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Cypress Semiconductor Product Qualification Report

QTP# 111904
December 2013

32 Meg MoBL SRAM Family	
R95LD-3R, FAB 4	
CY62177ESL, MoBL®	32-Mbit (2 M X 16/4 M X 8) Static RAM
CY62177EV*, MoBL®	32-Mbit (2M X 16 / 4M X 8) Static RAM
CY62177EV18*, MoBL®	32-Mbit (2M X 16 / 4M X 8) Static RAM

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PRODUCT QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
054302	R95LD-3R, Fab 4 and New Device CY7C62xxx (4Meg) MoBL Product Family	Dec 05
071302	16Meg Rev. B MoBL Product Family, R95LD-R Technology at Fab4	Mar 07
091602	Qualify 64M MoBL SRAM (7C62187F, 4 stacked die of qualified R95 16M) R95LD-3R Technology, Fab4	Oct 09
111904	Qualification of 32M 48TSOP1 Device (2 die stack of qualified R95 16M die) R95LD-3R Technology, Fab4	May 11
112601	Qualification of 32M 48BGA Device (2 die stack of qualified R95 16M die) R95LD-3R Technology, Fab4	Dec 11
134603	Qualification of polyimide for 32M MoBL SRAM 7C62177FC device (stacked die, 2x16M die) in R95LD-3R technology, Fab 4	Dec 13

PRODUCT DESCRIPTION (for qualification)	
Qualification Purpose: 32M Device (2 die stack of qualified R95 16M die) R95LD-3R Technology, Fab4	
Marketing Part #:	CY62177ESL, CY62177EV*, CY62177EV18*
Device Description:	3V/5V 32M (2MX 16 / 4M X 8)
Cypress Division:	Cypress Semiconductor Corporation –Memory Product Division (MPD)

TECHNOLOGY/FAB PROCESS DESCRIPTION			
Number of Metal Layers:	2	Metal Composition:	Metal 1: 100Å Ti / 3200Å Al / 300Å TiW Metal 2: 150Å Ti / 8000Å Al / 300Å TiW
Passivation Type and Thickness:	1000Å Oxide TEOS / 9000Å Nitride		
Generic Process Technology/Design Rule (μ-drawn):	CMOS, Double Metal, 0.09μm		
Gate Oxide Material/Thickness (MOS):	28Å		
Name/Location of Die Fab (prime) Facility:	Cypress Semiconductor -- Bloomington, MN		
Die Fab Line ID/Wafer Process ID:	Fab4/R95LD-3RP		

PACKAGE AVAILABILITY

PACKAGE	ASSEMBLY FACILITY SITE
48L-TSOPI	OSE-TAIWAN (T)
48 FBGA	ASE-TAIWAN (G)

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION

Package Designation:	ZT48
Package Outline, Type, or Name:	48-Lead Plastic Thin Small Outlined Package Type 1 (TSOP1)
Mold Compound Name/Manufacturer:	Hitachi 9200 HF-U
Mold Compound Flammability Rating:	V-O per UL94
Mold Compound Alpha Emission Rate:	0.001c/cm2-h
Oxygen Rating Index:	N/A
Substrate Material:	Copper
Lead Finish, Composition / Thickness:	NiPdAu
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Nitto
Die Attach Material:	EM-700J Tape Film
Die Attach Method:	Tape Film Attach
Bond Diagram Designation:	001-14702
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au. 0.9mil
Thermal Resistance Theta JA °C/W:	44.6 C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	001-55109
Name/Location of Assembly (prime) facility:	Taiwan-T (OSE)
MSL Level	3
Reflow Profile	260C

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	BK-48
Package Outline, Type, or Name:	48- Ball Grid Array (Chip Scale Package) Stacked Die
Mold Compound Name/Manufacturer:	KE-G-2270/ Kyocera
Mold Compound Flammability Rating:	V-O per UL94
Mold Compound Alpha Emission Rate:	0.001c/cm2-h
Oxygen Rating Index:	N/A
Substrate Material:	BT Resin
Lead Finish, Composition / Thickness:	SAC405
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Wafer Saw
Die Attach Supplier:	D/A1: Ablebond, D/A2:Hitachi
Die Attach Material:	D/A1 : 2025 D/A2 : FH-900
Die Attach Method:	Tape Film Attach
Bond Diagram Designation:	001-49639
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au. 0.8mil
Thermal Resistance Theta JA °C/W:	59.06 C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	001-04289
Name/Location of Assembly (prime) facility:	Taiwan-G (ASE)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	GO-Taiwan (Chipmos)

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 MSL 3 192 Hrs, 30°C/60%RH+ Reflow, 260°C +0, -5°C	P
Age Bond Strength	200°C, 4HRS MIL-STD-883, Method 883-2011	P
Alpha Particle Sensitivity	0.001 CPH/Cm2	P
Ball Shear	JESD22-B116	P
Bond Pull	MIL-STD-883 – Method 2011	P
Current Density	Meets the Technology Device Level Reliability Specifications	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
Dynamic Latchup	JESD78	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V JESD22-C101	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V JEDEC EIA/JESD22-A80114	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V MIL-STD-883, Method 3015.7	P
Final Visual	JESD22-B101	P
High Accelerated Saturation Test (HAST)	JESD22-A110:130°C, 3.63V/5.5V, 85%RH/110°C, 3.65, 85%RH Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C /60%RH+ Reflow, 260°C +0, -5°C	P
High Temperature Operating Life Early Failure Rate	Dynamic Operating Condition, Vcc Max = 1.85V, 125°C Dynamic Operating Condition, Vcc Max = 3.5V, 110°C JESD22-A108	P
High Temperature Operating Life Latent Failure Rate	Dynamic Operating Condition, Vcc Max = 1.85V, 150°C Dynamic Operating Condition, Vcc Max = 1.85V, 125°C Dynamic Operating Condition, Vcc Max = 3.5V, 110°C JESD22-A108	P
High Temperature Steady State Life	Static Operating Condition, Vcc Max = 1.75V, 125°C JESD22-A108	P
High Temperature Storage	JESD22-A103: 150C, no bias	P
Internal Visual	MIL-STD-883-2014	P
Long Life Verification	Dynamic Operating Condition, Vcc = 1.85V, 150°C JESD22-A108	P
Low Temperature Operating Life	Dynamic Operating Condition, Vcc = 2.0V, -30C JESD22-A108	P
Pressure Cooker	JESD22-A102: 121°C, 100%RH, 15 Psig Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C /60%RH+ Reflow, 260C+0, -5°C	P
Static Latch-up	125C, ± 140/200/300mA JESD78	P
Temperature Cycle	MIL-STD-883, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs, 30°C /60%RH+ Reflow, 260°C +0, -5°C	P
Thermal Shock	MIL-STD-883, Method 1011, Condition B, -55 °C to 125°C and JESD22-A106, Condition C, -55 °C to 125°C	P
X-Ray	MIL-STD-883 - 2012	P

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RELIABILITY FAILURE RATE SUMMARY

Stress/Test	Device Tested/ Device Hours	# Fails	Activation Energy	Thermal AF ³	Failure Rate
High Temperature Operating Life Early Failure Rate	1,663 Devices	0	N/A	N/A	0 PPM
High Temperature Operating Life ^{1,2} Long Term Failure Rate	1, 393, 700 DHRs	1	0.7	170	10 FIT
				55	

Note: PPM Computation came from 091602 and 134603 EFR Data
FIT Rate Computation came from 054302, 071302, 091602 and 134603 LFR Data

- ¹ Assuming an ambient temperature of 55°C and a junction temperature rise of 15°C.
- ² Chi-squared 60% estimations used to calculate the failure rate.
- ³ 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_A = The Activation Energy of the defect mechanism.

K = Boltzmann's constant = 8.62×10^{-5} eV/Kelvin.

T_1 is the junction temperature of the device under stress and T_2 is the junction temperature of the device at use conditions.



Reliability Test Data QTP #:054302

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC-MSL3							
CY62147EV30LL (7C62147F)	4438656	610461414	CML-RA	COMP	15	0	
CY62147EV30LL (7C62147F)	4519690	610533058	CML-RA	COMP	15	0	
CY62147EV30LL (7C62147F)	4447261	610506302N	CML-R	COMP	15	0	
STRESS: AGE BOND STRENGTH							
CY62147EV30LL (7C62147F)	4514985	610527600	CML-R	COMP	10	0	
CY62136EV30LL (7C62136F)	4516742	610537839	CML-R	COMP	10	0	
CY62147EV30LL (7C62147F)	4516646	610527599	CML-R	COMP	10	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 125C, 1.85V, Vcc Max (Core)							
CY62147EV30LL (7C62147F)	4438656	610461414	CML-RA	96	679	0	
CY62147EV30LL (7C62147F)	4527847	610558767	CML-R	96	4031	0	
CY62147EV30LL (7C62147F)	4519690	610533058	CML-RA	96	1711	0	
CY62147EV30LL (7C62147F)	4447261	610506302N	CML-R	96	917	1	Single Bit (Non-visual)
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 150C, 1.85V, Vcc Max (Core)							
CY62147EV30LL (7C62147F)	4438656	610461414	CML-RA	80	400	0	
CY62147EV30LL (7C62147F)	4438656	610461414	CML-RA	500	400	1	Blocked contact at Poly
CY62147EV30LL (7C62147F)	4519690	610533058	CML-RA	80	400	0	
CY62147EV30LL (7C62147F)	4519690	610533058	CML-RA	500	400	0	
CY62147EV30LL (7C62147F)	4447261	610506302N	CML-R	80	400	0	
CY62147EV30LL (7C62147F)	4447261	610506302N	CML-R	500	400	0	
STRESS: LONG LIFE VERIFICATION, 150C, 1.85V, Vcc Max (Core)							
CY62147EV30LL (7C62147F)	4519690	610533058	CML-RA	1000	393	0	
STRESS: HIGH TEMPERATURE STEADY STATE LIFE, 125C, 1.75V, Vcc Max							
CY62147EV30LL (7C62147F)	4438656	610461414	CML-RA	168	76	0	
CY62147EV30LL (7C62147F)	4438656	610461414	CML-RA	336	75	0	
STRESS: LOW TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, -30C, 2.0V, Vcc							
CY62147EV30LL (7C62147F)	4447261	610506302N	CML-R	500	45	0	
STRESS: HIGH TEMPERATURE STORAGE							
CY62147EV30LL (7C62147F)	4438656	610461414	CML-RA	500	45	0	
CY62147EV30LL (7C62147F)	4438656	610461414	CML-RA	1000	45	0	



Reliability Test Data
QTP #:054302

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: ESD-CHARGE DEVICE MODEL, 500V

CY62147EV30LL (7C62147F)	4527847	610548767	CML-R	COMP	9	0	
CY62148EV30LL (7C62148F)	4527847	610548491	TAIWN-G	COMP	9	0	
CY62148EV30LL (7C62148F)	4527847	610550592	CML-RA	COMP	9	0	
CY62147EV30LL (7C62147F)	4516646	610527599	CML-R	COMP	9	0	
CY62147EV30LL (7C62147F)	4514985	610527600	CML-R	COMP	9	0	
CY62147EV30LL (7C62147F)	4519690	610533058	CML-RA	COMP	9	0	

STRESS: ESD-HUMAN BODY CIRCUIT PER JEDEC EIA/JESD22-A114, 2,200V

CY62147EV30LL (7C62147F)	4527847	610548767	CML-R	COMP	9	0	
CY62148EV30LL (7C62148F)	4527847	610548491	TAIWN-G	COMP	9	0	
CY62148EV30LL (7C62148F)	4527847	610551587	CML-R	COMP	9	0	
CY62148EV30LL (7C62148F)	4527847	610550592	CML-RA	COMP	9	0	
CY62147EV30LL (7C62147F)	4516646	610527599	CML-R	COMP	9	0	
CY62147EV30LL (7C62147F)	4514985	610527600	CML-R	COMP	9	0	
CY62147EV30LL (7C62147F)	4519690	610533058	CML-RA	COMP	9	0	

STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015, 2,200V

CY62147EV30LL (7C62147F)	4527847	610548767	CML-R	COMP	3	0	
CY62148EV30LL (7C62148F)	4527847	610548491	TAIWN-G	COMP	3	0	
CY62148EV30LL (7C62148F)	4527847	610551587	CML-R	COMP	3	0	
CY62148EV30LL (7C62148F)	4527847	610550592	CML-RA	COMP	3	0	
CY62147EV30LL (7C62147F)	4516646	610527599	CML-R	COMP	3	0	
CY62147EV30LL (7C62147F)	4514985	610527600	CML-R	COMP	3	0	
CY62147EV30LL (7C62147F)	4519690	610533058	CML-RA	COMP	3	0	

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

CY62137EV30LL (7C62137F)	4516742	610539321	CML-R	128	45	0	
CY62137EV30LL (7C62137F)	4516742	610539321	CML-R	256	45	0	
CY62137EV30LL (7C62137F)	4516742	610539321	CML-R	128	54	0	

STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 5.5V, PRE COND 192 HR 30C/60%RH, MSL3

CY62147EV30LL (7C62147F)	4527847	610558767	CML-R	128	45	0	
CY62147EV30LL (7C62147F)	4527847	610558767	CML-R	264	45	0	

Reliability Test Data

QTP #:054302

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: DYNAMIC LATCH-UP TESTING, 9.0V							
CY62147EV30LL (7C62147F)	4438656	610461414	TAIWN-G	COMP	3	0	
STRESS: STATIC LATCH-UP TESTING, 125C, 6.5V, +/-300mA							
CY62147EV30LL (7C62147F)	4514985	610527600	CML-R	COMP	3	0	
STRESS: STATIC LATCH-UP TESTING, 125C, 10V, +/-300mA							
CY62147EV30LL (7C62147F)	4527847	610548767	CML-R	COMP	3	0	
STRESS: STATIC LATCH-UP TESTING, 125C, 9.5V, +/-300mA							
CY62147EV30LL (7C62147F)	4516646	610527599	CML-R	COMP	3	0	
CY62147EV30LL (7C62147F)	4519690	610533058	CML-RA	COMP	3	0	
STRESS: STATIC LATCH-UP TESTING, 125C, 8.5V, +/-200mA							
CY62148EV30LL (7C62148F)	4527847	610548491	TAIWN-G	COMP	3	0	
CY62148EV30LL (7C62148F)	4527847	610551587	CML-R	COMP	3	0	
CY62148EV30LL (7C62148F)	4527847	610550592	CML-RA	COMP	3	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3							
CY62147EV30LL (7C62147F)	4516742	610537714	CML-R	168	50	0	
CY62147EV30LL (7C62147F)	4516742	610537714	CML-R	288	50	0	
CY62147EV30LL (7C62147F)	4516646	610537739	CML-R	168	50	0	
CY62147EV30LL (7C62147F)	4516646	610537739	CML-R	288	50	0	
CY62147EV30LL (7C62147F)	4519690	610533058	CML-RA	168	50	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CY62147EV30LL (7C62147F)	4438656	610461414	CML-RA	300	42	0	
CY62147EV30LL (7C62147F)	4519690	610533058	CML-RA	300	49	0	
CY62147EV30LL (7C62147F)	4519690	610533058	CML-RA	500	48	0	
CY62147EV30LL (7C62147F)	4519690	610533058	CML-RA	1000	46	0	
CY62147EV30LL (7C62147F)	4447261	610506302N	CML-R	300	45	0	
CY62147EV30LL (7C62147F)	4447261	610506302N	CML-R	500	44	0	
CY62147EV30LL (7C62147F)	4447261	610506302N	CML-R	1000	44	0	

Reliability Test Data

QTP #:071302

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC-MSL3							
CY62167EV30 (7C62167F)	4631509	610672951	TAIWN-G	COMP	15	0	
CY62167EV30 (7C62167F)	4632963	610702733	TAIWN-G	COMP	15	0	
CY62167EV30 (7C62167F)	4632963	610702735	TAIWN-G	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY62167EV30 (7C62167F)	4631509	610672951	TAIWN-G	COMP	9	0	
CY62167EV30 (7C62167F)	4632963	610704952	TAIWN-G	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JEDEC EIA/JESD22-A114, 2,200V							
CY62167EV30 (7C62167F)	4631509	610672951	TAIWN-G	COMP	8	0	
CY62167EV30 (7C62167F)	4632963	610704952	TAIWN-G	COMP	8	0	
STRESS: DYNAMIC LATCH-UP TESTING, 8.6V							
CY62167EV30 (7C62167F)	4631509	610672951	TAIWN-G	COMP	3	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 125C, 1.85V, Vcc Max							
CY62167EV30 (7C62167F)	4631509	610672951	TAIWN-G	96	1909	0	
CY62167EV30 (7C62167F)	4632963	610702733	TAIWN-G	96	1833	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 150C, 1.85V, Vcc Max							
CY62167EV30 (7C62167F)	4631509	610672951	TAIWN-G	80	400	0	
CY62167EV30 (7C62167F)	4631509	610672951	TAIWN-G	500	400	0	
CY62167EV30 (7C62167F)	4632963	610702733	TAIWN-G	80	399	0	
CY62167EV30 (7C62167F)	4632963	610702733	TAIWN-G	500	399	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE COND 192 HR 30C/60%RH, MSL3							
CY62167EV30 (7C62167F)	4631509	610672951	TAIWN-G	128	44	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3							
CY62167EV30 (7C62167F)	4631509	610672951	TAIWN-G	168	50	0	
STRESS: STATIC LATCH-UP TESTING, 125C, 8.5V, +/-200mA							
CY62167EV30 (7C62167F)	4631509	610672951	TAIWN-G	COMP	3	0	
STRESS: STATIC LATCH-UP TESTING, 125C, 8.3V, +/-200mA							
CY62167EV30 (7C62167F)	4632963	610704952	TAIWN-G	COMP	3	0	

Reliability Test Data QTP #:071302

<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: TC COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CY62167EV30 (7C62167F)	4631509	610672951	TAIWN-G	500	50	0	
CY62167EV30 (7C62167F)	4631509	610672951	TAIWN-G	1000	50	0	
CY62167EV30 (7C62167F)	4632963	610702733	TAIWN-G	300	50	0	
CY62167EV30 (7C62167F)	4632963	610702733	TAIWN-G	500	50	0	
CY62167EV30 (7C62167F)	4632963	610702735	TAIWN-G	300	50	0	

Reliability Test Data

QTP #:091602

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 125C, 1.85V, Vcc Max							
CY62187E (7C62187FC)	4907708	610921692	TAIWN-G	96	1403	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY62187E (7C62187FC)	4834118	610911267	TAIWN-G	COMP	9	0	
CY62187E (7C62187FC)	4836722	610910782	TAIWN-G	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JEDEC EIA/JESD22-A114, 2,200V							
CY62187E (7C62187FC)	4834118	610911267	TAIWN-G	COMP	8	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 125C, 1.85V, Vcc Max							
CY62187E (7C62187FC)	4907708	610921692	TAIWN-G	168	400	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 150C, 1.85V, Vcc Max							
CY62167EV30 (7C62167FC)	4631509	610672951	TAIWN-G	80	400	0	
CY62167EV30 (7C62167FC)	4631509	610672951	TAIWN-G	500	400	0	
STRESS: STATIC LATCH-UP TESTING, 125C, 5.4V, +/-200mA							
CY62187E (7C62187FC)	4834118	610911267	TAIWN-G	COMP	6	0	
STRESS: THERMAL JUNCTION							
CY62187E (7C62187FC)	4834118	610911267	TAIWN-G	COMP	2	0	

Reliability Test Data

QTP #111904

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ACOUSTIC-MSL3							
CY62177EV30LL (7C62177F)	4849967	610903998	TAIWN-T	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY62177EV30LL (7C62177F)	4913155	610930319	TAIWN-T	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JEDEC EIA/JESD22-A114, 2,200V							
CY62177EV30LL (7C62177F)	4913155	610930319	TAIWN-T	COMP	8	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 3.63V, PRE COND 192 HR 30C/60%RH, MSL3							
CY62177EV30LL (7C62177F)	4849967	610903998	TAIWN-T	128	76	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3							
CY62177EV30LL (7C62177F)	4849967	610903998	TAIWN-T	168	76	6	W Flakes, CAR#200939010
STRESS: HIGH TEMPERATURE STORAGE							
CY62177EV30LL (7C62177F)	4818952	610847713	TAIWN-T	500	80	0	
CY62177EV30LL (7C62177F)	4818952	610847713	TAIWN-T	1000	79	0	
STRESS: STATIC LATCH-UP TESTING, 125C, 5.55V, +/-140mA							
CY62177EV30LL (7C62177F)	4913155	610930319	TAIWN-T	COMP	6	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CY62177EV30LL (7C62177F)	4849967	610903998	TAIWN-T	500	76	0	
CY62177EV30LL (7C62177F)	4849967	610903998	TAIWN-T	1000	75	0	

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<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							
CY7C1071DV33 (7C1071N)	4907587	610927400	TAIWN-G	COMP	14	0	
STRESS: AGE BOND STRENGTH							
CY62177EV30LL (7C62177F)	4130511	611147538	TAIWN-G	COMP	5	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
CY62177EV30LL (7C62177F)	4130511	611147538	TAIWN-G	COMP	9	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JEDEC EIA/JESD22-A114, 2,200V							
CY62177EV30LL (7C62177F)	4130511	611147538	TAIWN-G	COMP	8	0	
STRESS: HI-ACCEL SATURATION TEST, 110C, 85%RH, 3.65V, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1071DV33 (7C1071N)	4908217	610927398	TAIWN-G	264	77	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1071DV33 (7C1071N)	4907587	610927400	TAIWN-G	168	76	0	
STRESS: HIGH TEMPERATURE STORAGE							
CY7C1071DV33 (7C1071N)	4907587	610927400	TAIWN-G	500	77	0	
CY7C1071DV33 (7C1071N)	4907587	610927400	TAIWN-G	1000	77	0	
CY7C1071DV33 (7C1071N)	4907587	610927400	TAIWN-G	1500	77	0	
STRESS: STATIC LATCH-UP TESTING, 125C, 5.5V, +/-140mA							
CY62177EV30LL (7C62177F)	4130511	611147538	TAIWN-G	COMP	6	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CY7C1071DV33 (7C1071N)	4907587	610927400	TAIWN-G	500	76	0	
CY7C1071DV33 (7C1071N)	4907587	610927400	TAIWN-G	1000	76	0	



Reliability Test Data QTP #134603

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

CY7C1081DV33 (7C1081N)	4118838	611138971	TAIWN-G	COMP	15	0	
CY7C1081DV33 (7C1081N)	4106700	611144761	TAIWN-G	COMP	15	0	
CY7C1081DV33 (7C1081N)	4106700	611144760	TAIWN-G	COMP	15	0	

STRESS: AGE BOND STRENGTH

CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	COMP	5	0	
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STRESS: BALL SHEAR

CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	COMP	10	0	
CY7C1081DV33 (7C1081N)	4106700	611144761	TAIWN-G	COMP	10	0	
CY7C1081DV33 (7C1081N)	4106700	611144760	TAIWN-G	COMP	10	0	

STRESS: BOND PULL

CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	COMP	12	0	
CY7C1081DV33 (7C1081N)	4106700	611144761	TAIWN-G	COMP	12	0	
CY7C1081DV33 (7C1081N)	4106700	611144760	TAIWN-G	COMP	12	0	

STRESS: CONSTRUCTIONAL ANALYSIS

CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	COMP	5	0	
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STRESS: CROSS SECTION

CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	COMP	5	0	
CY7C1081DV33 (7C1081N)	4106700	611144761	TAIWN-G	COMP	5	0	
CY7C1081DV33 (7C1081N)	4106700	611144760	TAIWN-G	COMP	5	0	

STRESS: DYNAMIC LATCH-UP TESTING

CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	COMP	3	0	
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STRESS: DYE PENETRANT

CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	COMP	15	0	
CY7C1081DV33 (7C1081N)	4106700	611144761	TAIWN-G	COMP	15	0	
CY7C1081DV33 (7C1081N)	4106700	611144760	TAIWN-G	COMP	15	0	

STRESS: ESD-CHARGE DEVICE MODEL, 500V

CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	COMP	9	0	
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STRESS: ESD-HUMAN BODY CIRCUIT PER JEDEC EIA/JESD22-A114, 2,200V

CY7C1081DV33 (7C1081N)	4118838	611138971	TAIWN-G	COMP	8	0	
CY7C1089DV33 (7C1089N)	4118838	611154008	TAIWN-G	COMP	8	0	

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Reliability Test Data QTP #134603

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

CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	COMP	315	0	
CY7C1081DV33 (7C1081N)	4106700	611144761	TAIWN-G	COMP	315	0	
CY7C1081DV33 (7C1081N)	4106700	611144760	TAIWN-G	COMP	475	0	

STRESS: HI-ACCEL SATURATION TEST, 110C, 85%RH, 3.65V, PRE COND 192 HR 30C/60%RH, MSL3

CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	264	80	0	
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STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 110C, 3.5V, Vcc Max

CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	168	130	0	
CY7C1081DV33 (7C1081N)	4106700	611144760	TAIWN-G	168	130	0	

STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 110C, 3.5V, Vcc Max

CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	500	129	0	
CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	1000	127	0	

STRESS: HIGH TEMPERATURE STORAGE

CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	500	80	0	
CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	1000	80	0	

STRESS: INTERNAL VISUAL

CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	COMP	5	0	
CY7C1081DV33 (7C1081N)	4106700	611144761	TAIWN-G	COMP	5	0	
CY7C1081DV33 (7C1081N)	4106700	611144760	TAIWN-G	COMP	5	0	

STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3

CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	168	80	0	
CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	288	80	0	
CY7C1081DV33 (7C1081N)	4106700	611144761	TAIWN-G	168	77	0	
CY7C1081DV33 (7C1081N)	4106700	611144761	TAIWN-G	288	76	0	

STRESS: STATIC LATCH-UP TESTING, 125C, +/-140mA

CY7C1081DV33 (7C1081N)	4118838	611138971	TAIWN-G	COMP	6	0	
CY7C1089DV33 (7C1089N)	4118838	611154008	TAIWN-G	COMP	6	0	

Reliability Test Data

QTP #134603

<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: TC COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	500	79	0	
CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	1000	79	0	
CY7C1081DV33 (7C1081N)	4106700	611144761	TAIWN-G	500	77	0	
CY7C1081DV33 (7C1081N)	4106700	611144761	TAIWN-G	1000	77	0	
CY7C1081DV33 (7C1081N)	4106700	611144760	TAIWN-G	500	77	0	
CY7C1081DV33 (7C1081N)	4106700	611144760	TAIWN-G	1000	76	0	
STRESS: THERMAL SHOCK							
CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	200	77	0	
CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	1000	77	0	
STRESS: X-RAY							
CY7C1081DV33 (7C108 1N)	4118838	611138971	TAIWN-G	COMP	475	0	
CY7C1081DV33 (7C1081N)	4106700	611144761	TAIWN-G	COMP	320	0	
CY7C1081DV33 (7C1081N)	4106700	611144760	TAIWN-G	COMP	315	0	

Document History Page

Document Title: QTP 111904: 32 MEG MOBL SRAM FAMILY (CY62177ESL, CY62177EV*), R95LD-3R, FAB 4
Document Number: 001-69529

Rev.	ECN No.	Orig. of Change	Description of Change
**	3253067	NSR	Initial Spec Release
*A	3458680	NSR	Added QTP112601 Data for the 48 BGA Package option.
*B	4020554	NSR	Removed word 'VERSION' in the title page. Changed product division from MID to MPD. Removed reference Cypress specs in Reliability Tests Performed table and replaced with reference Industry Standards.
C	4110682	HSTO	Added device CY62177EV18 in the cover page in reference to memo SVC-459.
*D	4212330	JYF	Added R95 32M Polyimide qualification data (QTP#134603); Complete re-write of Reliability Tests Performed table for template alignment.

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