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# Cypress Semiconductor Package Qualification Report

**QTP# 152602 VERSION \*\*  
March 2016**

**100L TQFP (14x20x1.4mm)  
Pure Sn Leadfinish, CuPd Wire  
MSL3, 260°C Reflow  
ASEK-Taiwan (G)**

**FOR ANY QUESTIONS ON THIS REPORT PLEASE CONTACT [reliability@cypress.com](mailto:reliability@cypress.com) :  
OR VIA LINK A CYLINK CRM CASE**

**Prepared By:**  
Josephine Pineda (JYF)  
Sr. Reliability Engineer

**Reviewed By:**  
Rene Rodgers (RT)  
Sr. MTS Reliability Engineer

**Approved By:**  
Don Darling (DCDA)  
Reliability Director

**PACKAGE QUALIFICATION HISTORY**

<b>QTP Number</b>	<b>Description of Qualification Purpose</b>	<b>Date</b>
152602	Qualification of 100L TQFP (14x20x1.4mm) at ASEK-Taiwan (G) using G631 Mold Compound, CRM1076 Die Attach Epoxy, Pure Sn Leadfinish, 0.8 mil CuPd Wire at MSL 3, 260°C reflow temperature	Oct. 2015

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	AZ0AA
Package Outline, Type, or Name:	100L-Thin Quad Flat Package (14x20x1.4mm)
Mold Compound Name/Manufacturer:	G631/Sumitomo
Mold Compound Flammability Rating:	V-0 per UL94
Mold Compound Alpha Emission Rate:	0.001 (low alpha mold compound)
Oxygen Rating Index:	54%
Lead Frame Designation:	Slotted Full Metal Pad (FMP)
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Wafer saw
Die Attach Supplier:	Sumitomo
Die Attach Material:	CRM1076
Die Attach Method:	Epoxy
Bond Diagram Designation:	001-98412
Wire Bond Method:	Thermosonic
Wire Material/Size:	CuPd / 0.8 mil
Thermal Resistance Theta JA °C/W:	37.95 °C/W
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	002-09793
Name/Location of Assembly (prime) facility:	ASEK-Taiwan (G)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-RA

### RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENT

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	P
Bond Pull	JESD22-B116	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"> <li>&lt;3000 sq. mils = 1.2 kgf</li> <li>30001-5000 sq. mils = 1.2 kgf</li> <li>&gt;5001 sq. mils = 1.2 kgf</li> </ul>	P
Dye Penetrant Test	Test to determine the existence and extent of cracks, Criteria: No Package Crack	P
High Accelerated Saturation Test (HAST)	JESD22-A110, 130°C, 3.63V, 85%RH Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
High Temperature Storage Life	JESD22-A103, 150°C	P
Internal Visual	MIL-STD-883-2014	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
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 #: 152602

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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### STRESS: ACOUSTICS

CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	COMP	15	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-TAIWAN	COMP	15	0	
CY7C1370KV33 (7CP1370K)	9527002	611529844	G-TAIWAN	COMP	15	0	

### STRESS: BALL SHEAR

CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	COMP	24	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-TAIWAN	COMP	24	0	
CY7C1370KV33 (7CP1370K)	9527002	611529844	G-TAIWAN	COMP	24	0	
CY7C1370KE33 (7CP1376K)	9527002	611526472	G-TAIWAN	COMP	24	0	
CY7C1372KV33 (7CP1377K)	9527002	611526473	G-TAIWAN	COMP	24	0	
CY7C1381KE33 (7CP1381K)	9527002	611526474	G-TAIWAN	COMP	24	0	
CY7C13709KV25 (7CP13709K)	9527002	611526471	G-TAIWAN	COMP	24	0	
CY7C1383KE33 (7CP1383K)	9527002	611526475	G-TAIWAN	COMP	24	0	

### STRESS: BOND PULL

CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	COMP	24	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-TAIWAN	COMP	24	0	
CY7C1370KV33 (7CP1370K)	9527002	611529844	G-TAIWAN	COMP	24	0	
CY7C1370KE33 (7CP1376K)	9527002	611526472	G-TAIWAN	COMP	24	0	
CY7C1372KV33 (7CP1377K)	9527002	611526473	G-TAIWAN	COMP	24	0	
CY7C1381KE33 (7CP1381K)	9527002	611526474	G-TAIWAN	COMP	24	0	
CY7C13709KV25 (7CP13709K)	9527002	611526471	G-TAIWAN	COMP	24	0	
CY7C1383KE33 (7CP1383K)	9527002	611526475	G-TAIWAN	COMP	24	0	

### STRESS: CONSTRUCTIONAL ANALYSIS

CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	COMP	5	0	
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### STRESS: DIE SHEAR

CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	COMP	4	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-TAIWAN	COMP	4	0	
CY7C1370KV33 (7CP1370K)	9527002	611529844	G-TAIWAN	COMP	4	0	
CY7C1370KE33 (7CP1376K)	9527002	611526472	G-TAIWAN	COMP	4	0	



## Reliability Test Data

**QTP #: 152602**

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

CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	COMP	15	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-TAIWAN	COMP	15	0	
CY7C1370KV33 (7CP1370K)	9527002	611529844	G-TAIWAN	COMP	15	0	

**STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE COND 192 HR 30C/60%RH, MSL3**

CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	96	25	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	192	25	0	

**STRESS: HIGH TEMPERATURE STORAGE**

CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	500	78	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	1000	78	0	

**STRESS: INTERNAL VISUAL**

CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	COMP	5	0	
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**STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3**

CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	168	80	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	288	80	0	

**STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3**

CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	500	80	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	1000	80	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-TAIWAN	500	79	0	
CY7C1370KV33 (7CP1370K)	9527002	611529844	G-TAIWAN	500	80	0	

**STRESS: X-RAY**

CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-TAIWAN	COMP	15	0	
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## Document History Page

Document Title: QTP#152602: 100L TQFP (14X20X1.4MM) PURE SN LEADFINISH, CUPD WIRE, MSL3, 260C  
REFLOW, ASEK-TAIWAN (G)

Document Number: 002-11529

Rev.	ECN No.	Orig. of Change	Description of Change
**	5164534	JYF	Initial spec release.