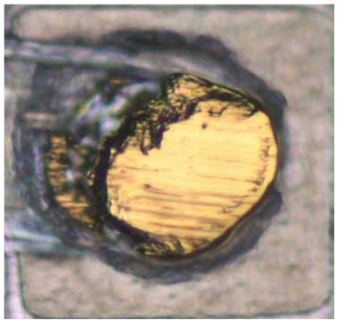
After Seq (TMC 100Cycle + 96hrs)

RELIABILITY MONITORING RESULTS

Ball Shear test after Env Seq (TMC 100cycle+PPT 96hrs)

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	99809278RM	Au 1.3mils	42.60gm	67.45	50.43	60.44	3.51	Ball Shear
2	99809278RN			72.67	59.56	68.28	3.21	Ball Shear
3	99809278RP			63.06	46.86	63.06	4.39	Ball Shear
4	99809278RQ			79.65	57.69	69.40	5.62	Ball Shear
5	99809278RR			92.68	61.59	75.98	8.46	Ball Shear
6	9980927801			82.83	52.58	69.65	8.10	Ball Shear



Au 1.30mils_Ball Shear

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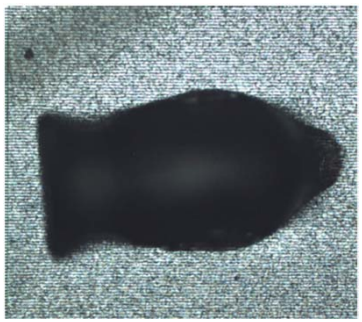
RELIABILITY MONITORING RESULTS

Wire pull test after Seq (TMC 100cycle+PPT 96hrs)

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	99809278RM	AL 10mils	140gm	389.87	249.67	318.01	39.02	Weld Neck Break
2	99809278RN			445.61	301.45	390.40	40.96	Weld Neck Break
3	99809278RP			434.10	306.40	377.19	37.43	Weld Neck Break
4	99809278RQ			499.32	325.32	413.42	51.06	Weld Neck Break
5	99809278RR			475.62	325.12	377.43	33.19	Weld Neck Break
6	9980927801			376.45	269.85	338.54	30.99	Weld Neck Break



AL 10mils_Wire Break

RELIABILITY MONITORING RESULTS

Ball Shear test after Seq (TMC 100cycle+PPT 96hrs)

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	99809278RM	AL 10mils	280gm	798.00	548.08	713.95	55.07	Aluminium Shear
2	99809278RN			793.70	518.20	648.72	78.61	Aluminium Shear
3	99809278RP			841.90	519.90	729.18	66.02	Aluminium Shear
4	99809278RQ			795.62	615.32	705.42	50.81	Aluminium Shear
5	99809278RR			878.31	705.33	791.76	47.37	Aluminium Shear
6	9980927801			869.12	623.46	751.41	53.24	Aluminium Shear

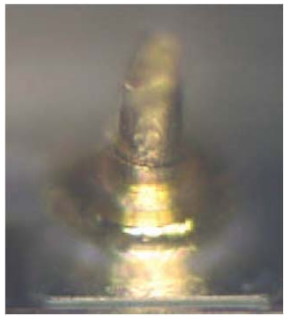
AL 10mils_Aluminium Shear

RELIABILITY MONITORING RESULTS

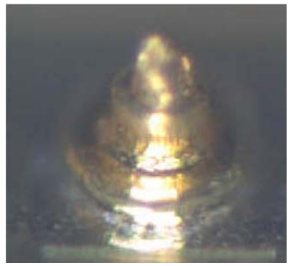
Wire pull test after HTS 1000hrs

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	99809278RM	Au 1.3mils	6gm	20.59	15.89	18.00	1.11	Wire Break & Ball Neck Break
2	99809278RN			20.87	15.66	17.98	1.02	Wire Break & Ball Neck Break
3	99809278RP			20.17	16.09	17.94	0.96	Wire Break & Ball Neck Break
4	99809278RQ			19.55	16.10	18.10	0.90	Wire Break & Ball Neck Break
5	99809278RR			19.53	16.86	18.07	0,70	Wire Break & Ball Neck Break
6	9980927801			19.55	16.36	19.55	0.90	Wire Break & Ball Neck Break



Au 1.30mils_Wire Break



Au 1.30mils_Ball Neck Break

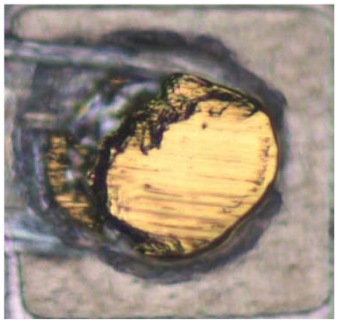
After HTS 1000hrs

RELIABILITY MONITORING RESULTS

Ball Shear test after HTS 1000hrs

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	99809278RM	Au 1.3mils	42.60gm	93.85	62.78	73.75	7.41	Ball Shear
2	99809278RN			84.59	65.56	73.04	4.86	Ball Shear
3	99809278RP			98.31	65.70	78.56	8.96	Ball Shear
4	99809278RQ			96.65	60.99	76.00	8.47	Ball Shear
5	99809278RR			95.97	66.92	78.02	7.92	Ball Shear
6	9980927801			95.71	64.75	76.85	8.86	Ball Shear



Au 1.30mils_Ball Shear

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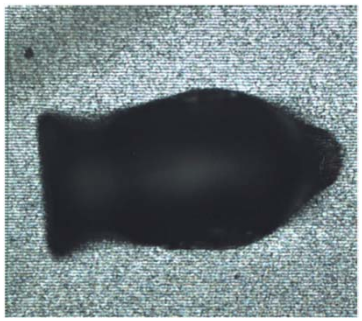
RELIABILITY MONITORING RESULTS

Wire pull test after HTS 1000hrs

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	99809278RM	AL 10mils	140gm	387.45	298.73	339.53	23.31	Weld Neck Break
2	99809278RN			445.61	298.67	373.73	47.88	Weld Neck Break
3	99809278RP			434.10	306.40	377.19	37.43	Weld Neck Break
4	99809278RQ			499.32	325.32	413.42	51.06	Weld Neck Break
5	99809278RR			398.76	278.97	364.48	32.94	Weld Neck Break
6	9980927801			390.56	279.65	352.73	32.77	Weld Neck Break



AL 10mils_Wire Break

RELIABILITY MONITORING RESULTS

Ball Shear test after HTS 1000hrs

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	99809278RM	AL 10mils	280gm	834.08	678.65	748.47	39.85	Aluminium Shear
2	99809278RN			793.70	518.20	648.72	78.61	Aluminium Shear
3	99809278RP			841.90	519.90	729.18	66.02	Aluminium Shear
4	99809278RQ			795.62	615.32	705.42	50.81	Aluminium Shear
5	99809278RR			819.67	672.66	734.16	34.62	Aluminium Shear
6	9980927801			789.65	678.54	744.99	35.12	Aluminium Shear

AL 10mils_Aluminium Shear

VN920SPTR-E

10 mils Tanaka qualification

Updated : 16th Aug 2018

Prepared By: Muar BEM&T QA Reliability Laboratory

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VN920SPTR-E – 10 mils Tanaka qualification

Note: Sampling 251 pcs/lot – taken from tested good units after FT.

Reliability Test Status									
No	Test Name	Prec	Condition/ Method	Steps	Steps	Fails/SS			Notes
						9981016J01 Control NN	9981016JRR Qual LL	9981016JRQ Qual NN	
1	PC (JL3 STD)		Bake 24 hrs @ 125°C Soak 192 hrs @ 30°C / 60% RH Reflow Profile = J-STD-020D (Tmax = 250°C)	Final	TSAM (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	0 delam / 60 pcs	
					CSAM TOP (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	0 delam / 60 pcs	
					ATE	0 def / 169 pcs	0 def / 169 pcs	0 def / 169 pcs	
					TSAM	0 delam / 40 pcs	0 delam / 40 pcs	0 delam / 40 pcs	
					CSAM TOP	0 delam / 40 pcs	0 delam / 40 pcs	0 delam / 40 pcs	
2	TC	Yes	TA = -55°C / +150°C	500 Cycle	ATE	0 def / 92 pcs	0 def / 92 pcs	0 def / 92 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	Pass	
				1000 Cycle	ATE	0 def / 87 pcs	0 def / 87 pcs	0 def / 87 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	Pass	

VN920SPTR-E – 10 mils Tanaka qualification

Note: Sampling 251 pcs/lot – taken from tested good units after FT.

Reliability Test Status									
No	Test Name	Prec	Condition/ Method	Steps	Steps	Fails/SS			Notes
						9981016J01 Control NN	9981016JRR Qual LL	9981016JRQ Qual NN	
3	Env Seq	Yes	TA = -65°C / +150°C PPT 121°C/ 2Atm	100 cycle 96 hrs	ATE	0 def / 77 pcs	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	Pass	
4	HTS	No	TA = 150°C	1000 hrs	ATE	0 def / 82 pcs	0 def / 82 pcs	0 def / 82 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	Pass	

VN920SPTR-E – 10 mils Tanaka qualification

Note: Sampling 251 pcs/lot – taken from tested good units after FT.

Reliability Test Status									
No	Test Name	Prec	Condition/ Method	Steps	Steps	Fails/SS			Notes
						9981016JRP Qual HH	9981016JRN Qual LH	9981016JRM Qual HL	
1	PC (JL3 STD)		Bake 24 hrs @ 125°C Soak 192 hrs @ 30°C / 60% RH Reflow Profile = J-STD-020D (Tmax = 250°C)	Final	TSAM (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	0 delam / 60 pcs	
					CSAM TOP (0hr)	0 delam / 60 pcs	0 delam / 60 pcs	0 delam / 60 pcs	
					ATE	0 def / 169 pcs	0 def / 169 pcs	0 def / 169 pcs	
					TSAM	0 delam / 40 pcs	0 delam / 40 pcs	0 delam / 40 pcs	
					CSAM TOP	0 delam / 40 pcs	0 delam / 40 pcs	0 delam / 40 pcs	
2	TC	Yes	TA = -55°C / +150°C	500 Cycle	ATE	0 def / 92 pcs	0 def / 92 pcs	0 def / 92 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	Pass	
				1000 Cycle	ATE	0 def / 87 pcs	0 def / 87 pcs	0 def / 87 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	Pass	

Note: Sampling 159 pcs/lot – taken from tested good units after FT.

Reliability Test Status									
No	Test Name	Prec	Condition/ Method	Steps	Steps	Fails/SS			Notes
						9981016JRP Qual HH	9981016JRN Qual LH	9981016JRM Qual HL	
3	Env Seq	Yes	TA = -65°C / +150°C PPT 121°C/ 2Atm	100 cycle 96 hrs	ATE	0 def / 77 pcs	0 def / 77 pcs	0 def / 77 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	Pass	
4	HTS	No	TA = 150°C	1000 hrs	ATE	0 def / 82 pcs	0 def / 82 pcs	0 def / 82 pcs	
					TSAM	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					CSAM TOP	0 delam / 20 pcs	0 delam / 20 pcs	0 delam / 20 pcs	
					WPT & BS	Pass	Pass	Pass	

RELIABILITY MONITORING RESULTS

Wire pull test after TMC 1000CYCLE (1ST BOND)

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	9981016JRQ(QNN)	Au 1.3 mils	6.0 g	12.02	13.87	16.62	1.96	Ball Neck Break
2	9981016J01(CNN)			20.19	16.06	18.16	1.39	Ball Neck Break
3	9981016JRM(QHL)			20.41	15.10	17.31	1.44	Ball Neck Break
4	9981016JRN(QLH)			19.86	16.12	17.83	1.26	Ball Neck Break
5	9981016JRR(QLL)			20.12	15.86	17.53	1.43	Ball Neck Break
6	9981016JRP(QHH)			20.53	15.97	17.80	1.45	Ball Neck Break

Au 1.3 mils_Ball Neck Break

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RELIABILITY MONITORING RESULTS

Wire pull test after TMC 1000CYCLE (2ST BOND)

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	9981016JRQ(QNN)	AU 1.3 mils	3.6 g	8.97	4.87	7.36	1.03	WeldNeck Break
2	9981016J01(CNN)			19.15	14.32	16.87	1.55	WeldNeck Break
3	9981016JRM(QHL)			10.83	6.12	8.22	1.21	WeldNeck Break
4	9981016JRN(QLH)			11.53	6.13	8.46	1.43	WeldNeck Break
5	9981016JRR(QLL)			8.92	4.63	5.81	0.84	WeldNeck Break
6	9981016JRP(QHH)			12.97	6.80	8.92	1.40	WeldNeck Break

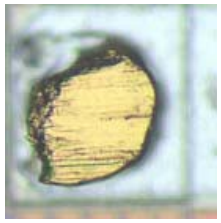
Au 1.3 mils_WeldNeck Break

RELIABILITY MONITORING RESULTS

Ball Shear test after TMC 1000CYCLE

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	9981016JRQ(QNN)	AU 1.3 mils	56.60g	86.86	58.12	68.15	9.33	Ball Shear
2	9981016J01(CNN)			70.11	57.11	62.82	3.85	Ball Shear
3	9981016JRM(QHL)			64.53	47.52	54.81	5.26	Ball Shear
4	9981016JRN(QLH)			73.05	58.07	64.08	4.64	Ball Shear
5	9981016JRR(QLL)			78.97	60.52	68.86	5.56	Ball Shear
6	9981016JRP(QHH)			65.21	45.19	56.10	6.52	Ball Shear



Au 1.3 mils_Ball Shear

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RELIABILITY MONITORING RESULTS

Wire pull test after TMC 1000CYCLE

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	9981016JRQ(QNN)	AL 10 mils	140.0g	611.53	376.24	447.43	61.90	WeldNeck Break
2	9981016J01(CNN)			500.10	374.90	433.97	36.27	WeldNeck Break
3	9981016JRM(QHL)			680.52	412.53	511.56	66.06	WeldNeck Break
4	9981016JRN(QLH)			559.15	295.24	416.47	89.43	WeldNeck Break
5	9981016JRR(QLL)			561.20	321.53	437.83	77.20	WeldNeck Break
6	9981016JRP(QHH)			475.64	270.52	360.84	58.84	WeldNeck Break

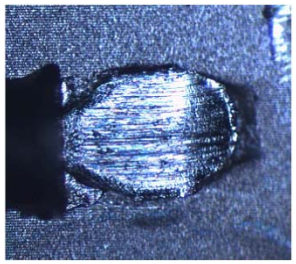
AL 10 mils_WeldNeck Break

RELIABILITY MONITORING RESULTS

Ball Shear test after TMC 1000CYCLE

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	9981016JRQ(QNN)	AL 10 mils	280.0g	690.53	453.53	573.26	68.09	Ball Shear
2	9981016J01(CNN)			690.53	500.13	732.22	127.15	Ball Shear
3	9981016JRM(QHL)			650.10	725.13	834.51	63.70	Ball Shear
4	9981016JRN(QLH)			680.53	391.53	537.19	65.96	Ball Shear
5	9981016JRR(QLL)			891.86	489.53	644.08	131.45	Ball Shear
6	9981016JRP(QHH)			929.13	519.86	681.45	122.23	Ball Shear



AL 10 mils_Ball Shear

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RELIABILITY MONITORING RESULTS

Wire pull test after SEQ 96HRS (1ST BOND)

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	9981016JRQ(QNN)	Au 1.3 mils	6.0 g	20.85	15.86	17.82	1.64	Ball Neck Break
2	9981016J01(CNN)			20.04	15.24	17.75	1.56	Ball Neck Break
3	9981016JRM(QHL)			17.90	14.86	16.72	1.00	Ball Neck Break
4	9981016JRN(QLH)			19.03	15.57	17.01	1.01	Ball Neck Break
5	9981016JRR(QLL)			18.82	13.53	16.22	1.57	Ball Neck Break
6	9981016JRP(QHH)			19.91	16.10	18.08	1.30	Ball Neck Break

Au 1.3 mils_Ball Neck Break

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RELIABILITY MONITORING RESULTS

Wire pull test after SEQ 96HRS (2ST BOND)

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	9981016JRQ(QNN)	AU 1.3 mils	3.6 g	12.54	6.99	9.27	1.81	WeldNeck Break
2	9981016J01(CNN)			10.53	6.86	8.08	1.01	WeldNeck Break
3	9981016JRM(QHL)			9.82	5.87	7.69	1.24	WeldNeck Break
4	9981016JRN(QLH)			11.52	8.10	6.65	1.00	WeldNeck Break
5	9981016JRR(QLL)			8.83	5.06	5.95	0.77	WeldNeck Break
6	9981016JRP(QHH)			12.94	7.52	9.11	1.53	WeldNeck Break

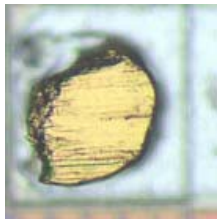
Au 1.3 mils_WeldNeck Break

RELIABILITY MONITORING RESULTS

Ball Shear test after SEQ 96HRS

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	9981016JRQ(QNN)	AU 1.3 mils	56.60g	69.04	52.58	60.18	5.46	Ball Shear
2	9981016J01(CNN)			78.80	61.59	69.71	4.69	Ball Shear
3	9981016JRM(QHL)			67.43	45.97	59.90	4.78	Ball Shear
4	9981016JRN(QLH)			63.06	44.17	52.96	5.80	Ball Shear
5	9981016JRR(QLL)			72.22	59.56	64.61	4.13	Ball Shear
6	9981016JRP(QHH)			74.13	53.53	64.23	5.87	Ball Shear



Au 1.3 mils_Ball Shear

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RELIABILITY MONITORING RESULTS

Wire pull test after SEQ 96HRS

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	9981016JRQ(QNN)	AL 10 mils	140.0g	612.52	230.52	412.25	74.50	WeldNeck Break
2	9981016J01(CNN)			648.24	374.90	453.41	69.77	WeldNeck Break
3	9981016JRM(QHL)			690.88	412.53	516.05	75.37	WeldNeck Break
4	9981016JRN(QLH)			545.64	295.24	414.22	86.47	WeldNeck Break
5	9981016JRR(QLL)			550.26	265.24	435.39	79.96	WeldNeck Break
6	9981016JRP(QHH)			580.83	270.52	377.77	83.26	WeldNeck Break

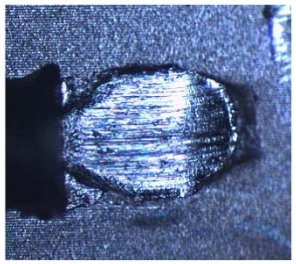
AL 10 mils_WeldNeck Break

RELIABILITY MONITORING RESULTS

Ball Shear test after SEQ 96HRS

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	9981016JRQ(QNN)	AL 10 mils	280.0g	659.12	380.53	562.18	76.16	Ball Shear
2	9981016J01(CNN)			860.86	500.13	704.81	102.43	Ball Shear
3	9981016JRM(QHL)			890.53	630.53	800.16	64.32	Ball Shear
4	9981016JRN(QLH)			635.26	380.16	533.83	62.05	Ball Shear
5	9981016JRR(QLL)			882.53	420.53	641.06	133.48	Ball Shear
6	9981016JRP(QHH)			830.83	450.83	654.45	100.56	Ball Shear



AL 10 mils_Ball Shear

RELIABILITY MONITORING RESULTS

Wire pull test after HTS 1000HRS (1ST BOND)

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	9981016JRQ(QNN)	Au 1.3 mils	6.0 g	50.53	16.46	18.14	1.24	Ball Neck Break
2	9981016J01(CNN)			19.67	15.89	17.48	1.22	Ball Neck Break
3	9981016JRM(QHL)			20.13	16.23	17.79	1.08	Ball Neck Break
4	9981016JRN(QLH)			19.53	13.86	16.19	1.96	Ball Neck Break
5	9981016JRR(QLL)			19.52	16.46	17.92	1.06	Ball Neck Break
6	9981016JRP(QHH)			20.02	16.69	17.96	1.15	Ball Neck Break

Au 1.3 mils_Ball Neck Break

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RELIABILITY MONITORING RESULTS

Wire pull test after HTS 1000HRS (2ST BOND)

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	9981016JRQ(QNN)	AU 1.3 mils	3.6 g	8.45	5.86	7.40	0.87	WeldNeck Break
2	9981016J01(CNN)			10.59	6.78	8.47	1.21	WeldNeck Break
3	9981016JRM(QHL)			9.82	5.86	7.79	1.05	WeldNeck Break
4	9981016JRN(QLH)			9.87	6.12	8.20	1.12	WeldNeck Break
5	9981016JRR(QLL)			8.13	4.24	5.87	0.84	WeldNeck Break
6	9981016JRP(QHH)			11.53	7.41	8.68	1.07	WeldNeck Break

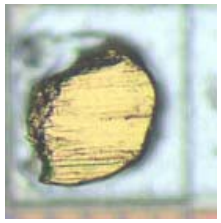
Au 1.3 mils_WeldNeck Break

RELIABILITY MONITORING RESULTS

Ball Shear test after HTS 1000HRS

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	9981016JRQ(QNN)	AU 1.3 mils	56.60g	65.69	45.10	55.60	6.63	Ball Shear
2	9981016J01(CNN)			89.86	64.04	77.72	8.16	Ball Shear
3	9981016JRM(QHL)			66.57	45.15	56.13	6.86	Ball Shear
4	9981016JRN(QLH)			73.53	59.53	64.88	5.47	Ball Shear
5	9981016JRR(QLL)			66.86	45.86	57.12	6.70	Ball Shear
6	9981016JRP(QHH)			74.18	52.49	61.31	7.31	Ball Shear



Au 1.3 mils_Ball Shear

RELIABILITY MONITORING RESULTS

Wire pull test after HTS 1000HRS

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	9981016JRQ(QNN)	AL 10 mils	140.0g	560.53	341.23	444.49	59.45	WeldNeck Break
2	9981016J01(CNN)			521.64	378.53	441.16	35.16	WeldNeck Break
3	9981016JRM(QHL)			615.24	412.53	507.43	62.72	WeldNeck Break
4	9981016JRN(QLH)			545.64	286.53	412.88	91.61	WeldNeck Break
5	9981016JRR(QLL)			610.25	325.15	441.52	77.61	WeldNeck Break
6	9981016JRP(QHH)			480.53	268.53	356.26	61.19	WeldNeck Break

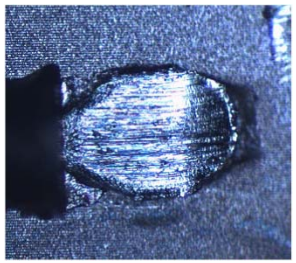
AL 10 mils_WeldNeck Break

RELIABILITY MONITORING RESULTS

Ball Shear test after HTS 1000HRS

Min 30 readings from 5 decapsulated units

Assy Lot Number		Wire	Lower Spec Limit	MAX	MIN	AVG	STD	Failure mode
1	9981016JRQ(QNN)	AL 10 mils	280.0g	751.24	410.64	573.85	75.31	Ball Shear
2	9981016J01(CNN)			886.22	519.83	709.05	111.43	Ball Shear
3	9981016JRM(QHL)			930.53	660.53	825.75	65.00	Ball Shear
4	9981016JRN(QLH)			635.26	416.57	533.44	58.31	Ball Shear
5	9981016JRR(QLL)			882.53	493.53	644.17	125.78	Ball Shear
6	9981016JRP(QHH)			929.13	510.64	671.66	116.32	Ball Shear



AL 10 mils_Ball Shear

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PRODUCT/PROCESS CHANGE NOTIFICATION

SUBJECT	**VIPower in PowerSO-10/16: Qualification of TANAKA as Additional Supplier for the 10 mils Aluminum Wire**
IMPACTED PRODUCTS	VN5D05-E / VN5D05TR-E VN5E006ASP-E / VN5E006ASPTR-E VN5T006ASP-E / VN5T006ASPTR-E VN920SP-E / VN920SPTR-E VND5T016ASP-E / VND5T016ASPTR-E VN610SPTR-E / VN610SP-E VND830SP-E / VND830SPTR-E
MANUFACTURING STEP	Assembly
INVOLVED PLANT	ST Muar - Malaysia
CHANGE REASON	Manufacturing Flexibility due to material standardization in the assembly Plant. Moreover, thanks to a thermal annealing process implemented by the supplier, the Tanaka wire is softer than the current one and this ultimately means a quality improvement due to a less stressed bonding pad
CHANGE DESCRIPTION	Tanaka 10 mils aluminum wire has been qualified for VIPower products housed in PowerSO-10/16 packages
TRACEABILITY	Dedicated Finished Good Codes
VALIDATION	See enclosed validation report
REPORTS	See attached report: 11316 validation.pdf

5. Reason / motivation for change	
5.1 Motivation	Manufacturing Flexibility due to material standardization in the assembly plant. Moreover, thanks to a thermal annealing process implemented by the supplier, the Tanaka wire is softer than the current one and this ultimately means a quality improvement due to a less stressed bonding pad
5.2 Additional explanation (optional)	

6. Marking of parts / traceability of change	
6.1 Description	Dedicated Finished Good Codes

7. Timing / schedule		
7.1 Date of qualification results	2019/01/15	
7.2 Last order date (optional)		
7.3 Last delivery date (optional)		
7.4 Intended start of delivery	2019/04/30	Upon Customer Approval
7.5 Qualification samples available?	Upon request	
7.6 Customer feedback required until		

8. Qualification / validation				
8.1 Description (e.g. qual. plan/report, AEC-Q...)	Additional supplier no recommended test from ZVEI martrix			
8.2 Qualification report and qualification results	available (see attachement)	issue date	2019/01/15	

9. Input to customer for risk assessment process

10. Attachments (e.g. new datasheet, additional documentation, pictures, process flow, sample plan, ...)
11316 Details.pdf,11316 PCN-Delta-Qualification-Matrix-ZVEI-3_1.xlsm, 11316 validation.pdf

11. Affected parts

11.1 Current						11.2 New (if applicable)			
11.1.1 Customer Part No.	11.1.2 Supplier Part Name	11.1.3 Supplier Part No. (optional)	11.1.4 Package Name	11.1.5 Part Description (optional)	11.1.6 Additional Part Information (optional)	11.2.2 Supplier Part Name	11.2.3 Supplier Part No. (optional)	11.2.4 Package Name	11.2.6 Additional Part Information (optional)
A2C0006248600	VN5E006ASPTR-E								
A2C0006517600	VN5T006ASPTR-E								
A2C4000271100	VN920SPTR-E								
A2C0003099700	VN920SPTR-E								
A2C0006517900	VND5T016ASPTR-E								
A2C0001121600	VND830SPTR-E								
A2C0004011300	VND830SPTR-E								
00195923A0	VND830SPTR-E								

Standardized Information for Process/Product Change Notification (PCN)

1. PCN basic data			
1.1 Company	Your Logo	Your Companies Name and Addresse	
1.2 PCN No.		e.g. CM123456	
1.3 Title of PCN		e.g. Change of mold compound into green mold for SOT23	
1.4 Product Category		Active Components – Integrated Circuits	
1.5 Issue date		2015/01/01	
1.6 PCN revision history (optional)		1.7 Issue date of previous revision (optional)	1.8 Delta to previous revision (optional)
e.g. CM1234566		2014/10/10	e.g. Change of mold compound into green mold for D2PAK

2. PCN Team		
2.1 Contact supplier		
2.1.1 Name	Max Mustermann	
2.1.2 Phone	+49 [illegible]6789	
2.1.3 Email	max.mustermann@newcompany.com	
2.2 Team supplier (optional)		
2.2.1 Name (optional)	2.2.2 Phone (optional)	2.2.3 Email (optional)
Carl Clever	+49 123 987654	carl.clever@newcompany.com

3. Changes			
No.	3.0 Ident	3.1 Category	3.2 Type of change
#1	SEM-DS-02	DATA SHEET	Correction of data sheet / errata
#2	SEM-PA-11	PROCESS - ASSEMBLY	Change of mold compound
#3			
#4			
#5			

4. Description of change		
	Old	New
Change #1	Old mold compound is no longer RoHS compatible.	New mold compound will fulfill RoHS requirements.
Change #2	Old mold compound is not longer RoHS compatible.	New datasheet will give hint to RoHS compatibility.
Change #3		
Change #4		
Change #5		
4.6 Anticipated impact on form, fit, function, reliability or processability?	e.g. Change in mold compound could have influence in reliability and processability / manufacturability.	
4.7 Reference parts with customer number (optional)	e.g. PHB series, PSM series	

5. Reason / motivation for change	
5.1 Motivation	e.g. Change to RoHS compatible mold compound because of legal restrictions.
5.2 Additional explanation (optional)	

6. Marking of parts / traceability of change	
6.1 Description	e.g. Marking will added with the letter G.

7. Timing / schedule		
7.1 Date of qualification results	2010/06/01	
7.2 Last order date (optional)	2013/01/31	
7.3 Last delivery date (optional)	2013/06/30	
7.4 Intended start of delivery	2012/06/01	
7.5 Qualification samples available?	Yes, available (date and/or types):	
	e.g. BAS21	
7.6 Customer feedback required until	2012/02/01	

8. Qualification / validation				
8.1 Description (e.g. qual. plan/report, AEC-Q...)	e.g. AEC-Q101			
8.2 Qualification report and qualification results	available (see attachement)	issue date		

9. Input to customer for risk assessment process

10. Attachments (e.g. new datasheet, additional documentation, pictures, process flow, sample plan, ...)

11. Affected parts									
11.1 Current						11.2 New (if applicable)			
11.1.1 Customer Part No.	11.1.2 Supplier Part Name	11.1.3 Supplier Part No. (optional)	11.1.4 Package Name	11.1.5 Part Description (optional)	11.1.6 Additional Part Information (optional)	11.2.2 Supplier Part Name	11.2.3 Supplier Part No. (optional)	11.2.4 Package Name	11.2.6 Additional Part Information (optional)
890400001	BAS10	555 444 002	SOT23	diode	see Chap. 10	BAS10-G	555 445 002	SOT23	see Chap. 10
890400002	BAS20	555 444 004	SOT23	diode	see Chap. 10	BAS20-G	555 445 004	SOT23	see Chap. 10
890400003	BAS30	555 444 006	SOT23	diode	see Chap. 10	BAS30-G	555 445 006	SOT23	see Chap. 10
890400004	BAS40	555 444 008	SOT23	diode	see Chap. 10	BAS40-G	555 445 008	SOT23	see Chap. 10
890400005	BAS50	555 444 010	SOT23	diode	see Chap. 10	BAS50-G	555 445 010	SOT23	see Chap. 10
890400006	BAS60	555 444 012	SOT23	diode	see Chap. 10	BAS60-G	555 445 012	SOT23	see Chap. 10
890400007	BZX84B01	556 434 010	SOT23	diode	see Chap. 10	BZX84B01-G	556 435 010	SOT23	see Chap. 10
890400008	BZX84B02	556 434 012	SOT23	diode	see Chap. 10	BZX84B02-G	556 435 012	SOT23	see Chap. 10
890400009	BZX84B03	556 434 014	SOT23	diode	see Chap. 10	BZX84B03-G	556 435 014	SOT23	see Chap. 10
890400010	BZX84B04	556 434 016	SOT23	diode	see Chap. 10	BZX84B04-G	556 435 016	SOT23	see Chap. 10
890400011	BZX84B05	556 434 018	SOT23	diode	see Chap. 10	BZX84B05-G	556 435 018	SOT23	see Chap. 10
890400012	BZX84B06	556 434 020	SOT23	doide	see Chap. 10	BZX84B06-G	556 435 020	SOT23	see Chap. 10
890400013	BZX84B07	556 434 022	SOT23	diode	see Chap. 10	BZX84B07-G	556 435 022	SOT23	see Chap. 10
890400014	BZX84B08	556 434 024	SOT23	diode	see Chap. 10	BZX84B08-G	556 435 024	SOT23	see Chap. 10
890400015	BZX84B09	556 434 026	SOT23	diode	see Chap. 10	BZX84B09-G	556 435 026	SOT23	see Chap. 10
890400016	BZX84B10	556 434 028	SOT23	diode	see Chap. 10	BZX84B10-G	556 435 028	SOT23	see Chap. 10

Customer Feedback/Approval Form

Title of PCN:			
VIPower in PowerSO-10/16: Qualification of TANAKA as Additional Supplier for the 10 mils Aluminum Wire			
Customer PCN No.		**Supplier PCN No.**	**ADG/18/11316**
Please check the appropriate box below:			

Form provided by ZVEI - Revision 3.0.0

☐	**1. Feedback**	**date:**	
☐	**We agree with this proposed change for the parts as listed in chapter '11. Affected parts'. Approval letter will be sent in written form.**		
☐	**We agree with this proposed change schedule and will start with the PCN process. Approval letter will be sent in written form after evaluation.**		
☐	**We disapprove because:**		
☐	**Remark:**		

☐	**2. Feedback**	**date:**	
☐	**We acknowledge qualification / validation as assigned in chapter 8 of the PCN.**		
☐	**We need more information:**		
☐	**We need the following samples:**		
☐	**Estimated closing date for PCN:**		

☐	**Final Feedback/Approval**	**date:**	

Sender:	
Company:	
Name:	

Address/Location:	
Signature:	
Date:	

Please return to: [your Sales partner]	
Name:	Dominique GIGOUVinay Kumar KODATI
Address/Location:	
Phone:	+49 89460062396'+49 89460062225
Fax:	
Email:	dominique.gigou@st.comvinay-kumar.kodati@st.com

Customer Feedback/Approval Form

Title of PCN:			
#REF!			
Customer PCN No.	PCN4567	**Supplier PCN No.**	#REF!
Please check the appropriate box below:			

☑	**1. Feedback**	**date:**	2012/01/28
☐	**We agree with this proposed change for the parts as listed in chapter 11. Affected parts. Approval letter will be sent in written form.**		
☑	**We agree with this proposed change schedule and will start with the PCN Process. Approval letter will be sent in written form**		
☐	**We disapprove because:**		
☑	**Remark:**		
	At the moment we do not agree to your change. We point out that refering to our specification the parts have to be delivered unchanged until the necessary measures at **our company** finished to assure quality and to introduce the change at **our company**, and you have got our agreement to deliver the changed version.		

☐	**2. Feedback**	**date:**	2012/02/14
☐	**We acknowledge acknowledge qualification / validation as assigned in chapter 8 of the PCN.**		
☐	**We need more information:**		
☐	**We need the following samples:**		
☐	**Estimated closing date for PCN:**		

☐	**Final Feedback/Approval**	**date:**	

Sender:

Company:	
Name:	
Address/Location:	
Signature:	
Date:	

Please return to: [your Sales partner]	
Name:	#REF!
Address/Location:	
Phone:	#REF!
Fax:	
Email:	#REF!

Standardized Information Note (IN)

1. Information Note basic data		
1.1 Company		
1.2 Information Note No.		
1.3 Title of IN		
1.4 Issue date		

2. Contact		
2.1 Contact supplier		
2.1.1 Name		
2.1.2 Phone		
2.1.3 Email		
2.2 Team supplier (optional)		
2.2.1 Name (optional)	2.2.2 Phone (optional)	2.2.3 Email (optional)

3. Description		
	Old	New
Description #1		
Description #2		
Description #3		
Description #4		
Description #5		

4. Reason / motivation	
4.1 Motivation	
4.2 Additional explanation (optional)	

5. Marking of parts / traceability	
5.1 Description	

6. Timing / schedule		
6.1 Intended start of delivery		

7. Attachments (e.g. additional documentation, pictures, part list….)

8. Affected parts									
8.1 Current						8.2 New (if applicable)			
8.1.1 Customer Part No.	8.1.2 Supplier Part Name	8.1.3 Supplier Part No. (optional)	8.1.4 Package Name	8.1.5 Part Description (optional)	8.1.6 Additional Part Information (optional)	8.2.2 Supplier Part Name	8.2.3 Supplier Part No. (optional)	8.2.4 Package Name	8.2.6 Additional Part Information (optional)

Standardized Information Note (IN)

1. Information Note basic data	
1.1 Company	ZVEI - Zentralverband Elektrotechnik- und Elektronikindustrie e.V. ZVEI-German Electrical and Electronic Manufacturers`Association
1.2 Information Note No.	e.g.CM1234567
1.3 Title of IN	e.g. New company lable and new colour of shipment boxes
1.4 Issue date	2012/01/01

2. Contact		
2.1 Contact supplier		
2.1.1 Name	Mr. Mustermann	
2.1.2 Phone	+49 123 456789	
2.1.3 Email	max.mustermann@newcompany.com	
2.2 Team supplier (optional)		
2.2.1 Name (optional)	2.2.2 Phone (optional)	2.2.3 Email (optional)
Carl Clever	+49 123 987654	carl.clever@newcompany.com

3. Description		
	Old	New
Description #1	zvei	ZVEI
Description #2	blue paper boxes (outer packaging)	blue paper boxes with two red dots (outer packaging)
Description #3		
Description #4		
Description #5		

4. Reason / motivation	
4.1 Motivation	e.g. New corporate design / corporate identity
4.2 Additional explanation (optional)	

5. Marking of parts / traceability	
5.1 Description	e.g. New corporate design / corporate identity

6. Timing / schedule		
6.1 Intended start of delivery	2012/02/01	

7. Attachments (e.g. additional documentation, pictures, part list….)

8. Affected parts									
8.1 Current						8.2 New (if applicable)			
8.1.1 Customer Part No.	8.1.2 Supplier Part Name	8.1.3 Supplier Part No. (optional)	8.1.4 Package Name	8.1.5 Part Description (optional)	8.1.6 Additional Part Information (optional)	8.2.2 Supplier Part Name	8.2.3 Supplier Part No. (optional)	8.2.4 Package Name	8.2.6 Additional Part Information (optional)
see chapter 7	see chapter 7		see chapter 7			see chapter 7		see chapter 7	