



Date Created: 1/9/2004
Date Issued: 2/13/2004
PCN # 20040204

FORECAST CHANGE NOTIFICATION

This is to inform you that a design and/or process change will be made to the following product(s). This notification is for your information and concurrence. This is a preliminary notification. A final PCN will be issued when qualification is complete and data is available.

If you require data or samples to qualify this change, please contact **Fairchild Semiconductor within 30 days of receipt of this notification.**

If you have any questions concerning this change, please contact:

Name: Rivero, Doug M.
E-Mail: Doug.Rivero@notes.fairchildsemi.com
Phone: 1-408-822-2143

PCN Originator

Name: Knapp, Paul E.
E-mail: Paul.Knapp@notes.fairchildsemi.com
Phone: 408-822-2133

REL Engineer

Name: Uy, Lester O.
E-mail: Lester.Uy@notes.fairchildsemi.com
Phone: 63-32-3415636

PCN Type: Alternate Assembly/Test Location/Qualification

Effectivity

Expected 1st Device Shipment Date: 5/14/2004
Earliest Year/Work Week of Changed Product: 0420
(Note: Package marking may differ from this format)

Product ID (Description):

This change will affect certain Power Discrete products assembled in TO-220 package. The products affected by this change are listed below in the "Affected FSIDs" section.

Description of Change:

As part of Fairchild Semiconductor ongoing effort to increase its manufacturing capacity for various products in a TO-220 package, we intend to qualify Fairchild Semiconductor (Suzhou) Co.,LTD as an additional/alternate site for TO-220 Discrete Power Devices products.

This new Suzhou Assembly/Test facility is already qualified for all Fairchild Ultra FET Trench and Planar MOS in 20V-150V. (Reference Final PCN# 20033807). These products have been include due to lead finish change from 85Sn15Pb to pure Sn (Tin).

The facility is located at 1 Sutong Road, China-Singapore Suzhou Industrial Park Suzhou, Jiangsu P. R. of China.

The qualification is intended to improve cycle time, improve customer service and meet additional demand for various products in TO-220 package by having additional flexibility in manufacturing locations.

The following are the package dimensional, process and material differences between the qualified sites and the additional Fairchild assembly and test facility to be qualified.

1.0 Material/ Process Comparison

TABLE 1 – Material Comparison

		Site 1-Qualified	Site 2-Qualified	Site 3-Qualified	Site 4-Test
		ChipPAC Malaysia	PSI Technologies	Fairchild-Cebu	Fairchild-Suzhou
Leadframe	Plating	Full Ni	Selective Ni (Ni plating on LeadPost)	Selective Ni (Ni plating on LeadPost)	Selective Ni (Ni plating on LeadPost)
	Matl	Cu (Tamac4)	Cu (PMC-90)	Cu (Tamac2/ 12SnOFC/ KFC1/2H)	Cu (12SnOFC)
Wire		Al	Al	Al	Al
D/A Solder	Composition	92.5Pb5Sn2.5Ag	92.5Pb5Sn2.5Ag/ 95Pb5Sn	92.5Pb5Sn2.5Ag	92.5Pb5Sn2.5Ag
Marking	Method	Laser	Laser	Laser	Laser
Plating	Composition	82Sn18Pb	85Sn15Pb	85Sn15Pb	85Sn15Pb/PureSn
	Method	Electroplating	Electroplating	Electroplating	Electroplating
Fairchild Fab		SaltLake/ MountainTop	Salt Lake	Salt Lake/ MountainTop	Salt Lake/ MountainTop

2.0 Package Dimensional Comparison

TABLE 2 – TO-220 Comparison on Package Outline Dimension

Description	REF	JEDEC STANDARD TO-220 variation AB			FAIRCHILD MKT-OUTLINE			FAIRCHILD SUZHOU		
		MIN	NOM	MAX	MKT-TO220B03 rev B			ACT DIM UNIT DIMENSION		
					MIN	NOM	MAX	MIN	NOM	MAX
Heatsink Width	E	0.380	---	0.420	0.380	---	0.420	0.380	---	0.420
	O	0.100	---	0.135	0.100	---	0.135	0.100	---	0.135
Hole Diameter	0P/DIA	0.139	---	0.161	0.139	---	0.161	0.139	---	0.161
	D	0.560	---	0.650	0.560	---	0.650	0.560	---	0.650
	e3				---	---	---	---	---	---
Stand-off Height	L1	---	---	0.250	---	---	0.250	---	---	0.250
Total Lead Length	L	0.500	---	0.580	0.500	---	0.580	0.500	---	0.580
	b1	0.045	---	0.070	0.045	---	0.070	0.045	---	0.070
	b	0.015	0.027	0.040	0.015	---	0.040	0.015	---	0.040
Lead Pitch	e	0.090	0.100	0.110	0.090	---	0.110	0.090	---	0.110
	e1	0.190	0.200	0.210	0.190	---	0.210	0.190	---	0.210
Package Thickness	A	0.140	---	0.190	0.140	---	0.190	0.140	---	0.190
Heatsink Thickness	F	0.020	---	0.055	0.020	---	0.055	0.020	---	0.055
Heatsink Height	H1	0.230	---	0.270	0.230	---	0.270	0.230	---	0.270
	j1	0.080	---	0.115	0.080	---	0.115	0.080	---	0.115
Lead Thickness	c1	0.014	---	0.020	0.014	---	0.024	0.014	---	0.024

Remarks:

Fairchild Suzhou TO-220 is following Fairchild Standard Marketing Outline and conforming to JEDEC TO-220 AB general molded package outline dimensional measurement

Effect of Change:

This change will have no impact on any

of the electrical parameters of the products involved. The product test conditions, test limits and performance will remain unchanged. The Suzhou facility will produce products with the same level of quality and reliability as the existing manufacturing sites.

Products manufactured at the Suzhou site will provide Fairchild Semiconductor the ability to meet the increase in customer demand on TO-220 packages. Once qualified, products may be supplied from any of our qualified manufacturing locations.

Qualification:

The qualification of this change will consist of key silicon vehicles in a broad range of products.

Qual/REL Plan Numbers

Additional Qualification Data

Qual Plan Nbr : QP03460121
Title : Qualification of TO-220
Background/ Description : Suzhou is being qualified for the TO-220 line
SCOPE : Applies to certain MOSFET devices as defined in the “Affected FSID” list.

Qualification Vehicles

DEVICE	VDS/VGS Rating
FDP8030L	30/20
HUFA75307P3	150/20
FDP2532	30/20

QUALIFICATION REQUIREMENTS

A) RELIABILITY TESTS, COMPONENT LEVEL

TEST DESCRIPTION/CONDITION	DURATION	NBR OF LOTS	SAMPLE SIZE	ACC/REJ	Ref Specs	Remarks
L-1 Preconditioning at 260 deg C	NA	3	79	0/1	JESD22A-113	Test to be done on samples for ACLV, TMCL, HAST or THBT/H3TRB
ACLV @ 121 °C, 15psi, 100% RH with L-1 Preconditioning	96 Hrs	3	77	0/1	JESD22-A102	
TMCL@ -55C to 150 C, 30 min/cycle With L-1 preconditioning	100,500,1k cycles	3	77	0/1	JESD22-A104	
85 C/ 85% RH, 80% of Rated BV With L-1 preconditioning	500,1k hours	NA	77	0/1	JESD22-A110-B JESD22A-101	
PRCL @ 125°C T _{JC} , delta T _j of 100 C, 2 min on, 2 min off	5k,10k	3	77	0/1	JESD22-A105	
HTRB @ 80% of Rated BV, 175 deg C	168, 500, 1k hrs	NA	77	0/1	JESD22-A108	
HTGB @ 100 % Rated VGS, 175 deg C	168, 500, 1k hrs	NA	77	0/1	JESD22-A108-B	

Affected FSIDs

3C37_W3C001C
5V37_B5V001A
9B37_W9B009B
BI37_B5F016B
FDP11N50
FDP15N50
FDP2552
FDP2670
FDP3672
FDP5645
FDP6030BL
FDP6035L
FDP6670S
FDP6690S
FDP7042L
HRF3205
HUF75309P3
HUF75332P3
HUF75339P3
HUF75345P3
HUF75623P3
HUF75639P3
HUF75925P3
HUF76013P3
HUF76129P3
HUF76139P3
HUF76407P3
HUF76429P3
HUF76443P3
HUF76639P3
ISL9N303AP3
ISL9N307AP3
ISL9N312AP3
MTP3055V
NDP4060
NDP6030L
NDP6060
NDP7050L
RFP12N10L
RFP22N10
RFP30N06LE
RFP50N05L

3C37_W3C004C
73320
9K37_W9K005A
BQ37_BBM002A
FDP13N40
FDP20N40
FDP2570
FDP3632
FDP3682
FDP5680
FDP6030L
FDP6644S
FDP6676
FDP7030BL
FDP7045L
HRFZ44N
HUF75321P3
HUF75333P3
HUF75343P3
HUF75542P3
HUF75631P3
HUF75645P3
HUF75939P3
HUF76107P3
HUF76132P3
HUF76143P3
HUF76419P3
HUF76432P3
HUF76445P3
HUF76645P3
ISL9N304AP3
ISL9N308AP3
ISL9N322AP3
MTP3055VL
NDP4060L
NDP6030PL
NDP6060L
NDP7060
RFP14N05L
RFP3055
RFP40N10
RFP50N06

5U37_B5U002B
73325
9K37_W9K006A
BUZ11_R4941
FDP14N60
FDP2532
FDP2572
FDP3652
FDP4020P
FDP5690
FDP6035AL
FDP6670AL
FDP6676S
FDP7030L
FDP8030L
HUF75229P3
HUF75329P3
HUF75337P3
HUF75344P3
HUF75545P3
HUF75637P3
HUF75842P3
HUF75945P3
HUF76121P3
HUF76137P3
HUF76145P3
HUF76423P3
HUF76439P3
HUF76633P3
ISL9N302AP3
ISL9N306AP3
ISL9N310AP3
ISL9N7030BLP3
NDP4050L
NDP6020P
NDP603AL
NDP7050
NDP7061
RFP15N05L
RFP3055LE
RFP45N06
RFP70N06