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# Cypress Semiconductor Product Qualification Report

QTP# 100703 VERSION\*C  
December 2014

<b>XO LN Flexo Device Family</b>	
<b>L8C-3R Technology, Fab 4</b>	
<b>CY2XP311ZXC CY2XP311ZXI</b>	<b>312.5 MHZ LVPECL CLOCK GENERATOR</b>

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

<b>QTP Number</b>	<b>Description of Qualification Purpose</b>	<b>Date</b>
042106	7C82877A DDR2 PLL New Device family on New C8Q-3R Technology, Fab4	Jan 05
053301	Qualify L8C-3R Technology Derivative of the C8 Technology at Fab4 using CY5077 Device	Sep 06
064302	Qualify XO LN Flexo Product Family on L8C-3R process at Fab4	Jun 09
100703	Qualification of 7C851205A Flexo 8pin TSSOP New Bond Option Device	Mar 10

### PRODUCT DESCRIPTION (for qualification)

Qualification Purpose: Qualification of 7C851205A Flexo 8pin TSSOP New Bond Option Device on L8C-3R process at Fab4

Marketing Part #: CY2XP311ZXC, CY2XP311ZXI

Device Description: Low Noise XO/VCXO/VCO Crystal Oscillator and Clock Generator

Cypress Division: Cypress Semiconductor Corporation – MID

### TECHNOLOGY/FAB PROCESS DESCRIPTION

Number of Metal Layers:	4	Metal Composition:	Metal 1: 100A Ti/3,200A Al /300A TiW Metal 2: 150A Ti/4,230A Al /300A TiW Metal 3: 150A Ti/4,230A Al /300A TiW Metal 4: 150A Ti/8,000A Al /300A TiW
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Passivation Type and Thickness:	TEOS 1,000A / 7,000A Si <sub>3</sub> N <sub>4</sub>
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Generic Process Technology/Design Rule (μ-drawn):	CMOS, 0.13 μm
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Gate Oxide Material/Thickness (MOS):	SiO <sub>2</sub> DGOX 32/55A
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Name/Location of Die Fab (prime) Facility:	CMI / Bloomington MN
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Die Fab Line ID/Wafer Process ID:	Fab4, L8C-3R
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### PACKAGE AVAILABILITY

PACKAGE	ASSEMBLY FACILITY SITE
16-Pin TSSOP	CML-RA
8-Pin TSSOP	OSE-TAIWAN
6-Pin/4-Pin LCC	ECERA-TAIWAN

Note: Package Qualification details upon request.

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	ZZ16, ZZ08
Package Outline, Type, or Name:	16-Lead Thin Shrunk Small Outline Package (TSSOP) 8-Lead Thin Shrunk Small Outline Package (TSSOP)
Mold Compound Name/Manufacturer:	CEL 9200 / Hitachi, CEL 9200HF / Hitachi
Mold Compound Flammability Rating:	UL-94 V-0
Mold Compound Alpha Emission Rate	N/A
Oxygen Rating Index:	N/A
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	NiPdAu
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	100% Saw
Die Attach Supplier:	Henkel , Hitachi
Die Attach Material:	QMI 509, 4900G
Die Attach Method:	Epoxy
Bond Diagram Designation:	001-13744
Wire Bond Method:	Thermosonic
Wire Material/Size:	Au, 1.0mil, Au, 1.2mil
Thermal Resistance Theta JA °C/W:	117°C/W, 135°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	11-20028, 001-04375
Name/Location of Assembly (prime) facility:	CML-RA, OSE-T
MSL Level	3
Reflow Profile	260C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-RA, CML-R

## RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENTS

Stress/Test	Test Condition (Temp/Bias)	Result P/F
High Temperature Operating Life Early Failure Rate	Dynamic Operating Condition, Vcc Max=3.8V, 125°C Dynamic Operating Condition, Vcc Max=2.35V, 150°C Dynamic Operating Condition, Vcc Max=2.35V, 125°C Dynamic Operating Condition, Vcc Max=3.96V, 125°C	P
High Temperature Operating Life Latent Failure Rate	Dynamic Operating Condition, Vcc Max=3.8V, 125°C Dynamic Operating Condition, Vcc Max=2.35V, 150°C Dynamic Operating Condition, Vcc Max=2.35V, 125°C	P
Long Life Verification	Dynamic Operating Condition, Vcc Max=2.35V, 150°C	P
Low Temperature Operating Life	-30C, 4.3V	P
High Temperature Steady State life	125°C, 2.35V/3.63V, Vcc Max	P
High Accelerated Saturation Test (HAST)	130°C, 1.8V/2.35V/3.63V, 85%RH Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Pressure Cooker	121°C, 100%RH, 15 Psig Precondition: JESD22 Moisture Sensitivity Level 3 192 Hrs, 30C/60%RH+3IR-Reflow, 260°C+0, -5°C	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2200V MIL-STD-883, Method 3015.7	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2200V JESD22, Method A114-B	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V JESD22-C101	P
Age Bond Strength	200C, 4hrs MIL-STD-883, Method 883-2011	P
Ball Shear	JESD22-B116A, Cpk : 1.33, Ppk : 1.66	P
Acoustic Microscopy	J-STD-020	P
Dynamic Latch-up	6.9V	P
High Temperature Storage	150C, no bias	P
Latch up Sensitivity	125C, $\pm$ 200mA/300mA JESD78	P

### RELIABILITY FAILURE RATE SUMMARY

Stress/Test	Device Tested/ Device Hours	# Fails	Activation Energy	Thermal <sup>3</sup> A.F	Failure Rate
High Temperature Operating Life Early Failure Rate <sup>1</sup>	3837 Devices	0	N/A	N/A	0 PPM
High Temperature Operating Life <sup>1,2</sup> Long Term Failure Rate (150C)	180,000 DHRs	0	0.7	170	12 FIT
High Temperature Operating Life <sup>1,2</sup> Long Term Failure Rate (125C)	860,000 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:

$E_A$  = The Activation Energy of the defect mechanism.

$K$  = Boltzmann's constant =  $8.62 \times 10^{-5}$  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 #: 042106**

<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>
<b>STRESS: ACOUSTIC-MSL3</b>							
CY68013A (7C681000A)	4416666	610434406	TAIWN-G	COMP	17	0	
CY2SSTU877 (7C87741A)	4416666B	H20592	TAIWN-G	COMP	16	0	
CY68013A (7C681000A)	4416701	610434407/8	TAIWN-G	COMP	17	0	
CY2SSTU877 (7C87740A)	4417143	H20549	TAIWN-G	COMP	16	0	
<b>STRESS: AGE BOND STRENGTH</b>							
CY68013A (7C681000A)	4416666	610434406	TAIWN-G	COMP	5	0	
CY68013A (7C682001A)	4416701	610437657	TAIWN-G	COMP	5	0	
CY2SSTU877 (7C87740A)	4417143	H20549	TAIWN-G	COMP	3	0	
<b>STRESS: BALL SHEAR</b>							
CY68013A (7C682001A)	4416701	610437657	TAIWN-G	COMP	5	0	
<b>STRESS: DYNAMIC LATCH-UP TESTING (6.9V)</b>							
CY68013A (7C682001A)	4416701	610437657	TAIWN-G	COMP	3	0	
<b>STRESS: ESD-CHARGE DEVICE MODEL (500V)</b>							
CY68013A (7C682001A)	4416666	610437607	TAIWN-G	COMP	9	0	
CY68013A (7C682000A)	4416666	610437102	TAIWN-G	COMP	9	0	
CY68013A (7C681000A)	4416701	610434407/8	TAIWN-G	COMP	9	0	
CY68013A (7C682000A)	4416701	610437702	TAIWN-G	COMP	9	0	
CY2SSTU877 (7C87740A)	4417143	H20549	TAIWN-G	COMP	9	0	
<b>STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 2200V</b>							
CY68013A (7C682001A)	4416666	610437607	TAIWN-G	COMP	9	0	
CY68013A (7C681000A)	4416701	610434407/8	TAIWN-G	COMP	9	0	
CY2SSTU877 (7C82877A)	4413035	H19747	TAIWN-G	COMP	9	0	
CY2SSTU877 (7C87740A)	4417143	H20549	TAIWN-G	COMP	9	0	
<b>STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015, 2200V</b>							
CY68013A (7C682001A)	4416666	610437607	TAIWN-G	COMP	3	0	
CY68013A (7C681000A)	4416701	610434407/8	TAIWN-G	COMP	3	0	
CY2SSTU877 (7C82877A)	4413035	H19747	TAIWN-G	COMP	3	0	
CY2SSTU877 (7C87740A)	4417143	H20549	TAIWN-G	COMP	3	0	





## Reliability Test Data

**QTP #: 042106**

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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**STRESS: HIGH TEMP STEADY STATE LIFE TEST (150C, 3.63V)**

CY68013A (7C682005A)	4416701	610438121	TAIWN-G	80	80	0	
CY68013A (7C682005A)	4416701	610438121	TAIWN-G	168	80	0	

**STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE (125C, 3.8V, Vcc Max)**

CY68013A (7C682001A)	4416666	610437607	TAIWN-G	96	499	0	
CY68013A (7C682005A)	4417143	610443845	TAIWN-G	96	514	0	

**STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE (125C, 3.8V, Vcc Max)**

CY68013A (7C682001A)	4416666	610437607	TAIWN-G	168	200	0	
CY68013A (7C682001A)	4416666	610437607	TAIWN-G	1000	194	0	
CY68013A (7C682005A)	4417143	610443845	TAIWN-G	168	208	0	
CY68013A (7C682005A)	4417143	610443845	TAIWN-G	1000	208	0	

**STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE (125C, 2.35V, Vcc Max)**

CY2SSTU877 (7C87741A)	4416666B	H20592	TAIWN-G	96	276	0	
CY2SSTU877 (7C82877A)	4416701	H20501	TAIWN-G	96	126	0	
CY2SSTU877 (7C87741A)	4416701	H20500	TAIWN-G	96	89	0	
CY2SSTU877 (7C87740A)	4416791B	H20536	TAIWN-G	96	169	0	
CY2SSTU877 (7C87741A)	4417975	H20583	TAIWN-G	96	304	0	
CY2SSTU877 (7C87741A)	4419587	H20650	TAIWN-G	96	500	0	

**STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE (125C, 3.8V, Vcc Max)**

CY2SSTU877 (7C87741A)	4416666B	H20592	TAIWN-G	1000	253	0	
CY2SSTU877 (7C87740A)	4417143	H20549	TAIWN-G	168	150	0	
CY2SSTU877 (7C87740A)	4417143	H20549	TAIWN-G	1000	150	0	

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

CY68013A (7C682001A)	4416666	610437607	TAIWN-G	128	47	0	
CY68013A (7C682001A)	4416666	610437607	TAIWN-G	256	47	0	
CY68013A (7C682000A)	4416701	610437702	TAIWN-G	128	47	0	
CY68013A (7C682000A)	4416701	610437702	TAIWN-G	256	45	0	

**STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 1.8V), PRE COND 192 HR, 30C/60%RH, MSL3**

CY2SSTU877 (7C87741A)	4417975	H20583	TAIWN-G	128	43	0	
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## Reliability Test Data

**QTP #: 042106**

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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**STRESS: LOW TEMPERATURE OPERATING LIFE (-30C, 4.3V)**

CY68013A (7C682005A)	4416701	610438121	TAIWN-G	500	80	0	
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**STRESS: STATIC LATCH-UP TESTING (125C, 5.5V, ±300mA)**

CY2SSTU877 (7C82877A)	4413035	H19747	TAIWN-G	COMP	3	0	
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CY2SSTU877 (7C87740A)	4417143	H20549	TAIWN-G	COMP	3	0	
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**STRESS: STATIC LATCH-UP TESTING (125C, 6.5V, ±300mA)**

CY68013A (7C682001A)	4416666	610437607	TAIWN-G	COMP	3	0	
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**STRESS: STATIC LATCH-UP TESTING (125C, 7.5V, ±300mA)**

CY68013A (7C682001A)	4416701	610437657	TAIWN-G	COMP	3	0	
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**STRESS: PRESSURE COOKER TEST (121C, 100%RH), 15 Psig, PRE COND 192 HR, 30C/60%RH, MSL3**

CY68013A (7C681000A)	4416666	610434406	TAIWN-G	168	50	0	
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CY68013A (7C681000A)	4416666	610434406	TAIWN-G	288	50	0	
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CY68013A (7C681000A)	4416701	610434407/8	TAIWN-G	168	50	0	
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CY68013A (7C681000A)	4416701	610434407/8	TAIWN-G	288	50	0	
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CY2SSTU877 (7C82877A)	4413035	H19747	TAIWN-G	168	47	0	
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CY2SSTU877 (7C82877A)	4413035	H19747	TAIWN-G	288	47	0	
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CY2SSTU877 (7C87740A)	4417143	H20549	TAIWN-G	168	45	0	
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CY2SSTU877 (7C87740A)	4417143	H20549	TAIWN-G	288	45	0	
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**STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS, 30C/60%RH, MSL3**

CY68013A (7C681000A)	4416666	610434406	TAIWN-G	300	50	0	
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CY68013A (7C681000A)	4416666	610434406	TAIWN-G	500	50	0	
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CY68013A (7C681000A)	4416666	610434406	TAIWN-G	1000	50	0	
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CY68013A (7C681000A)	4416701	610434407/8	TAIWN-G	168	50	0	
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CY68013A (7C681000A)	4416701	610434407/8	TAIWN-G	500	50	0	
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CY68013A (7C681000A)	4416701	610434407/8	TAIWN-G	1000	50	0	
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CY2SSTU877 (7C82877A)	4413035	H19747	TAIWN-G	300	46	0	
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CY2SSTU877 (7C82877A)	4413035	H19747	TAIWN-G	500	45	0	
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CY2SSTU877 (7C82877A)	4413035	H19747	TAIWN-G	1000	45	0	
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CY2SSTU877 (7C87740A)	4417143	H20549	TAIWN-G	300	45	0	
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## Reliability Test Data

**QTP #: 042106**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
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**STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS, 30C/60%RH, MSL3 (CONTINUATION)**

CY2SSTU877 (7C87740A)	4417143	H20549	TAIWN-G	500	45	0	
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CY2SSTU877 (7C87740A)	4417143	H20549	TAIWN-G	1000	45	0	
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**STRESS: HIGH TEMPERATURE STORAGE, 150C, no bias**

CY68013A (7C681000A)	4416701	610434407/8	TAIWN-G	500	50	0	
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CY68013A (7C681000A)	4416701	610434407/8	TAIWN-G	1000	50	0	
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CY2SSTU877 (7C87740A)	4417143	H20549	TAIWN-G	500	45	0	
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CY2SSTU877 (7C87740A)	4417143	H20549	TAIWN-G	1000	45	0	
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## Reliability Test Data

### QTP #: 053301

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
<b>STRESS: ACOUSTIC-MSL3</b>							
CY5077 (7C850003A)	4538565	610555083	CML-RA	COMP	16	0	
CY5077 (7C850003A)	4550443	61033232/3/915	PHIL-M	COMP	15	0	
CY5077 (7C850003A)	4615715	610637084	PHIL-M	COMP	15	0	
<b>STRESS: DYNAMIC LATCH-UP, 5.0V</b>							
CY5077 (7C850003A)				COMP	2	0	
<b>STRESS: DYNAMIC LATCH-UP, 6.25V</b>							
CY5077 (7C850003A)				COMP	2	0	
<b>STRESS: ESD-CHARGE DEVICE MODEL (500V)</b>							
CY5077 (7C850003A)	4538565	610555083	CML-RA	COMP	9	0	
CY5077 (7C850003A)	4550443	61033232/3/915	PHIL-M	COMP	9	0	
CY5077 (7C850003A)	4615715	610637084	PHIL-M	COMP	9	0	
<b>STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 2200V</b>							
CY5077 (7C850003A)	4538565	610555083	CML-RA	COMP	9	0	
CY5077 (7C850003A)	4550443	61033232/3/915	PHIL-M	COMP	9	0	
CY5077 (7C850003A)	4615715	610637084	PHIL-M	COMP	3	0	
<b>STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015, 2200V</b>							
CY5077 (7C850003A)	4538565	610555083	CML-RA	COMP	3	0	
CY5077 (7C850003A)	4550443	61033232/3/915	PHIL-M	COMP	3	0	
CY5077 (7C850003A)	4615715	610637084	PHIL-M	COMP	3	0	
<b>STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE (150C, 2.35V, Vcc Max)</b>							
CY5077 (7C850003A)	4538565	610555083	CML-RA	48	519	0	
CY5077 (7C850003A)	4550443	61033232/3/915	PHIL-M	48	1061	0	
CY5077 (7C850003A)	4615715	610637084	PHIL-M	48	500	0	
<b>STRESS: HIGH TEMP STEADY STATE LIFE TEST (150C, 2.35V)</b>							
CY5077 (7C850003A)	4538565	610555083	CML-RA	80	79	0	
CY5077 (7C850003A)	4538565	610555083	CML-RA	168	79	0	

## Reliability Test Data

### QTP #: 053301

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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#### STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE (150C, 2.35V, Vcc Max)

CY5077 (7C850003A)	4538565	610555083	CML-RA	80	120	0	
CY5077 (7C850003A)	4538565	610555083	CML-RA	500	120	0	
CY5077 (7C850003A)	4550443	61033232/3/915	PHIL-M	80	120	0	
CY5077 (7C850003A)	4550443	61033232/3/915	PHIL-M	500	120	0	
CY5077 (7C850003A)	4615715	610637084	PHIL-M	80	120	0	
CY5077 (7C850003A)	4615715	610637084	PHIL-M	500	120	0	

#### STRESS: LONG LIFE VERIFICATION TEST (150C, 2.35V, Vcc Max)

CY5077 (7C850003A)	4538565	610555083	CML-RA	1000	119	0	
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#### STRESS: HI-ACCEL SATURATION TEST (130C, 85%RH, 2.35V), PRE COND 192 HR, 30C/60%RH, MSL3

CY5077 (7C850003A)	4538565	610555083	CML-RA	128	48	0	
CY5077 (7C850003A)	4550443	61033232/3/915	PHIL-M	128	48	0	
CY5077 (7C850003A)	4550443	61033232/3/915	PHIL-M	256	47	0	

#### STRESS: HIGH TEMPERATURE STORAGE, 150C, no bias

CY5077 (7C850003A)	4550443	61033232/3/915	PHIL-M	500	50	0	
CY5077 (7C850003A)	4550443	61033232/3/915	PHIL-M	1000	50	0	

#### STRESS: STATIC LATCH-UP TESTING (125C, 3.0V, ±200mA), 1.8V Option

CY5077 (7C850003A)	4538565	610555083	CML-RA	COMP	3	0	
CY5077 (7C850003A)	4550443	61033232/3/915	PHIL-M	COMP	3	0	
CY5077 (7C850003A)	4615715	610637084	PHIL-M	COMP	3	0	

#### STRESS: STATIC LATCH-UP TESTING (125C, 6.5V, ±200mA), 3.3V Option

CY5077 (7C850003A)	4538565	610555083	CML-RA	COMP	3	0	
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#### STRESS: STATIC LATCH-UP TESTING (125C, 5.4V, ±200mA), 3.3V Option

CY5077 (7C850003A)	4550443	61033232/3/915	PHIL-M	COMP	3	0	
CY5077 (7C850003A)	4615715	610637084	PHIL-M	COMP	3	0	



## Reliability Test Data

**QTP #: 053301**

<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>
<b>STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS, 30C/60%RH, MSL3</b>							
CY5077 (7C850003A)	4538565	610555083	CML-RA	300	50	0	
CY5077 (7C850003A)	4538565	610555083	CML-RA	500	50	0	
CY5077 (7C850003A)	4538565	610555083	CML-RA	1000	50	0	
CY5077 (7C850003A)	4550443	61033232/3/915	PHIL-M	300	50	0	
CY5077 (7C850003A)	4550443	61033232/3/915	PHIL-M	500	50	0	
CY5077 (7C850003A)	4550443	61033232/3/915	PHIL-M	1000	50	0	
CY5077 (7C850003A)	4615715	610637084	PHIL-M	300	49	0	
CY5077 (7C850003A)	4615715	610637084	PHIL-M	500	49	0	
CY5077 (7C850003A)	4615715	610637084	PHIL-M	1000	48	0	



## Reliability Test Data

**QTP #: 064302**

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

CY2VC521ZXC (7C851101AC)	4803399	610820272/270/271	CML-RA	COMP	9	0	
CY2X012FLX (7C851001A)	4843328	610853236	ER	COMP	9	0	
CY2V0122FLXC (7C851003A)	4843328	610853238	ER	COMP	9	0	
CY2V013FLXI (7C851004A)	4843328	610853239	ER	COMP	9	0	
CY2X014FLXC (7C851002A)	4843328	610853237	ER	COMP	9	0	
CY2VC521ZXC-2 (7C851101A)	4903174	610906515/16	ER	COMP	9	0	
CY2VC511ZXC (7C851100A)	4903174	610906511/12/13	ER	COMP	9	0	
CY2XP31ZXI (7C851200A)	4903174	610908073/75/77	T-Taiwan	COMP	9	0	
CY2XL11ZXC (7C851201A)	4903174	610908081/82/83	T-Taiwan	COMP	9	0	
CY2X014FLXC (7C851002A)	4903174	610906619	ER	COMP	9	0	
CY2V013FLXI (7C851004A)	4903174	610906625	ER	COMP	9	0	
CY2V012FLXI (7C851003A)	4903174	610906623	ER	COMP	9	0	
CY2X012FLXC (7C851001A)	4903174	610906621	ER	COMP	9	0	
CY2VC511ZXC (7C851100A)	4803399	610820266/265/263	CML-RA	COMP	9	0	
CY2VC511ZXC (7C851001A)	4803399	610818852	ER	COMP	9	0	
CY2X014FLXCT (7C851002A)	4803399	610818855	ER	COMP	9	0	
CY2V012FLXCT (7C851003A)	4803399	610818854	ER	COMP	9	0	
CY2V013FLXIT (7C851004A)	4803399	610818851	ER	COMP	9	0	
CY2XP31ZXC (7C851010A)	4803399	610818851	ER	COMP	9	0	

**STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 2200V**

CY2VC521ZXC (7C851101AC)	4803399	610820272/270/271	CML-RA	COMP	8	0	
CY2X012FLX (7C851001A)	4843328	610853236	ER	COMP	8	0	
CY2V0122FLXC (7C851003A)	4843328	610853238	ER	COMP	8	0	
CY2V013FLXI (7C851004A)	4843328	610853239	ER	COMP	8	0	
CY2X014FLXC (7C851002A)	4843328	610853237	ER	COMP	8	0	
CY2VC521ZXC-2 (7C851101A)	4903174	610906515/16	ER	COMP	8	0	
CY2VC511ZXC (7C851100A)	4903174	610906511/12/13	ER	COMP	8	0	
CY2XP31ZXI (7C851200A)	4903174	610908073/75/77	T-Taiwan	COMP	8	0	
CY2XL11ZXC (7C851201A)	4903174	610908081/82/83	T-Taiwan	COMP	8	0	

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## Reliability Test Data

**QTP #: 064302**

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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**STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 2200V (CONTINUATION)**

CY2X014FLXC (7C851002A)	4903174	610906619	ER	COMP	8	0	
CY2V013FLXI (7C851004A)	4903174	610906625	ER	COMP	8	0	
CY2V012FLXI (7C851003A)	4903174	610906623	ER	COMP	8	0	
CY2X012FLXC (7C851001A)	4903174	610906621	ER	COMP	8	0	
CY2VC511ZXC (7C851100A)	4803399	610820266/265/263	CML-RA	COMP	8	0	
CY2VC511ZXC (7C851001A)	4803399	610818852	ER	COMP	8	0	
CY2X014FLXCT (7C851002A)	4803399	610818855	ER	COMP	8	0	
CY2V012FLXCT (7C851003A)	4803399	610818854	ER	COMP	8	0	
CY2V013FLXIT (7C851004A)	4803399	610818851	ER	COMP	8	0	
CY2XP31ZXC (7C851010A)	4803399	610818851	ER	COMP	8	0	

**STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-LATENT FAILURE RATE (125C, 2.35V, Vcc Max)**

CY2FLEXO-LV (7C851009A)	4903174	610906225/28/33	CML-R	168	624	0	
CY2FLEXO-LV (7C851009A)	4903174	610906225/28/33	CML-R	1000	624	0	
CY2FLEXO-LV (7C851009A)	4803399	610818721/715/705	CML-R	168	120	0	
CY2FLEXO-LV (7C851009A)	4803399	610818721/715/705	CML-R	1000	120	0	
CY2FLEXO-LV (7C851009A)	4843328	610853381/9/4	CML-R	168	116	0	
CY2FLEXO-LV (7C851009A)	4843328	610853381/9/4	CML-R	1000	116	0	

**STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE (125C, 2.35V, Vcc Max)**

CY2FLEXO-LV (7C851009A)	4903174	610906225/28/33	CML-R	96	1500	0	
CY2FLEXO-LV (7C851009A)	4803399	610818721/715/705	CML-R	96	1006	0	
CY2FLEXO-LV (7C851009A)	4843328	610853381/9/4	CML-R	96	1238	0	

**STRESS: HIGH TEMP DYNAMIC OPERATING LIFE-EARLY FAILURE RATE (125C, 3.96V, Vcc Max)**

CY2FLEXO-HV (7C851010A)	4903174	610906226	CML-R	96	48	0	
CY2FLEXO-HV (7C851010A)	4843328	610853387/85/80	CML-R	96	45	0	

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

CY2VC521ZXC (7C851101AC)	4803399	610820272/270/271	CML-RA	168	80	0	
CY2VC521ZXC (7C851101AC)	4803399	610820272/270/271	CML-RA	288	72	0	





## Reliability Test Data

**QTP #: 064302**

Device	Fab Lot #	Assy Lot #	Assy Loc	Duration	Samp	Rej	Failure Mechanism
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**STRESS: STATIC LATCH-UP TESTING (125C,  $\pm 200$ mA)**

CY2VC521ZXC (7C851101AC)	4803399	610820272/270/271	CML-RA	COMP	6	0	
CY2X012FLX (7C851001A)	4843328	610853236	ER	COMP	6	0	
CY2V0122FLXC (7C851003A)	4843328	610853238	ER	COMP	6	0	
CY2V013FLXI (7C851004A)	4843328	610853239	ER	COMP	6	0	
CY2X014FLXC (7C851002A)	4843328	610853237	ER	COMP	6	0	
CY2VC521ZXC-2 (7C851101A)	4903174	610906515/16	ER	COMP	6	0	
CY2VC511ZXC (7C851100A)	4903174	610906511/12/13	ER	COMP	6	0	
CY2XP31ZXI (7C851200A)	4903174	610908073/75/77	T-Taiwan	COMP	6	0	
CY2XL11ZXC (7C851201A)	4903174	610908081/82/83	T-Taiwan	COMP	6	0	
CY2X014FLXC (7C851002A)	4903174	610906619	ER	COMP	6	0	
CY2V013FLXI (7C851004A)	4903174	610906625	ER	COMP	6	0	
CY2V012FLXI (7C851003A)	4903174	610906623	ER	COMP	6	0	
CY2X012FLXC (7C851001A)	4903174	610906621	ER	COMP	6	0	
CY2VC511ZXC (7C851100A)	4803399	610820266/265/263	CML-RA	COMP	6	0	
CY2VC511ZXC (7C851001A)	4803399	610818852	ER	COMP	6	0	
CY2X014FLXCT (7C851002A)	4803399	610818855	ER	COMP	6	0	
CY2V012FLXCT (7C851003A)	4803399	610818854	ER	COMP	6	0	
CY2V013FLXIT (7C851004A)	4803399	610818851	ER	COMP	6	0	
CY2XP31ZXC (7C851010A)	4803399	610818851	ER	COMP	6	0	

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

CY2VC521ZXC (7C851101AC)	4803399	610820272/270/271	CML-RA	300	80	0	
CY2VC521ZXC (7C851101AC)	4803399	610820272/270/271	CML-RA	500	80	0	
CY2VC521ZXC (7C851101AC)	4803399	610820272/270/271	CML-RA	1000	80	0	
CY2VC521ZXC (7C851101AC)	4803399	610820272/270/271	CML-RA	1500	80	0	



## Reliability Test Data

**QTP #: 100703**

<b>Device</b>	<b>Fab Lot #</b>	<b>Assy Lot #</b>	<b>Assy Loc</b>	<b>Duration</b>	<b>Samp</b>	<b>Rej</b>	<b>Failure Mechanism</b>
<b>STRESS: ESD-CHARGE DEVICE MODEL (500V)</b>							
CY2XP311ZXI (7C851205A)	4917670	611008116	TAIWAN-T	COMP	9	0	
<b>STRESS: ESD-HUMAN BODY CIRCUIT PER JESD22, METHOD A114-B, 2200V</b>							
CY2XP311ZXI (7C851205A)	4917670	611008116	TAIWAN-T	COMP	8	0	
<b>STRESS: STATIC LATCH-UP TESTING (125C, ±200mA)</b>							
CY2XP311ZXI (7C851205A)	4917670	611008116	TAIWAN-T	COMP	6	0	



## Document History Page

Document Title: 100703: XO LN FLEXO DEVICE (CY2XP311ZXC/ CY2XP311ZXI)FAMILY, L8C-3R  
TECHNOLOGY, FAB 4 QUALIFICATION REPORT  
Document Number: 001-65334

Rev.	ECN No.	Orig. of Change	Description of Change
**	3088831	NSR	Initial Spec Release Removed QTPs 091601, 093101 and 092803 on Qualification History page and QTP Data Summary from the original qual report posted in ECN# 2898426.
*A	3435895	NSR	Sunset Review Removed QTP "VERSION 1.1" on the tile page. Fixed QTP Data alignment.
*B	3829979	NSR	Removed obsolete spec#001-13733. Removed the reference Cypress specs in reliability tests performed table and replace with reference Industry standards.
*C	4596444	HSTO	Align qualification report based on the new template in the front page

Distribution: WEB

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