



Cypress Semiconductor Corporation – An Infineon Technologies Company
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PRODUCT CHANGE NOTIFICATION

PCN: PCN210101

Date: January 08, 2021

Subject: Qualification of Greatek Electronics Inc. as an Alternate Assembly Site for Select 16-Lead TSSOP Package

To: PCN Coordinator PCN Coordinator
 FUTURE
 PCN.System@Future.ca

Description of Change:

Cypress announces the qualification of Greatek Electronics Inc., Taiwan located at No. 136, Gong-Yi Rd., Zhunan Township, Miaoli County 350, Taiwan, as an alternate assembly site for select Memory products offered in 16-Lead TSSOP package.

These products are currently processed at Orient Semiconductor Electronics (OSET) of Cypress subcontractor in Taiwan, Amkor Philippines (ATP) of Cypress subcontractor in Philippines and IFX Cypress Manufacturing Limited (CML) in Philippines.

Greatek is certified by international quality and safety standards, namely, ISO 9001, IATF 16949, ISO 14001, and ISO 26262. These certificates, along with their Sony Green Partnership certificate, can be viewed on their corporate web site: <http://www.greatek.com.tw/>

BOM Comparison:

The 16-Lead TSSOP package will be assembled at Greatek using an industry standard set of Bill of Materials (BOM). Please see table below for a comparison of BOM between Greatek and other assembly sites.

The 16-Lead TSSOP package is assembled at Greatek using the following Bill of Materials (BOM):

Material	Greatek BOM	OSET BOM	IFX CML BOM	Amkor BOM
Leadframe	Cu Leadframe	Cu/PPF Leadframe	PPF Leadframe	Cu Leadframe
Lead finish	Pure Sn	Pure Tin/ NiPdAu	NiPdAu	Pure Tin
Die Attach Material	Showa Denko EN4900	Ablestik 8340, Yizbond 9246, Sumitomo CRM-1076, Showa Denko EN4900	Henkel QMI509	Ablestik 8290
Wire type	0.8mil CuPdAu	0.8 mil Au wire	0.9 mil Au wire	0.8 mil Cu wire

	wire	1.0 mil Au wire 0.8 mil Cu wire	0.8 mil CuPdAu wire	1.0 mil Au wire
Mold Compound	Sumitomo EME-G700H	Showa Denko CEL9200HF, Sumitomo G631, Sumitomo G620B	Kyocera KE- G3000DA	Sumitomo EME- G700

Benefit of Change:

Qualification of alternate manufacturing sites is part of the ongoing flexible manufacturing initiative announced by Cypress. The goal of the flexible manufacturing initiative is to provide the means for Cypress to continue to meet delivery commitments through dynamic, changing market conditions.

Part Numbers Affected: 38

See the attached 'Affected Parts List' file for a list of all part numbers affected by this change. Note that any new parts introduced after the publication of this PCN will be assembled at Greatek.

Qualification Status:

Greatek has been qualified through a series of tests documented in the Qualification Test Plan QTP#202047004. This qualification report can be found as an attachment to this PCN or by visiting www.cypress.com and typing the QTP number in the keyword search window.

Sample Status:

Samples are available now, unless there is an indication that the sample ordering part numbers are subject to lead times. Qualification samples may not be built ahead of time for all part numbers affected by this change.

Please review the attached 'Affected Parts List' file for a list of affected part numbers with their associated Greatek sample ordering part numbers.

If you require qualification samples, please contact your local Cypress sales representative as soon as possible, preferably within 30 days of the date of this notification.

Approximate Implementation Date:

Effective immediately upon customer approval, or 90 days from the date of this notification, whichever comes first, shipments on part numbers in the attached file will be primarily sourced from Greatek.

Anticipated Impact:

Products assembled at Greatek are completely compatible with existing products from form, fit, functional, parametric and quality performance perspectives.

Cypress also recommends that customers take this opportunity to review this change against current application notes, system design considerations and customer environment conditions to assess impact (if any) to their application.

Method of Identification:

Cypress also maintains traceability of product to wafer level, including wafer fabrication location, through the lot number marked on the package

Response Required:

No response is required.

For additional information regarding this change, contact your local sales representative or contact the PCN Administrator at pcn_adm@cypress.com.

Sincerely,

Cypress PCN Administration

Cypress Semiconductor Package Qualification Report

**QTP# 202047004 VERSION **
December 2020**

**16-Lead TSSOP (5.0x4.4x1.1mm)
Pure Sn Leadfinish
MSL3, 260°C Reflow
Greatek-Taiwan (IG)**

**FOR ANY QUESTIONS ON THIS REPORT PLEASE CONTACT
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AN INFINEON TECHNOLOGIES COMPANY

PACKAGE QUALIFICATION HISTORY

QTP Number	Description of Qualification Purpose	Date
192612	Qualification of 20-Lead TSSOP (6.4x4.4x1.1mm) Package at Greatek-Taiwan (IG) using EME-G700H Mold Compound, EN-4900G Die Attach Epoxy, Pure Sn Leadfinish at MSL3, 260°C Reflow Temperature	Feb. 2020
202047004	Qualification of 16-Lead TSSOP (5.0x4.4x1.1mm) Package at Greatek-Taiwan (IG) using EME-G700H Mold Compound, EN-4900G Die Attach Epoxy, Pure Sn Leadfinish at MSL3, 260°C Reflow Temperature	Dec. 2020

MAJOR PACKAGE INFORMATION USED IN THIS QUALIFICATION	
Package Designation:	ZZ16
Package Outline, Type, or Name:	16-Lead TSSOP (5.0x4.4x1.1mm)
Mold Compound Name/Manufacturer:	EME-G700H / Sumitomo
Mold Compound Flammability Rating:	UL94 V-0
Oxygen Rating Index: >28%	54%
Lead Frame Designation:	FMP
Lead Frame Material:	Copper
Lead Finish, Composition / Thickness:	Pure Sn
Die Backside Preparation Method/Metallization:	Backgrind
Die Separation Method:	100% Saw
Die Attach Supplier:	Hitachi
Die Attach Material:	EN-4900G
Bond Diagram Designation	002-31575
Wire Bond Method:	Thermosonic
Package Cross Section Yes/No:	Yes
Assembly Process Flow:	002-26450
Name/Location of Assembly (prime) facility:	Greatek-Taiwan (IG)
MSL Level	3
Reflow Profile	260°C

ELECTRICAL TEST / FINISH DESCRIPTION	
Test Location:	CML-Philippines (R)

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
Ball Shear	JESD22-B116	P
Bond Pull	MIL-STD-883 – Method 2011	P
Constructional Analysis	Criteria: Meet external and internal characteristics of Cypress package	P
Die Shear	MIL-STD-883, Method 2019	P
Dye Penetrant Test	Test to determine the existence and extent of cracks, Criteria: No Package Crack	P
Electrostatic Discharge Charge Device Model (ESD-CDM)	500V / 1000V / 1250V JESD22-C101	P
Final Visual Inspection	JESD22-B101	P
High Accelerated Saturation Test (HAST)	JESD22-A110, 130°C, 2.07V, 85%RH Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
High Accelerated Saturation Test (HAST) - Unbiased	JEDEC STD 22-A110: 130°C, 85%RH Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
High Temp Storage	150C, no bias	P
High Temperature Operating Life Latent Failure Rate	JESD22-A108, 125°C Dynamic Operating Condition, Vcc Max = 3.8V	P
Internal Visual Inspection	MIL-STD-883-2014	P
Physical Dimension	MIL-STD-1835, JESD22-B100	P
Pressure Cooker Test	JESD22-A102, 121°C, 100%RH, 15 PSIG Precondition: JESD22 Moisture Sensitivity Level (192 Hrs., 30°C, 60% RH, 260°C Reflow)	P
Solderability	J-STD-002, JESD22-B102 95% solder coverage minimum	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
X-Ray	MIL-STD-883 – 2012	P

Reliability Test Data

QTP #: 192612

<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							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	COMP	22	0	
CY25404ZXI (7C8A5425BC)	4908810	611926511	IG-TAIWAN	COMP	22	0	
CY22389FZXC (7C84980CK)	4607622	611926507	IG-TAIWAN	COMP	22	0	
STRESS: BALL SHEAR							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	COMP	30	0	
CY25404ZXI (7C8A5425BC)	4908810	611926511	IG-TAIWAN	COMP	30	0	
CY22389FZXC (7C84980CK)	4607622	611926507	IG-TAIWAN	COMP	30	0	
STRESS: BOND PULL							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	COMP	30	0	
CY25404ZXI (7C8A5425BC)	4908810	611926511	IG-TAIWAN	COMP	30	0	
CY22389FZXC (7C84980CK)	4607622	611926507	IG-TAIWAN	COMP	30	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	COMP	5	0	
CY25404ZXI (7C8A5425BC)	4908810	611926511	IG-TAIWAN	COMP	5	0	
CY22389FZXC (7C84980CK)	4607622	611926507	IG-TAIWAN	COMP	5	0	
STRESS: DIE SHEAR							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	COMP	5	0	
CY25404ZXI (7C8A5425BC)	4908810	611926511	IG-TAIWAN	COMP	5	0	
CY22389FZXC (7C84980CK)	4607622	611926507	IG-TAIWAN	COMP	5	0	
STRESS: DYE PENETRANT							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	COMP	15	0	
CY25404ZXI (7C8A5425BC)	4908810	611926511	IG-TAIWAN	COMP	15	0	
CY22389FZXC (7C84980CK)	4607622	611926507	IG-TAIWAN	COMP	15	0	
STRESS: ESD-CHARGE DEVICE MODEL							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	500	9	0	
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	1000	3	0	
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	1250	3	0	

Reliability Test Data

QTP #: 192612

<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: FINAL VISUAL							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	COMP	1100	0	
CY25404ZXI (7C8A5425BC)	4908810	611926511	IG-TAIWAN	COMP	600	0	
CY22389FZXC (7C84980CK)	4607622	611926507	IG-TAIWAN	COMP	600	0	
STRESS: GLUE ADHESION							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	COMP	15	0	
CY25404ZXI (7C8A5425BC)	4908810	611926511	IG-TAIWAN	COMP	15	0	
CY22389FZXC (7C84980CK)	4607622	611926507	IG-TAIWAN	COMP	15	0	
STRESS: UN-BIASED HI-ACCEL SATURATION TEST, 130C, 85%RH, PRE COND 192 HR 30C/60%RH, MSL3							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	96	79	0	
STRESS: HI-ACCEL SATURATION TEST, 130C, 85%RH, 2.07V, PRE COND 192 HR 30C/60%RH, MSL3							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	96	30	0	
CY25404ZXI (7C8A5425BC)	4908810	611926511	IG-TAIWAN	96	30	0	
CY25404ZXI (7C8A5425BC)	4908810	611926511	IG-TAIWAN	192	30	0	
CY22389FZXC (7C84980CK)	4607622	611926507	IG-TAIWAN	96	30	0	
STRESS: HIGH TEMPERATURE STORAGE							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	1000	50	0	
STRESS: HIGH TEMP DYNAMIC OPERATING LIFE- LATENT FAILURE RATE, 125C, 3.8V, Vcc Max							
CYPAP111A0 (7CP64810AH)	8914510	611913260	IG-TAIWAN	500	120	0	
CYPAP111A0 (7CP64810AH)	8914510	611913260	IG-TAIWAN	1000	120	0	
STRESS: INTERNAL VISUAL INSPECTION							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	COMP	5	0	
CY25404ZXI (7C8A5425BC)	4908810	611926511	IG-TAIWAN	COMP	5	0	
CY22389FZXC (7C84980CK)	4607622	611926507	IG-TAIWAN	COMP	5	0	
STRESS: PHYSICAL DIMENSION							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	COMP	10	0	
CY25404ZXI (7C8A5425BC)	4908810	611926511	IG-TAIWAN	COMP	10	0	
CY22389FZXC (7C84980CK)	4607622	611926507	IG-TAIWAN	COMP	10	0	

Reliability Test Data

QTP #: 192612

<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: PRESSURE COOKER TEST							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	96	79	0	
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	168	79	0	
STRESS: SOLDERABILITY							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	COMP	3	0	
CY25404ZXI (7C8A5425BC)	4908810	611926511	IG-TAIWAN	COMP	3	0	
CY22389FZXC (7C84980CK)	4607622	611926507	IG-TAIWAN	COMP	3	0	
STRESS: TC COND. C -65C TO 150C, PRE COND 192 HRS 30C/60%RH, MSL3							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	500	80	0	
CY25404ZXI (7C8A5425BC)	4908810	611926511	IG-TAIWAN	500	80	0	
CY22389FZXC (7C84980CK)	4607622	611926507	IG-TAIWAN	500	80	0	
CY22389FZXC (7C84980CK)	4607622	611926507	IG-TAIWAN	1000	80	0	
STRESS: X-RAY							
CY25404ZXI (7C8A5425BC)	4908810	611926509	IG-TAIWAN	COMP	15	0	
CY25404ZXI (7C8A5425BC)	4908810	611926511	IG-TAIWAN	COMP	15	0	
CY22389FZXC (7C84980CK)	4607622	611926507	IG-TAIWAN	COMP	15	0	

Reliability Test Data

QTP #: 202047004

<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							
CY22150FZXC (7CP841400D)	4920529	612035147	IG-TAIWAN	COMP	22	0	
CY22150FZXC (7CP841400D)	4920529	612035243	IG-TAIWAN	COMP	22	0	
CY22150FZXC (7CP841400D)	4920529	612035148	IG-TAIWAN	COMP	22	0	
STRESS: CONSTRUCTIONAL ANALYSIS							
CY22150FZXC (7CP841400D)	4920529	612035147	IG-TAIWAN	COMP	5	0	
CY22150FZXC (7CP841400D)	4920529	612035243	IG-TAIWAN	COMP	5	0	
CY22150FZXC (7CP841400D)	4920529	612035148	IG-TAIWAN	COMP	5	0	
STRESS: DYE PENETRANT							
CY22150FZXC (7CP841400D)	4920529	612035147	IG-TAIWAN	COMP	15	0	
CY22150FZXC (7CP841400D)	4920529	612035243	IG-TAIWAN	COMP	15	0	
CY22150FZXC (7CP841400D)	4920529	612035148	IG-TAIWAN	COMP	15	0	
STRESS: SOLDERABILITY							
CY22150FZXC (7CP841400D)	4920529	612035147	IG-TAIWAN	COMP	5	0	
CY22150FZXC (7CP841400D)	4920529	612035243	IG-TAIWAN	COMP	5	0	
CY22150FZXC (7CP841400D)	4920529	612035148	IG-TAIWAN	COMP	5	0	

Document History Page

Document Title: QTP# 202047004: 16-LEAD TSSOP (5.0x4.4x1.1MM) PURE SN LEADFINISH MSL3, 260C
REFLOW, GREATEK-TAIWAN (IG)

Document Number: 002-32294

Rev.	ECN No.	Orig. of Change	Description of Change
**	7052371	JYF	Initial spec release.

Item	Marketing Part Number	Family	Sample Order Part Number	Sample Availability
1	CY22050KFZXC	CLOCKS	CY22050KFZXCKT	Subject to lead time
2	CY22050KFZXCT	CLOCKS	CY22050KFZXCKT	Subject to lead time
3	CY22050KFZXI	CLOCKS	CY22050KFZXIKT	Subject to lead time
4	CY22150FZXC	CLOCKS	CY22150FZXCKT	Available
5	CY22150FZXCT	CLOCKS	CY22150FZXCKT	Available
6	CY22150FZXI	CLOCKS	CY22150FZXIKT	Subject to lead time
7	CY22150FZXIT	CLOCKS	CY22150FZXIKT	Subject to lead time
8	CY22150KFZXC	CLOCKS	CY22150KFZXCKT	Subject to lead time
9	CY22150KFZXCT	CLOCKS	CY22150KFZXCKT	Subject to lead time
10	CY22392FXC	CLOCKS	CY22392FXCKT	Subject to lead time
11	CY22392FXCT	CLOCKS	CY22392FXCKT	Subject to lead time
12	CY22392FXI	CLOCKS	CY22392FXIKT	Subject to lead time
13	CY22392FXIT	CLOCKS	CY22392FXIKT	Subject to lead time
14	CY22392ZXC-396	CLOCKS	CY22392ZXCKT-396	Subject to lead time
15	CY22392ZXC-396T	CLOCKS	CY22392ZXCKT-396T	Subject to lead time
16	CY22392ZXC-398	CLOCKS	CY22392ZXCKT-398	Subject to lead time
17	CY22392ZXC-398T	CLOCKS	CY22392ZXCKT-398T	Subject to lead time
18	CY223931FXI	CLOCKS	CY223931FXIKT	Subject to lead time
19	CY22393FXC	CLOCKS	CY22393FXCKT	Subject to lead time
20	CY22393FXCT	CLOCKS	CY22393FXCKT	Subject to lead time
21	CY22393FXI	CLOCKS	CY22393FXIKT	Subject to lead time
22	CY22393FXIT	CLOCKS	CY22393FXIKT	Subject to lead time
23	CY22394FXC	CLOCKS	CY22394FXCKT	Subject to lead time
24	CY22394FXCT	CLOCKS	CY22394FXCKT	Subject to lead time
25	CY22394FXI	CLOCKS	CY22394FXIKT	Subject to lead time
26	CY22394FXIT	CLOCKS	CY22394FXIKT	Subject to lead time
27	CY2308ZXC-1H	CLOCKS	CY2308ZXCKT-1H	Subject to lead time
28	CY2308ZXC-1HT	CLOCKS	CY2308ZXCKT-1H	Subject to lead time
29	CY2308ZXI-1H	CLOCKS	CY2308ZXIKT-1H	Subject to lead time
30	CY2308ZXI-1HT	CLOCKS	CY2308ZXIKT-1H	Subject to lead time
31	CY2309ZXC-1H	CLOCKS	CY2309ZXCKT-1H	Subject to lead time
32	CY2309ZXC-1HT	CLOCKS	CY2309ZXCKT-1H	Subject to lead time
33	CY2309ZXI-1H	CLOCKS	CY2309ZXIKT-1H	Subject to lead time
34	CY2309ZXI-1HT	CLOCKS	CY2309ZXIKT-1H	Subject to lead time
35	CY23S09ZXC-1H	CLOCKS	CY23S09ZXCKT-1H	Subject to lead time
36	CY23S09ZXC-1HT	CLOCKS	CY23S09ZXCKT-1H	Subject to lead time
37	CY25200KFZXC	CLOCKS	CY25200KFZXCKT	Subject to lead time
38	CY25200KFZXCT	CLOCKS	CY25200KFZXCKT	Subject to lead time