

# CYPRESS SEMICONDUCTOR

## PRODUCT CHANGE NOTIFICATION

**PCN:020009**

**DATE: May 2, 2002**

**Subject: OSE Philippines Qualified for Assembling PLCC**

**To:**

**Description of change: OSE Philippines is qualified as alternative source for PLCC**

**Benefit of change: Additional capacity will result in improved cycle time.**

**Qualification status: Attached QTP#014002 with the letter for reference.**

**Sample status: Available upon request**

# CYPRESS SEMICONDUCTOR

## PRODUCT CHANGE NOTIFICATION

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DATE: May 2, 2002

Subject: OSE Philippines Qualified for Assembling PLCC

Cypress part numbers affected:

MKT_PART_NUM
CY7B933-155JC
CY7B933-155JCT
CY7B933-155JI
CY7B933-155JIT
CY7B9334-270JC
CY7B933-400JC
CY7B933-400JCT
CY7B9334-400JC
CY7B933-400JI
CS4385ATT
CS5096AM
CY7B933-JC
CY7B933-JCT
CY7B933-JI
CY7B933-JIT
CY7B8392-JC
CY7B8392-JCT
CG5067AT
CS5262AMT
CY7B991-2JC
CY7B991-2JCT
CY7B991-2JCTQ
CS4980AMT
CY7B9911-5JC
CY7B9911-5JCT
CY7B991-5JI
CY7B991-5JIT
CY7B991-5JITQ
CS3648BFT
CY7B9911-7JC
CY7B991-7JC
CY7B991-7JCT
CY7B991-7JCTQ
CY7B991-7JI
CY7B991-7JIT
CS5278AT

CS5278ATT
CY7B991V-2JC
CY7B991V-2JCT
CY7B9911V-5JC
CY7B9911V-5JCT
CY7B991V-5JC
CY7B991V-5JCT
CY7B991V-5JI
CY7B991V-5JIT
CY7B9911V-7JC
CY7B991V-7JC
CY7B991V-7JCT
CY7B991V-7JI
PALCE20V8-10JC
PALCE20V8-10JCT
PALCE20V8-15JC
PALCE20V8-25JC
PALCE20V8L-25JC
PALCE20V8-7JC
CS1878AM
PALC22V10-25JC
PALC22V10-25JCQ
CS2073AT
PALC22V10-25JI
PALC22V10-25JIT
CS2960AF
PALC22V10B-15JC
PALC22V10B-15JCQ
PALC22V10B-15JI
CS3894AF
PALC22V10D-10JC
CS4126BT
PALC22V10D-10JI
PALC22V10D-15JC
PALC22V10D-25JC
CS5134AM
PALCE22V10-5JC
PALCE22V10-5JCQ
CS3693AF
PALC22V10D-7JC
PALC22V10D-7JCQ
PALC22V10D-7JCT
PALCE22V10-7JC
PLDC20G10-25JC
PLDC20RA10-15JC
PLDC20RA10-20JI
CY7C331-20JC
CY7C331-25JC
CY7C335-100JC
CY7C335-66JC

CS3634AF
CY7C335-83JC
CY7C342-25JC
CY7C342B-15JC
CY7C342B-15JI
CY7C342B-20JC
EPM5128ALC-20
CY7C342B-20JI
CY7C342B-25JC
CY7C342B-25JCP
EPM5128LC-1
CY7C342B-25JI
CY7C342B-30JC
CY7C342B-30JCP
EPM5128LC-2
CY7C342B-30JI
CY7C342B-30JIP
EPM5128LI-2
CY7C342B-35JC
CY7C342B-35JCP
EPM5128LC
EPM5128LC
CY7C342B-35JI
CY7C344-15JC
CY7C344-20JC
CY7C344-20JCT
CY7C344-20JI
CY7C344-25JC
CY7C344-25JCT
CY7C344B-15JC
EPM5032LC-15
CY7C344B-20JC
EPM5032LC-20
CY7C344B-25JI
CY7C371-110JC
CY7C371-143JC
CY7C371-66JC
CY7C371L-66JC
CY7C371-66JI
CY7C371-83JC
CY7C371-83JI
CY7C371I-110JC
CY7C371I-143JC
CY7C371I-66JC
CY7C371I-83JC
CY7C371I-83JI
CG7C324-A15JC
CG7C324-A20JC
CP3228AMT
CP3229AMT

CP3230AMT
CP3231AMT
CP3232AMT
CP3233AMT
CP3234AMT
CP3235AMT
CP3236AMT
CP3237AMT
CP3238AMT
CP3239AMT

**Customer Part Numbers Affected:**

**Approximate Implementation Date: End of Q2 2002**

**Response Required:**

Sincerely,

Mike Burke  
Director of Quality

Al Laxman  
PCN Process Manager

# **Cypress Semiconductor Package Qualification Report**

**QTP# 014002 VERSION 1.0  
April, 2002**

**44-lead Plastic Leaded Chip Carrier (PLCC)  
OSE Philippines Assembly**

## **CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:**

Ed Russell  
Reliability Director  
(408) 432-7069

Al Laxman  
Quality Engineering  
(408)545-7120

### PACKAGE QUALIFICATION HISTORY

<b>QUAL REPORT</b>	<b>DESCRIPTION OF QUALIFICATION PURPOSE</b>	<b>DATE COMP.</b>
014002	Transfer 44-lead Plastic Leaded Chip Carrier (PLCC) package from Alphatec to OSE Philippines with die size $\leq 326.9 \times 192.8$ mils.	Jan 02

<b>MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION</b>	
<b>Package Designation:</b>	J44
<b>Package Outline, Type, or Name:</b>	44-lead Plastic Leaded Chip Carrier (PLCC)
<b>Mold Compound Name/Manufacturer:</b>	Sumitomo EME6300H
<b>Mold Compound Flammability Rating:</b>	V-O per UL 94
<b>Oxygen Rating Index:</b>	>28%
<b>Substrate Material:</b>	BT Resin
<b>Lead Finish, Composition / Thickness:</b>	Solder Plated 85%Sn - 15% Pb
<b>Die Backside Preparation Method/Metallization:</b>	N/A
<b>Die Separation Method:</b>	Wafer Saw
<b>Die Attach Supplier:</b>	Ablestik
<b>Die Attach Material:</b>	84-1 LMISR4
<b>Bond Diagram Designation</b>	10-02814
<b>Wire Bond Method:</b>	Thermosonic
<b>Wire Material/Size:</b>	Gold, 1.3mil
<b>Thermal Resistance Theta JA °C/W:</b>	43.47°C/W
<b>Package Cross Section Yes/No:</b>	N/A
<b>Assembly Process Flow:</b>	49-65002
<b>Name/Location of Assembly (prime) facility:</b>	OSE Philippines

<b>ELECTRICAL TEST / FINISH DESCRIPTION</b>	
<b>Test Location:</b>	Cypress CSPI
<b>Fault Coverage:</b>	100%

**Note:** Please contact a Cypress Representative for other packages availability.



**RELIABILITY TESTS PERFORMED PER SPECIFICATION REQUIREMENT**

Stress/Test	Test Condition (Temp/Bias)	Result P/F
Temperature Cycle	MIL-STD-883C, Method 1010, Condition C, -65°C to 150°C Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
High Accelerated Saturation Test	130°C, 85%RH, 5.5V Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
Pressure Cooker Test	No bias, 121°C, 100%, Precondition: JESD22 Moisture Sensitivity MSL 3 192 Hrs., 30°C/60%RH+3IR-Reflow, 220°C+5, -0°C	P
Internal Visual	Cypress Spec 25-00017	P
External Visual	Cypress Spec 12-00292	P
Ball Shear	Cypress Spec 24-00018	P
High Temperature Storage	150°C, no bias	P
Physical Dimensions	Cypress Spec 25-00031	P
Bond Pull	Cypress Spec 24-00002	P
Die Shear	Cypress Spec 12-00292	P
Thermal Shock	125C, -55C Cypress Spec 25-00014	P
Electrostatic Discharge Human Body Model (ESD-HBM)	2,200V MIL-STD-883, Method 3015.7	P
Electrostatic Discharge Charge Device Model (ESD- CDM)	500V Cypress Spec 25-00020	P
X-Ray	MIL-STD-883-2012	P
Acoustic Microscopy Test C-SAM)	Cypress Spec 25-00104	P

## Reliability Test Data

QTP #: 014002

<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 - MICROSCOPE, MSL3</b>							
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	COMP	20	0	
CY37064VP44 (7C37620B)	9106602	610133784	PHIL-OP	COMP	20	0	
CY37064VP44 (7C37620B)	9106602	610133784	PHIL-OP	COMP	20	0	
<b>STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 5.5V)PRE COND 192 HR 30C/60%RH, MSL3</b>							
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	128	50	0	
<b>STRESS: HIGH TEMP STORAGE, PLASTIC, 150C</b>							
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	500	50	0	
<b>STRESS: PRESSURE COOKER TEST, 121C, 100%RH), PRE COND 192HRS 30C/60%RH, MSL3</b>							
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	168	50	0	
CY37064VP44 (7C37620B)	9106602	610133784	PHIL-OP	168	50	0	
<b>STRESS: THERMAL SHOCK, CONDITION 125C/-55C</b>							
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	100	50	0	
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	200	50	0	
<b>STRESS: PHYSICAL DIMENSIONS</b>							
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	COMP	10	0	
<b>STRESS: SOLDERABILITY</b>							
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	COMP	3	0	
<b>STRESS: X-RAY</b>							
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	COMP	15	0	
<b>STRESS: DIE SHEAR</b>							
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	COMP	30	0	
<b>STRESS: BOND PULL</b>							
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	COMP	10	0	

## Reliability Test Data

QTP #: 014002

<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: BALL SHEAR</b>							
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	COMP	10	0	
<b>STRESS: INTERNAL VISUAL</b>							
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	COMP	5	0	
<b>STRESS: EXTERNAL VISUAL</b>							
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	COMP	15	0	
<b>STRESS: ESD-CHARGE DEVICE MODEL, 500V</b>							
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	COMP	9	0	
<b>STRESS: ESD-HUMAN BODY CIRCUIT PER MIL STD 883, METHOD 3015, 2,200V</b>							
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	COMP	9	0	
<b>STRESS: TC CONDITION C, -65C TO 150C, PRE COND. 192 HRS 30C/60% RH, MSL3</b>							
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	300	50	0	
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	500	50	0	
CY7C372I-JC (7C372D)	2110583	610133785	PHIL-OP	1000	50	0	
CY37064VP44 (7C37620B)	9106602	610133784	PHIL-OP	300	50	0	
CY37064VP44 (7C37620B)	9106602	610133784	PHIL-OP	500	50	0	
CY37064VP44 (7C37620B)	9106602	610133784	PHIL-OP	1000	50	0	
CY37064VP44 (7C37620B)	9106602	610133784	PHIL-OP	300	50	0	
CY37064VP44 (7C37620B)	9106602	610133784	PHIL-OP	500	50	0	
CY37064VP44 (7C37620B)	9106602	610133784	PHIL-OP	1000	50	0	