

Cypress Semiconductor Package Qualification Report

QTP# 173701 VERSION
January 2018**

**64-Lead TQFP (10x10x1.4mm)
64-Lead TQFP (14x14x1.4mm)
Pure Sn Leadfinish, CuPd Wire
MSL3, 260°C Reflow
ASEK-Taiwan (G)**

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

QTP Number	Description of Qualification Purpose	Date
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	Mar 2016
164902	Qualification of 44L-TQFP (10x10x1.4mm) at ASEK-Taiwan (G) using 0.8mil CuPd wire with G631 mold compound, CRM-1076 die attach material, Copper with Ag plating leadframe and Pure Sn leadfinish at MSL3, 260C Reflow Temperature.	Jan 2017
173701	Qualification of 64L-TQFP (10x10x1.4mm)/(14x14x1.4mm) at ASEK-Taiwan (G) using 0.8mil CuPd wire with G631 mold compound, CRM-1076 die attach material, Copper with Ag plating and Pure Sn leadfinish at MSL3, 260C Reflow Temperature.	Dec 2017

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 (20um)
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

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	AZ44
Package Outline, Type, or Name:	44-Lead TQFP (10x10x1.4mm)
Mold Compound Name/Manufacturer:	G631 / Sumitomo
Mold Compound Flammability Rating:	V-0 per UL 94
Mold Compound Alpha Emission Rate:	N/A
Oxygen Rating Index: >28%	54%
Lead Frame Designation:	FMP
Lead Frame Material:	Copper with Ag plating
Substrate Material:	N/A
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Sumitomo
Die Attach Material:	CRM-1076
Bond Diagram Designation	002-16180
Wire Bond Method:	Ultrasonic
Wire Material/Size:	CuPd / 0.8mil (20um)
Thermal Resistance Theta JA °C/W:	63deg C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-41999
Name/Location of Assembly (prime) facility:	ASEK-Taiwan (G)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-Philippines

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

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	AY64 / AZ64
Package Outline, Type, or Name:	64-Lead TQFP (10x10x1.4mm) 64-Lead TQFP (14x14x1.4mm)
Mold Compound Name/Manufacturer:	G631 / Sumitomo
Mold Compound Flammability Rating:	V-0 per UL 94
Mold Compound Alpha Emission Rate:	N/A
Oxygen Rating Index: >28%	54%
Lead Frame Designation:	FMP
Lead Frame Material:	Copper with Ag plating
Substrate Material:	N/A
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Sumitomo
Die Attach Material:	CRM-1076
Bond Diagram Designation	002-20530 / 002-20531
Wire Bond Method:	Ultrasonic
Wire Material/Size:	0.8mil CuPd
Thermal Resistance Theta JA °C/W:	AY64 – 43 C/W AZ64 – 34 C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-41999
Name/Location of Assembly (prime) facility:	ASEK-Taiwan (G)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-Philippines

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
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
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110: 130C, 85%RH, 5.5V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30 °C, 60% RH, 260°C Reflow)	P
Pressure Cooker Test	JESD22-A102, 121 °C, 100%RH, 15 PSIG 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
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
Dye Penetrant Test	Test to determine the existence and extent of cracks, Criteria: No Package Crack	P
X-Ray	MIL-STD-883 – 2012	P
Final Visual Inspection	JESD22-B101B	P
Die Shear	MIL-STD-883, Method 2019	P



Reliability Test Data

QTP #: 152602

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
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	
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

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
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	
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	



Reliability Test Data

QTP #: 164902

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTIC, MSL3							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	COMP	15	0	
CY8C4146 (8CP41004AB)	3637043	611636502	G-Taiwan	COMP	15	0	
CY8C4146 (8CP41004AB)	3637043	611636503	G-Taiwan	COMP	15	0	
STRESS: BALL SHEAR							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	COMP	50	0	
CY8C4146 (8CP41004AB)	3637043	611636502	G-Taiwan	COMP	50	0	
CY8C4146 (8CP41004AB)	3637043	611636503	G-Taiwan	COMP	50	0	
STRESS: BOND PULL							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	COMP	100	0	
CY8C4146 (8CP41004AB)	3637043	611636502	G-Taiwan	COMP	100	0	
CY8C4146 (8CP41004AB)	3637043	611636503	G-Taiwan	COMP	100	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	COMP	5	0	
STRESS: CRATER TEST NOMARSKI							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	COMP	5	0	
STRESS: DIE SHEAR							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	COMP	15	0	
CY8C4146 (8CP41004AB)	3637043	611636502	G-Taiwan	COMP	15	0	
CY8C4146 (8CP41004AB)	3637043	611636503	G-Taiwan	COMP	15	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 5.5V, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	96	30	0	
STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR 30C/60%RH (MSL3)							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	168	80	0	



Reliability Test Data

QTP #: 164902

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
<i>STRESS: TC COND. C -65C TO 150C, PRE COND 192 HR 30C/60%RH, MSL3</i>							
CY8C4125 (8CP41004AB)	3637043	611636501	G-Taiwan	500	80	0	
CY8C4146 (8CP41004AB)	3637043	611636502	G-Taiwan	500	15	0	
CY8C4146 (8CP41004AB)	3637043	611636502	G-Taiwan	1000	80	0	
CY8C4146 (8CP41004AB)	3637043	611636503	G-Taiwan	500	80	0	
CY8C4146 (8CP41004AB)	3637043	611636503	G-Taiwan	1000	80	0	



Reliability Test Data

QTP #: 173701

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: ACOUSTIC, MSL3							
CY8C4127 (8CP43003AB)	3739025	611738645	G-Taiwan	COMP	22	0	
CY8C4127 (8CP43002AB)	3739025	611738646	G-Taiwan	COMP	22	0	
CY8C4127 (8CP43002AB)	3739025	611738647	G-Taiwan	COMP	22	0	
STRESS: BALL SHEAR							
CY8C4127 (8CP43003AB)	3739025	611738645	G-Taiwan	COMP	10	0	
CY8C4127 (8CP43002AB)	3739025	611738646	G-Taiwan	COMP	10	0	
CY8C4127 (8CP43002AB)	3739025	611738647	G-Taiwan	COMP	10	0	
STRESS: BOND PULL							
CY8C4127 (8CP43003AB)	3739025	611738645	G-Taiwan	COMP	10	0	
CY8C4127 (8CP43002AB)	3739025	611738646	G-Taiwan	COMP	10	0	
CY8C4127 (8CP43002AB)	3739025	611738647	G-Taiwan	COMP	10	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY8C4127 (8CP43003AB)	3739025	611738645	G-Taiwan	COMP	5	0	
CY8C4127 (8CP43002AB)	3739025	611738646	G-Taiwan	COMP	5	0	
STRESS: DIE SHEAR							
CY8C4127 (8CP43003AB)	3739025	611738645	G-Taiwan	COMP	15	0	
CY8C4127 (8CP43002AB)	3739025	611738646	G-Taiwan	COMP	15	0	
CY8C4127 (8CP43002AB)	3739025	611738647	G-Taiwan	COMP	15	0	
STRESS: DYE PENETRANT							
CY8C4127 (8CP43003AB)	3739025	611738645	G-Taiwan	COMP	15	0	
CY8C4127 (8CP43002AB)	3739025	611738646	G-Taiwan	COMP	15	0	
CY8C4127 (8CP43002AB)	3739025	611738647	G-Taiwan	COMP	15	0	
STRESS: FINAL VISUAL							
CY8C4127 (8CP43003AB)	3739025	611738645	G-Taiwan	COMP	1378	0	
CY8C4127 (8CP43002AB)	3739025	611738646	G-Taiwan	COMP	1541	0	
CY8C4127 (8CP43002AB)	3739025	611738647	G-Taiwan	COMP	243	0	



Reliability Test Data

QTP #: 173701

<i>Device</i>	<i>Fab Lot #</i>	<i>Assy Lot #</i>	<i>Assy Loc</i>	<i>Duration</i>	<i>Samp</i>	<i>Rej</i>	<i>Failure Mechanism</i>
STRESS: XRAY							
CY8C4127 (8CP43003AB)	3739025	611738645	G-Taiwan	COMP	15	0	
CY8C4127 (8CP43002AB)	3739025	611738646	G-Taiwan	COMP	15	0	
CY8C4127 (8CP43002AB)	3739025	611738647	G-Taiwan	COMP	15	0	



Document History Page

Document Title: QTP#173701: 64-Lead TQFP (10x10x1.4mm) 64-Lead TQFP (14x14x1.4mm) Pure Sn
Leadfinish, CuPd Wire MSL3, 260C Reflow ASEK-Taiwan (G)
Document Number: 002-22892

Rev.	ECN No.	Orig. of Change	Description of Change
**	6045737	HSTO	Initial release.