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Cypress Semiconductor Package Qualification Report

QTP# 170112 VERSION *A
May 2017

8 Pin DFN (5x6x0.75mm)
Matte Sn, Au Wire
MSL3, 260C Reflow
UTAC-Thailand (UT)

FOR ANY QUESTIONS ON THIS REPORT, PLEASE CONTACT
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PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
170112	Qualification of 8 Pin-DFN (5x6x0.75mm) Package using 0.8mil Au wire with G770HCD mold compound, H5104 die attach material, FR1283 leadframe material and Matte Sn leadfinish at MSL3, 260C Reflow Temperature.	May 2017

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	LH08
Package Outline, Type, or Name:	8 Pin – DFN (5x6x0.75mm)
Mold Compound Name/Manufacturer:	G770HCD / Sumitomo
Mold Compound Flammability Rating:	UL-94, V-0
Mold Compound Alpha Emission Rate:	NA (Not low alpha)
Oxygen Rating Index: >28%	>28% typical value
Lead Frame Designation:	FMP
Lead Frame Material:	Cu with Ag plating
Substrate Material:	N/A
Lead Finish, Composition / Thickness:	Matte Sn
Die Backside Preparation Method/Metallization:	Grinding
Die Separation Method:	Sawing
Die Attach Supplier:	Hitachi
Die Attach Material:	HR5104
Bond Diagram Designation	001-89521
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au / 0.8mil
Thermal Resistance Theta JA °C/W:	17.7 C/W
Package Cross Section Yes/No:	No
Assembly Process Flow:	001-85398M
Name/Location of Assembly (prime) facility:	UTAC-Thailand (UT)
MSL LEVEL	3
REFLOW PROFILE	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML

Note: Please contact a Cypress Representative for other package availability.

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Pressure Cooker Test	JESD22-A102, 121 C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65 C to 150 C Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Acoustic Microscopy	J-STD-020 Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
Constructional Analysis	Criteria: Meet external and internal characteristics of package	P
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110, 130 C, 85%RH, 3.3V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 C°, 60% RH, 260C Reflow)	P
X-Ray	MIL-STD-883 – 2012	P
Internal Visual	MIL-STD-883-2014	P
High Temp Storage	JESD22-A103: 150 C, no bias	P
Bond Pull	MIL-STD-883 – Method 2011	P
Ball Shear	JESD22-B116A	P
Die Shear	MIL-STD-883, Method 2019	P
Solderability	J-STD-002, JESD22-B102	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V / 1000V / 1250V JESD22-C101	P
Dye Penetrant Test	Test to determine the existence and extent of cracks, Criteria: No Package Crack	P
Data Retention	150 C, non-biased JESD22-A117 and JESD22-A103	P
Final Visual Inspection	JESD22-B101B	P

Reliability Test Data

QTP #: 170112

Device	Package	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: ACOUSTIC, MSL3

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	COMP	15	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646429	UTAC-UT	COMP	15	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646430	UTAC-UT	COMP	15	0	

STRESS: BALL SHEAR

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	COMP	90	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646429	UTAC-UT	COMP	90	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646430	UTAC-UT	COMP	90	0	

STRESS: BOND PULL

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	COMP	90	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646429	UTAC-UT	COMP	90	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646430	UTAC-UT	COMP	90	0	

STRESS: CONSTRUCTIONAL ANALYSIS

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	COMP	5	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646429	UTAC-UT	COMP	5	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646430	UTAC-UT	COMP	5	0	

STRESS: DIE SHEAR

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	COMP	30	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646429	UTAC-UT	COMP	30	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646430	UTAC-UT	COMP	30	0	

STRESS: DATA RETENTION

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	500	80	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	1000	80	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646429	UTAC-UT	500	80	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646429	UTAC-UT	1000	80	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646430	UTAC-UT	500	80	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646430	UTAC-UT	1000	80	0	

Reliability Test Data

QTP #: 170112

Device	Package	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: DYE PENETRANT

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	COMP	15	0	
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STRESS: ESD-CHARGE DEVICE MODEL

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	500	9	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	1000	3	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	1250	3	0	

STRESS: FINAL VISUAL

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	COMP	956	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646429	UTAC-UT	COMP	680	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646430	UTAC-UT	COMP	641	0	

STRESS: STRESS: UNBIASED HI-ACCEL SATURATION TEST, 130C, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	96	80	0	
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STRESS: STRESS: HI-ACCEL SATURATION TEST, 130C, 3.3V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	COMP	30	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646429	UTAC-UT	COMP	30	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646430	UTAC-UT	COMP	30	0	

STRESS: HIGH TEMPERATURE STORAGE

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	500	45	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	1000	45	0	

STRESS: INTERNAL VISUAL

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	COMP	5	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646429	UTAC-UT	COMP	5	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646430	UTAC-UT	COMP	5	0	

STRESS: PRESSURE COOKER TEST

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	168	80	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	288	80	0	

Reliability Test Data

QTP #: 170112

Device	Package	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: PHYSICAL DIMENSION

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	COMP	30	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646429	UTAC-UT	COMP	30	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646430	UTAC-UT	COMP	30	0	

STRESS: SOLDERABILITY

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	COMP	5	0	
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STRESS: TC COND. C -65C TO 150C, PRECONDITION 192 HRS 30C/60%RH

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	500	80	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	1000	80	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646429	UTAC-UT	500	80	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646429	UTAC-UT	1000	80	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646430	UTAC-UT	500	80	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646430	UTAC-UT	1000	80	0	

STRESS: X-RAY

CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646428	UTAC-UT	COMP	956	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646429	UTAC-UT	COMP	680	0	
CY14B101Q2 (7C1401B5CC)	LH08	4610223	611646430	UTAC-UT	COMP	641	0	

Document History Page

Document Title: QTP#170112: 8 Pin DFN (5x6x0.75mm) Matte Sn, Au Wire MSL3, 260C Reflow UTAC-Thailand (UT)
Document Number: 002-19559

Rev.	ECN No.	Orig. of Change	Description of Change
**	5725044	HSTO	Initial spec release
*A	5738131	HSTO	Update 8L DFN to 8 Pin DFN word in the qualification report