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# Cypress Semiconductor Product Qualification Report

**QTP# 200401 VERSION\*\*  
March 2020**

<b>Radiation Hardened 16 Meg ASYNC SRAM Device Family LL65UP-25ODR+ Technology, UMC Fab 12A</b>	
<b>Part Numbers</b>	<b>Die Part Number</b>
CYRS1061G30-10GGMB (16M, x16 Static RAM w/ ECC, 100MHz)	7M17165A
<b>QML Part Numbers</b>	<b>Die Part Number</b>
5962R2020201VXC (16M, x16 Static RAM w/ ECC, 100MHz)	7M17165A
<b>Prototype Part Numbers</b>	<b>Die Part Number</b>
CYPT1061G30-10GGMB (16M, x16 Static RAM w/ ECC, 100MHz)	7C17165A

**FOR ANY QUESTIONS ON THIS REPORT, PLEASE CONTACT**

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## QUALIFICATION HISTORY

<b>QTP Number</b>	<b>Description of Qualification Purpose</b>	<b>Date Comp</b>
091706	Qualification of 65nm (LL65) Technology at UMC Fab 12A and New Device CY7C1553K Base Die Product Family	Aug 2009
124902	Qualification of 16-MBIT Asynchronous SRAM Family ,ULL65nm (LL65UP-25ODR) Technology at UMC Fab 12A	Aug 2014
144804	Qualification of 16-MBIT Asynchronous SRAM Family Rev.*D Silicon, ULL65nm (LL65UP-25ODR) Technology at UMC Fab 12A	Feb 2015
200401	LL65 16M ASYNC SRAM RadHard QML Class V Device Qualification	March 2020

PRODUCT DESCRIPTION (for qualification)	
Qualification Purpose:	Qualify Radiation Hardened 16Meg ASYNC SRAM Device Family LL65UP-25ODR+ Technology at UMC Fab 12A
Marketing Part #:	CYRS1061G30-10GGMB, CYPT1061G30-10GGMB, 5962R2020201VXC
Device Description:	16 Megabit ASYNC SRAM Device
Cypress Division:	Cypress Semiconductor Corporation – Memory Product Division (MPD)

TECHNOLOGY/FAB PROCESS DESCRIPTION – LL65UP-25ODR+			
Number of Metal Layers:	Proprietary	Metal Composition:	Proprietary
Passivation Type and Materials:	Proprietary		
Generic Process Technology/Design Rule ( $\mu$ -drawn):	Proprietary		
Gate Oxide Material/Thickness (MOS):	Proprietary		
Name/Location of Die Fab (prime) Facility:	UMC, Taiwan		
Die Fab Line ID/Wafer Process ID:	Fab 12A, LL65UP-25ODR+		

PACKAGE	ASSEMBLY SITE FACILITY
54L Ceramic TSOP II	DPACI (Simi Valley, California)

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	54L Ceramic TSOP II
Package Outline, Type, or Name:	22.40 x 11.84 x 3.038 mm
Package Outline Drawing	002-18372
Substrate Material Designation:	N/A
Lead Frame Design:	Full Metal Paddle
Lead/solder Finish Composition & Thickness	Au80/Sn20
Die Attach material	JM7000/Henkel
Die Separation Method:	Laser Groove / Wafer Saw
Leadframe Paddle	8.99 x 6.198mm
Wire Bond Method:	Wedge Bond
Package Cross Section Yes/No:	Yes
Name/Location of Assembly (prime) facility:	DPACI (Simi Valley, California)
MSL Level	N/A
Reflow Profile	N/A

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	Cypress Semiconductor (San Jose, California)

**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
Age Bond Strength	200°C, 4HRS MIL-STD-883, Method 883-2011	P
Constructional Analysis	Criteria: Meet external and internal characteristics of Cypress package	P
Dynamic Latch-up	125°C , 8.25V JESD78	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V/750V/1,000V/1,250V JESD22-C101	P
Electrostatic Discharge Human Body Model (ESD-HBM)	1,100V/2,200V/3,300V JESD22-A114	P
Electrostatic Discharge Machine Model (ESD-MM)	200V JESD22-A115	P
High Accelerated Saturation Test (HAST)	JEDEC STD 22-A110: 130°C, 85%RH, 2.25V 110°C/130°C, 85%RH, 3.65V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
High Temperature Steady State Life	Static Operating Condition, Vcc Max= 1.37/2.25V, 150°C JESD22-A108	P
High Temperature Storage	JESD22-A103:150°C No bias	P
High Temperature Operating Life Early Failure Rate	Dynamic Operating Condition, Vcc Max = 1.44V, 125°C JESD22-A108	P
High Temperature Operating Life Latent Failure Rate	Dynamic Operating Condition, Vcc Max = 1.44V, 125°C JESD22-A108	P
High Temperature Operating Life Latent Failure Rate	Dynamic Operating Condition, Boost Regulated at Core, 1.45V, External 2.05V, 125°C /150°C JESD22-A108	P
Low Temperature Operating Life	Dynamic Operating Condition, Vcc = 1.62V/2.25V, -30°C JESD22-A108	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
Pre/Post LFR AC/DC Char	AC/DC Critical Parameter Char at 0 hour/500/1000hrs	P
Static Latch-up	85°C/125°C , ± 140mA, 85°C , ± 180mA JESD78	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
Temperature Humidity Bias Test (THB)	JESD22-A101: 85°C/ 85% RH , 2.25V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
Soft Error (Alpha Particle)	JESD89	P
Soft Error (Neutron)	JESD89	P

## RELIABILITY TESTS PERFORMED PER MILITARY QUALIFICATION SPECIFICATION REQUIREMENT

Stress/Test	Sample Size	V-Class Level Stress Test	Results
Resistance to Solvent	3	(DPA) – B1	Pass
Die Shear/Stud Pull	3	(DPA) – B2	Pass
Bond Pull	4 (22 wires)	(DPA) – B2	Pass
Solderability	3 (22 leads)	(DPA) – B3	Pass
Military Group C 125C	45	(DPA) – C1	Pass
Temperature Cycle	15	(DPA) - Group D	Pass
Physical Dimension	15	(DPA) – D1	Pass
Lead Integrity	3 (45 Leads)	(DPA) – D2	Pass
Thermal Series	15	(DPA) – D3	Pass
Mechanical Series	15	(DPA) – D4	Pass
Salt Atmosphere	15	(DPA) – D5	Pass
Internal Water Vapor	3	(DPA) – D6 <5K ppm H2O	Pass
Adhesion of Lead Finish	3	(DPA) – D7	Pass
Soldering Heat	3	(DPA) – D9	Pass
ESD-HBM (>2000V)	3	Per JEDEC Spec	Pass
ESD-CDM (>500V)	3	Per JEDEC Spec	Pass
SEE/TCI/TID/DRL/Radiation	3	(JDI) - Group E	Pass
ELDRS	3	(JDI) - Group E	Pass
Static Latch-up	3	Per JEDEC Spec	Pass
X-ray	100% of lot	Non-destructive required 100% in-line	Pass
Final Visual Inspection	All qual samples	Use DPA data – Non destructive	Pass
Baseline Spec	Memo	Per spec	001-65976
Revise OBOM	Spec	Per spec	001-73649

## RELIABILITY FAILURE RATE SUMMARY

Stress/Test	Device Tested/ Device Hours	# Fails	Activation Energy	Thermal AF <sup>3</sup>	Failure Rate
High Temperature Operating Life <sup>1</sup> Early Failure Rate	1,522 Devices	0	N/A	N/A	0 PPM
High Temperature Operating Life <sup>2</sup> Long Term Failure Rate (150°C)	89,000 DHRs	0	0.7	170	14 FIT
High Temperature Operating Life <sup>2</sup> Long Term Failure Rate (125°C)	889,000 DHRs	0	0.7	55	

<sup>1</sup> Assuming an ambient temperature of 55°C and a junction temperature rise of 15°C.

<sup>2</sup> Chi-squared 60% estimations used to calculate the failure rate..

<sup>3</sup> Thermal Acceleration Factor is calculated from the Arrhenius equation

$$AF = \exp \left[ \frac{E_A}{k} \left[ \frac{1}{T_2} - \frac{1}{T_1} \right] \right]$$

where:

E<sub>A</sub> = The Activation Energy of the defect mechanism.

k = Boltzmann's constant = 8.62x10<sup>-5</sup> eV/Kelvin.

T<sub>1</sub> is the junction temperature of the device under stress and T<sub>2</sub> is the junction temperature of the device at use conditions.

<sup>1</sup>Early Failure Rate was computed from QTP# 144804

<sup>2</sup> Long Term Failure Rate was computed from QTP# 091706 and QTP# 124902 Data.

## Reliability Test Data

**QTP #: 091706**

<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>
<b>STRESS: ACOUSTIC, MSL3</b>							
CY7C1514KV18 (7C1553K)	8842022	610851583	TAIWN-G	COMP	15	0	
CY7C1514KV18 (7C1553K)	8844020	610854240	TAIWN-G	COMP	15	0	
CY7C1514KV18 (7C1553K)	8844022	610906896	TAIWN-G	COMP	15	0	
<b>STRESS: AGE BOND STRENGTH</b>							
CY7C1514KV18 (7C1553K)	8842022	610851583	TAIWN-G	COMP	5	0	
CY7C1514KV18 (7C1553K)	8844020	610854240	TAIWN-G	COMP	5	0	
CY7C1514KV18 (7C1553K)	8844022	610906896	TAIWN-G	COMP	5	0	
<b>STRESS: DYNAMIC LATCH-UP</b>							
CY7C1470V33 (7C1470A)	4321389	610417278	CML-R	COMP	3	0	
<b>STRESS: ESD-HUMAN BODY CIRCUIT PER JEDEC EIA/JESD22-A114, 2,200V</b>							
CY7C1514KV18 (7C1553K)	8842022	610852338	TAIWN-G	COMP	8	0	
CY7C1514KV18 (7C1553K)	8844020	610854240	TAIWN-G	COMP	8	0	
CY7C1514KV18 (7C1553K)	8844022	610906896	TAIWN-G	COMP	8	0	
CY7C1514KV18 (7C1553K)	8844021	610908348	TAIWN-G	COMP	8	0	
<b>STRESS: ESD-CHARGE DEVICE MODEL, 500V</b>							
CY7C1514KV18 (7C1553K)	8842022	610852338	TAIWN-G	COMP	9	0	
CY7C1514KV18 (7C1553K)	8844020	610854240	TAIWN-G	COMP	9	0	
CY7C1514KV18 (7C1553K)	8844022	610906896	TAIWN-G	COMP	9	0	
<b>STRESS: ESD-MACHINE MODEL, 200V</b>							
CY7C1514KV18 (7C1553K)	8842022	610852338	TAIWN-G	COMP	5	0	
<b>STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 2.25V, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY7C1514KV18 (7C1553K)	8844020	610854240	TAIWN-G	128	78	0	
CY7C1514KV18 (7C1553K)	8844022	610906896	TAIWN-G	128	77	0	
<b>STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C</b>							
CY7C1514KV18 (7C1553K)	8844020	610851583	TAIWN-G	1000	70	0	
<b>STRESS: HIGH TEMP STEADY STATE LIFE TEST, 150C, 2.25V, Vcc Max</b>							
CY7C1514KV18 (7C1553K)	8844020	610854240	TAIWN-G	336	77	0	

## Reliability Test Data

**QTP #: 091706**

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
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**STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 125C, BOOST REGULATED AT CORE 1.45V, EXTERNAL 2.05V**

CY7C15631KV18 (7C1553K)	8908001	610920385	TAIWN-G	96	2367	0	
CY7C15631KV18 (7C1553K)	8912000	610920386	TAIWN-G	96	2217	0	
CY7C15631KV18 (7C1553K)	8910015	610920548	TAIWN-G	96	1321	0	

**STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 150C, BOOST REGULATED AT CORE 1.45V, EXTERNAL 2.05V**

CY7C1514KV18 (7C1553K)	8844021	610908348	TAIWN-G	500	178	0	
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**STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 125C, BOOST REGULATED AT CORE 1.45V, EXTERNAL 2.05V**

CY7C1514KV18 (7C1553K)	8844020	610854240	TAIWN-G	1000	178	0	
CY7C1514KV18 (7C1553K)	8844022	610906896	TAIWN-G	1000	178	0	

**STRESS: LOW TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, -30C, 2.25V Vcc**

CY7C1514KV18 (7C1553K)	8842022	610852338	TAIWN-G	500	45	0	
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**STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3**

CY7C1514KV18 (7C1553K)	8842022	610851583	TAIWN-G	168	76	0	
CY7C1514KV18 (7C1553K)	8844020	610854240	TAIWN-G	168	78	0	
CY7C1514KV18 (7C1553K)	8844022	610906896	TAIWN-G	168	77	0	

**STRESS: Pre-/ Post HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE CHAR**

CY7C1514KV18 (7C1553K)	8844020	610854240	TAIWN-G	COMP	10	0	
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**STRESS: STATIC LATCH-UP TESTING, 125C, 3.42V, +/-240mA**

CY7C1514KV18 (7C1553K)	8844020	610854680	TAIWN-G	COMP	9	0	
CY7C1514KV18 (7C1553K)	8844022	610906896	TAIWN-G	COMP	9	0	
CY7C1514KV18 (7C1553K)	8844021	610908348	TAIWN-G	COMP	9	0	
CY7C15631KV18 (7C1553K)	8911000	610922436	TAIWN-G	COMP	9	0	

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

CY7C1514KV18 (7C1553K)	8842022	610851583	TAIWN-G	1000	77	0	
CY7C1514KV18 (7C1553K)	8844020	610854240	TAIWN-G	1000	78	0	
CY7C1514KV18 (7C1553K)	8844022	610906896	TAIWN-G	1000	77	0	

**STRESS: STRESS: TEMPRATURE HUMIDITY TEST, 85C, 85%RH, 2.25V, PRE COND 192 HR 30C/60%RH, MSL3**

CY7C1514KV18 (7C1553K)	8842022	610851583	TAIWN-G	1000	77	0	
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## Reliability Test Data

QTP #: 091706

<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>
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**STRESS: SER – ALPHA PARTICLE, 3-TEMP, 3-VOLTAGE, @ 85C, Vcc Nom**

CY7C1514KV18 (7C1553K)	8842022	610851583	TAIWN-G	COMP	3	0	
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**STRESS: X-SECTION/STEM XY AUDIT**

CY7C1514KV18 (7C1553K)	8842022	610851583	TAIWN-G	COMP	1WF		
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## Reliability Test Data

**QTP #: 124902**

<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>
<b>STRESS: ACOUSTIC, MSL3</b>							
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	COMP	15	0	
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	COMP	170	0	
CY7C1061G30 (7CC171061A)	9313001	611348184	CML-RA	COMP	15	0	
<b>STRESS: AGE BOND STRENGTH</b>							
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	COMP	3	0	
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	COMP	3	0	
<b>STRESS: CONSTRUCTIONAL ANALYSIS</b>							
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	COMP	5	0	
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	COMP	5	0	
<b>STRESS: DYNAMIC LATCH-UP TESTING, 125C, 8.25V</b>							
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	COMP	3	0	
<b>STRESS: ESD-CHARGE DEVICE MODEL</b>							
CY7C1061G30 (7CC171061A)	9312001	611328720	CML-RA	500	9	0	
CY7C1061G30 (7CC171061A)	9312001	611328720	CML-RA	1000	3	0	
CY7C1061G30 (7CC171061A)	9312001	611328720	CML-RA	1250	3	0	
CY7C1061G30 (7CC171061A)	9324001	611342911	G-TAIWAN	500	9	0	
CY7C1061G30 (7CC171061A)	9324001	611342911	G-TAIWAN	1000	3	0	
CY7C1061G30 (7CC171061A)	9324001	611342911	G-TAIWAN	1250	3	0	
CY7C1061G30 (7CC171061A)	9302002	611320002	G-TAIWAN	500	9	0	
CY7C1061G30 (7CC171061A)	9302002	611320002	G-TAIWAN	1000	3	0	
CY7C1061G30 (7CC171061A)	9302002	611320002	G-TAIWAN	1250	3	0	
CY7C1069G30 (7CC171069A)	9302002	611320107	G-TAIWAN	500	9	0	
CY7C1069G30 (7CC171069A)	9302002	611320107	G-TAIWAN	1000	3	0	
CY7C1069G30 (7CC171069A)	9302002	611320107	G-TAIWAN	1250	3	0	

## Reliability Test Data

QTP #: 124902

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
<b>STRESS: ESD-CHARGE DEVICE MODEL</b>							
CY7C1061GE30(7CC1710613A)9308001		611340082	G-TAIWAN	500	9	0	
CY7C1061GE30(7CC1710613A)9308001		611340082	G-TAIWAN	750	3	0	
CY7C1062G30 (7CC171062A) 9302002		611321701	G-TAIWAN	500	9	0	
CY7C1062G30 (7CC171062A) 9302002		611321701	G-TAIWAN	1000	3	0	
CY7C1062G30 (7CC171062A) 9302002		611321701	G-TAIWAN	1250	3	0	
<b>STRESS: ESD-HUMAN BODY CIRCUIT PER JEDEC EIA/JESD22-A114</b>							
CY7C1062G30 (7CC171062A) 9302002		611321701	G-TAIWAN	1100	3	0	
CY7C1062G30 (7CC171062A) 9302002		611321701	G-TAIWAN	2200	8	0	
CY7C1062G30 (7CC171062A) 9302002		611321701	G-TAIWAN	3300	3	0	
CY7C1061G30 (7CC171061A) 9302002		611320002	G-TAIWAN	1100	3	0	
CY7C1061G30 (7CC171061A) 9302002		611320002	G-TAIWAN	2200	8	0	
CY7C1061G30 (7CC171061A) 9302002		611320002	G-TAIWAN	3300	3	0	
CY7C1069G30 (7CC171069A) 9302002		611320107	G-TAIWAN	1100	3	0	
CY7C1069G30 (7CC171069A) 9302002		611320107	G-TAIWAN	2200	8	0	
CY7C1069G30 (7CC171069A) 9302002		611320107	G-TAIWAN	3300	3	0	
CY7C1061GE30(7CC1710613A)9308001		611340082	G-TAIWAN	1100	3	0	
CY7C1061GE30(7CC1710613A)9308001		611340082	G-TAIWAN	2200	8	0	
CY7C1061GE30(7CC1710613A)9308001		611340082	G-TAIWAN	3300	3	0	
CY7C1061G30 (7CC171061A) 9312001		611328720	CML-RA	1100	3	0	
CY7C1061G30 (7CC171061A) 9312001		611328720	CML-RA	2200	8	0	
CY7C1061G30 (7CC171061A) 9312001		611328720	CML-RA	3300	3	0	
CY7C1061G30 (7CC171061A) 9324001		611342911	G-TAIWAN	1100	3	0	
CY7C1061G30 (7CC171061A) 9324001		611342911	G-TAIWAN	2200	8	0	
CY7C1061G30 (7CC171061A) 9324001		611342911	G-TAIWAN	3300	3	0	
<b>STRESS: HI-ACCEL SATURATION TEST, 110C, 85%RH, 3.65V, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY7C1061G30 (7CC171061A) 9313001		611348182	CML-RA	264	30	0	
<b>STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.65V, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY7C1061G30 (7CC171061A) 9313001		611348183	CML-RA	128	79	0	

## Reliability Test Data

**QTP #: 124902**

<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>
<b>STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE – REG-ON, 125C, 6.0V</b>							
CY7C1061G30 (7CC171061A)	9313001	611333269	CML-RA	96	50	0	
CY7C1061G30 (7CC171061A)	9324001	611342911	G-TAIWAN	96	50	0	
<b>STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 125C, 1.44V</b>							
CY7C1061G30 (7CC171061A)	9313001	611333269	CML-RA	96	2107	0	
CY7C1061G30 (7CC171061A)	9324001	611342911	G-TAIWAN	96	1818	0	
<b>STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 125C, 1.44V</b>							
CY7C1061G30 (7CC171061A)	9312001	611414530	CML-RA	168	179	0	
CY7C1061G30 (7CC171061A)	9312001	611414530	CML-RA	1000	175	0	
CY7C1061G30 (7CC171061A)	9313001	611333269	CML-RA	168	180	0	
CY7C1061G30 (7CC171061A)	9313001	611333269	CML-RA	1000	180	0	
CY7C1061G30 (7CC171061A)	9324001	611342911	G-TAIWAN	168	179	0	
CY7C1061G30 (7CC171061A)	9324001	611342911	G-TAIWAN	1000	178	0	
<b>STRESS: HIGH TEMP STEADY STATE LIFE TEST, 150C, 1.37V</b>							
CY7C1061G30 (7CC171061A)	9313001	611333269	CML-RA	168	80	0	
CY7C1062G30 (7CC171062A)	9302002	611321701	G-TAIWAN	168	80	0	
<b>STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C</b>							
CY7C1061G30 (7CC171061A)	9313001	611333088	CML-RA	500	79	0	
CY7C1061G30 (7CC171061A)	9313001	611333088	CML-RA	1000	79	0	
<b>STRESS: LOW TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, -30C, 1.62V</b>							
CY7C1061G30 (7CC171061A)	9313001	611333269	CML-RA	500	83	0	
<b>STRESS: PRE/POST LFR CRITICAL PARAMETERS</b>							
CY7C1061G30 (7CC171061A)	9312001	611414530	CML-RA	0	10+2	0	
CY7C1061G30 (7CC171061A)	9312001	611414530	CML-RA	1000	10+2	0	
CY7C1061G30 (7CC171061A)	9313001	611333269	CML-RA	0	10+2	0	
CY7C1061G30 (7CC171061A)	9313001	611333269	CML-RA	1000	10+2	0	
CY7C1061G30 (7CC171061A)	9324001	611342911	G-TAIWAN	0	10+2	0	
CY7C1061G30 (7CC171061A)	9324001	611342911	G-TAIWAN	1000	10+2	0	

## Reliability Test Data

**QTP #: 124902**

<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>
<b>STRESS: PRE/POST LTOL CRITICAL PARAMETERS</b>							
CY7C1061G30 (7CC171061A)	9313001	611333269	CML-RA	0	10+2	0	
CY7C1061G30 (7CC171061A)	9313001	611333269	CML-RA	500	10+2	0	
<b>STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	168	79	0	
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	288	79	0	
CY7C1061G30 (7CC171061A)	9313001	611333088	CML-RA	168	78	0	
CY7C1061G30 (7CC171061A)	9313001	611333088	CML-RA	288	78	0	
<b>STRESS: STATIC LATCH-UP TESTING, 85C, 8.25V/9.1V, +/-140mA</b>							
CY7C1062G30 (7CC171062A)	9302002	611321701	G-TAIWAN	COMP	6	0	
CY7C1061G30 (7CC171061A)	9302002	611320002	G-TAIWAN	COMP	6	0	
CY7C1069G30 (7CC171069A)	9302002	611320107	G-TAIWAN	COMP	6	0	
CY7C1061GE30(7CC1710613A)9308001		611340082	G-TAIWAN	COMP	6	0	
CY7C1061G30 (7CC171061A)	9312001	611328720	CML-RA	COMP	6	0	
CY7C1061G30 (7CC171061A)	9324001	611342911	G-TAIWAN	COMP	6	0	
<b>STRESS: STATIC LATCH-UP TESTING, 125C, 8.25V/9.1V, +/-140mA</b>							
CY7C1062G30 (7CC171062A)	9302002	611321701	G-TAIWAN	COMP	2	0	
CY7C1061G30 (7CC171061A)	9302002	611320002	G-TAIWAN	COMP	2	0	
CY7C1069G30 (7CC171069A)	9302002	611320107	G-TAIWAN	COMP	2	0	
CY7C1061GE30(7CC1710613A)9308001		611340082	G-TAIWAN	COMP	2	0	
CY7C1061G30 (7CC171061A)	9312001	611328720	CML-RA	COMP	2	0	
CY7C1061G30 (7CC171061A)	9324001	611342911	G-TAIWAN	COMP	2	0	
<b>STRESS: STATIC LATCH-UP TESTING, 85C, 8.25V/9.1V, +/-180mA</b>							
CY7C1062G30 (7CC171062A)	9302002	611321701	G-TAIWAN	COMP	2	0	
CY7C1061G30 (7CC171061A)	9302002	611320002	G-TAIWAN	COMP	2	0	
CY7C1069G30 (7CC171069A)	9302002	611320107	G-TAIWAN	COMP	2	0	
CY7C1061GE30(7CC1710613A)9308001		611340082	G-TAIWAN	COMP	2	0	
CY7C1061G30 (7CC171061A)	9312001	611328720	CML-RA	COMP	2	0	
CY7C1061G30 (7CC171061A)	9324001	611342911	G-TAIWAN	COMP	2	0	

## Reliability Test Data

**QTP #: 124902**

<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>
<b>STRESS: SER – ALPHA PARTICLE SEL, 25C/85C/120C, 1.65V/3.3V/5.5V</b>							
7C1710614GE	0	0	UMC	COMP	3	0	
<b>STRESS: SER – NEUTRON SEL, 85C/125C, 5.25V</b>							
7C17165A	0	0	UMC	COMP	3	0	
<b>STRESS: TEMPERATURE CYCLE COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3</b>							
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	500	80	0	
CY7C1061G30 (7CC171061A)	9313001	611348183	CML-RA	1000	79	0	
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	500	80	0	
CY7C1061G30 (7CC171061A)	9313001	611348182	CML-RA	1000	78	0	
CY7C1061G30 (7CP1710612A)	9313001	611420263	CML-RA	500	80	0	
CY7C1061G30 (7CP1710612A)	9313001	611420263	CML-RA	1000	80	0	
CY7C1061G30 (7CC171061A)	9313001	611348184	CML-RA	500	80	0	
CY7C1061G30 (7CC171061A)	9313001	611348184	CML-RA	1000	80	0	
<b>STRESS: X-SECTION/STEM XY AUDIT</b>							
7C17165A	9302002	0	UMC	COMP	1WF	0	

## Reliability Test Data

QTP #: 144804

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ESD-CHARGE DEVICE MODEL							
CY62167GE30 (7CC1721673A) 9423005	611500929	CML-RA	500	9	0		
CY62167GE30 (7CC1721673A) 9423005	611500929	CML-RA	1000	3	0		
CY62167GE30 (7CC1721673A) 9423005	611500929	CML-RA	1250	3	0		
STRESS: ESD-HUMAN BODY CIRCUIT PER JEDEC EIA/JESD22-A114							
CY62167GE30 (7CC1721673A) 9423005	611500929	CML-RA	1100	3	0		
CY62167GE30 (7CC1721673A) 9423005	611500929	CML-RA	2200	8	0		
CY62167GE30 (7CC1721673A) 9423005	611500929	CML-RA	3300	3	0		
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE , 125C, 1.44V							
CY62167GE30 (7CC1721673A) 9423005	611500929	CML-RA	96	927	0		
CY62167G30 (7CC172167A) 9438001	611503292	G-Taiwan	96	695	0		
STRESS: STATIC LATCH-UP TESTING, 85C, 8.25V, +/-140mA							
CY62167GE30 (7CC1721673A) 9423005	611500929	CML-RA	COMP	3	0		
STRESS: STATIC LATCH-UP TESTING, 85C, 9.1V, +/-200mA							
CY62167GE30 (7CC1721673A) 9423005	611500929	CML-RA	COMP	3	0		
STRESS: STATIC LATCH-UP TESTING, 125C, 8.25V, +/-140mA							
CY62167GE30 (7CC1721673A) 9423005	611500929	CML-RA	COMP	3	0		
YIELD: CLASS							
CY62167GE30 (7CC1721673A) 9423005	611500929	CML-RA	COMP	EQUIVALENT			
YIELD: E-TEST							
CY62167GE30 (7CC1721673A) 9423005	611500929	CML-RA	COMP	EQUIVALENT			
YIELD: SORT							
CY62167GE30 (7CC1721673A) 9423005	611500929	CML-RA	COMP	EQUIVALENT			

## Reliability Test Data

**QTP #: 200401**

<b>Device Mechanism</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure</b>
<b>STRESS: B1 – RESISTANCE TO SOLVENT</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	COMP	3	0	
<b>STRESS: B2- BOND PULL</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	COMP	4	0	
<b>STRESS: B2 – DIE SHEAR</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	COMP	3	0	
<b>STRESS: B3 – SOLDERABILITY TEST</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	COMP	3	0	
<b>STRESS: D1 – PHYSICAL DIMENSION</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	COMP	15	0	
<b>STRESS: D2 – LEAD INTEGRITY</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	COMP	3	0	
<b>STRESS: D3 – THERMAL SERIES</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	COMP	15	0	
<b>STRESS: D4 – MECHANICAL SERIES</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	COMP	15	0	
<b>STRESS: D5 – SALT ATMOSPHERE</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	COMP	15	0	
<b>STRESS: D6 – INTERNAL WATER VAPOR</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	COMP	3	0	
<b>STRESS: D7 – ADHESION OF LEAD FINISH</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	COMP	3	0	
<b>STRES: X-RAY</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	COMP	156	0	

## Reliability Test Data

**QTP #: 200401**

<b>Device Mechanism</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure</b>
<b>STRESS: ENHANCED LOW DOSE RATE SENSITIVITY TEST (ELDRS)</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	COMP	4	0	
<b>STRESS: ESD-CHARGE DEVICE MODEL</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	500	3	0	
<b>STRESS: ESD-HUMAN BODY MODEL</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	1000	3	0	
CYRS1061G30 (7M171061A)	9903000	621900011	DP	2000	3	0	
<b>STRESS: GROUP C, 125C, Vcc = 3.63V</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	1000	45	0	
<b>STRESS: GROUP E</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	TCI	5	0	
CYRS1061G30 (7M171061A)	9903000	621900011	DP	TID	12	0	
CYRS1061G30 (7M171061A)	9903000	621900011	DP	Transient Ionization	5	0	
CYRS1061G30 (7M171061A)	9903000	621900011	DP	Dose Rate Latch-up	5	0	
CYRS1061G30 (7M171061A)	9903000	621900011	DP	SEE	4	0	
<b>STRESS: PRE/ POST HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE CHAR</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	COMP	10+2	0	
<b>STRESS: S/LATCH-UP, +/-200mA, 5.4V, 125C</b>							
CYRS1061G30 (7M171061A)	9903000	621900011	DP	COMP	6	0	

## Document History Page

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Rev.	ECN No.	Orig. of Change	Description of Change
**	6831945	JYF	Initial spec release.