TAIWAN SEMICONDUCTOR

**Taiwan Semiconductor Co. Ltd.**
**11Fl., No. 205, Sec. 3, Beishin Rd.**
**Xindian Dist., New Taipei City 231**
**Taiwan, R.O.C.**
Tel.:+886 2 8913 1588
Fax: +886 2 8913 1788
www.taiwansemi.com

# Process Change Notification

This is to inform you that a design and/or process change will be implemented to the affected product(s) and this notification is for your information and concurrence. This change is planned to take effect in 90 calendar days from the date of this notification.

Please work with your local Taiwan Semiconductor Sales Representative to manage your inventory of unchanged product if your evaluation of this change will require more than 90 calendar days.

Please contact your local Taiwan Semiconductor Field Quality Service or Customer Quality Engineer within 45 days of receipt of this notification if you require any additional data or samples.

**PCN No: PCN24003 rev0**
**Title:** Changing supplier and product datasheet revision for SOP-8
**Issue Date: 2024/6/4**

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

**PCN Coordinator**
Name : Sunnie Lin
E-Mail : sunnie.lin@ts.com.tw
Phone: +886-2-8913-1588 Ext: 2205

**PCN Originator**
Name : Melinda Luo
E-Mail : Melinda_luo@mail.tew.com.cn
Phone: 0086-22-59816699 Ext: 2032

**Reliability Engineer**
Name : Aiping Zhang
E-Mail : aiping@mail.tew.com.cn
Phone: 0086-22-59816699 Ext: 2034

**PCN Type**:
Changing supplier and product datasheet revision for SOP-8

**Effectivity:**
Expected 1st device shipment date: 2024/9/2
Last Order Date: 2024/12/2
Last Delivery Date: 2025/12/1

**Product Category (Description):**
Affected parts of SOP-8 provided by Taiwan Semiconductor Co. Ltd.

**Description of Change:**
This PCN is being issued to inform TSC customers of qualifying a new supplier for affected SOP-8 devices. In addition, the new supplier uses different raw material in the production compared with old supplier. For the details, please see table of BOM difference.
The corresponding datasheets are revised to align with TSC new format.
This will ensure the continuity of supply and guarantee commitment on customer service and satisfaction.

1.Supplier

| Item | From | To | Remarks |
|---|---|---|---|
| Supplier Code (factory code) | 3467(B) | 3250(Q) | New Source |

2.BOM:

| Item | Supplier(3467) | Supplier(3250) | Remarks |
|---|---|---|---|
| Wafer | TSM4925DCS: (CR)<br>TSM4936/4953/9409: (P) | TSM4936DCS: (CW)<br>TSM4925/4953/9409: (U) | Different |
| Lead frame | A194 | A194 | Same material, different supplier |
| Epoxy | Ag | Ag | Same |
| Wire bond | Cu Wire | Cu Wire | Same material, different supplier |
| Compound | CEL-9240 | EME-G630AY | Different but with the same MSL level |
| Plating | Pure Sn | Pure Sn | Same material, different supplier |

3. Packing information:

| Item | Packing Code | Reel Size | Reel (pcs) | Box (pcs) | Carton (pcs) | Carton Size (mm) | MSL Level |
|---|---|---|---|---|---|---|---|
| From | RLG | 13" Plastic | 2,500 | 5,000 | 25,000 | 383x360x300 | MSL 3 |
| To | RLG | 13" Plastic | 2,500 | 5,000 | 40,000 | 520x390x360 | MSL 3 |

4. Product Datasheet Revisions

| Item | From | To |
|---|---|---|
| Datasheet | 1. Old POD drawing<br>2. Old datasheet format<br>3. Parametric specification, details see comparison report | 1. Modify POD drawing to align with JEDEC standard<br>2. Change to new format<br>3. Parametric specification, details see comparison report |

Remark: Detailed information in the comparison report will be provided upon customer request.

## Qualification and Reliability Result:

| NO. | Test | Test Conditions/ Standard | No. of Lots | Sample Size | Result |
|---|---|---|---|---|---|
| 1 | Preconditioning | JESD22A-113<br>1.Baking 125℃ 24H<br>2.30℃ 60%RH 192H<br>3.Reflow 260℃ 3× | 3 | 77 | PASS |
| 2 | High Temperature Reverse Bias | JESD22-A108, MIL-STD-750 M1038 Tj=Tjmax, at least 80% rated VDS, 1000Hours | 3 | 77 | PASS |
| 3 | Temperature Cycling | JESD22-A104 -55(-10/+0)°C/15min to 150(+15/-0)°C/15min, 1000 cycles | 3 | 77 | PASS |
| 4 | Unbiased Highly Accelerated Stress Test | JESD22-A118, Ta=130°C, 85%RH, 96hrs | 3 | 77 | PASS |
| 5 | Highly Accelerated Stress Test | JESD22-A110, 130°C/85% RH; V=80% VR; 42V max, 192 Hours | 3 | 77 | PASS |
| 6 | Intermittent Operational Life | JESD22A122, Ta=25°C; ΔTj=100°C; 2.0 min on/off，15000 cycles | 3 | 77 | PASS |
| 7 | Resistance to Solder Heat | JESD22-A111 SMD Pb free: 260(+5/-0)°C , 10+2-0 sec | 3 | 30 | PASS |
| 8 | High Temperature Storage Gate Bias | JESD22-A103<br>150℃（+10，-0），1000Hrs | 3 | 77 | PASS |
| 9 | High Temperature Gate Bias | JESD22-A108<br>150°C; V=100% rated Vgs, 1000Hrs | 3 | 77 | PASS |
| 10 | Destructive Physical Analysis | AEC-Q101-004 TC passed choose 1 lot 2pcs HAST or H3TRB passed choose 1lot 2 pcs;Visual inspection,SAM,X-ray,de-capsulation than Visual inspection | 3 | 4 | PASS |
| 11 | Thermal Resistance | JESD24, per product datasheet | 1 | 5 | PASS |
| 12 | Solderability | J-STD-002 245 °C ± 5 °C (Pb-free) 5sec | 3 | 10 | PASS |
| 13 | Wire Bond Shear | MIL-STD-750 per assembly spec | 3 | 10 | PASS |
| 14 | Wire Bond Pull | MIL-STD-750 per assembly spec | 3 | 10 | PASS |
| 15 | Die Shear | MIL-STD-750-2 per assembly spec | 3 | 5 | PASS |
| 16 | Parametric Verification | Product Datasheet, Test over the part temp range | 3 | 10 | PASS |
| 17 | ESD characterization | HBM, JS-001per product spec | 3 | 30 | Cap：200V~600V |
| | | CDM, JS-002 per product spec | 3 | 30 | Cap：1000V |

**Conclusion:** The new supplier successfully passed consumer product reliability requirement.

## Identification and Traceability:

| Item | Identification |
|---|---|
| Traceability | Lot number on the label |

## Effect of Change:

There is no impact in product electrical specification, functionality, quality and reliability. This change will guarantee Taiwan Semiconductor commitment on customer service and satisfaction through continuous improvement.

## List of Affected Devices:

| Family | Package | TSC P/N |
|---|---|---|
| P-Channel Power MOSFET | SOP-8 | TSM4925DCS RLG |
| N-Channel Power MOSFET | SOP-8 | TSM4936DCS RLG |
| P-Channel Power MOSFET | SOP-8 | TSM4953DCS RLG |
| P-Channel Power MOSFET | SOP-8 | TSM9409CS RLG |