

Cypress Semiconductor Package Qualification Report

QTP# 142503 VERSION**
January, 2015

8-Lead TDFN
Pure Sn, CuPd Wire
MSL3, 260°C Reflow
UTAC Thailand Limited (UTL), Thailand (UT)

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

QTP Number	Description of Qualification Purpose	Date
142503	QTP# 142503: Qualification of 8-Lead TDFN Package at UTL-Thailand using TR20001AD Die, EME-G770 Mold Compound, 8200 Die Attach Epoxy, Pure Sn Leadfinish, 0.8 mil CuPd Wire at MSL3, 260C Reflow Temperature	Dec 2014

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	LH08F
Package Outline, Type, or Name:	8-Lead TDFN
Mold Compound Name/Manufacturer:	EME- G770/Sumitomo
Mold Compound Flammability Rating:	UL-94 V-0
Mold Compound Alpha Emission Rate:	<0.1
Oxygen Rating Index:	53%
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Henkel
Die Attach Material:	8200
Bond Diagram Designation	001-86110
Wire Bond Method:	Thermosonic
Wire Material/Size:	CuPd/0.8 mil
Thermal Resistance Theta JA °C/W:	21 °C/W
Package Cross Section Yes/No:	No
Assembly Process Flow:	001-85814
Name/Location of Assembly (prime) facility:	UTL-Thailand (UT)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST/FINISH DESCRIPTION	
Test Location	UTL-Thailand

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

RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Acoustic Microscopy	J-STD-020 Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
Ball Shear	JESD22-B116 Cpk : 1.33, Ppk : 1.66	P
Bond Pull	MIL-STD-883 – Method 2011 Cpk : 1.33, Ppk : 1.66	P
Constructional Analysis	Criteria: Meet external and internal characteristics of Cypress package	P
Die Shear	MIL-STD-883, Method 2019 Per die size: <ul style="list-style-type: none"> <3000 sq. mils = 1.2 kgf 30001-5000 sq. mils = 1.2 kgf >5001 sq. mils = 1.2 kgf 	P
Dye Penetrant Test	Test to determine the existence and extent of cracks, Criteria: No Package Crack	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V/750V/1,000V/1,250V/1,500V/1,750V/2,000V JESD22-C101	P
Final Visual	JESD22-B101	P
Glue Adhesion	JESD22-A111	P
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110: 130°C, 85%RH, 3.6V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
High Temp Storage	JESD22-A103:150°C, no bias	P
Internal Visual	MIL-STD-883-2014	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Pressure Cooker	JESD22-A102: 121°C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
Solderability, Steam Aged	J-STD-002, JESD22-B102 95% solder coverage minimum	P
Temperature Cycle	MIL-STD-883, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
X-Ray	MIL-STD-883 - 2012	P



Reliability Test Data

QTP #: 142503

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

FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	COMP	15	0	
FM25V02 (FM25V02A)	2338005	611425992	UT-Thailand	COMP	15	0	
FM25V02 (FM25V02A)	2338005	611425993	UT-Thailand	COMP	15	0	

STRESS: BALL SHEAR

FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	COMP	15	0	
FM25V02 (FM25V02A)	2338005	611425992	UT-Thailand	COMP	15	0	
FM25V02 (FM25V02A)	2338005	611425993	UT-Thailand	COMP	15	0	

STRESS: BOND PULL

FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	COMP	15	0	
FM25V02 (FM25V02A)	2338005	611425992	UT-Thailand	COMP	15	0	
FM25V02 (FM25V02A)	2338005	611425993	UT-Thailand	COMP	15	0	

STRESS: CONSTRUCTIONAL ANALYSIS

FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	COMP	5	0	
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STRESS: DIE SHEAR

FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	COMP	15	0	
FM25V02 (FM25V02A)	2338005	611425992	UT-Thailand	COMP	15	0	
FM25V02 (FM25V02A)	2338005	611425993	UT-Thailand	COMP	15	0	

STRESS: DYE PENETRANT TEST

FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	COMP	15	0	
FM25V02 (FM25V02A)	2338005	611425992	UT-Thailand	COMP	15	0	
FM25V02 (FM25V02A)	2338005	611425993	UT-Thailand	COMP	15	0	

STRESS: ESD-CHARGE DEVICE MODEL

FM25V02 (FMC25V02B)	4438076	611435722	UT-Thailand	500	9	0	
FM25V02 (FMC25V02B)	4438076	611435722	UT-Thailand	750	3	0	
FM25V02 (FMC25V02B)	4438076	611435722	UT-Thailand	1000	3	0	
FM25V02 (FMC25V02B)	4438076	611435722	UT-Thailand	1250	3	0	
FM25V02 (FMC25V02B)	4438076	611435722	UT-Thailand	1500	3	0	
FM25V02 (FMC25V02B)	4438076	611435722	UT-Thailand	1750	3	0	
FM25V02 (FMC25V02B)	4438076	611435722	UT-Thailand	2000	3	0	

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QTP #: 142503

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Ass Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: FINAL VISUAL							
FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	COMP	956	0	
FM25V02 (FM25V02A)	2338005	611425992	UT-Thailand	COMP	956	0	
FM25V02 (FM25V02A)	2338005	611425993	UT-Thailand	COMP	956	0	
STRESS: GLUE ADHESION							
FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	COMP	15	0	
FM25V02 (FM25V02A)	2338005	611425992	UT-Thailand	COMP	15	0	
FM25V02 (FM25V02A)	2338005	611425993	UT-Thailand	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.6V, PRE COND 192 HR 30C/60%RH, MSL3							
FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	96	25	0	
STRESS: HIGH TEMP STORAGE, 150C							
FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	500	77	0	
FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	1000	77	0	
STRESS: INTERNAL VISUAL							
FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	COMP	5	0	
STRESS: PHYSICAL DIMENSION							
FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	COMP	30	0	
FM25V02 (FM25V02A)	2338005	611425992	UT-Thailand	COMP	30	0	
FM25V02 (FM25V02A)	2338005	611425993	UT-Thailand	COMP	30	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3							
FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	168	77	0	
FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	288	77	0	
STRESS: SOLDERABILITY TEST							
FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	COMP	3	0	
FM25V02 (FM25V02A)	2338005	611425992	UT-Thailand	COMP	3	0	
FM25V02 (FM25V02A)	2338005	611425993	UT-Thailand	COMP	3	0	



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Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: TEMPERATURE CYCLE COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3

FM25 FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	500	77	0	
FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	1000	77	0	
FM25V02 (FM25V02A)	2338005	611425992	UT-Thailand	500	77	0	
FM25V02 (FM25V02A)	2338005	611425992	UT-Thailand	1000	77	0	
FM25V02 (FM25V02A)	2338005	611425993	UT-Thailand	500	77	0	
FM25V02 (FM25V02A)	2338005	611425993	UT-Thailand	1000	77	0	

STRESS: X-RAY

FM25V02 (FM25V02A)	2338005	611425991	UT-Thailand	COMP	15	0	
FM25V02 (FM25V02A)	2338005	611425992	UT-Thailand	COMP	15	0	
FM25V02 (FM25V02A)	2338005	611425993	UT-Thailand	COMP	15	0	



Document History Page

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**	4614649	JYF	Initial Spec Release.

Distribution: WEB

Posting: None