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お客様各位

日本テキサス・インスツルメンツ株式会社
営業・技術本部 カスタムドキュメント
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SOIC/VSSOP/uQFN/SOT/WSN パッケージ 一部製品 組立検査サイト追加のご案内
(対象除外 2 製品の連絡)

(初版 PCN20111219000 2011 年 12 月 20 日発行)

平素は弊社製品のご愛顧を賜り、厚くお礼申し上げます。さて、標題の件につきましてご連絡させていただきます。ご査収の程、宜しく願い申し上げます。

タイにおける大洪水の影響により、HANA 社(アユタヤ, タイ)サイトを含む数カ所の弊社協力工場における生産が、暫定的に被害を受けております。

TI は、連日、生産/流通拠点パートナーからの状況連絡を受けながら、供給面での致命的影響を緩和する為に、代替製造工場の選定及び認定を含む様々な施策を行っております。

今回のお知らせは、代替組立検査工場追加の連絡になります。お客様への供給停滞を最小限にとどめる為に、本通知内で明記したパッケージ製品について、認定済み追加工場への生産移管に向け早急に対応いたしております。

TI は、現行最善の情報/知識に基づき生産移管に必要な全てを本通知に盛り込むべく全ての方策を行っていますが、変更があった場合にも同様に本通知の更新版にて連絡いたします。さらに、選定された代替工場をより効率的に利用できると判断した時点で、これらに関連する供給移管に伴う PCN を発行する場合があります。

TI は、各生産拠点での認定状況を基に生産拠点選定及びパッケージ認定試験による前述の移管施策に加え、お客様への製品納入に先立ち、選別工程での歩留まり/選別分類比較評価を行う事でお客様での懸念事項の払拭に向け進めてまいります。また、供給の遅れを最小限にとどめると共に、品質を伴った製品の供給に努めてまいります。

次ページに詳細を掲載いたしました。お客様におかれましては、本通知発行日より **21 日**以内に、本通知受領のご確認をお願いいたします。供給遅延を最小限にとどめるために、TI は部材供給可能な代替工場での生産出荷が開始されるべくすでに施策の実施を開始いたしております。

本通知は、通知日前 24 ヶ月以内に本変更対象製品をご購入いただいたお客様に連絡させていただいております。

ご不明な点、ご質問等がございましたら、担当営業あるいは pcn_tij@list.ti.com にお問い合わせ下さい。

以上

変更概要

通知タイプ	☐ Initial notice (Plan)	☒ Final notice		
変更概要	Design/Specification	☐ Design	☐ Electrical	☐ Mechanical
	Wafer Fab	☐ Site	☐ Process	☐ Material
	Wafer Bump	☐ Site	☐ Process	☐ Material
	☒ Assembly	☒ Site	☐ Process	☒ Material
	☒ Test	☒ Site	☐ Process	
	☒ Others	☒ Packing/Shipping/Labeling ☐ -		
変更内容	下記変更について対象除外 2 製品の連絡になります。 SOIC/VSSOP/uQFN/SOT/WSOP パッケージ 一部製品 組立検査サイト追加 現行 : HANA 社(アユタヤ, タイ) 変更後: HANA 社(アユタヤ, タイ), ASE 社(上海, 中国), JCET 社(中国), UTAC 社(タイ), UTAC2 社(タイ), NFME 社(中国)			
対象製品	対象製品リスト参照			
変更時期	—			
品質認定試験	☒ 計画	☐ 終了		
製品表示	☐ 変更無し	☒ 変更あり		
備考	—			

変更内容

内容: 今回のお知らせは、下記変更について対象除外2製品の連絡になります。ASE上海変更予定製品からOPA2677IDDA製品を除外しました。

SOIC/VSSOP/uQFN/SOT/WSOPパッケージ 一部製品の組立検査サイトについて、現行 HANA社(アユタヤ, タイ)サイトにて製造していますが、HANA社(アユタヤ, タイ)サイト一時的閉鎖による供給能力確保の為に、これに加えて、ASE社(上海, 中国), JCET社(中国), UTAC社(タイ), UTAC2社(タイ), NFME社(中国)サイトを追加します。組立部材については下記の通り変更されます。下表を参照下さい。尚、今回の変更で、製品についての互換性(寸法/公差), 外観, 動作特性, 品質, 信頼性への影響はありません。

変更内容	現行	変更後
組立検査サイト	HANA社(アユタヤ, タイ)	HANA社(アユタヤ, タイ) ASE社(上海, 中国) JCET社(中国) UTAC社(タイ) UTAC2社(タイ) NFME社(中国)

理由: HANA 社(アユタヤ, タイ)サイト一時的閉鎖による供給能力確保の為

詳細：

PKG Family	PKG	参照 Qual#	組立 サイト	モールド樹脂	チップ接着剤	ボンディングワイヤ (径, 部材)
SOIC	DDA	#1	HNT	450207	400159	1.0, 1.3, 2.0 mil, Au
			ASH	EN2000509	EY100063	1.0, 2.0 mil, Cu
VSSOP	DGK	#2	HNT	450265, 450179	400154, 400018	1.0 mil, Au
			ASH	EN2000515 EN2000631	EY100063	1.0, 1.2, 1.3, 1.5, 2.0 mil, Au
	DGN		HNT	450179	400154	1.0, 1.2, 1.3, 1.5, 2.0 mil, Au
			ASH	EN2000515	EY100063	1.0, 1.2, 1.3, 1.5, 2.0 mil, Au
	DGQ		HNT	450179	400154	1.0, 1.25 mil, Au
			ASH	EN2000515	EY100063	1.0, 1.2, 1.3, 1.5, 2.0 mil, Au
	DGS		HNT	450179	400154	1.0, 1.2, 1.3, 1.5, 2.0 mil, Au
			ASH	EN2000515	EY1000063	1.0, 1.2, 1.3, 1.5, 2.0 mil, Au
Note: The Leadframe finish for all devices at ASH will be NiPdAuAg, at HNT they are all NiPdAu.						
UQFN	RSE	#3	HNT	450176	400173	0.8 mil, Au
			JCE	120903003709	120402001600	0.8 mil, Au
WSO8	DSE	#4	HNT	450176	400173	1.0 mil, Au
			NSE	CZ0135	PZ0037	1.0 mil, Au
SOT	DBV	#5	HNT	R-13	400154	0.6, 1.0 mil, Au
			NFM	R-04, R-13	A-03	0.8, 1.0 mil, Au
	DCK	#6	HNT	R-13	400173, 400154	0.6, 0.8, 1.0 mil, Au
			NFM	R-07	A-03, A-09	0.8, 1.0 mil, Au
	DCY	#7	HNT	R-13	400159	1.0, 1.5, 2.0 mil, Au
			NFM	R-07, R-17	A-06, A-09	1.0, 2.0 mil, Au
SOT	DBV	#8	HNT	R-13	PZ0013	0.6, 1.0 mil, Au
			NS2	R-13	A-09, PZ0013, PZ0001, PZ0017	0.6, 1.0 mil, Au
	DCK	#9	HNT	R-13	A-09, PZ0013	1.0 mil, Au
			NS2	R-13	A-09, PZ0001	1.0 mil, Au
	DDC	#10	HNT	R-13	400151	1.0 mil, Au
			NS2	R-13	PZ0013	1.0 mil, Au
VSSOP	DGK	#11	HNT	R-13, EN2000601	PZ0013	1.0 mil, Au
			NS2	R-13	PZ0013	0.8, 1.0, 1.3 mil, Au
	DGN		HNT	R-13	PZ0013	1.0, 1.25 mil, Au
			NS2	R-13	PZ0013	0.8, 1.0, 1.3, 2.0 mil, Au
	DGQ		HNT	R-13	PZ0013	1.0, 1.25 mil, Au
			NS2	R-13	PZ0013	0.8, 1.0, 1.3, 2.0 mil, Au
	DGS		HNT	R-13	PZ0013	1.0 mil, Au
			NS2	R-13	PZ0013	0.8, 1.0, 1.3, 2.0 mil, Au

表 1 変更組立部材

Package	追加検査サイト							
	ASH	FRB	JCE	NFM	NS2	MLA	TAI	LEN
DBV	☐	☐	☐	✓	☐	☐	☐	☐
DCK	☐	☐	☐	✓	✓	☐	☐	☐
DCY	☐	☐	☐	✓	☐	☐	☐	☐
DDA	✓	☐	☐	☐	☐	✓	☐	☐
DDC	☐	☐	☐	☐	✓	☐	☐	☐
DGK	✓	☐	☐	☐	☐	✓	✓	☐
DGN	✓	☐	☐	☐	☐	✓	✓	☐
DGQ	☐	☐	☐	☐	☐	☐	☐	✓
DGS	✓	✓	☐	☐	☐	☐	✓	☐
DSE	☐	☐	☐	☐	✓	☐	☐	☐
RSE	☐	☐	✓	☐	☐	☐	☐	☐

表2 追加検査サイト

備考：

HNT: HANA 社(アユタヤ, タイ)
 ASH: ASE 社(上海, 中国)
 FRB: TI-Freising(ドイツ)
 JCE: JCET 社(中国)
 NFM: NFME 社(中国)
 NSE: UTAC 社(タイ)
 NS2: UTAC 社(タイ)
 MLA: TI-Malaysia(マレーシア)
 TAI: TI-Taiwan(台湾)
 LEN: Lingsen 社(台湾)

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対象製品リスト

対象製品名 - 追加組立サイト: ASE 上海

☐: 既報対象品 ☒: 取消線 ☐: 対象除外品

BQ24202DGNR	THS3120CDGNG4	TLV2373IDGS	TPA0223DGQG4	TPS60203DGSR
BQ24202DGNRG4	THS4011CDGNR	TLV2373IDGSG4	TPA0233DGQ	TPS60203DGSRG4
DRV8830DGQ	THS4011CDGNRG4	TLV2402IDGK	TPA0233DGQG4	TPS60212DGS
DRV8832DGQ	THS4022IDGNR	TLV2402IDGKG4	TPA321DGN	TPS60212DGS4
OPA140AIDGKT	THS4022IDGNRG4	TLV2453CDGS	TPA321DGN4	TPS60301DGS
OPA160AIDGK	THS4031CDGNR	TLV2453CDGSG4	TPA6100A2DGK	TPS60301DGS4
OPA209AIDGKT	THS4031CDGNRG4	TLV2453IDGS	TPA6100A2DGKG4	TPS60302DGSR
OPA2140AIDGKT	THS4121CDGK	TLV2453IDGSG4	TPA6110A2DGN	TPS60302DGSRG4
OPA2209AIDGKR	THS4121CDGKG4	TLV2472CDGN	TPA6110A2DGN4	TPS61006DGSR
OPA2677IDDA	THS4121IDGK	TLV2472CDGNG4	TPA721DGN	TPS61006DGSRG4
OPA2677IDDA4	THS4121IDGKG4	TLV2472IDGN	TPA721DGN4	TPS61010DGS
SN65EPT21DGK	THS4121IDGN	TLV2472IDGNG4	TPA741DGN	TPS61010DGS4
SN65EPT23DGK	THS4121IDGNG4	TLV2622IDGK	TPA741DGN4	TPS62052DGS
SN65HVD3085EDGK	THS4130CDGN	TLV2622IDGKG4	TPS2376DDA-H	TPS62052DGS4
SN65HVD3085EDGKG4	THS4130CDGNG4	TLV2762IDGK	TPS2376DDA-HG4	TPS77133DGK
SN65HVD485EDGK	THS4140IDGNR	TLV2762IDGKG4	TPS3305-33DGN	TPS77133DGKG4
SN65HVD485EDGKG4	THS4140IDGNRG4	TLV2772CDGK	TPS3305-33DNG4	TPS77301DGK
SN65LVS9637DGK	THS4500IDGN	TLV2772CDGKG4	TPS3306-15DGK	TPS77301DGKG4
SN65LVS9637DGKG4	THS4500IDGNG4	TLV2782IDGK	TPS3306-15DGKG4	TPS77401DGK
SN65LVS9638DGK	THS4502CDGNR	TLV2782IDGKG4	TPS3306-18DGK	TPS77401DGKG4
SN65LVS9638DGKG4	THS4502CDGNRG4	TLV272L2CDGK	TPS3306-18DGKG4	TPS77901DGK
SN65LVD100DGK	THS4503CDGN	TLV272L2CDGKG4	TPS3307-18DGN	TPS77901DGKG4
SN65LVD100DGKG4	THS4503CDGNG4	TLV272L2IDGK	TPS3307-18DNG4	TPS79401DGN
SN65LVD101DGK	THS4503IDGN	TLV272L2IDGKG4	TPS3617-50DGK	TPS79401DGN4
SN65LVD101DGKG4	THS4503IDGNG4	TLV3702CDGK	TPS3617-50DGKG4	TPS79425DGN
SN65LVEL11DGK	TLC071IDGN	TLV3702CDGKG4	TPS3619-33DGK	TPS79425DGN4
SN65LVELT23DGK	TLC071IDGNG4	TLV3702IDGKR	TPS3619-33DGKG4	TPS79433DGN
SN65LVEP11DGKR	TLC072CDGN	TLV3702IDGKR4	TPS3705-33DGN	TPS79433DGN4
SN75HVD3082EDGK	TLC072CDGNG4	TLV4111IDGN	TPS3705-33DNG4	TPS7A3001DGN
SN75HVD3082EDGKG4	TLC073IDGQ	TLV4111IDGNG4	TPS3707-30DGN	TS5A23159DGST
THS3001IDGN	TLC073IDGQG4	TLV4113CDGQ	TPS3707-30DNG4	TS5A23159DGST4
THS3001IDGNG4	TLC081CDGN	TLV4113CDGQG4	TPS3707-33DGN	TS5A23159DGST4
THS3111IDGN	TLC081CDGNG4	TPA0213DGQ	TPS3707-33DNG4	UCC27201ADDA
THS3111IDGNG4	TLC082IDGN	TPA0213DGQG4	TPS60200DGS	UCC27201DDA
THS3120CDGN	TLC082IDGNG4	TPA0223DGQ	TPS60200DGS4	UCC27201DDA4

対象製品名 - 追加組立サイト: JCET / ☐: 既報対象品

TPS22933ARSET

対象製品名 - 追加組立サイト: NFME / ☐: 既報対象品

INA199A1DCKT	INA212A1DCKRG4	REG1117-5	TMP20A1DCKT	TS5A3160DCKT
INA199A3DCKT	INA213A1DCKT	REG1117-5G4	TPS79718DCKT	TS5A3160DCKTE4
INA210A1DCKT	INA213A1DCKTG4	REG1117A	TPS79718DCKTG4	TS5A3160DCKTG4
INA210A1DCKTG4	INA214A1DCKT	REG1117AG4	TPS79733DCKT	TXS0101DBVT
INA212A1DCKR	INA214A1DCKTG4	TLV70220PDBVT	TPS79733DCKTG4	TXS0101DBVT4

対象製品名 - 追加組立サイト: UTAC2 / ☐: 既報対象品

BQ24202DGNR	SN75HVD3082EDGKG4	TLC081CDGN	TMP20A1DCKT	TPS60203DGSR
BQ24202DGNRG4	THS3001IDGN	TLC081CDGNG4	TPA0213DGQ	TPS60203DGSRG4
DRV8830DGQ	THS3001IDGNG4	TLC082IDGN	TPA0213DGQG4	TPS60212DGS
DRV8832DGQ	THS3111IDGN	TLC082IDGNG4	TPA0223DGQ	TPS60212DGS4
INA199A1DCKT	THS3111IDGNG4	TLV2373IDGS	TPA0223DGQG4	TPS60301DGS

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INA199A3DCKT	THS3120CDGN	TLV2373IDGSG4	TPA0233DGQ	TPS60301DGSG4
INA210A1DCKT	THS3120CDGNG4	TLV2402IDGK	TPA0233DGQG4	TPS60302DGSR
INA210A1DCKTG4	THS4011CDGNR	TLV2402IDGKG4	TPA321DGN	TPS60302DGSRG4
INA212A1DCKR	THS4011CDGNRG4	TLV2453CDGS	TPA321DNG4	TPS61006DGSR
INA212A1DCKRG4	THS4022IDGNR	TLV2453CDGSG4	TPA6100A2DGK	TPS61006DGSRG4
INA213A1DCKT	THS4022IDGNRG4	TLV2453IDGS	TPA6100A2DGKG4	TPS61010DGS
INA213A1DCKTG4	THS4031CDGNR	TLV2453IDGSG4	TPA6110A2DGN	TPS61010DGS4
INA214A1DCKT	THS4031CDGNRG4	TLV2472CDGN	TPA6110A2DNG4	TPS62052DGS
INA214A1DCKTG4	THS4121CDGK	TLV2472CDGNG4	TPA721DGN	TPS62052DGS4
OPA140A1DGKT	THS4121CDGKG4	TLV2472IDGN	TPA721DNG4	TPS62223DDCR
OPA1602A1DGK	THS4121IDGK	TLV2472IDGNG4	TPA741DGN	TPS62223DDCRG4
OPA209A1DGKT	THS4121IDGKG4	TLV2622IDGK	TPA741DNG4	TPS62225DDCT
OPA2140A1DGKT	THS4121IDGN	TLV2622IDGKG4	TPS3305-33DGN	TPS77133DGK
OPA2209A1DGKR	THS4121IDGNG4	TLV2762IDGK	TPS3305-33DNG4	TPS77133DGKG4
SN65EPT21DGK	THS4130CDGN	TLV2762IDGKG4	TPS3306-15DGK	TPS77301DGK
SN65EPT23DGK	THS4130CDGNG4	TLV2772CDGK	TPS3306-15DGKG4	TPS77301DGKG4
SN65HVD3085EDGK	THS4140IDGNR	TLV2772CDGKG4	TPS3306-18DGK	TPS77401DGK
SN65HVD3085EDGKG4	THS4140IDGNRG4	TLV2782IDGK	TPS3306-18DGKG4	TPS77401DGKG4
SN65HVD485EDGK	THS4500IDGN	TLV2782IDGKG4	TPS3307-18DGN	TPS77901DGK
SN65HVD485EDGKG4	THS4500IDGNG4	TLV27L2CDGK	TPS3307-18DNG4	TPS77901DGKG4
SN65LVDS9637DGK	THS4502CDGNR	TLV27L2CDGKG4	TPS3617-50DGK	TPS79401DGNT
SN65LVDS9637DGKG4	THS4502CDGNRG4	TLV27L2IDGK	TPS3617-50DGKG4	TPS79401DGNTG4
SN65LVDS9638DGK	THS4503CDGN	TLV27L2IDGKG4	TPS3619-33DGK	TPS79425DGNT
SN65LVDS9638DGKG4	THS4503CDGNG4	TLV3702CDGK	TPS3619-33DGKG4	TPS79425DGNTG4
SN65LVD100DGK	THS4503IDGN	TLV3702CDGKG4	TPS3705-33DGN	TPS79433DGNT
SN65LVD100DGKG4	THS4503IDGNG4	TLV3702IDGKR	TPS3705-33DNG4	TPS79433DGNTG4
SN65LVD101DGK	TLC071IDGN	TLV3702IDGKRG4	TPS3707-30DGN	TPS79718DCKT
SN65LVD101DGKG4	TLC071IDGNG4	TLV4111IDGN	TPS3707-30DNG4	TPS79718DCKTG4
SN65LVEL11DGK	TLC072CDGN	TLV4111IDGNG4	TPS3707-33DGN	TPS79733DCKT
SN65LVELT23DGK	TLC072CDGNG4	TLV4113CDGQ	TPS3707-33DNG4	TPS79733DCKTG4
SN65LVEP11DGKR	TLC073IDGQ	TLV4113CDGQG4	TPS60200DGS	TPS7A3001DGNT
SN75HVD3082EDGK	TLC073IDGQG4	TLV70220PDBVT	TPS60200DGS4	

対象製品名 - 追加組立サイト: UTAC / □: 既報対象品
TLV70225DSET

製品表示

今回の変更に伴い、出荷ラベルに記載の原産地(ラベル箇所:22L)が下記のようになります。

	組立サイト	組立サイトコード(22L)
現行	Hana-Ayutthaya	ASO: HNT
追加認定	ASE-Shanghai	ASO: ASH
	JCET	ASO: JCE
	NFME	ASO: NFM
	UTAC	ASO: NSE
	UTAC2	ASO: NS2



図1 出荷ラベルの例

信頼性試験

Reference Qual #1

信頼性試験結果				
信頼性試験期間	開始	—	終了	2010 年 12 月 1 日
信頼性試験 - 試料構成詳細				
Qual Device:	TPS54327DDA	-	-	
Assembly Site:	ASE SHANGHAI	Package/Code/Pins:	HSOP/DDA/8	
Mount Compound:	EY1000063	Mold Compound:	EN2000509	
Bond Wire:	2.0 mil Dia., Cu	Leadframe (Finish, Base):	NiPdAu, Cu	
MSL:	JEDEC L-2/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot #1	Lot #2	Lot #3
**High Temp Operating Life	125C, 1000 Hrs	26/0	26/0	26/0
Electrical Characterization	-	30/0	30/0	30/0
**Biased Temp Humidity	85C/85%RH, 1000 Hrs	26/0	26/0	26/0
**High Temp Storage Bake	150C, 1000 Hrs	77/0	77/0	77/0
**Autoclave	121C, 96 Hrs	77/0	77/0	77/0
**T/C	-65C/150C, 500 Cyc	77/0	77/0	77/0
Bond Strength	76 ball bonds, min. 3 units	76/0	76/0	76/0
Manufacturability (Assembly)	per mfg. Site specification	Approved	Approved	Approved
**Thermal Shock	-65C/150C, 200 Cyc	77/0	77/0	77/0
X-ray	top side only	5/0	5/0	5/0
Moisture Sensitivity Level	JEDEC L-2/260C	12/0	12/0	12/0
Notes: ** Tests require preconditioning sequence: JEDEC L-2/260C				

信頼性試験結果				
信頼性試験期間	開始	—	終了	2010 年 12 月 1 日
信頼性試験 - 試料構成詳細				
Qual Device:	TPS54327DDA ES1.1	-	-	
Assembly Site:	ASE SHANGHAI	Package/Code/Pins:	HSOP/DDA/8	
Mount Compound:	EY1000063	Mold Compound:	EN2000509	
Bond Wire:	2.0 mil Dia., Cu	Leadframe (Finish, Base):	NiPdAu, Cu	
MSL:	JEDEC L-2/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration		Sample Size/ Fails	
Electrical Characterization	-		30/0	
**T/C	-65C/150C, 500 Cyc		77/0	
ESD CDM	500V		3/0	
Manufacturability	per mfg. Site specification		Approved	
X-ray	top side only		5/0	
Notes: ** Tests require preconditioning sequence: JEDEC L-2/260C				

Reference Qual #2

信頼性試験結果				
信頼性試験期間	開始	—	終了	2010年4月8日
信頼性試験 - 試料構成詳細				
Qual Device:	PGA308AIDGS	-	-	
Assembly Site:	ASE SHANGHAI	Package/Code/Pins:	VSSOP/DGS/10	
Mount Compound:	EY1000063	Mold Compound:	EN2000515	
Bond Wire:	1.0 mil Dia., Au	Leadframe (Finish, Base):	NiPdAuAg, Cu	
MSL:	JEDEC L-1/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot #1	Lot #2	Lot #3
**Life Test	150C, 300 Hrs	77/0	77/0	77/0
**High Temp. Storage Bake	170C, 420 Hrs	77/0	77/0	77/0
**Biased HAST	130C/85%RH, 96 Hrs	77/0	77/0	77/0
**Autoclave	121C, 96 Hrs	77/0	77/0	77/0
**T/C	-65C/150C, 500 Cyc	77/0	77/0	77/0
Background Characterization	-	Approved	-	-
Visual / Mechanical	-	Approved	Approved	Approved
Solderability	Steam age, 8 hours	22/0	22/0	22/0
Lead Fatigue	-	22/0	22/0	22/0
Lead Pull	To destruction	22/0	22/0	22/0
Lead Finish Adhesion	-	15/0	15/0	15/0
Physical Dimensions	per mechanical drawing	5/0	5/0	5/0
Flammability	Method A - UL94-0	5/0	5/0	5/0
Flammability	Method B - IEC 695-2-2	5/0	5/0	5/0
Flammability	Method C - UL 1694	5/0	5/0	5/0
Ball Bond Shear	Wires	80/0	80/0	80/0
Bond Pull	Wires	80/0	80/0	80/0
Die Shear	-	15/0	15/0	15/0
Manufacturability (Assembly)	per mfg. Site specification	Approved	Approved	Approved
**Thermal Shock	-65C/150C, 500 Cyc	77/0	77/0	77/0
Salt Atmosphere	24 Hrs	22/0	22/0	22/0
X-ray	top side only	5/0	5/0	5/0
Moisture Sensitivity	JEDEC L-1/260C	12/0	12/0	12/0
Note: ** Preconditioning sequence: JEDEC L-1/260C				

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信頼性試験結果				
信頼性試験期間	開始	—	終了	2010 年 4 月 8 日
信頼性試験 - 試料構成詳細				
Qual Device:	THS4304DGK	-	-	
Assembly Site:	ASE (Shanghai)	Package/Code/Pins:	MSOP/DGK/8	
Mount Compound:	EY1000063	Mold Compound:	EN2000515	
Bond Wire:	1.0 mil Dia., Au	Leadframe (Finish, Base):	NiPdAuAg, Cu	
MSL:	JEDEC L-1/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot #1	Lot #2	Lot #3
**Life Test	155C, 240 Hrs	77/0	77/0	77/0
**High Temp. Storage Bake	170C, 420 Hrs	77/0	77/0	77/0
**Biased HAST	130C/85%RH, 96 Hrs	77/0	77/0	77/0
**Autoclave	121C, 96 Hrs	77/0	77/0	77/0
**T/C	-65C/150C, 500 Cyc	82/0	82/0	82/0
Backgrind Characterization	-	Approved	-	-
Visual / Mechanical	-	Approved	Approved	Approved
Surface Mount Solderability	Steam age, 8 hours	22/0	22/0	22/0
Surface Mount Solderability	PB-Free solder	22/0	22/0	22/0
Lead Fatigue	-	22/0	22/0	22/0
Lead Pull	To destruction	22/0	22/0	22/0
Lead Finish Adhesion	-	15/0	15/0	15/0
Physical Dimensions	per mechanical drawing	20/0	-	-
Ball Bond Shear	Wires	80/0	80/0	80/0
Bond Pull	Wires	80/0	80/0	80/0
Die Shear	-	15/0	15/0	15/0
Manufacturability (Assembly)	per mfg. Site specification	Approved	Approved	Approved
**Thermal Shock	-65C/150C, 500 Cyc	77/0	77/0	77/0
Salt Atmosphere	24 Hrs	22/0	22/0	22/0
X-ray	top side only	5/0	5/0	5/0
Moisture Sensitivity	JEDEC L-1/260C	12/0	12/0	12/0
Note: ** Preconditioning sequence: JEDEC L-1/260C				

信頼性試験結果				
信頼性試験期間	開始	—	終了	2010 年 4 月 8 日
信頼性試験 - 試料構成詳細				
Qual Device:	TLV2545IDGK	-	-	
Assembly Site:	ASE (Shanghai)	Package/Code/Pins:	MSSOP/DGK/8	
Mount Compound:	EY1000063	Mold Compound:	EN2000515	
Bond Wire:	1.0 mil Dia., Au	Leadframe (Finish, Base):	NiPdAuAg, Cu	
MSL:	JEDEC L-1/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot #1	Lot #2	Lot #3
**High Temp. Storage Bake	170C, 420hrs Hrs	76/0	77/0	84/0
**Autoclave	121C, 96 Hrs	76/0	77/0	84/0
**T/C	-65C/150C, 500 Cyc	82/0	82/0	89/0
Backgrind Characterization	-	Approved	-	-
Visual / Mechanical	-	Approved	Approved	Approved
Surface Mount Solderability	Steam age, 8 hours	22/0	22/0	22/0
Surface Mount Solderability	PB-Free solder	22/0	22/0	22/0
Lead Fatigue	-	22/0	22/0	22/0
Lead Pull	To destruction	22/0	22/0	22/0
Lead Finish Adhesion	-	15/0	15/0	15/0
Ball Bond Shear	Wires	80/0	80/0	80/0
Bond Pull	Wires	80/0	80/0	80/0
Die Shear	-	15/0	15/0	15/0
Manufacturability (Assembly)	per mfg. Site specification	Approved	Approved	Approved
**Thermal Shock	-65C/150C, 500 Cyc	77/0	77/0	77/0
Salt Atmosphere	24 Hrs	22/0	22/0	22/0
X-ray	top side only	5/0	5/0	5/0
Moisture Sensitivity	JEDEC L-1/260C	12/0	12/0	12/0
Note: ** Preconditioning sequence: JEDEC L-1/260C				

信頼性試験結果				
信頼性試験期間	開始	—	終了	2010 年 4 月 8 日
信頼性試験 - 試料構成詳細				
Qual Device:	TPS62040DGQ	-	-	
Assembly Site:	ASE (Shanghai)	Package/Code/Pins:	MSOP/DGQ/10	
Mount Compound:	EY1000063	Mold Compound:	EN2000515	
Bond Wire:	1.0 mil Dia., Au	Leadframe (Finish, Base):	NiPdAuAg, Cu	
MSL:	JEDEC L-1/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot #1	Lot #2	Lot #3
**High Temp. Storage Bake	170C, 420 Hrs	76/0	77/0	73/0
**Biased HAST	130C/85%RH, 96 Hrs	77/0	70/0	77/0
**Autoclave	121C, 96 Hrs	77/0	77/0	70/0
**T/C	-65C/150C, 500 Cyc	78/0	81/0	80/0
Visual / Mechanical	-	Approved	Approved	Approved
Surface Mount Solderability	Steam age, 8 hours	22/0	22/0	22/0
Surface Mount Solderability	PB-Free solder	22/0	22/0	22/0
Lead Fatigue	-	22/0	22/0	22/0
Lead Pull	To destruction	22/0	22/0	22/0
Lead Finish Adhesion	-	15/0	15/0	15/0
Physical Dimensions	per mechanical drawing	20/0	-	-
Flammability	Method A - UL94-0	5/0	5/0	5/0
Flammability	Method B - IEC 695-2-2	5/0	5/0	5/0
Flammability	Method C - UL 1694	5/0	5/0	5/0
Ball Bond Shear	Wires	80/0	76/0	76/0
Bond Pull	Wires	80/0	76/0	76/0
Die Shear	-	15/0	15/0	15/0
Manufacturability (Assembly)	per mfg. Site specification	Approved	Approved	Approved
**Thermal Shock	-65C/150C, 500 Cyc	77/0	77/0	77/0
Salt Atmosphere	24 Hrs	22/0	22/0	22/0
X-ray	top side only	5/0	5/0	-
Moisture Sensitivity	JEDEC L-1/260C	11/0	12/0	9/0
Note: ** Preconditioning sequence: JEDEC L-1/260C				

信頼性試験結果				
信頼性試験期間	開始	—	終了	2010 年 4 月 8 日
信頼性試験 - 試料構成詳細				
Qual Device:	VCA822IDGS	-	-	
Assembly Site:	ASE (Shanghai)	Package/Code/Pins:	MSOP/DGS/10	
Mount Compound:	EY1000063	Mold Compound:	EN2000515	
Bond Wire:	1.0 mil Dia., Au	Leadframe (Finish, Base):	NiPdAuAg, Cu	
MSL:	JEDEC L-2/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration		Sample Size/ Fails	
**High Temp. Storage Bake	170C, 420 Hrs		77/0	
**Autoclave	121C, 96 Hrs		77/0	
**T/C	-65C/150C, 500 Cyc		77/0	
Visual / Mechanical	-		Approved	
**Thermal Shock	-65C/150C, 500 Cyc		77/0	
Solderability	Steam age, 8 hours		22/0	
Ball Bond Shear	Wires		80/0	
Bond Pull	Wires		80/0	
Die Shear	-		15/0	
Manufacturability (Assembly)	per mfg. Site specification		Approved	
Salt Atmosphere	24 Hrs		22/0	
X-ray	top side only		5/0	
Note: ** Preconditioning sequence: JEDEC L-2/260C				

Reference Qual #3

信頼性試験計画				
信頼性試験期間	開始	2012 年 1 月	終了	2012 年 2 月
信頼性試験 - 試料構成詳細				
Qual Device:	TXBN0304RSVR	-	-	
Assembly Site:	JCET	Package/Code/Pins:	uQFN/RSV/16	
Mount Compound:	120402001600	Mold Compound:	120903005409	
Bond Wire:	0.8 mil dia., Au	Lead Frame (Finish, Base):	NiPdAu, Cu	
MSL:	JEDEC L-1/260C	-	-	
信頼性試験計画				
Reliability Test	Condition / Duration	Sample Size		
		Lot#1	Lot#2	Lot#3
**High Temp. Storage Bake	170C, 420 Hrs	77	77	77
**Autoclave	121C, 96 Hrs	77	77	77
**T/C	-65C/150C, 500 Cyc	77	77	77
Manufacturability	per mfg. Site specification	per spec	per spec	per spec
Electrical Characterization	-	per spec	-	-
X-ray	top side only	5	5	5
Moisture Sensitivity	JEDEC L-1/260C	12	12	12
Notes: ** Preconditioning Sequence, JEDEC L-1/260C				

Reference Qual #4

信頼性試験結果				
信頼性試験期間	開始	—	終了	2010 年 12 月 7 日
信頼性試験 — 試料構成詳細				
Qual Device:	BQ2028DQQ	-	-	
Assembly Site:	UTAC (NSE)	Package/Code/Pins:	WSON/DQQ/8	
Mount Compound:	PZ0031	Mold Compound:	CZ0141	
Bond Wire:	1.0 mil dia., Au	Lead Frame (Finish, Base):	NiPdAu, Cu	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot#1	Lot#2	Lot#3
**High Temp Operating Life	140C, 480 Hours	26/0	24/0	26/0
**High Temp. Storage Bake	170C, 420hrs	77/0	77/0	77/0
**Biased HAST	130C/85%RH, 96 Hrs	26/0	26/0	26/0
Autoclave	121C, 96 Hrs	77/0	77/0	77/0
**T/C	-65C/150C, 500 Cycles	77/0	77/0	77/0
ESD-CDM	750V	3/0	-	-
Solderability	Steam age, 8 hours	22/0	22/0	22/0
Manufacturability (Assembly)	per mfg. Site specification	Approved	Approved	Approved
X-Ray	Top Side	5/0	5/0	5/0
Moisture Sensitivity	JEDEC L-2/260C	13/0	14/0	14/0
Note: ** Preconditioning required, JEDEC L-2/260C				

信頼性試験結果				
信頼性試験期間	開始	—	終了	2007 年 4 月 12 日
信頼性試験 - 試料構成詳細				
Qual Device:	TPS71727DSE	-	-	
Assembly Site:	NSE	Package/Code/Pins:	WSON/DSE/6	
Mount Compound:	PZ0037	Mold Compound:	CZ0135	
Bond Wire:	1.0 mil dia., Au	Lead Frame (Finish, Base):	NiPdAu, Cu	
MSL:	JEDEC L-1/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot#1	Lot#2	Lot#3
High Temp Operating Life	150C, 300 Hrs	130/0	130/0	130/0
Electrical Characterization	Over Temp	Approved	-	-
**High Temp. Storage Bake	170C, 420hrs	79/0	79/0	79/0
**Biased HAST	130C/85%RH, 96 Hrs	79/0	79/0	79/0
Autoclave	121C, 240 Hrs	79/0	79/0	79/0
**T/C	-65C/150C, 500 Cycles	78/0	79/0	160/0
ESD-HBM	500V, 1000V, 1500V, 2000V	3/0	-	-
ESD-CDM	500V	3/0	-	-
Visual / Mechanical	Performed at MQ 100%	Approved	Approved	Approved
Physical Dimensions	per mechanical drawing	5/0	5/0	5/0
Thermal Impedance	-	5/0	-	-
Manufacturability (Assembly)	per mfg. Site specification	Approved	Approved	Approved
**Thermal Shock	-65C/150C, 500 Cyc	77/0	77/0	77/0
X-Ray	Top Side	5/0	5/0	5/0
Moisture Sensitivity	JEDEC L-1/260C	12/0	12/0	12/0
Note: ** Preconditioning required, JEDEC L-1/260C				

Reference Qual #5

信頼性試験結果				
信頼性試験期間	開始	—	終了	2011 年 8 月 8 日
信頼性試験 - 試料構成詳細				
Qual Device:	TPS73201QDBVRQ1	-	-	
Assembly Site:	NFME	Package/Code/Pins:	SOT/DBV/5	
Mount Compound:	A-03	Mold Compound:	R-13	
Bond Wire:	1.0 mil Dia., Au	Leadframe (Finish, Base):	NiPdAu, Cu	
MSL:	JEDEC L-1/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot #1	Lot #2	Lot #3
**HTOL	125C/1000hrs, 150C/408hrs	77/0	77/0	77/0
**HAST	85C/85%, 1000 hrs	77/0	77/0	77/0
**Autoclave	121C, 96 Hrs	77/0	77/0	77/0
**T/C	-65C/150C, 500 Cyc	77/0	77/0	77/0
Surface Mount Solderability	Pb Solder	22/0	-	-
Physical Dimensions	per mechanical drawing	10/0	10/0	10/0
Moisture Sensitivity	JEDEC L-1/260C	12/0	-	-
Note: ** Preconditioning sequence: JEDEC L-1/260C				

信頼性試験結果				
信頼性試験期間	開始	—	終了	2010 年 9 月 17 日
信頼性試験 - 試料構成詳細				
ID:	Device1	Device2		
Qual Device:	TPS2065DBV	TPS61041DBV		
Assembly Site:	NFME	NFME		
Package/Code/Pins:	SOT/DBV/5	SOT/DBV/5		
Mount Compound:	A-03	A-03		
Mold Compound:	R-13	R-13		
Bond Wire:	0.8 mil Dia., Au	0.8 Mil Dia., Au		
Leadframe (Finish, Base):	NiPdAu, Cu	NiPdAu, Cu		
MSL:	JEDEC L-1/260C	JEDEC L-1/260C		
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Device1	Device2	
Electrical Characterization	Full Temp & Voltage range	Approved	Approved	
**Autoclave	121C, 96 Hrs	77/0	77/0	
**T/C	-65C/150C, 500 Cyc	87/0	86/0	
Surface Mount Solderability	8 Hrs Steam	22/0	22/0	
Bond Pull	76 ball bonds, min. 3 units	5/0	5/0	
Moisture Sensitivity	JEDEC L-1/260C	22/0	22/0	
Manufacturability (Assembly)	per mfg. Site specification	Approved	Approved	
Note: ** Preconditioning sequence: JEDEC L-1/260C				

信頼性試験結果				
信頼性試験期間	開始	—	終了	2010 年 3 月 30 日
信頼性試験 - 試料構成詳細				
Qual Device:	OPA365AIDBV	-	-	
Assembly Site:	NFME	Package/Code/Pins:	SOT/DBV/5	
Mount Compound:	A-03	Mold Compound:	R-13	
Bond Wire:	1.0 Mil Dia., Au	Leadframe (Finish, Base):	NiPdAu, Cu	
MSL:	JEDEC L-1/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
**High Temp. Storage Bake	170C, 420 Hours	77/0		
**Autoclave	121C, 96 Hrs	77/0		
**T/C	-65C/150C, 500 Cyc	80/0		
Visual / Mechanical	Performed during Assembly MQ	Approved		
Surface Mount Solderability	Pb Solder	22/0		
Lead Fatigue	22 leads, min. 3 units	22/0		
Lead Pull	22 leads to destruction, min. 3 units	22/0		
Lead Finish Adhesion	-	15/0		
Physical Dimensions	per mechanical drawing	5/0		
Ball Bond Shear	Wires	78/0		
Bond Pull	Wires	78/0		
Die Shear	-	10/0		
Manufacturability (Assembly)	per mfg. Site specification	Approved		
**Thermal Shock	-65C/150C, 500 Cyc	77/0		
Salt Atmosphere	24 Hrs	22/0		
X-ray	top side only	5/0		
Moisture Sensitivity	JEDEC L-1/260C	12/0		
Note: ** Preconditioning sequence: JEDEC L-1/260C				

Reference Qual #6

信頼性試験結果				
信頼性試験期間	開始	—	終了	2011 年 7 月 18 日
信頼性試験 - 試料構成詳細				
ID:	Device1	Device2	Device3	
Qual Device:	OPA330AIDCK	TMP330AIDCK	TPS71719DCK	
Assembly Site:	NFME	NFME	NFME	
Package/Code/Pins:	SOT/DCK/5	SOT/DCK/6	SOT/DCK/5	
Mount Compound:	A-03	A-03	A-03	
Mold Compound:	R-07	R-07	R-07	
Bond Wire:	1.0 Mil Dia., Au	1.0 Mil Dia., Au	1.0 Mil Dia., Au	
Leadframe (Finish, Base):	NiPdAu, Cu	NiPdAu, Cu	NiPdAu, Cu	
MSL:	JEDEC L-1/260C	JEDEC L-1/260C	JEDEC L-1/260C	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Device1	Device2	Device3
**High Temp. Storage Bake	170C, 420hrs	77/0	77/0	-
Electrical Characterization	Over Temp	-	-	Approved
**Unbiased HAST	130C/85%RH, 96 Hrs	77/0	77/0	77/0
**T/C	-65C/150C, 500 Cyc	77/0	77/0	77/0
Solderability	Steam age, 8 hours	22/0	22/0	-
Lead Pull	# of leads to destruction, min. 3 units	22/0	22/0	22/0
Lead Fatigue	# of leads, min. 3 units	22/0	22/0	22/0
Lead Finish Adhesion	# of leads, min. 3 units	15/0	15/0	15/0
Manufacturability	per mfg. Site specification	Approved	Approved	Approved
X-ray	top side only	5/0	5/0	-
Moisture Sensitivity	JEDEC L-1/260C	12/0	12/0	12/0
Notes: ** Preconditioning sequence: JEDEC L-1/260C				

信頼性試験結果				
信頼性試験期間	開始	—	終了	2006 年 10 月 4 日
信頼性試験 - 試料構成詳細				
Qual Device:	LPV321DCKR	-	-	
Assembly Site:	NFME	Package Code/Pins:	DCK/5	
Mount Compound:	A-03	Mold Compound:	R-07	
Bond Wire:	1.0 mil Dia., Au	Leadframe (Finish, Base):	NiPdAu, Cu	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot #1	Lot #2	Lot #3
**High Temp Operating Life	150C, 300 hours	40/0	40/0	40/0
**Biased HAST	130C/85%RH, 96 hours	26/0	26/0	26/0
**Autoclave	121C, 96 Hrs	77/0	77/0	77/0
**Temperature Cycle	-65C/150C, 500 Cyc	77/0	77/0	77/0
**Thermal Shock	-65C/150C, 500 Cyc	77/0	77/0	77/0
**Storage Bake	170C, 1000 hours	77/0	77/0	77/0
Lead Pull	-	22/0	22/0	22/0
Flammability	UL 94V-0	5/0	5/0	5/0
Flammability	UL-1694	5/0	5/0	5/0
Flammability	IEC 695-2-2	5/0	5/0	5/0
X-RAY	top side only	5/0	5/0	5/0
Visual / Mechanical	-	Approved	Approved	Approved
Moisture Sensitivity	JEDEC L-1/260C	7/0	8/0	8/0
Note: ** Preconditioning sequence JEDEC L-1/260C				

Reference Qual #7

信頼性試験結果				
信頼性試験期間	開始	—	終了	2007 年 1 月 30 日
信頼性試験 - 試料構成詳細				
Qual Device:	LM317DCY	-	-	
Assembly Site:	NFME	Package/Code/Pins:	SOT/DCY/4	
Mount Compound:	A-06	Mold Compound:	R-07	
Bond Wire:	2.0 mil Dia., Au	Leadframe (Finish, Base):	Matte Sn, Cu	
MSL:	JEDEC L-2/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot #1	Lot #2	Lot #3
** High Temp Operating Life	150C, 300 hours	40/0	40/0	40/0
** Biased HAST	130C/85%RH, 96 hours	26/0	26/0	26/0
** Autoclave	121C, 96 Hrs	77/0	77/0	77/0
** Temp Cycle	-65C/150C, 500 Cyc	77/0	77/0	77/0
** Storage Bake	150C, 1000 hours	77/0	77/0	77/0
Solderability	8 Hours Steam Age	22/0	22/0	22/0
Lead Finish Adhesion	-	15/0	15/0	15/0
Lead Pull	-	22/0	22/0	22/0
Lead Integrity	-	22/0	22/0	22/0
Flammability	UL 94V-0	5/0	5/0	5/0
Flammability	UL-1694	5/0	5/0	5/0
Flammability	IEC 695-2-2	5/0	5/0	5/0
X-RAY	-	5/0	5/0	5/0
Physical Dimensions	-	5/0	5/0	5/0
Ball Bond Shear	-	78/0	78/0	78/0
Wire Pull	-	78/0	78/0	78/0
Die Shear	-	10/0	10/0	10/0
Salt Atmosphere	-	22/0	22/0	22/0
Moisture Sensitivity	JEDEC L-2/260C	12/0	12/0	12/0
Manufacturability	-	Approved	Approved	Approved
Note: ** Preconditioning Sequence: JEDEC L-2/260C				

Reference Qual #8

信頼性試験結果				
信頼性試験期間	開始	—	終了	2011 年 7 月 18 日
信頼性試験 - 試料構成詳細				
Qual Device:	TLV70228DBV	-	-	
Assembly Site:	NS2	Package/Code/Pins:	SOT/DBV/5	
Mount Compound:	PZ0001	Mold Compound:	R-13	
Bond Wire:	1.0 mil Dia., Au	Leadframe (Finish,Base):	NiPdAu, Cu	
MSL:	JEDEC L-1/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot #1	Lot #2	Lot #3
HTOL High Temp. Op Life	140C, 48, 324 Hrs	116/0	116/0	116/0
Electrical Characterization	-	30/0	30/0	30/0
**Autoclave	121C, 96 Hrs	77/0	77/0	77/0
**T/C	-65C/150C, 500 Cyc	77/0	77/0	77/0
ESD CDM	500V	3/0	3/0	3/0
Process Characterization	BG, Die-saw & Die attach	Approved	Approved	Approved
Visual / Mechanical	Post Die-saw	328/0	328/0	328/0
Bond Strength	76 ball bonds, min. 3 units	76/0	76/0	76/0
Die Shear	-	10/0	10/0	10/0
Destructive Physical Analysis	Pre-stress	2/0	2/0	2/0
Manufacturability	per mfg. Site specification	Approved	Approved	Approved
X-ray	top side only	5/0	5/0	5/0
Moisture Sensitivity	JEDEC L-1/260C	12/0	12/0	12/0
Note: ** Preconditioning sequence: JEDEC L-1/260C				

Reference Qual #9

信頼性試験結果				
信頼性試験期間	開始	—	終了	2008 年 5 月 20 日
信頼性試験 - 試料構成詳細				
Qual Device:	OPA379AIDCK	-	-	
Assembly Site:	NSE	Package/Code/Pins:	SOT/DCK/5	
Mount Compound:	A-09	Mold Compound:	R-13	
Bond Wire:	1.0 mil Dia., Au	Leadframe (Finish,Base):	NiPdAu, Cu	
MSL:	JEDEC L-2/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration		Sample Size/ Fails	
** Autoclave	121C, 96 Hrs		77/0	
** Temp Cycle	-65C/150C, 500 cycles		77/0	
Visual/Mechanical	Per final visual inspection criteria		Approved	
Bond Strength	76 ball bonds, min. 3 units		76/0	
Die Shear	-		10/0	
Manufacturability	per mfg. Site specification		Approved	
X-Ray	Top Side Only		5/0	
Moisture Sensitivity	JEDEC L-2/260C		10/0	
Note: ** Preconditioning Sequence: JEDEC L-2/260C				

信頼性試験結果				
信頼性試験期間	開始	—	終了	2004 年 8 月 10 日
信頼性試験 - 試料構成詳細				
Qual Device:	TS5A3159IM	-	-	
Assembly Site:	NSE	Package/Code/Pins:	SOT/DCK/6	
Mount Compound:	A-09	Mold Compound:	R-13	
Bond Wire:	1.0 mil Dia., Au	Leadframe (Finish,Base):	NiPdAu, Cu	
MSL:	JEDEC L-1/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot #1	Lot #2	Lot #3
**High Temp Operating Life	150C, 300 hours	40/0	40/0	40/0
**Biased HAST	130C/85%RH, 300 hours	26/0	26/0	26/0
** Autoclave	121C, 96 Hrs	77/0	77/0	77/0
** Temp Cycle	-65C/150C, 500 cycles	77/0	77/0	77/0
**Thermal Shock	-65C/150C, 500 cycles	77/0	77/0	77/0
**Storage Bake	17C, 420 hours	77/0	77/0	77/0
Solderability	-	22/0	22/0	22/0
Lead Pull	-	22/0	22/0	22/0
Lead Integrity	-	22/0	22/0	22/0
X-Ray	Top Side Only	5/0	5/0	5/0
Moisture Sensitivity	JEDEC L-1/260C	12/0	-	-
Note: ** Preconditioning Sequence: JEDEC L-1/260C				

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信頼性試験結果				
信頼性試験期間	開始	—	終了	2006 年 6 月 22 日
信頼性試験 - 試料構成詳細				
Qual Device:	SN200604024DCK	-	-	
Assembly Site:	NSE	Package/Code/Pins:	SOT/DCK/6	
Mount Compound:	A-09	Mold Compound:	R-13	
Bond Wire:	1.0 mil Dia., Au	Leadframe (Finish,Base):	NiPdAu, Cu	
MSL:	JEDEC L-1/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot #1	Lot #2	Lot #3
**High Temp Operating Life	150C, 300 hours	116/0	-	-
Electrical Characterization	-	Approved	-	-
** Autoclave	121C, 96 Hrs	77/0	77/0	77/0
** Temp Cycle	-65C/150C, 500 cycles	77/0	77/0	77/0
ESD HBM	2000V	3/0	-	-
ESD CDM	500V	3/0	-	-
Latch-up	per JESD78	6/0	-	-
Manufacturability	per mfg. Site specification	Approved	-	-
X-Ray	Top Side Only	5/0	-	-
Moisture Sensitivity	JEDEC L-1/260C	12/0	-	-
Note: ** Preconditioning Sequence: JEDEC L-1/260C				

信頼性試験結果				
信頼性試験期間	開始	—	終了	2008 年 5 月 2 日
信頼性試験 - 試料構成詳細				
Qual Device:	TL4050C10IDCKR	-	-	
Assembly Site:	NS2	Package/Code/Pins:	SOT/DCK/5	
Mount Compound:	A-09	Mold Compound:	R-13	
Bond Wire:	1.0 mil Dia., Au	Leadframe (Finish,Base):	NiPdAu, Cu	
MSL:	JEDEC L-1/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot #1	Lot #2	Lot #3
** Autoclave	121C, 96 Hrs	77/0	77/0	77/0
** Temp Cycle	-65C/150C, 500 cycles	77/0	77/0	77/0
Physical Dimensions	per mechanical drawing	5/0	5/0	5/0
Bond Strength	76 ball bonds, min. 3 units	76/0	76/0	76/0
Die Shear	-	10/0	10/0	10/0
Manufacturability	per mfg. Site specification	Approved	Approved	Approved
X-Ray	Top Side Only	5/0	5/0	5/0
Moisture Sensitivity	JEDEC L-1/260C	12/0	12/0	12/0
Note: ** Preconditioning Sequence: JEDEC L-1/260C				

Reference Qual #10

信頼性試験結果				
信頼性試験期間	開始	—	終了	2011 年 10 月 18 日
信頼性試験 — 試料構成詳細				
Qual Device:	TPS781250200DDC	-	-	
Assembly Site:	NS2 (UTAC2)	Package/Code/Pins:	TSOT-23/DDC/5	
Mount Compound:	PZ0013	Mold Compound:	R-13	
Bond Wire:	1.3 mil Dia., Au	Leadframe (Finish, Base):	NiPdAu, Cu	
MSL:	JEDEC L-2/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration		Sample Size/ Fails	
** High Temp Operating Life	150C, 300 Hrs		116/0	
Electrical Characterization	-		30/0	
**Autoclave	121C, 96 Hrs		77/0	
**T/C	-65C/150C, 500 Cyc		77/0	
ESD HBM	2000V		3/0	
ESD CDM	500V		3/0	
Latchup	-		6/0	
Manufacturability (Assembly)	per mfg. Site specification		Approved	
Moisture Sensitivity	JEDEC L-2/260C		12/0	
FTY and Bin Summary	-		Approved	
Notes: ** Tests require preconditioning sequence: JEDEC L-2/260C				

信頼性試験結果				
信頼性試験期間	開始	—	終了	2008 年 3 月 24 日
信頼性試験 - 試料構成詳細				
Qual Device:	TPS78001DDC	-	-	
Assembly Site:	UTAC/NSE	Package/Code/Pins:	SOT/DDC/5	
Mount Compound:	PZ0013	Mold Compound:	R-13	
Bond Wire:	1.3 mil Dia., Au	Leadframe (Finish,Base):	NiPdAu, Cu	
MSL:	JEDEC L-2/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot #1	Lot #2	Lot #3
**High Temp Operating Life	150C, 300 Hrs	116/0	-	-
Electrical Char.	-	15/0	-	-
**Biased HAST	130C/85%RH, 96, 192 Hrs	77/0	-	-
**Autoclave	121C, 96 Hrs	77/0	77/0	77/0
**T/C	-65C/150C, 500 Cyc	77/0	77/0	77/0
ESD HBM	2000V	3/0	-	-
ESD CDM	500V	3/0	-	-
Latch-up	per JEESD78	6/0	-	-
Manufacturability	per mfg. Site specification	Approved	-	-
Moisture Sensitivity	JEDEC L-2/260C	12/0	-	-
Note: ** Preconditioning sequence JEDEC L-2/260C				

信頼性試験結果				
信頼性試験期間	開始	—	終了	2008 年 3 月 24 日
信頼性試験 - 試料構成詳細				
Qual Device:	TPS780330220DDC	-	-	
Assembly Site:	UTAC/NSE	Package/Code/Pins:	SOT/DDC/5	
Mount Compound:	PZ0013	Mold Compound:	R-13	
Bond Wire:	1.3 mil Dia., Au	Leadframe (Finish,Base):	NiPdAu, Cu	
MSL:	JEDEC L-2/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot #1	Lot #2	Lot #3
**High Temp Operating Life	150C, 300 Hrs	116/0	-	-
Electrical Characterization	Full Temperature	15/0	-	-
**Biased HAST	130C/85%RH, 96 Hrs	77/0	-	-
**Autoclave	121C, 96 Hrs	77/0	77/0	77/0
**T/C	-65C/150C, 500 Cyc	77/0	-	-
ESD HBM	2000V	3/0	-	-
ESD CDM	500V	3/0	-	-
Latch-up	per JEDEC78	6/0	-	-
Manufacturability	per mfg. Site specification	Approved	-	-
Moisture Sensitivity	JEDEC L-2/260C	12/0	-	-
Note: ** Preconditioning sequence JEDEC L-2/260C				

Reference Qual #11

信頼性試験結果				
信頼性試験期間	開始	—	終了	2008 年 5 月 30 日
信頼性試験 - 試料構成詳細				
Qual Device:	TPS40003DGQ	-	-	
Assembly Site:	NS2	Package/Code/Pins:	VSSOP/DGQ/10	
Mount Compound:	PZ0013	Mold Compound:	R-13	
Bond Wire:	1.0 mil Dia., Au	Leadframe (Finish, Base):	NiPdAu, Cu	
MSL:	JEDEC L-1/260C	-	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Lot #1	Lot #2	Lot #3
**Autoclave	121C, 96 Hrs	76/0	76/0	76/0
**T/C	-65C/150C, 250, 500 Cyc	76/0	76/0	76/0
Bond Strength	76 ball bonds, min. 3 units	76/0	76/0	76/0
Die Shear	-	10/0	10/0	10/0
Manufacturability	per mfg. Site specification	Approved	Approved	Approved
Moisture Sensitivity	JEDEC L-1/260C	12/0	12/0	12/0
Notes: ** Tests require preconditioning sequence: JEDEC L-1/260C				

信頼性試験結果				
信頼性試験期間	開始	—	終了	2005 年 6 月 7 日
信頼性試験 - 試料構成詳細				
ID:	Device1	Device2		
Qual Device:	UC2903N	UCC2801D		
Assembly Site:	NSE	NSE		
Package/Code/Pins:	PDIP/N/18	SOIC/D/8		
Mount Compound:	PZ0013	PZ0013		
Mold Compound:	R-13	R-13		
Leadframe finish:	NiPdAu	NiPdAu		
ID:	Device3	Device4		
Qual Device:	OPO7CD	SN0305028AIDBV		
Assembly Site:	NSE	NSE		
Package/Code/Pins:	SOIC/D/8	SOT/DBV/6		
Mount Compound:	PZ0001	PZ0001		
Mold Compound:	R-13	R-13		
Leadframe finish:	NiPdAu	NiPdAu		
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Device1	Device2	
Life Test	125C, 1000Hrs.	348/0	-	
HAST	130C/85%RH, 96 Hrs.	231/0	-	
Autoclave	121C, 240 Hrs.	231/0	-	
Thermal Shock	-65C/150C, 1000 cycles	-	-	
Temp Cycle	-65C/150C, 1000 cycles	231/0	231/0	
High-Temp Storage	150C, 1000Hrs.	135/0	-	
X-Ray	Top side	Approved	Approved	
Lead Fatigue	-	Approved	-	
Solderability	8 hr steam age/flux/Dip	Approved	-	
Physical Dimensions	Per mechanical drawing	Approved	-	
Visual/Mechanical	-	Approved	Approved	
Salt Atmosphere	24 Hrs.	Approved	-	
Manufacturability (MQ)	Assembly Site	-	Approved	
Moisture Sensitivity	JEDEC L-1/260C	-	Approved	
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Device3	Device4	
Life Test	125C, 1000Hrs.	103/0	116/0	
HAST	130C/85%RH, 96 Hrs.	231/0	98/0	
Autoclave	121C, 240 Hrs.	231/0	80/0	
Thermal Shock	-65C/150C, 1000 cycles	231/0	119/0	
Temp Cycle	-65C/150C, 1000 cycles	Note(1)	80/0	
High-Temp Storage	170C,420 Hrs.	135/0	-	
High-Temp Storage	150C, 1000Hrs.	-	49/0	
X-Ray	Top side	Approved	Approved	
Lead Fatigue	-	Approved	-	
Solvent Resistance	-	Note(1)	Note(1)	
Solderability	8 hr steam age/flux/Dip	Approved	Note(1)	
Physical Dimensions	Per mechanical drawing	Approved	Note(1)	
Flammability	UL94 Class V-0	Approved	Note(1)	
Visual/Mechanical	-	Approved	Note(1)	
Salt Atmosphere	24 Hrs.	Approved	Note(1)	
Manufacturability (MQ)	Assembly Site	Approved	Approved	
Moisture Sensitivity	JEDEC L-1/260C	Approved	Approved*	
Notes:				
* This device was previously classified at JEDEC L-2/260C.Subsequent testing has shown that this device is now classified at JEDEC L-1/260C.				
(1) NSE package qual data has been utilized				

信頼性試験結果				
信頼性試験期間	開始	—	終了	2005 年 6 月 7 日
信頼性試験 - 試料構成詳細				
ID:	Device5	Device6	Device7	
Qual Device:	OPA690N/SN030711DBV	TPS62202DBV	OPA695IDBV	
Assembly Site:	NSE	NSE	NSE	
Package/Code/Pins:	SOT/DBV/6	SOT/DBV/5	SOT/DBV/6	
Mount Compound:	PZ0001	PZ0001	PZ0001	
Mold Compound:	R-13	R-13	R-13	
Leadframe finish:	NiPdAu	NiPdAu	NiPdAu	
ID:	Device8	Device9	-	
Qual Device:	TMP101NA	TLV2361CDBV	-	
Assembly Site:	NSE	NSE	-	
Package/Code/Pins:	SOT/DBV/6	SOT/DBV/5	-	
Mount Compound:	PZ0001	PZ0001	-	
Mold Compound:	R-13	R-13	-	
Leadframe finish:	NiPdAu	NiPdAu	-	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Device5	Device6	Device7
Life Test	125C, 1059Hrs.	-	-	118/0
	125C, 1000Hrs.	120/0	Note(1)	-
HAST	130C/85%RH, 96 Hrs.	98/0	Note(1)	97/0
Autoclave	121C, 240 Hrs.	98/0	154/0	98/0
Thermal Shock	-65C/150C, 1000 cycles	Note(1)	154/0	Note(1)
Temp Cycle	-65C/150C, 1000 cycles	98/0	154/0	98/0
High-Temp Storage	170C, 420 Hrs.	-	Note(1)	-
	150C, 1000Hrs.	49/0	-	49/0
X-Ray	Top side	Approved	Note(1)	Approved
Solvent Resistance	-	Note(1)	Note(1)	Note(1)
Solderability	8 hr steam age/flux/Dip	Note(1)	Note(1)	Note(1)
Physical Dimensions	Per mechanical drawing	Note(1)	Note(1)	Note(1)
Flammability	UL94 Class V-0	Note(1)	Note(1)	Note(1)
Visual/Mechanical	-	Note(1)	Note(1)	Note(1)
Salt Atmosphere	24 Hrs.	Note(1)	Note(1)	Note(1)
Manufacturability (MQ)	Assembly Site	Approved	Approved	Approved
Moisture Sensitivity	JEDEC L-1/260C	Approved*	Approved	Approved*
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Device8	Device9	-
Life Test	150C, 300Hrs.	116/0	-	-
	150C, 500 Hrs	-	120/0	-
HAST	130C/85%RH, 96 Hrs.	80/0	78/0	-
Autoclave	121C, 96 Hrs.	-	231/0	-
	121C, 240 Hrs.	80/0	-	-
Thermal Shock	-65C/150C, 1000 cycles	Note(1)	231/0	-
Temp Cycle	-65C/150C, 1000 cycles	79/0	-	-
High-Temp Storage	170C, 420 Hrs.	Note(1)	135/0	-
X-Ray	Top side	Note(1)	Approved	-
Solvent Resistance	-	Note(1)	-	-
Solderability	8 hr steam age/flux/Dip	Note(1)	Approved	-
Physical Dimensions	Per mechanical drawing	Note(1)	Approved	-
Flammability	UL94 Class V-0	Approved	Approved	-
Visual/Mechanical	-	Note(1)	-	-
Salt Atmosphere	24 Hrs.	Note(1)	Approved	-
Manufacturability (MQ)	Assembly Site	Approved	Approved	-
Moisture Sensitivity	JEDEC L-1/260C	Approved*	Approved	-
Notes:				
* This device was previously classified at JEDEC L-2/260C. Subsequent testing has shown that this device is now classified at JEDEC L-1/260C.				
(1) NSE package qual data has been utilized				

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信頼性試験結果				
信頼性試験期間	開始	—	終了	2005 年 6 月 7 日
信頼性試験 - 試料構成詳細				
ID:	Device10	Device11	Device12	
Qual Device:	TPS61040DBV(BOAC)	BQ2022DBZ	REF2912AIDBZ	
Assembly Site:	NSE	NSE	NSE	
Package/Code/Pins:	SOT/DBV/5	SOP/DBZ/3	SOP/DBZ/3	
Mount Compound:	PZ0013	PZ0001	PZ0001	
Mold Compound:	R-13	R-13	R-13	
Leadframe finish:	NiPdAu	NiPdAu	NiPdAu	
ID:	Device13	Device14	Device15	
Qual Device:	UCC2809PW-2	TPS2491DGS	TPS60300DGS	
Assembly Site:	NSE	NSE	NSE	
Package/Code/Pins:	TSSOP/PW/8	VSSOP/DGS/10	VSSOP/DGS/10	
Mount Compound:	PZ0013	PZ0013	PZ0013	
Mold Compound:	R-13	R-13	R-13	
Leadframe finish:	NiPdAu	NiPdAu	NiPdAu	
信頼性試験結果				
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Device10	Device11	Device12
Life Test	150C, 300Hrs.	-	-	120/0
	155C, 240Hrs.	-	348/0	-
	140C, 480Hrs.	120/0	-	-
HAST	130C/85%RH, 96 Hrs.	231/0	231/0	80/0
Autoclave	121C, 240 Hrs.	231/0	231/0	85/0
Thermal Shock	-65C/150C, 1000 cycles	231/0	231/0	95/0
Temp Cycle	-65C/150C, 1000 cycles	231/0	231/0	89/0
High-Temp Storage	170C, 420 Hrs.	231/0	231/0	-
X-Ray	Top side	Approved	Note(1)	Approved
Lead Fatigue	-	Approved	Approved	Approved
Solvent Resistance	-	Approved	Approved	Note(1)
Solderability	8 hr steam age/flux/Dip	Approved	Approved	Approved
Physical Dimensions	Per mechanical drawing	Approved	Approved	Approved
Flammability	UL94 Class V-0	Approved	Approved	Approved
Visual/Mechanical	-	Note(1)	Approved	Approved
Salt Atmosphere	24 Hrs.	Approved	Approved	Approved
Manufacturability (MQ)	Assembly Site	Approved	Approved	Approved
Moisture Sensitivity	JEDEC L-1/260C	Approved	Approved	Approved*
Reliability Test	Condition / Duration	Sample Size/ Fails		
		Device13	Device14	Device15
Life Test	125C, 1000Hrs.	348/0	-	-
	150C, 300Hrs.	-	-	120/0
	155C, 240Hrs.	-	348/0	-
HAST	130C/85%RH, 96 Hrs.	231/0	231/0	120/0
Autoclave	121C, 96 Hrs.	231/0	-	-
	121C, 240 Hrs.	-	231/0	231/0
Thermal Shock	-65C/150C, 1000 cycles	-	231/0	231/0
Temp Cycle	-65C/150C, 1000 cycles	231/0	231/0	231/0
High-Temp Storage	170C, 420 Hrs.	-	231/0	78/0
	150C, 1000Hrs.	135/0	-	-
X-Ray	Top side	Approved	Approved	Note(1)
Lead Fatigue	-	Approved	Approved	Note(1)
Solvent Resistance	-	Note(1)	Approved	Note(1)
Solderability	8 hr steam age/flux/Dip	Approved	Approved	Note(1)
Physical Dimensions	Per mechanical drawing	Approved	Approved	Note(1)
Flammability	UL94 Class V-0	Approved	Approved	Note(1)
Visual/Mechanical	-	Approved	Approved	Note(1)
Salt Atmosphere	24 Hrs.	Approved	Approved	Note(1)
Manufacturability (MQ)	Assembly Site	Approved	Approved	Approved
Moisture Sensitivity	JEDEC L-1/260C	-	-	Approved
Moisture Sensitivity	JEDEC L-2/260C	Approved	Approved	-
Notes: * This device was previously classified at JEDEC L-2/260C. Subsequent testing has shown that this device is now classified at JEDEC L-1/260C.				
(1) NSE package qual data has been utilized				