



FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #20342

Generic Copy

Issue Date: 28-Dec-2013

TITLE: Qualify AMKOR as alternate supplier of packages UDFN8-2X3, WDFN8-2X3 for listed devices

PROPOSED FIRST SHIP DATE: 31-Mar-2014

AFFECTED CHANGE CATEGORY(S): Assembly Manufacturing Site and BOM

FOR ANY QUESTIONS CONCERNING THIS NOTIFICATION: Contact your local ON Semiconductor Sales Office, Ovidiu Tol ovidiu.tol@onsemi.com or Victor Craciunoiu victor.craciunoiu@onsemi.com

SAMPLES: Samples should be available per request; lead time is 4-5 weeks. Contact your local ON Semiconductor Sales Office

ADDITIONAL RELIABILITY DATA: Available

Contact your local ON Semiconductor Sales Office or Francis Lualhati francis.lualhati@onsemi.com

NOTIFICATION TYPE:

Final Product/Process Change Notification (FPCN)

Final change notification sent to customers. FPCNs are issued at least 90 days prior to implementation of the change.

ON Semiconductor will consider this change approved unless specific conditions of acceptance are provided in writing within 30 days of receipt of this notice. To do so, contact <quality@onsemi.com>.

DESCRIPTION AND PURPOSE:

Qualify Amkor as assembly site for UDFN8-2X3 (case outline 517AZ), WDFN8-2X3 (case outline 511AK).

The purpose of the qualification was to offer alternative/back-up assembly site for these two packages.

CHANGED PART IDENTIFICATION:

The parts assembled in AMKOR will have character "2" marked on the front of second line of marking to identify the assembly house.



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QUALIFICATION RESULTS:

For package UDFN8-2X3 (case outline 511AZ)

For the package qualification of the CAT24C/CAT25C/CAT34C product families which is a qualified ONC18EE/ONC35EE Technology Process by ON Semiconductor Gresham, Oregon and assembled in UDFN8L 2x3 by Amkor, Philippines, the qualification vehicles chosen were CAT25640HU4I-GT3 (1 qual lot and 1 control lot), CAT34C02HU4IGT4A (1 qual lot and 1 control lot) and CAT24C512HU4IGT3 (1 qual lot and 1 control lot).

Device Description:

Lot A, Lot 2:

Device	CAT25640HU4I-GT3	Wafer Fab Site	ON-USR	Gresham, Oregon
Package	UDFN8L-2X3 (HU4)	Assembly Site	AMKOR	Philippines
MSL Level	MSL1 @ 260C	Final Test Site	ON-SBN	Malaysia
Technology	ONC35EE	S18192		
Final Lead Finish	NiPdAu	Package Code	C136	

Lot B, Lot 4:

Device	CAT34C02HU4IGT4A	Wafer Fab Site	ON-USR	Gresham, Oregon
Package	UDFN8L-2X3 (HU4)	Assembly Site	AMKOR	Philippines
MSL Level	MSL1 @ 260C	Final Test Site	ON-SBN	Malaysia
Technology	ONC35EE	S18194		
Final Lead Finish	NiPdAu	Package Code	C136	

Lot C, Lot 6:

Device	CAT24C512HU4IGT3	Wafer Fab Site	ON-USR	Gresham, Oregon
Package	UDFN8L-2X3 (HU4)	Assembly Site	AMKOR	Philippines
MSL Level	MSL1 @ 260C	Final Test Site	ON-SBN	Malaysia
Technology	ONC18EE	S18195		
Final Lead Finish	NiPdAu	Package Code	C136	



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Qualification Results and Analysis:

#	Test	Name	Test Conditions	End Point Req's	Test Results	(rej/ ss)	
					Read Point	Lot A	Lot 2
1	HTSL	High Temp Storage Life	TA = 150°C	Test at Rm,	Initial	0/80	0/80
					504 Hrs	0/80	0/80
					1008 Hrs	0/80	0/80
2	PC	Preconditioning ;	Moisture Preconditioning for HAST, AC, TC; MSL1, Peak Reflow Temp = 260C	---	Initial Electrical	done	done
3	HAST-PC	High Acceleration Stress Test - PC	TA =130 °C, RH=85%, V=80% rated Volts	Test at Rm,	Initial	0/80	0/80
					96 Hrs	0/80	0/80
4	TC-PC	Temperature Cycling-PC	Ta= -65/150 C	Test at Rm	Initial	0/80	0/80
					500 Cyc	0/80	0/80
					1000 Cyc	0/80	0/80
5	AC-PC	Autoclave	121°C/100% RH/15psig	Test at Rm	Initial	0/80	0/80
					96 Hrs	0/80	0/80
6	DPA	Destructive Physical Analysis	Following TC -PC	AEC Criteria		0/5	0/5
7	ED	Electrical Distribution	Tri Temperature	Test at Rm, Hot		0/30	0/30
8	ESD	Electro-static Discharge	Human Body Model (2KV HBM)	Test at Rm, Hot		Pass	Pass
9	ESD	Electro-static Discharge	Machine (200V MM)	Test at Rm, Hot		Pass	Pass
10	LU	LatchUp	±150mA, +1.5xVcc	Test at Rm, Hot		Pass	Pass

Table 1: Reliability Evaluation Results for Devices CAT25640HU4I-GT3



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Qualification Results and Analysis:

#	Test	Name	Test Conditions	End Point Req's	Test Results	(rej/ ss)	(rej/ ss)
					Read Point	Lot B	Lot 4
1	HTSL	High Temp Storage Life	TA = 150°C	Test at Rm,	Initial	0/80	0/80
					504 Hrs	0/80	0/80
					1008 Hrs	0/80	0/80
2	PC	Preconditioning: ;	Moisture Preconditioning for HAST, AC, TC; MSL1, Peak Reflow Temp = 260C	---	Initial Electrical	done	done
3	HAST-PC	High Acceleration Stress Test - PC	TA =130 °C, RH=85%, V=80% rated Volts	Test at Rm,	Initial	0/80	0/80
					96 Hrs	0/80	0/80
4	TC-PC	Temperature Cycling-PC	Ta= -65/150 C	Test at Rm	Initial	0/80	0/80
					500 Cyc	0/80	0/80
					1000 Cyc	0/80	0/80
5	AC-PC	Autoclave	121°C/100% RH/15psig	Test at Rm	Initial	0/80	0/80
					96 Hrs	0/80	0/80
6	DPA	Destructive Physical Analysis	Following TC -PC	AEC Criteria		0/5	0/5
7	ED	Electrical Distribution	Tri Temperature	Test at Rm, Hot		0/30	0/30
8	ESD	Electro-static Discharge	Human Body Model (2KV HBM)	Test at Rm, Hot		Pass	Pass
9	ESD	Electro-static Discharge	Machine (200V MM)	Test at Rm, Hot		Pass	Pass
10	LU	LatchUp	±150mA, +1.5xVcc	Test at Rm, Hot		Pass	Pass

Table 2: Reliability Evaluation Results for Devices CAT34C02HU4IGT4A



FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #20342

Qualification Results and Analysis:

#	Test	Name	Test Conditions	End Point Req's	Test Results	(rej/ ss)	(rej/ ss)
					Read Point	Lot C	Lot 6
1	HTSL	High Temp Storage Life	TA = 150°C	Test at Rm,	Initial	0/80	0/80
					504 Hrs	0/80	0/80
					1008 Hrs	0/80	0/80
2	PC	Preconditioning: ;	Moisture Preconditioning for HAST, AC, TC; MSL1, Peak Reflow Temp = 260C	---	Initial Electrical	done	done
3	HAST-PC	High Acceleration Stress Test - PC	TA =130 °C, RH=85%, V=80% rated Volts	Test at Rm,	Initial	0/80	0/80
					96 Hrs	0/80	0/80
4	TC-PC	Temperature Cycling-PC	Ta= -65/150 C	Test at Rm	Initial	0/80	0/80
					500 Cyc	0/80	0/80
					1000 Cyc	0/80	0/80
5	AC-PC	Autoclave	121°C/100% RH/15psig	Test at Rm	Initial	0/80	0/80
					96 Hrs	0/80	0/80
6	DPA	Destructive Physical Analysis	Following TC -PC	AEC Criteria		0/5	0/5
7	ED	Electrical Distribution	Tri Temperature	Test at Rm, Hot		0/30	0/30
8	ESD	Electro-static Discharge	Human Body Model (2KV HBM)	Test at Rm, Hot		Pass	Pass
9	ESD	Electro-static Discharge	Machine (200V MM)	Test at Rm, Hot		Pass	Pass
10	LU	LatchUp	±150mA, +1.5xVcc	Test at Rm, Hot		Pass	Pass

Table 3: Reliability Evaluation Results for Devices CAT24C512HU4IGT3



FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #20342

For package WDFN8-2X3 (case outline 511AK)

For the package qualification of the CAT24C/CAT25C/CAT34C product families which is a qualified ONC35EE Technology Process by ON Semiconductor Gresham, Oregon and assembled in WDFN8L 2x3 by Amkor, Philippines the qualification vehicles chosen were CAT24C64VP2I-GT3 (1 qual lot and 1 control lot), CAT25640VP2I-GT3 (1 qual lot and 1 control lot) and CAT34C02VP2I-GT4 (1 qual lot and 1 control lot).

Device Description:

Lot A, Lot 2:

Device	CAT24C64VP2I-GT3	Wafer Fab Site	ON-USR	Gresham, Oregon
Package	WDFN8L-2X3 (VP2)	Assembly Site	AMKOR	Philippines
MSL Level	MSL1 @ 260C	Final Test Site	ON-SBN	Malaysia
Technology	ONC35EE	S18098		
Final Lead Finish	NiPdAu	Package Code	C086	

Lot B, Lot 4:

Device	CAT25640VP2I-GT3	Wafer Fab Site	ON-USR	Gresham, Oregon
Package	WDFN8L-2X3 (VP2)	Assembly Site	AMKOR	Philippines
MSL Level	MSL1 @ 260C	Final Test Site	ON-SBN	Malaysia
Technology	ONC35EE	S18099		
Final Lead Finish	NiPdAu	Package Code	C086	

Lot C, Lot 6:

Device	CAT34C02VP2I-GT4	Wafer Fab Site	ON-USR	Gresham, Oregon
Package	WDFN8L-2X3 (VP2)	Assembly Site	AMKOR	Philippines
MSL Level	MSL1 @ 260C	Final Test Site	ON-SBN	Malaysia
Technology	ONC35EE	S18076/S19855		
Final Lead Finish	NiPdAu	Package Code	C086	



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Qualification Results and Analysis:

#	Test	Name	Test Conditions	End Point Req's	Test Results	(rej/ ss)	(rej/ ss)
					Read Point	Lot A	Lot 2
1	HTSL	High Temp Storage Life	TA = 150°C	Test at Rm,	Initial	0/80	0/80
					504 Hrs	0/80	0/80
					1008 Hrs	0/80	0/80
2	PC	Preconditioning: ;	Moisture Preconditioning for HAST, AC, TC; MSL1, Peak Reflow Temp = 260C	---	Initial Electrical	done	done
3	HAST-PC	High Acceleration Stress Test - PC	TA =130 °C, RH=85%, V=80% rated Volts	Test at Rm,	Initial	0/80	0/80
					96 Hrs	0/80	0/80
4	TC-PC	Temperature Cycling-PC	Ta= -65/150 C	Test at Rm	Initial	0/80	0/80
					500 Cyc	0/80	0/80
					1000 Cyc	0/80	0/80
5	AC-PC	Autoclave	121°C/100% RH/15psig	Test at Rm	Initial	0/80	0/80
					96 Hrs	0/80	0/80
6	DPA	Destructive Physical Analysis	Following TC -PC	AEC Criteria		0/5	0/5
7	ED	Electrical Distribution	Tri Temperature	Test at Rm, Hot		0/30	0/30
8	ESD	Electro-static Discharge	Human Body Model (2KV HBM)	Test at Rm, Hot		Pass	Pass
9	ESD	Electro-static Discharge	Machine (200V MM)	Test at Rm, Hot		Pass	Pass
10	LU	LatchUp	±150mA, +1.5xVcc	Test at Rm, Hot		Pass	Pass

Table 1: Reliability Evaluation Results for Devices CAT24C64VP2I-GT3



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Qualification Results and Analysis:

#	Test	Name	Test Conditions	End Point Req's	Test Results	(rej/ ss)	(rej/ ss)
					Read Point	Lot B	Lot 4
1	HTSL	High Temp Storage Life	TA = 150°C	Test at Rm,	Initial	0/80	0/80
					504 Hrs	0/80	0/80
					1008 Hrs	0/80	0/80
2	PC	Preconditioning ;	Moisture Preconditioning for HAST, AC, TC; MSL1, Peak Reflow Temp = 260C	---	Initial Electrical	done	done
3	HAST-PC	High Acceleration Stress Test - PC	TA =130 °C, RH=85%, V=80% rated Volts	Test at Rm,	Initial	0/80	0/80
					96 Hrs	0/80	0/80
4	TC-PC	Temperature Cycling-PC	Ta= -65/150 C	Test at Rm	Initial	0/80	0/80
					500 Cyc	0/80	0/80
					1000 Cyc	0/80	0/80
5	AC-PC	Autoclave	121°C/100% RH/15psig	Test at Rm	Initial	0/80	0/80
					96 Hrs	0/80	0/80
6	DPA	Destructive Physical Analysis	Following TC -PC	AEC Criteria		0/5	0/5
7	ED	Electrical Distribution	Tri Temperature	Test at Rm, Hot		0/30	0/30
8	ESD	Electro-static Discharge	Human Body Model (2KV HBM)	Test at Rm, Hot		Pass	Pass
9	ESD	Electro-static Discharge	Machine (200V MM)	Test at Rm, Hot		Pass	Pass
10	LU	LatchUp	±150mA, +1.5xVcc	Test at Rm, Hot		Pass	Pass

Table 2: Reliability Evaluation Results for Devices CAT25640VP2I-GT3



FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #20342

Qualification Results and Analysis:

#	Test	Name	Test Conditions	End Point Req's	Test Results	(rej/ ss)	(rej/ ss)
					Read Point	Lot C	Lot 6
1	HTSL	High Temp Storage Life	TA = 150°C	Test at Rm,	Initial	0/80	0/80
					504 Hrs	0/80	0/80
					1008 Hrs	0/80	0/80
2	PC	Preconditioning: ;	Moisture Preconditioning for HAST, AC, TC; MSL1, Peak Reflow Temp = 260C	---	Initial Electrical	done	done
3	HAST-PC	High Acceleration Stress Test - PC	TA =130 °C, RH=85%, V=80% rated Volts	Test at Rm,	Initial	0/80	0/80
					96 Hrs	0/80	0/80
4	TC-PC	Temperature Cycling-PC	Ta= -65/150 C	Test at Rm	Initial	0/80	0/80
					500 Cyc	0/80	0/80
					1000 Cyc	0/80	0/80
5	AC-PC	Autoclave	121°C/100% RH/15psig	Test at Rm	Initial	0/80	0/80
					96 Hrs	0/80	0/80
6	DPA	Destructive Physical Analysis	Following TC -PC	AEC Criteria		0/5	0/5
7	ED	Electrical Distribution	Tri Temperature	Test at Rm, Hot		0/30	0/30
8	ESD	Electro-static Discharge	Human Body Model (2KV HBM)	Test at Rm, Hot		Pass	Pass
9	ESD	Electro-static Discharge	Machine (200V MM)	Test at Rm, Hot		Pass	Pass
10	LU	LatchUp	±150mA, +1.5xVcc	Test at Rm, Hot		Pass	Pass

Table 3: Reliability Evaluation Results for Devices CAT34C02VP2I-GT4



FINAL PRODUCT/PROCESS CHANGE NOTIFICATION #20342

Qualification Results and Analysis:

#	Test	Name	Test Conditions	End Point Req's	Test Results	(rej/ ss)	(rej/ ss)
					Read Point	Lot C	Lot 6
1	HTSL	High Temp Storage Life	TA = 150°C	Test at Rm,	Initial	0/80	0/80
					504 Hrs	0/80	0/80
					1008 Hrs	0/80	0/80
2	PC	Preconditioning: ;	Moisture Preconditioning for HAST, AC, TC; MSL1, Peak Reflow Temp = 260C	---	Initial Electrical	done	done
3	HAST-PC	High Acceleration Stress Test - PC	TA =130 °C, RH=85%, V=80% rated Volts	Test at Rm,	Initial	0/80	0/80
					96 Hrs	0/80	0/80
4	TC-PC	Temperature Cycling-PC	Ta= -65/150 C	Test at Rm	Initial	0/80	0/80
					500 Cyc	0/80	0/80
					1000 Cyc	0/80	0/80
5	AC-PC	Autoclave	121°C/100% RH/15psig	Test at Rm	Initial	0/80	0/80
					96 Hrs	0/80	0/80
6	DPA	Destructive Physical Analysis	Following TC -PC	AEC Criteria		0/5	0/5
7	ED	Electrical Distribution	Tri Temperature	Test at Rm, Hot		0/30	0/30
8	ESD	Electro-static Discharge	Human Body Model (2KV HBM)	Test at Rm, Hot		Pass	Pass
9	ESD	Electro-static Discharge	Machine (200V MM)	Test at Rm, Hot		Pass	Pass
10	LU	LatchUp	±150mA, +1.5xVcc	Test at Rm, Hot		Pass	Pass

Table 3: Reliability Evaluation Results for Devices CAT34C02VP2I-GT4



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UDFN8-2X3 (case outline 517AZ)

List of affected General Parts:

CAT24C04HU4E-GT3	CAT24C32HU4I-GT3	CAT25080HU4I-GT3
CAT24C04HU4I-GT3	CAT24C64HU4E-GT3	CAT25128HU4E-GT3
CAT24C08HU4E-GT3	CAT24C64HU4I-GT3	CAT25128HU4I-GT3
CAT24C08HU4I-GT3	CAT25010HU4E-GT3	CAT25160HU4I-GT3
CAT24C128HU4EGT3	CAT25010HU4I-GT3	CAT25256HU4E-GT3
CAT24C128HU4IGT3	CAT25020HU4E-GT3	CAT25256HU4I-GT3
CAT24C16HU4I-GT3	CAT25020HU4I-GT3	CAT25640HU4E-GT3
CAT24C256HU4IGT3	CAT25040HU4E-GT3	CAT25640HU4I-GT3
CAT24C32HU4E-GT3	CAT25040HU4I-GT3	CAT34C02HU4I-GT4
		CAT34C02HU4IGT4A

WDFN8-2X3 (case outline 511AK)

List of affected General Parts:

CAT24C64VP2E-GT3	CAT25160VP2I-GT3	CAT25040VP2E-GT3
CAT25080VP2I-GT3	CAT25010VP2I-GT3	CAT25640VP2I-GT3
CAT24C02VP2EGT3A	CAT25256VP2E-GT3	CAT24C16VP2E-GT3
CAT24C64VP2I-GT3	CAT24C04VP2I-GT3	CAT25040VP2I-GT3
CAT25128VP2E-GT3	CAT25020VP2E-GT3	CAT24C16VP2I-GT3
CAT24C02VP2I-GT3	CAT25256VP2I-GT3	CAT25080VP2E-GT3
CAT25128VP2I-GT3	CAT24C08VP2E-GT3	CAT34C02VP2I-GT4
CAT24C02VP2IGT3A	CAT25020VP2I-GT3	CAT24C32VP2E-GT3
CAT25010VP2E-GT3	CAT25640VP2E-GT3	CAV25640VP2E-GT3
	CAT24C08VP2I-GT3	CAT24C32VP2I-GT3