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西新宿三井ビルディング

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お客様各位

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TI 台湾サイト HPA PowerPad製品のDie(チップ)接着材の変更のご案内  
(54 製品 追加認定連絡)

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拝啓 貴社益々ご清栄の事とお喜び申し上げます。平素は弊社製品のご愛顧を賜り、厚く御礼申し上げます。さて、標題の件につきまして下記にご連絡させていただきます。ご査収の程、宜しくお願い申し上げます。

敬具

－ 記 －

| 通知タイプ  | <input type="checkbox"/> Initial notice (Plan)                                                                                                | <input checked="" type="checkbox"/> Final notice                                                            |
|--------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------|
| 変更概要   | Design/Specification                                                                                                                          | <input type="checkbox"/> Design <input type="checkbox"/> Electrical <input type="checkbox"/> Mechanical     |
|        | Wafer Fab                                                                                                                                     | <input type="checkbox"/> Site <input type="checkbox"/> Process <input type="checkbox"/> Material            |
|        | Wafer Bump                                                                                                                                    | <input type="checkbox"/> Site <input type="checkbox"/> Process <input type="checkbox"/> Material            |
|        | <input checked="" type="checkbox"/> Assembly                                                                                                  | <input type="checkbox"/> Site <input type="checkbox"/> Process <input checked="" type="checkbox"/> Material |
|        | Test                                                                                                                                          | <input type="checkbox"/> Site <input type="checkbox"/> Process                                              |
|        | Others                                                                                                                                        | <input type="checkbox"/> Packing/Shipping/Labeling <input type="checkbox"/> -                               |
| 変更内容   | 下記変更について認定済 1 製品に加え 54 製品の追加認定の連絡になります。<br><br>TI 台湾サイト HPA PowerPad 製品の Die(チップ)接着材の変更<br>現行：チップ接着剤 EN408x<br>変更後：チップ接着剤 QMI529(熱伝導性の改善したもの) |                                                                                                             |
| 対象製品   | 対象製品リスト参照                                                                                                                                     |                                                                                                             |
| 変更時期   | 第二版追加認定品：8 月下旬の出荷より予定しています。                                                                                                                   |                                                                                                             |
| 品質認定試験 | <input type="checkbox"/> 計画                                                                                                                   | <input checked="" type="checkbox"/> 終了                                                                      |
| 製品表示   | <input checked="" type="checkbox"/> 変更無し                                                                                                      | <input type="checkbox"/> 変更あり                                                                               |
| 備考     | ――                                                                                                                                            |                                                                                                             |

尚、変更時期につきましては、在庫状況により異なりますので、担当営業にお問い合わせ下さい。また、ご不明な点、ご質問等がございましたら、担当営業或いは[pcn\\_tij@list.ti.com](mailto:pcn_tij@list.ti.com)にお問い合わせ下さい。

以上

## 変更内容

内容：2007年5月19日発行 初版の1製品の認定に加え54製品の追加認定の連絡になります。  
 弊社 HPA(ハイパフォーマンスアナログ) TI(台湾)サイト製造一部パッケージファミリー製品について、DIE(チップ)とPowerPad(リードフレーム)間の接着材に、現行チップ接着剤 EN408xを使用しておりますが、熱伝導性の向上を目的として、これに変わり チップ接着剤 QMI529へ変更し認定しました。  
 この変更では下記ピン/パッケージのPowerPad製品が対象です。

変更内容  
チップ接着剤

現行  
EN408x

変更後  
QMI529

| PowerPad 製品 |        |         |                    |
|-------------|--------|---------|--------------------|
| Package     | Pin    | Package | Pin                |
| DAD         | 32     | DAP     | 32                 |
| DCA         | 48     | DDV     | 44                 |
| DFD         | 56     | DWD     | 20                 |
| DWP         | 20, 28 | PAP     | 64                 |
| PFD         | 100    | PFP     | 80                 |
| PHP         | 48     | PJD     | 64                 |
| PJW         | 64     | PNP     | 128                |
| PWD         | 24     | PWP     | 14, 16, 20, 24, 28 |
| PZP         | 100    | RCP     | 64                 |
| RFP         | 144    | VFP     | 32                 |

また、弊社認定試験の結果を基に、対象製品の追加を今後予定しており、パッケージピン数などの組合せごとに認定結果を含め別途連絡させていただきます。

理由：熱伝導性の向上の為

## 対象製品リスト

| 対象製品名                             |                |                |                  |                |
|-----------------------------------|----------------|----------------|------------------|----------------|
| ■ (下線/右詰め): 認定終了品 ■: 追加認定品 □: 認定中 |                |                |                  |                |
| ADS1605IPAPT64                    | HPA00078PWR    | THS6012CDWPR   | TLK2521IRCP      | TPS2384APAPRG4 |
| ADS1606IPAPT64                    | HPA00114ADFDR  | THS6012CDWPRG4 | TLK2701IRCP      | TPS2384APJD    |
| ADS1610IPAPR                      | HPA00118ADFDR  | THS6012DWPR    | TLK2701IRCPG4    | TPS2384APJG4   |
| ADS1610IPAPRG4                    | HPA00122DDVR   | THS6012DWPRG4  | TLK2701IRCPR     | TPS2384APJDR   |
| ADS1610IPAPT                      | HPA00133DDV    | THS6032CDWP    | TLK2701IRCPRG4   | TPS2384APJDRG4 |
| ADS1610IPAPT64                    | HPA00133DDVR   | THS6032CDWPG4  | TLK2711IRCP      | TPS2384MPAP    |
| ADS1625IPAPRG4                    | HPA00134DDV    | THS6032CDWPR   | TLK2711IRCPG4    | TPS2384MPAPR   |
| ADS1625IPAPT64                    | L293DWP        | THS6032CDWPRG4 | TLK2711RCP       | TPS2384PAP     |
| ADS1626IPAPT64                    | L293DWP64      | THS6032CVFP    | TLK3101IRCPG4    | TPS2384PAPG4   |
| ADS2806Y/1K5G4                    | OPA561PWP64    | THS6032CVFPG4  | TMDS442PNP       | TPS2384PJD     |
| ADS2807Y/250G4                    | OPA564A1DWD    | THS6032CVFPR   | TMDS442PNPR      | TPS2384PJG4    |
| ADS5242IPAPG4                     | OPA564A1DWR    | THS6032CVFPRG4 | TNETD6012DWPG4   | TPS2384PJDR    |
| ADS5242IPAPT                      | OPA564A1DWP    | THS60321DWPR   | TNETE2201BG4     | TPS2384PJDRG4  |
| ADS5242IPAPT64                    | OPA564A1DWPR   | THS60321DWPRG4 | TNETE2201BG4R    | TPS40056PWP    |
| ADS5272IPFPG4                     | OPA569A1DWPG4  | THS60321VFP    | TNETE2201BPJW    | TPS40056PWP64  |
| ADS5272IPFPT                      | OPA569A1DWPR   | THS60321VFPG4  | TNETE2201BPJWG4  | TPS40056PWPR   |
| ADS5272IPFPTG4                    | OPA569A1DWPRG4 | THS60321VFPR   | TNETE2201BPJWR   | TPS40056PWPRG4 |
| ADS5273IPFPG4                     | PCM4108PAPR    | THS60321VFPRG4 | TNETE2201BPJWRG4 | TPS40077PWP    |
| ADS5273IPFPT                      | PCM4108PAPT    | THS6032TVFP    | TNETE2201BRG4    | TPS40077PWPR   |
| ADS5273IPFPTG4                    | PCXD9845MDDV   | THS6032TVFPR   | TPA005D12DCARG4  | TPS40195PWP    |
| ADS5277IPFPG4                     | PCXD9845MDDVR  | THS6132VFP     | TPA0102PWP64     | TPS40195PWPR   |
| ADS5277IPFPT                      | PCXD9879MDDV   | THS6132VFPG4   | TPA0202PWP64     | TPS41101PWP    |
| ADS5277IPFPTG4                    | PCXD9879MPFD   | THS6132VFPR    | TPA0202PWP64     | TPS41101PWPR   |
| ADS5412IPFP                       | PCXD9883MDDV   | THS6132VFPRG4  | TPA032D01DCARG4  | TPS54010PWP64  |
| ADS5440IPFPG4                     | PCXD9883MDDVR  | THS6182DWP     | TPA032D02DCAG4   | TPS54010PWPRG4 |

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|                  |                  |                 |                  |                  |
|------------------|------------------|-----------------|------------------|------------------|
| ADS54401PFPR     | PCXD9890QPZP     | THS6182DWPG4    | TPA032D02DCARG4  | TPS54550PWP      |
| ADS54401PFPRG4   | PGA8311PHPR      | THS6182DWPR     | TPA032D04DCARG4  | TPS54550PWPG4    |
| ADS54441PFP4     | PGA8311PHPT      | THS6182DWPRG4   | TPA1517DWP       | TPS54550PWPR     |
| ADS54441PFPRG4   | PSLK2531PZP      | THS6184PWP      | TPA1517DWPG4     | TPS54550PWPRG4   |
| ADS54631PFP      | PTAS5142DDV      | THS6184PWPR     | TPA1517DWPR      | TPS61030PWPG4    |
| ADS55101PAP      | PTAS5186ADDV     | T1V7327PHP      | TPA1517DWPRG4    | TPS65161PWPR     |
| ADS55101APR      | PTAS5186ADDVR    | T1V7327PHPR     | TPA2000D4DAPG4   | TPS65161PWPRG4   |
| ADS64431PAP      | PTAS5186DDV      | TLC5905PAPG4    | TPA2001D2PWPRG4  | TPS65161PWPT     |
| ADS808Y/250G4    | PTAS5186DDVR     | TLC5922DAPG4    | TPA2012D2PWP     | TPS70102PWPG4    |
| ADS808Y/2K       | PTHS60321DWP     | TLC5923DAPG4    | TPA2012D2PWPR    | TPS70145PWPG4    |
| ADS808Y/2KG4     | PTLC5924DAP      | TLC5923DAPRG4   | TPA3000D1APWPRG4 | TPS70148PWPG4    |
| ADS809Y/2K       | PTLK1211RCP      | TLC5924DAP      | TPA3001D1PWPG4   | TPS70151PWPG4    |
| ADS809Y/2KG4     | PTLK2521RCP      | TLC5924DAPR     | TPA3102D2DDV     | TPS70158PWPG4    |
| AFE8220PZP       | SN0205011RCPG4   | TLC5930PWPG4    | TPA3102D2DDVR    | TPS70202PWPG4    |
| AFE8221RFP       | SN0205034PWPRG4  | TLC5930PWPRG4   | TPA3107D2PAP     | TPS70245PWPG4    |
| AFE8264RFP       | SN0503027DDV     | TLK1201A1RCP    | TPA3107D2PAPR    | TPS70258PWPG4    |
| BUF05704A1PWPRG4 | SN0503027DDVG4   | TLK1201A1RCPG4  | TPA3120D2PWP     | TPS70302PWPG4    |
| BUF06704A1PWPG4  | SN0503027DDVR    | TLK1201A1RCPR   | TPA3120D2PWPR    | TPS70302PWPRG4   |
| BUF07704A1PWPG4  | SN0503027DDVRG4  | TLK1201A1RCPRG4 | TPA3300D2VFPR    | TPS70345PWPG4    |
| BUF07704A1PWPRG4 | SN0506002DFDR    | TLK1201ARCP     | TPA3300Q2VFP     | TPS70345PWPRG4   |
| BUF08800A1PWPR   | SN0506002DFDRG4  | TLK1201ARCPG4   | TPA6011A4PWPG4   | TPS70348PWPG4    |
| BUF11704A1PWPRG4 | SN0506100PWP     | TLK1201ARCPR    | TPA6019A4PWPG4   | TPS70348PWPRG4   |
| BUF11705A1PWPR   | SN05090451PZP    | TLK1201ARCPRG4  | TPA6120A2DWP     | TPS70351PWPG4    |
| BUF11705A1PWPRG4 | SN05090451PZPR   | TLK1201B1RCP    | TPA6120A2DWPG4   | TPS70358PWPG4    |
| BUF12800A1PWPRG4 | SN0602027DDV     | TLK1201BRCP     | TPA6120A2DWPR    | TPS70358PWPRG4   |
| BUF16820A1DAPRG4 | SN0602027DDVR    | TLK1201BRCPR    | TPPM0110DWP      | TPS70402PWPG4    |
| CXD9845AMDDV     | SN0606063DDV     | TLK1201RCP      | TPPM0110DWPG4    | TPS70402PWPRG4   |
| CXD9845AMDDVR    | SN0606063DDVR    | TLK1201RCPG4    | TPPM0110DWPR     | TPS70445PWPRG4   |
| CXD9845MADDV     | SN104921PWPRG4   | TLK1201RCPR     | TPPM0110DWPRG4   | TPS70448PWPRG4   |
| CXD9845MADDVR    | SN104960DWPR     | TLK1201RCPRG4   | TPPM0111DWP      | TPS70451PWPG4    |
| CXD9845MDDV      | SN105067RCP      | TLK1201RCP      | TPPM0111DWPG4    | TPS70451PWPRG4   |
| CXD9845MDDVR     | SN105067RCPG4    | TLK1201RCPG4    | TPPM0111DWPR     | TPS70458PWPG4    |
| CXD9879AMDDV     | SN105090PAPG4    | TLK1501RCPG4    | TPPM0111DWPRG4   | TPS70458PWPRG4   |
| CXD9879AMDDVR    | SN2005061000PWPR | TLK1501RCPR     | TPS2071DAPG4     | TPS70702PWPG4    |
| CXD9879Z1DDV     | SN200507031PWPR  | TLK1501RCPRG4   | TPS2071DAPRG4    | TPS70751PWPG4    |
| CXD9879Z2DDV     | SN200509045PZP   | TLK2201A1RCP    | TPS22051DAPRG4   | TPS70802PWPG4    |
| CXD9879Z3DDV     | SN200604011PJW   | TLK2201A1RCPR   | TPS2206ADAPRG4   | TPS70845PWPG4    |
| CXD9879ZDDV      | SN200604011PJWR  | TLK2201A1RCPRG4 | TPS22061DAPRG4   | TPS70851PWPG4    |
| CXD9883F1DDV     | SN20060585PHPR   | TLK2201ARCPG4   | TPS2216ADAPG4    | TPS70858PWPG4    |
| CXD9883F3DDV     | SN75LVDS88BPF    | TLK2201ARCPR    | TPS2216ADAPRG4   | TPS70948DWP      |
| CXD9890QPZP      | TAS5110ADADG4    | TLK2201ARCPRG4  | TPS2216DAPG4     | TPS70948DWPR     |
| CXD9890QPZPR     | TAS5110ADAG4     | TLK2201B1RCP    | TPS2216DAPRG4    | TPS70951DWP      |
| DAC56871PZPRG4   | TAS5110ADARG4    | TLK2201B1RCPG4  | TPS23750PWPG4    | TPS70951DWPR     |
| DRV104PWPRG4     | TAS5111ADADG4    | TLK2201B1RCPR   | TPS23750PWPRG4   | TPS71H33QPWPG4   |
| DRV401A1DWP      | TAS5111DADG4     | TLK2201B1RCPRG4 | TPS23760PWP      | TPS73HD301PWPG4  |
| DRV401A1DWPR     | TAS5142DDVG4     | TLK2201BRCP     | TPS23760PWPR     | TPS73HD301PWPRG4 |
| DRV590DWP        | TAS5142DDVR      | TLK2201BRCPG4   | TPS23761PWP      | TRFDRE09PAPG4    |
| DRV592VFP        | TAS5142DDVRG4    | TLK2201BRCPR    | TPS23761PWPR     | TRFDRE09APRG4    |
| DRV592VFPG4      | TAS5152DDV       | TLK2201BRCPRG4  | TPS23770PWPG4    | UCC2540PWPG4     |
| DRV593VFP        | THS6002CDWP      | TLK2201RCP      | TPS23770PWPRG4   | UCC2541PWPG4     |
| DRV593VFPG4      | THS6002CDWPG4    | TLK2201RCPG4    | TPS23841PAP      | UCC2541PWPRG4    |
| DRV593VFPR       | THS6002CDWPR     | TLK2201RCPG4    | TPS23841APR      | UCD7230PWP       |
| DRV593VFPRG4     | THS60021DWP      | TLK2201RCPR     | TPS23841PJD      | UCD7230PWPR      |
| DRV594VFP        | THS60021DWPR     | TLK2501RCPG4    | TPS23841PJDR     | VSP901RFP4       |
| DRV594VFPG4      | THS60021DWPRG4   | TLK2501RCPR     | TPS2384APAP      | XTPS41100PWP     |
| DRV594VFPR       | THS6012CDWP      | TLK2501RCPRG4   | TPS2384APAPG4    |                  |
| DRV594VFPRG4     | THS6012CDWPG4    | TLK2510RCPG4    | TPS2384APAPR     |                  |

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信頼性試験

信頼性試験結果

| 信賴性試驗結果                                         |                               |                |                |                 |        |
|-------------------------------------------------|-------------------------------|----------------|----------------|-----------------|--------|
| 信賴性試驗期間                                         | 開始                            | —              | 終了             | 2006 年 8 月 21 日 |        |
| 信賴性試驗 — 試料構成詳細                                  |                               |                |                |                 |        |
| Qualification Device:                           | 6960BEA0PAPG4                 | DAC5675IPHP    | SN105108PJP    | THS8083APZP     |        |
| Die Rev/Size(mils) :                            | BE / 135x143                  | A / 125x139    | F / 122x119    | B / 224x225     |        |
| Transistor Count:                               | --                            | 10,000         | --             | --              |        |
| Wafer Fab Site:                                 | MIHO8                         | FFAB           | HFAB           | MIHO            |        |
| Technology:                                     | Bi-CMOS                       | RFBICMOS       | Bi-CMOS        | CMOS            |        |
| Fab Process:                                    | LBC6                          | RFBICMOS1      | LBC4           | 33A12           |        |
| Passivation:                                    | 6KHDP/14K PE-TEOS/10KACN      | 10KACN         | --             | --              |        |
| Assembly Site:                                  | PHI                           | TAI            | TAI            | TAI             |        |
| Package / Pin Count:                            | PAP / 64                      | PHP / 48       | PJP / 64       | PZP / 100       |        |
| Mold Compound:                                  | SHI KMC3580HB                 | Shi KMC3580HB  | Shi KMC3580HB  | Shi KMC3580HB   |        |
| Mount Compound:                                 | Hen QMI529HT                  | Hen QMI529HT   | Hen QMI529HT   | Hen QMI529HT    |        |
| Bond:                                           | Au TI-24.3um                  | TS -0.95mil Au | TS -1.3mils Au | TS -0.95mil Au  |        |
| L/F Composition / Finish:                       | Cu / NiPdAu                   | Cu / NiPdAu    | Cu / NiPdAu    | Cu / NiPdAu     |        |
| Moist Sens Level:                               | Level 3-260C                  | Level 3-260C   | Level 3-260C   | Level 3-260C    |        |
| BOAC/COA Type:                                  | BOAC                          | None           | BOAC           | None            |        |
| Qualification Device:                           | TLK1501IRCP                   | TNETD7103AVFP  | TPA3004D2PHP   |                 |        |
| Die Rev/Size(mils):                             | B / 98x103                    | J / 131x131    | A /181x181     |                 |        |
| Wafer Fab Site:                                 | ANAM                          | DFAB           | DFAB           |                 |        |
| Technology:                                     | CMOS                          | Bi-CMOS        | LBC            |                 |        |
| Fab Process:                                    | C10                           | BICOM2         | LBC3           |                 |        |
| Passivation:                                    | --                            | --             | 10KACN         |                 |        |
| Assembly Site:                                  | TAI                           | TAI            | TAI            |                 |        |
| Package / Pin Count:                            | RCP / 64                      | VFP / 32       | PHP / 48       |                 |        |
| Mold Compound:                                  | Shi KMC3580HB                 | Shi KMC3580HB  | Shi KMC3580HB  |                 |        |
| Mount Compound:                                 | Hen QMI529HT                  | Hen QMI529HT   | Hen QMI529HT   |                 |        |
| Bond:                                           | TS -0.95mil Au                | TS -0.95mil Au | TS -1.15 Au    |                 |        |
| L/F Composition / Finish:                       | Cu / NiPdAu                   | Cu / NiPdAu    | Cu / NiPdAu    |                 |        |
| Moist Sens Level:                               | Level 3-260C                  | Level 2 -260C  | Level 4-260C   |                 |        |
| BOAC/COA Type:                                  | None                          | None           | BOAC           |                 |        |
| 信賴性試驗結果                                         |                               |                |                |                 |        |
| 6960BEA0PAPG4                                   |                               |                |                |                 |        |
| Test Type                                       | Condition/Duration            |                | Lot -1         | Lot -2          | Lot -3 |
| **Life Test, 125C                               | 1000 Hours                    |                | 116/0          | 116/0           | 116/0  |
| Die Shear                                       | -                             |                | 5/0            |                 |        |
| Manufacturability                               | (per mfg. Site specification) |                | Pass           | Pass            | Pass   |
| **HAST 130C/85% RH                              | 96 Hours                      |                | 90/0           | 90/0            | 90/0   |
| **Autoclave 121C                                | 240 Hours                     |                | 77/0           | 77/0            | 77/0   |
| X-ray                                           | (top side only)               |                | Pass           |                 |        |
| **Temp Cycle, -65/150C                          | 2000 cycles                   |                | 77/0           | 77/0            | 77/0   |
| **Thermal Shock -65/150C                        | 1000 cycles                   |                | 77/0           | 77/0            | 77/0   |
| **Storage Bake 170C                             | 420 Hours                     |                | 77/0           | 77/0            | 77/0   |
| Moisture Sensitivity                            | Level 3 - 260C, JEDEC         |                |                | 12/0            |        |
| Thermal Path Integrity, JEDEC                   | Level 3 - 260C                |                |                | 12/0            |        |
| Bond Strength                                   | --                            |                | 76/0           |                 |        |
| ** preconditioning sequence: JEDEC Level 3@260C |                               |                |                |                 |        |

| 信頼性試験結果                                         |                               |        |        |        |        |
|-------------------------------------------------|-------------------------------|--------|--------|--------|--------|
| DAC5675IPHP                                     |                               |        |        |        |        |
| Test Type                                       | Condition/Duration            | Lot -1 | Lot -2 | Lot -3 |        |
| **Life Test, 155C                               | 240 Hours                     | 116/0  | 116/0  | 116/0  |        |
| Die Shear                                       | -                             | 5/0    | 5/0    | 5/0    |        |
| Manufacturability                               | (per mfg. Site specification) | Pass   | Pass   | Pass   |        |
| **Autoclave 121C                                | 240 Hours                     | 77/0   | 77/0   | 77/0   |        |
| X-ray                                           | (top side only)               | Pass   | Pass   | Pass   |        |
| **Temp Cycle, -65/150C                          | 2000 cycles                   | 77/0   | 77/0   | 77/0   |        |
| **Thermal Shock -65/150C                        | 1000 cycles                   | 77/0   | 77/0   | 77/0   |        |
| **Storage Bake 170C                             | 420 Hours                     | 77/0   | 77/0   | 77/0   |        |
| Moisture Sensitivity                            | Level 3 – 260C, JEDEC         | 12/0   |        |        |        |
| Thermal Path Integrity, JEDEC                   | Level 3 – 260C                | 12/0   |        |        |        |
| Bond Strength                                   | --                            | 22/0   | 22/0   | 22/0   |        |
| ** preconditioning sequence: JEDEC Level 3@260C |                               |        |        |        |        |
| SN105108PJP                                     |                               |        |        |        |        |
| Test Type                                       | Condition/Duration            | Lot -1 | Lot -2 | Lot -3 | Lot -4 |
| **Life Test, 155C                               | 240 Hours                     | 116/0  | 116/0  |        | 116/0  |
| Manufacturability                               | (per mfg. Site specification) |        |        | Pass   |        |
| **HAST 130C/85% RH                              | 96 Hours                      | 77/0   | 77/0   |        | 77/0   |
| **Autoclave 121C                                | 240 Hours                     | 77/0   |        |        | 75/0   |
| **Autoclave 121C                                | 96 Hours                      |        | 77/0   |        |        |
| X-ray                                           | (top side only)               |        |        | Pass   |        |
| **Temp Cycle, -65/150C                          | 1000 cycles                   | 77/0   | 77/0   |        | 76/0   |
| **Thermal Shock -65/150C                        | 1000 cycles                   | 77/0   | 77/0   |        | 76/0   |
| **Storage Bake 170C                             | 420 Hours                     | 77/0   | 77/0   |        | 77/0   |
| Moisture Sensitivity                            | Level 3 - 260C, JEDEC         |        |        |        | 12/0   |
| Thermal Path Integrity, JEDEC                   | Level 3 - 260C                |        |        |        | 12/0   |
| Bond Strength                                   | --                            |        |        | 22/0   |        |
| ** preconditioning sequence: JEDEC Level 3@260C |                               |        |        |        |        |
| THS8083APZP                                     |                               |        |        |        |        |
| Test Type                                       | Condition/Duration            | Lot -1 | Lot -2 | Lot -3 | Lot -4 |
| Die Shear                                       | -                             | 5/0    | 5/0    | 5/0    |        |
| Manufacturability                               | (per mfg. Site specification) | Pass   | Pass   | Pass   |        |
| **Autoclave 121C                                | 240 Hours                     | 77/0   | 77/0   | 77/0   |        |
| X-ray                                           | (top side only)               | Pass   | Pass   | Pass   |        |
| **Temp Cycle -65/150C                           | 1000 cycles                   | 77/0   | 77/0   | 77/0   |        |
| **Thermal Shock -65/150C                        | 1000 cycles                   | 77/0   | 77/0   | 77/0   |        |
| **Storage Bake 170C                             | 420 Hours                     | 77/0   | 77/0   | 77/0   |        |
| Moisture Sensitivity                            | Level 3 - 260C, HIR           |        |        |        | 11/0   |
| Thermal Path Integrity, HIR                     | Level 3 - 260C                |        |        |        | 11/0   |
| Bond Strength                                   | --                            | 22/0   | 22/0   | 22/0   |        |
| ** preconditioning sequence: JEDEC Level 3@260C |                               |        |        |        |        |
| TLK1501IRCP                                     |                               |        |        |        |        |
| Test Type                                       | Condition/Duration            | Lot -1 | Lot -2 | Lot -3 |        |
| Die Shear                                       | -                             | 5/0    | 5/0    | 5/0    |        |
| Manufacturability                               | (per mfg. Site specification) | Pass   | Pass   | Pass   |        |
| **Autoclave 121C                                | 240 Hours                     | 77/0   | 77/0   | 76/0   |        |
| X-ray                                           | (top side only)               | Pass   | Pass   | Pass   |        |
| **Temp Cycle, -65/150C                          | 2000 cycles                   | 77/0   | 77/0   | 77/0   |        |
| **Thermal Shock -65/150C                        | 1000 cycles                   | 77/0   | 77/0   | 77/0   |        |
| **Storage Bake 170C                             | 420 Hours                     | 77/0   | 77/0   | 77/0   |        |
| Moisture Sensitivity                            | Level 3 - 260C, JEDEC         | 12/0   |        |        |        |
| Thermal Path Integrity, JEDEC                   | Level 3 - 260C                | 12/0   |        |        |        |
| Bond Strength                                   | -                             | 22/0   | 22/0   | 22/0   |        |
| ** preconditioning sequence: JEDEC Level 3@260C |                               |        |        |        |        |

| TNETD7103AVFP                                   |                               |        |        |        |
|-------------------------------------------------|-------------------------------|--------|--------|--------|
| Test Type                                       | Condition/Duration            | Lot -1 | Lot -2 | Lot -3 |
| **Life Test, 140C                               | 480 Hours                     | 116/0  | 116/0  | 116/0  |
| Die Shear                                       | -                             | 5/0    | 5/0    | 5/0    |
| Manufacturability                               | (per mfg. Site specification) | Pass   | Pass   | Pass   |
| **HAST 130C/85% RH                              | 96 Hours                      | 78/0   | 78/0   | 78/0   |
| **Autoclave 121C                                | 240 Hours                     | 77/0   | 77/0   | 77/0   |
| X-ray                                           | (top side only)               | Pass   | Pass   | Pass   |
| **Temp Cycle, -65/150C                          | 2000 cycles                   | 77/0   | 77/0   | 77/0   |
| **Thermal Shock -65/150C                        | 1000 cycles                   | 77/0   | 77/0   | 77/0   |
| **Storage Bake 170C                             | 420 Hours                     | 77/0   | 77/0   | 77/0   |
| Moisture Sensitivity                            | Level 3 - 260C, JEDEC         |        |        | 12/0   |
| Bond Strength                                   | --                            | 22/0   | 22/0   | 22/0   |
| ** preconditioning sequence: JEDEC Level 2@260C |                               |        |        |        |
| TPA3004D2PHP                                    |                               |        |        |        |
| Test Type                                       | Condition/Duration            | Lot -1 | Lot -2 | Lot -3 |
| Die Shear                                       | -                             | 5/0    | 5/0    | 5/0    |
| Manufacturability                               | (per mfg. Site specification) | Pass   | Pass   | Pass   |
| **Autoclave 121C                                | 240 Hours                     | 77/0   | 77/0   | 77/0   |
| X-ray                                           | (top side only)               | Pass   | Pass   | Pass   |
| **Temp Cycle, -65/150C                          | 2000 cycles                   | 77/0   | 77/0   | 77/0   |
| **Thermal Shock -65/150C                        | 1000 cycles                   | 77/0   | 76/0   | 77/0   |
| **Storage Bake 170C                             | 420 Hours                     | 77/0   | 77/0   | 77/0   |
| Moisture Sensitivity                            | Level 4 - 260C, JEDEC         | 12/0   |        |        |
| Thermal Path Integrity, JEDEC                   | Level 3 - 260C                | 12/0   |        |        |
| Bond Strength                                   | --                            | 22/0   | 22/0   | 22/0   |
| ** preconditioning sequence: JEDEC Level 4@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 8 月 17 日 |
| 信頼性試験 — 試料構成詳細                                  |                               |                |                |                 |
| Qualification Device:                           | TAS5186ADDV                   | THS7530PWP     | TPA1517DWP     |                 |
| Die Rev/Size(mils) :                            | A / 113x274                   | A / 71x54      | D / 129x109    |                 |
| Wafer Fab Site:                                 | DMOS5                         | FFAB           | SFAB           |                 |
| Technology:                                     | Bi-CMOS                       | Bi-CMOS        | Bi-POLAR       |                 |
| Fab Process:                                    | LBC5                          | BICOM3         | JI2            |                 |
| Assembly Site:                                  | TAI                           | TAI            | TAI            |                 |
| Package / Pin Count:                            | DDV / 44                      | PWP / 14       | DWP / 20       |                 |
| Mold Compound:                                  | Shi KMC3580HB                 | Shi KMC3580HB  | Shi KMC3580HB  |                 |
| Mount Compound:                                 | Hen QMI529HT                  | Hen QMI529HT   | Hen QMI529HT   |                 |
| Bond:                                           | TS -1.98mil Au                | TS -0.95mil Au | TS -1.98mil Au |                 |
| L/F Composition / Finish:                       | Cu / NiPdAu                   | Cu / NiPdAu    | Cu / NiPdAu    |                 |
| Moist Sens Level:                               | Level 3-260C                  | Level 2-260C   | Level 2-260C   |                 |
| BOAC/COA Type:                                  | BOAC                          | None           | None           |                 |
| Qualification Device:                           | TPS54010PWP                   | TPS54672PWP    | TPS61030PWP    |                 |
| Die Rev/Size(mils) :                            | A / 84x250                    | A / 84x189     | C / 84x79      |                 |
| Wafer Fab Site:                                 | DFAB                          | DFAB           | FFAB           |                 |
| Technology:                                     | Bi-CMOS                       | Bi-CMOS        | --             |                 |
| Fab Process:                                    | LBC4                          | LBC4           | A12            |                 |
| Assembly Site:                                  | TAI                           | TAI            | TAI            |                 |
| Package / Pin Count:                            | PWP / 28                      | PWP / 28       | PWP / 16       |                 |
| Mold Compound:                                  | Shi KMC3580HB                 | Shi KMC3580HB  | Shi KMC3580HB  |                 |
| Mount Compound:                                 | Hen QMI529HT                  | Hen QMI529HT   | Hen QMI529HT   |                 |
| Bond:                                           | TS -1.98mil Au                | TS -1.98mil Au | TS -1.3mils Au |                 |
| L/F Composition / Finish:                       | Cu / NiPdAu                   | Cu / NiPdAu    | Cu / NiPdAu    |                 |
| Moist Sens Level:                               | Level 2-260C                  | Level 2-260C   | Level 2-260C   |                 |
| BOAC/COA Type:                                  | BOAC                          | BOAC           | BOAC           |                 |
| 信頼性試験結果                                         |                               |                |                |                 |
| TAS5186ADDV                                     |                               |                |                |                 |
| Test Type                                       | Condition/Duration            | Lot -1         | Lot -2         | Lot -3          |
| Die Shear                                       | -                             | 5/0            | 5/0            | 5/0             |
| Manufacturability                               | (per mfg. Site specification) | Pass           | Pass           | Pass            |
| **Autoclave 121C                                | 240 hours                     | 77/0           | 77/0           | 77/0            |
| X-ray                                           | (top side only)               | Pass           | Pass           | Pass            |
| **Temp Cycle , -65/150C                         | 1000 cycles                   | 77/0           | 77/0           | 77/0            |
| **Thermal Shock, -65/150C                       | 1000 cycles                   | 77/0           | 77/0           | 77/0            |
| **Storage Bake, 170C                            | 420 hours                     | 77/0           | 77/0           | 77/0            |
| Moisture Sensitivity                            | Level 3-260C JEDEC            | 12/0           |                |                 |
| Thermal Path Integrity, JEDEC                   | Level 3-260C                  | 12/0           |                |                 |
| Bond Strength                                   | 76 ball bonds, min. 3 units   | 76/0           | 76/0           | 76/0            |
| ** preconditioning sequence: HIR Level 3@260C   |                               |                |                |                 |
| THS7530PWP                                      |                               |                |                |                 |
| Test Type                                       | Condition/Duration            | Lot -1         |                |                 |
| **Life Test, 125C                               | 1000 hours                    | 116/0          |                |                 |
| Manufacturability                               | (per mfg. Site specification) | Pass           |                |                 |
| **HAST 130C/85%RH                               | 96 hours                      | 77/0           |                |                 |
| **Autoclave 121C                                | 240 hours                     | 76/0           |                |                 |
| **Temp Cycle , -65/150C                         | 2000 cycles                   | 77/0           |                |                 |
| **Thermal Shock, -65/150C                       | 1000 cycles                   | 77/0           |                |                 |
| **Storage Bake, 150C                            | 1000 hours                    | 77/0           |                |                 |
| Moisture Sensitivity                            | Level 1-260C, JEDEC           | 12/0           |                |                 |
| Thermal Path Integrity, JEDEC                   | Level 1-260C                  | 12/0           |                |                 |
| ** preconditioning sequence: JEDEC Level 1@260C |                               |                |                |                 |

| 信頼性試験結果                                                                                                      |                               |                     |        |        |
|--------------------------------------------------------------------------------------------------------------|-------------------------------|---------------------|--------|--------|
| TPA1517DWP                                                                                                   |                               |                     |        |        |
| Test Type                                                                                                    | Condition/Duration            | Lot -1              | Lot -2 | Lot -3 |
| **Life Test, 155C                                                                                            | 240 hours                     | 103/0               | 115/0  | 115/0  |
| Die Shear                                                                                                    | -                             | 5/0                 | 5/0    | 5/0    |
| Manufacturability                                                                                            | (per mfg. Site specification) | Pass                | Pass   | Pass   |
| **HAST 130C/85%RH                                                                                            | 96 hours                      | 77/0                | 77/0   | 77/0   |
| **Autoclave 121C                                                                                             | 240 hours                     | 77/0                | 77/0   | 77/0   |
| X-ray                                                                                                        | (top side only)               | Pass                | Pass   | Pass   |
| **Temp Cycle , -65/150C                                                                                      | 2000 cycles                   | 77/0                | 77/0   | 76/0   |
| **Thermal Shock, -65/150C                                                                                    | 1000 cycles                   | 77/0                | 77/0   | 77/0   |
| **Storage Bake, 170C                                                                                         | 420 hours                     | 77/0                | 77/0   | 77/0   |
| Moisture Sensitivity                                                                                         | Level 2-260C, JEDEC           | 12/0                |        |        |
| Thermal Path Integrity, JEDEC                                                                                | Level 2-260C                  | 12/0                |        |        |
| Bond Strength                                                                                                | --                            | 40/0                | 40/0   | 40/0   |
| ** preconditioning sequence: HIR Level 2@260C                                                                |                               |                     |        |        |
| TPS54010PWP                                                                                                  |                               |                     |        |        |
| Test Type                                                                                                    | Condition/Duration            | Lot -1              |        |        |
| Manufacturability                                                                                            | (per mfg. Site specification) | Pass                |        |        |
| **Autoclave 121C                                                                                             | 240 hours                     | 74/0                |        |        |
| **Temp Cycle , -65/150C                                                                                      | 1000 cycles                   | 76/0                |        |        |
| **Thermal Shock, -65/150C                                                                                    | 1000 cycles                   | 77/1 <sup>(1)</sup> |        |        |
| Moisture Sensitivity                                                                                         | Level 1-260C, JEDEC           | 11/0                |        |        |
| Thermal Path Integrity, JEDEC                                                                                | Level 1-260C                  | 11/0                |        |        |
| ** preconditioning sequence: JEDEC Level 1@260C                                                              |                               |                     |        |        |
| <sup>(1)</sup> 1 fail at 1000cy -65/150C thermal shock. F/A showed Damaged PO. No related to Mount compound. |                               |                     |        |        |
| TPS54672PWP                                                                                                  |                               |                     |        |        |
| Test Type                                                                                                    | Condition/Duration            | Lot -1              | Lot -2 |        |
| **Life Test, 155C                                                                                            | 240 hours                     | 112/0               |        |        |
| Manufacturability                                                                                            | (per mfg. Site specification) |                     | Pass   |        |
| **HAST 130C/85%RH                                                                                            | 96 hours                      | 56/0                |        |        |
| **Autoclave 121C                                                                                             | 240 hours                     | 75/0                |        |        |
| **Temp Cycle , -65/150C                                                                                      | 2000 cycles                   | 72/0                |        |        |
| **Thermal Shock, -65/150C                                                                                    | 1000 cycles                   | 72/0                |        |        |
| **Storage Bake, 150C                                                                                         | 1000 hours                    | 65/0                |        |        |
| Moisture Sensitivity                                                                                         | Level 1-260C, JEDEC           | 12/0                |        |        |
| Thermal Path Integrity, JEDEC                                                                                | Level 1-260C                  | 12/0                |        |        |
| ** preconditioning sequence: JEDEC Level 1@260C                                                              |                               |                     |        |        |
| TPS61030PWP                                                                                                  |                               |                     |        |        |
| Test Type                                                                                                    | Condition/Duration            | Lot -1              |        |        |
| **Life Test, 155C                                                                                            | 240 hours                     | 116/0               |        |        |
| Manufacturability                                                                                            | (per mfg. Site specification) | Pass                |        |        |
| **HAST 130C/85%RH                                                                                            | 96 hours                      | 77/0                |        |        |
| **Autoclave, 121C                                                                                            | 240 hours                     | 77/0                |        |        |
| **Temp Cycle , -65/150C                                                                                      | 1000 cycles                   | 77/0                |        |        |
| **Thermal Shock, -65/150C                                                                                    | 1000 cycles                   | 77/0                |        |        |
| **Storage Bake, 175C                                                                                         | 500 hours                     | 77/0                |        |        |
| Moisture Sensitivity                                                                                         | Level 1-260C, JEDEC           | 12/0                |        |        |
| Thermal Path Integrity, HIR                                                                                  | Level 1-260C                  | 12/0                |        |        |
| Thermal Path Integrity, JEDEC                                                                                | Level 1-260C                  | 11/0                |        |        |
| ** preconditioning sequence: JEDEC Level 1@260C                                                              |                               |                     |        |        |