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Cypress Semiconductor Product Qualification Report

QTP# 152402 VERSION*B
June 2017

9 & 18 Meg Standard Synchronous and NoBL Family LL65P-25ODR Technology, UMC Fab 12A	
CY7C1361KV33	9-Mbit (256K x 36) Flow-Through SRAM
CY7C1361KVE33	9-Mbit (256K x 36) Flow-Through SRAM (with ECC)
CY7C1370KV25	18-Mbit (512K x 36) Pipelined SRAM with NoBL™ Architecture
CY7C1370KV33	18-Mbit (512K x 36) Pipelined SRAM with NoBL™ Architecture
CY7C1370KVE33	18-Mbit (512K x 36) Pipelined SRAM with NoBL™ Architecture (with ECC)
CY7C1371KV33	18-Mbit (512K x 36) Flow-through SRAM with NoBL™ Architecture
CY7C1371KVE33	18-Mbit (512K x 36) Flow-through SRAM with NoBL™ Architecture (with ECC)
CY7C1372KV25	18-Mbit (1M x18) Pipelined SRAM with NoBL™ Architecture
CY7C1372KV33	18-Mbit (1M x18) Pipelined SRAM with NoBL™ Architecture
CY7C1373KV33	18-Mbit (1M x18) Flow-through SRAM with NoBL™ Architecture
CY7C1380KV25	18-Mbit (512K x 36) Pipelined SRAM
CY7C1380KV33	18-Mbit (512K x 36) Pipelined SRAM
CY7C1381KV33	18-Mbit (512K x 36) Flow-through SRAM
CY7C1381KVE33	18-Mbit (512K x 36) Flow-through SRAM (with ECC)
CY7C1382KV33	18-Mbit (1M x18) Pipelined SRAM
CY7C1383KV33	18-Mbit (1M x18) Flow-through SRAM
CY7C1383KVE33	18-Mbit (1M x18) Flow-through SRAM (with ECC)
CY7C1386KV33	18-Mbit (512K x 36) Pipelined DCD SYNC SRAM
CY7C1387KV33	18-Mbit (1M x18) Pipelined DCD SYNC SRAM

FOR ANY QUESTIONS ON THIS REPORT, PLEASE CONTACT

reliability@cypress.com or via a CYLINK CRM CASE

Prepared By:
 Josephine Pineda (JYF)
 Staff Reliability Engineer

Reviewed By:
 Sandhya Chandrashekhar (SANC)
 Principal Reliability Engineer

Approved By:
 David Hoffman (DHH)
 Reliability Director

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QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date Comp
091706	Qualification of 65nm (LL65) Technology at UMC Fab 12A and New Device CY7C1553K Base Die Product Family	Aug 2009
144504	Qualification of 36 Meg Standard Synchronous and NoBL Family , LL65P-25ODR Technology at UMC Fab 12A	April 2015
152402	Qualification of 18 Meg Standard Synchronous and NoBL Family , LL65P-25ODR Technology at UMC Fab 12A	Oct 2015
160902	Qualification of LL65 Sync NoBL 36M Family for New Military Temperature Range (-55C to 125C) at Backend Testing	June 2016

PRODUCT DESCRIPTION (for qualification)	
Qualification Purpose:	Qualify 18 Meg Standard Synchronous and NoBL Family , LL65P-25ODR Technology at UMC Fab 12A
Marketing Part #:	CY7C1361KV33 / CY7C1361KVE33/CY7C1370KV25/ CY7C1370KV33/ CY7C1370KVE33/CY7C1371KV33/ CY7C1371KVE33/ CY7C1372KV25/ CY7C1372KV33/ CY7C1373KV33/CY7C1380KV25/ CY7C1380KV33/ CY7C1381KV33/ CY7C1381KVE33/CY7C1382KV33/ CY7C1383KV33/ CY7C1383KVE33/ CY7C1386KV33/CY7C1387KV33
Device Description:	LL65 18 Meg Sync/NoBL SRAM
Cypress Division:	Cypress Semiconductor Corporation –Memory Product Division

TECHNOLOGY/FAB PROCESS DESCRIPTION			
Number of Metal Layers:	Proprietary	Metal Composition:	Proprietary
Passivation Type and Materials:	Proprietary		
Number of Transistors in Device	Proprietary		
Number of Logic Gates in Device	Proprietary		
Generic Process Technology/Design Rule (μ-drawn):	Proprietary		
Gate Oxide Material/Thickness (MOS):	Proprietary		
Name/Location of Die Fab (prime) Facility:	UMC Fab 12		
Die Fab Line ID/Wafer Process ID:	LLL65P-25ODR		

PACKAGE AVAILABILITY

PACKAGE	WIRE MATERIAL	ASSEMBLY FACILITY SITE	QTP NUMBER
165 FBGA	CuPd	SB-Thailand	QTP# 153605
100L TQFP	CuPd	ASE-Taiwan	QTP# 152602

Note: Package Qualification details upon request

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION

Package Designation:	BB165/BW165
Package Outline, Type, or Name:	165-Fine Ball Grid Array (13x15x1.4mm)
Mold Compound Name/Manufacturer:	KMC-3580-LVA/Shinetsu
Mold Compound Flammability Rating:	UL-94 V0
Oxygen Rating Index:	54% (typical)
Substrate Material:	BT Resin
Lead Finish, Composition / Thickness:	SAC405/SnPb
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Saw
Die Attach Supplier:	Hitachi
Die Attach Material:	HR9050G Die Attach Film
Bond Diagram Designation:	001-98663
Wire Bond Method:	Thermosonic
Wire Material/Size:	CuPd, 0.8 mil
Thermal Resistance Theta JA °C/W:	25.03°C/W
Package Cross Section Yes/No:	No
Assembly Process Flow:	002-03885
Name/Location of Assembly (prime) facility:	SB-Thailand
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION

Test Location:	CML-R
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MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	AZ100
Package Outline, Type, or Name:	100L-Thin Quad Flat Package (14x20x1.4mm)
Mold Compound Name/Manufacturer:	G631SH/Sumitomo
Mold Compound Flammability Rating:	UL-94 V0
Oxygen Rating Index:	54% (typical)
Leadframe Material:	Copper
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	Saw
Die Attach Supplier:	Sumitomo
Die Attach Material:	CRM1076
Bond Diagram Designation:	001-98412,001-98348,001-98075
Wire Bond Method:	Thermosonic
Wire Material/Size:	CuPd, 0.8 mil
Thermal Resistance Theta JA °C/W:	34.64°C/W
Package Cross Section Yes/No:	No
Assembly Process Flow:	002-09793
Name/Location of Assembly (prime) facility:	ASE-Taiwan (G)
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	ASE-Taiwan (G)

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
Dynamic Latch-up	JESD78	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V/750V/1,000V/1,250V/1,500V/1,750V/2,000V JESD22-C101	P
Electrostatic Discharge Human Body Model (ESD-HBM)	1,100V/2,200V/3,300V/4,000V/5,000V/6,000V 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/3.63V Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
High Temperature Operating Life Early Failure Rate	Dynamic Operating Condition, Boost Regulated at Core 1.45V, External 2.05V, 125°C Dynamic Operating Condition, 2.5V, 150°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 Dynamic Operating Condition, 2.5V, 150°C JESD22-A108	P
High Temperature Steady State Life	Static Operating Condition, Vcc Max= 2.25V, 150°C JESD22-A108	P
High Temperature Storage	JESD22-A103:150°C No bias	P
Low Temperature Operating Life	Dynamic Operating Condition, Vcc = 2.25V, -30°C Dynamic Operating Condition, Vcc = 3.3V, -55°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 LFR 0hr,80hrs, 500hrs & 1000hrs	P
Soft Error (Alpha Particle)	JESD89	P
Static Latch-up	85°C , ± 140mA , ± 200mA, ± 300mA 125°C , ± 140mA, ± 240mA 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

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	1,261 Devices	0	N/A	N/A	0 PPM
High Temperature Operating Life ² Long Term Failure Rate (150°C)	187,000 DHRs	0	0.7	170	18 FIT
High Temperature Operating Life ² Long Term Failure Rate (125°C)	356,000 DHRs	0	0.7	55	

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 = 8.62x10⁻⁵ eV/Kelvin.

T₁ is the junction temperature of the device under stress and T₂ is the junction temperature of the device at use conditions.

¹Early Failure Rate was computed from QTP# 160902 data.

² Long Term Failure Rate was computed from QTP# 091706, QTP# 144504 and QTP# 160902 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>
STRESS: ACOUSTIC, MSL3							
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	
STRESS: AGE BOND STRENGTH							
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	
STRESS: DYNAMIC LATCH-UP							
CY7C1470V33 (7C1470A)	4321389	610417278	CML-R	COMP	3	0	
STRESS: ESD-CHARGE DEVICE MODEL, 500V							
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	
STRESS: ESD-HUMAN BODY CIRCUIT PER JEDEC EIA/JESD22-A114, 2,200V							
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	
STRESS: ESD-MACHINE MODEL, 200V							
CY7C1514KV18 (7C1553K)	8842022	610852338	TAIWN-G	COMP	5	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 2.25V, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1514KV18 (7C1553K)	8844020	610854240	TAIWN-G	128	78	0	
CY7C1514KV18 (7C1553K)	8844022	610906896	TAIWN-G	128	77	0	
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	

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>
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	
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: HIGH TEMP STEADY STATE LIFE TEST, 150C, 2.25V, Vcc Max							
CY7C1514KV18 (7C1553K)	8844020	610854240	TAIWN-G	336	77	0	
STRESS: HIGH TEMPERATURE STORAGE, PLASTIC, 150C							
CY7C1514KV18 (7C1553K)	8844020	610851583	TAIWN-G	1000	70	0	
STRESS: LOW TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, -30C, 2.25V Vcc							
CY7C1514KV18 (7C1553K)	8842022	610852338	TAIWN-G	500	45	0	
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	
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: TEMPERATURE HUMIDITY TEST, 85C, 85%RH, 2.25V, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1514KV18 (7C1553K)	8842022	610851583	TAIWN-G	1000	77	0	



Reliability Test Data

QTP #:091706

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: SER – ALPHA PARTICLE, 3-TEPM, 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 #:144504

<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: ACOUSTIC, MSL3							
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL							
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	500	9	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	750	3	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	1000	3	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	1250	3	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	1500	3	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	1750	3	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	2000	3	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JEDEC EIA/JESD22-A114							
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	1100	3	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	2200	8	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	3300	3	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	4000	3	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	5000	3	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	6000	3	0	
STRESS: ESD-MACHINE MODEL, 200V							
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	COMP	5	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 150C, 2.5V							
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	48	1499	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE –REG-ON, 150C, 2.5V							
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	48	45	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 150C, 2.5V							
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	80	116	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	500	116	0	

Reliability Test Data

QTP #:144504

<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: PRE/POST LFR CRITICAL PARAMETERS							
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	0	10+2	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	80	10+2	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	500	10+2	0	
STRESS: PRESSURE COOKER TEST, 121C, 100%RH, 15 Psig, PRE COND 192 HR 30C/60%RH, MSL3							
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	168	80	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	288	80	0	
STRESS: STATIC LATCH-UP TESTING, 85C, 5.4V, +/-140mA							
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	COMP	6	0	
STRESS: STATIC LATCH-UP TESTING, 85C, 5.94V, +/-200mA							
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	COMP	3	0	
STRESS: STATIC LATCH-UP TESTING, 125C, 5.4V, +/-140mA							
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	COMP	3	0	
STRESS: TEMPERATURE CYCLE COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	500	79	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	1000	79	0	

Reliability Test Data

QTP #:152402

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ESD-CHARGE DEVICE MODEL							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	500	9	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	750	3	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	1000	3	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	1250	3	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	1500	3	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	1750	3	0	
CY7C1370KV25 (7CD13762K)	9527002	611526749	G-Taiwan	500	9	0	
CY7C1370KV25 (7CD13762K)	9527002	611526749	G-Taiwan	750	3	0	
CY7C1370KV25 (7CD13762K)	9527002	611526749	G-Taiwan	1000	3	0	
CY7C1370KV25 (7CD13762K)	9527002	611526749	G-Taiwan	1250	3	0	
CY7C1370KV25 (7CD13762K)	9527002	611526749	G-Taiwan	1500	3	0	
CY7C1370KV25 (7CD13762K)	9527002	611526749	G-Taiwan	1750	3	0	
CY7C1370KV25 (7CD13762K)	9527002	611526749	G-Taiwan	2000	3	0	
STRESS: ESD-HUMAN BODY CIRCUIT PER JEDEC EIA/JESD22-A114							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	1100	3	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	2200	8	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	3300	3	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	4000	3	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	5000	3	0	
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	6000	3	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-Taiwan	1100	3	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-Taiwan	2200	8	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-Taiwan	3300	3	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-Taiwan	4000	3	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-Taiwan	5000	3	0	
CY7C1383KVE33 (7CP1383K)	9527002	611529845	G-Taiwan	6000	3	0	

Reliability Test Data

QTP #:152402

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
STRESS: ESD-HUMAN BODY CIRCUIT PER JEDEC EIA/JESD22-A114							
CY7C1370KV25 (7CD13762K)	9527002	611526749	G-Taiwan	1100	3	0	
CY7C1370KV25 (7CD13762K)	9527002	611526749	G-Taiwan	2200	8	0	
CY7C1370KV25 (7CD13762K)	9527002	611526749	G-Taiwan	3300	3	0	
CY7C1370KV25 (7CD13762K)	9527002	611526749	G-Taiwan	4000	3	0	
CY7C1370KV25 (7CD13762K)	9527002	611526749	G-Taiwan	5000	3	0	
CY7C1370KV25 (7CD13762K)	9527002	611526749	G-Taiwan	6000	3	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	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 150C, 2.5V							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	48	1488	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 150C, 2.5V							
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	80	116	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	500	116	0	
STRESS: PRE/POST LFR CRITICAL PARAMETERS							
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	0	10+2	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	80	10+2	0	
CY7C1460KVE25 (7CP14602K)	9441004	611446421	CML-RA	500	10+2	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: STATIC LATCH-UP TESTING, 85C, 5.4V, +/-140mA							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	COMP	6	0	
STRESS: STATIC LATCH-UP TESTING, 85C, 5.94V, +/-200mA							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	COMP	3	0	
STRESS: STATIC LATCH-UP TESTING, 85C, 5.94V, +/-300mA							
CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	COMP	3	0	

Reliability Test Data

QTP #:152402

Device	Fab Lot #	Assy Lot #	Ass Loc	Duration	Samp	Rej	Failure Mechanism
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STRESS: STATIC LATCH-UP TESTING, 125C, 5.4V, +/-140mA

CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	COMP	3	0	
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STRESS: TEMPERATURE CYCLE COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3

CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	500	80	0	
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CY7C1370KVE33 (7CP1376K)	9527002	611526357	G-Taiwan	1000	80	0	
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Reliability Test Data

QTP #:160902

<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: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE, 150C, 2.5V							
CY7C1441KV33 (7CP1441KO)	9551005	611613848N	CML-RA	48	350	0	
CY7C1461KV33 (7CP1461KO)	9441005	611521359P1	CML-RA	48	283	0	
CY7C1441KV33 (7CP1441KO)	9441004	611505210P2	CML-RA	48	196	0	
CY7C1441KVE33 (7CP1441KO)	9441004	611523764P2	CML-RA	48	432	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, 150C, 2.5V							
CY7C1441KV33 (7CP1441KO)	9551005	611613848N	CML-RA	500	80	0	
STRESS: LOW TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE, -55C, 3.3V							
CY7C1441KV33 (7CP1441KO)	9441005	611521356	CML-RA	1000	32	0	

Document History Page

Document Title: QTP# 152402 : 9 & 18 MEG STANDARD SYNCHRONOUS AND NOBL FAMILY, LL65P-25ODR
TECHNOLOGY, UMC FAB 12A
Document Number: 002-09927

Rev.	ECN No.	Orig. of Change	Description of Change
**	5015548	JYF	Initial spec release.
*A	5390503	JYF	Added QTP# 160902 data (LL65 Sync NoBL 36M Family for New Military Temperature Range); Updated MPN coverage to include CY7C1361KV33 and CY7C1361KVE33.
*B	5771995	JYF	Sunset Review: Updated reference for Reliability personnel in QTP title page; Updated CY logo; Updated Technology/Fab Process Table; Corrected ESD-CDM condition of 2,0000V to 2,000V in Reliability Tests Performed table.