

Cypress Semiconductor Lead Frame Qualification Report

**QTP# 011306 VERSION 1.0
September, 2001**

**Alloy-42 Lead Frame for 52-lead PQFP Package
ASE Taiwan Assembly**

CYPRESS TECHNICAL CONTACT FOR QUALIFICATION DATA:

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PACKAGE QUALIFICATION HISTORY

QUAL REPORT	DESCRIPTION OF QUALIFICATION PURPOSE	DATE COMP.
011306	Alloy-42 Lead Frame for 52-lead PQFP package (10 x 10 x 2.0mm) using device CY7C136 size 112.6 x 94.4mil) at MSL3	Apr 01

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	N52
Package Outline, Type, or Name:	52-lead Plastic Quad Flatpack Package (PQFP)
Manufacturer/Mold Compound Name:	Sumitomo EME6600CS
Mold Compound Flammability Rating:	V-O per UL94
Oxygen Rating Index:	> 28%
Lead Frame Material:	Alloy-42
Lead Finish, Composition / Thickness:	Solder Plated 90%Sn, 10%Pb
Die Backside Preparation Method/Metallization:	N/A
Die Separation Method:	Wafer Saw
Die Attach Supplier:	Ablestik
Die Attach Material:	Ablestik 8361
Die Attach Method	Silver Epoxy
Bond Diagram Designation	10-02869
Wire Bond Method:	Thermosonic
Wire Material/Size:	Gold, 1.3mil
Thermal Resistance Theta JA °C/W:	61.74°C/W
Package Cross Section Yes/No:	N/A
Assembly Process Flow:	49-41012M
Name/Location of Assembly (prime) facility:	ASE Taiwan (TAIWN-G)

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	ASE Taiwan (TAIWN-G)
Fault Coverage:	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 Level 3 192 Hrs., 30°C/60%RH+ 3IR-Reflow, 220°C+ 5, -0°C	P
Pressure Cooker	121°C, 100%RH Precondition: JESD22 Moisture Sensitivity Level 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 25-00038	P
Physical Dimension	Cypress Spec. 25-00031	P
Ball Shear	Cypress Spec 12-00292	P
Bond Pull	Cypress Spec 12-00292	P
Die Shear	Cypress Spec 12-00292	P
High Temperature Storage	150°C	P
Solderability	Cypress Spec 25-00018	P
Thermal Shock	125°C -55°C	P
X-Ray	MIL-STD-883C, Method 2012, Cypress Spec 12-00292	P
Acoustic Microscopy Test (C-SAM)	Cypress Spec 25-00104	P

Reliability Test Data

QTP #: 011306

<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 - MICROSCOPE MSL3							
CY7C136-NC (7C136G)	2018336	610038447	CSPI-R	COMP	15	0	
CY7C136-NC (7C136G)	2018336	610038447A1	CSPI-R	COMP	15	0	
CY7C136-NC (7C136G)	2018336	610038447A2	CSPI-R	COMP	15	0	
STRESS: THERMAL SHOCK (125C, -55C)							
CY7C136-NC (7C136G)	2018336	610038447	CSPI-R	100	50	0	
CY7C136-NC (7C136G)	2018336	610038447	CSPI-R	200	50	0	
STRESS: HIGH TEMPERATURE STORAGE (150C)							
CY7C136-NC (7C136G)	2018336	610038447	CSPI-R	500	50	0	
STRESS: EXTERNAL VISUAL							
CY7C136-NC (7C136G)	2018336	610038447	CSPI-R	COMP	5	0	
STRESS: INTERNAL VISUAL							
CY7C136-NC (7C136G)	2018336	610038447	CSPI-R	COMP	5	0	
STRESS: SOLDERABILITY							
CY7C136-NC (7C136G)	2018336	610038447	CSPI-R	COMP	5	0	
STRESS: BOND PULL							
CY7C136-NC (7C136G)	2018336	610038447	CSPI-R	COMP	10	0	
STRESS: DIE SHEAR							
CY7C136-NC (7C136G)	2018336	610038447	CSPI-R	COMP	15	0	
STRESS: X-RAY							
CY7C136-NC (7C136G)	2018336	610038447	CSPI-R	COMP	15	0	
STRESS: BALL SHEAR							
CY7C136-NC (7C136G)	2018336	610038447	CSPI-R	COMP	10	0	

Reliability Test Data

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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: PHYSICAL DIMENSIONS							
CY7C136-NC (7C136G)	2018336	610038447	CSPI-R	COMP	5	0	
STRESS: PRESSURE COOKER, 121C, 100%RH							
CY7C136-NC (7C136G)	2018336	610038447	CSPI-R	168	49	0	
CY7C136-NC (7C136G)	2018336	610038447	CSPI-R	288	49	0	
STRESS: TC CONDITION C, -65C TO 150C, PRE COND. 192 HRS 30C/60% RH (MSL3)							
CY7C136-NC (7C136G)	2018336	610038447	CSPI-R	300	50	0	
CY7C136-NC (7C136G)	2018336	610038447A1	CSPI-R	300	50	0	
CY7C136-NC (7C136G)	2018336	610038447A2	CSPI-R	300	50	0	