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PRODUCT INFORMATION NOTIFICATION

PIN: PIN135253

Date: December 13, 2013

Subject: Qualification of New Tray and Tape & Reel Materials

To: JAMIE PEDERSON
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Change Type: Minor

Description of Change:

Cypress has qualified new tray and tape & reel (TNR) materials, with applications as below:

| SITE | MATERIAL | SUPPLIER | QUAL REPORT | APPLICATION |
|-------------|--------------|----------|-------------|--|
| ASE | Tray | ASE | 131403 | 16L QFN 3mm x 3mm package |
| ASE | Carrier Tape | Hwa Shu | 124103 | 16L QFN 3mm x 3mm package |
| ASE | Lock Reel | Hwa Shu | 124103 | Packages that use 12mm width tape |
| ASE | Cover Tape | Hwa Shu | 124103 | Packages that use 12mm width tape |
| ASE | Cover Tape | Advantek | 131703 | Packages that use 12/16/24/32/44 mm width tape |
| ChipMos | Cover Tape | Advantek | 131702 | Packages that use 12/16/24/32/44 mm width tape |
| KYEC | Cover Tape | Advantek | 130806 | Packages that use 12/16/24/32/44 mm width tape |
| CML/Telford | Cover Tape | Advantek | 131401 | Packages that use 12/16/24/32/44 mm width tape |

The newly qualified tray has a modified pocket to improve unit placement and stability needed during assembly until product shipment. Refer to the tray comparison below:

| | CURRENT TRAY | NEWLY QUALIFIED TRAY |
|------------------------------|---------------|----------------------|
| Tray Supplier | Kostat | ASE |
| Top pocket length & width | 3.18 ± 0.05mm | 3.15 ± 0.05mm |
| Top pocket depth | 1.40 ± 0.08mm | 1.40 ± 0.08mm |
| Bottom pocket length & width | 3.18 ± 0.05mm | 3.15 ± 0.05mm |
| Bottom pocket depth | 1.45 ± 0.08mm | 1.45 ± 0.08mm |
| Tray gap for double unit | 0.25mm | 0.25mm |

No changes were made to the following attributes:

- # Temperature rating
- # Number of units per tray
- # Unit orientation on tray
- # Tray material
- # Color
- # Stacking height

- # Length and width
- # JEDEC compliance

The newly qualified carrier tape has an identical carrier tape pocket design and dimension as the current carrier tape, except for the pocket depth tolerance, which Hwa Shu controls to a tighter ± 0.10 mm. Refer to the carrier tape comparison below:

| | CURRENT CARRIER TAPE | NEWLY QUALIFIED CARRIER TAPE |
|-----------------------|----------------------|------------------------------|
| Carrier Tape Supplier | Avantek | Hwa Shu |
| Material Thickness | 0.30 ± 0.05 mm | 0.30 ± 0.05 mm |
| Tape Width | 12.0 ± 0.30 mm | 12.0 ± 0.30 mm |
| Pocket Width | 8.00 ± 0.10 mm | 8.00 ± 0.10 mm |
| Sprocket Hole Pitch | 4.00 ± 0.10 mm | 4.00 ± 0.10 mm |
| Pocket Width | 3.30 ± 0.10 mm | 3.30 ± 0.10 mm |
| Pocket Length | 3.30 ± 0.10 mm | 3.30 ± 0.10 mm |
| Pocket Depth | 0.90 ± 0.20 mm | 0.90 ± 0.10 mm |

No changes were made to the following attributes:

- # Unit orientation on carrier pocket
- # Color of carrier tape
- # Length and width
- # EIA compliance

The newly qualified lock reel is identical to the current lock reel except that it is thicker for better protection of units during handling and transportation. There is also a tighter tolerance on the internal hub width for better control of carrier tape inside the reel and the color has changed. This new lock reel is also compliant to EIA standard. Refer to the below lock reel comparison:

| | CURRENT LOCK REEL | NEWLY QUALIFIED LOCK REEL |
|--------------------|---|---|
| Lock Reel Supplier | Peak | Hwa Shu |
| Lock Reel Design | Std with 3 openings for handling and better control of reel warpage | Std with 3 openings for handling and better control of reel warpage |
| Material Type | Polystyrene, anti-static | Polystyrene, anti-static |
| Material Thickness | 0.50mm | 1.80 ± 0.20 mm |
| Color | Black | Blue |
| Lock Reel Diameter | 13 inch | 13 inch |
| Hub Diameter | 7 inch | 7 inch |
| Internal Hub Width | $12.4 +2.0 / -0.0$ mm | $12.8 +0.03 / -0.2$ mm |

The newly qualified cover tape is identical to the current cover tape, except for the color. The newly qualified cover tape is transparent allowing for better inspection of units inside the sealed carrier tape. This newly qualified cover tape is available in the standard 300m length, and follows EIA standard. Refer to the below cover tape comparison:

| | CURRENT COVER TAPE | NEWLY QUALIFIED COVER TAPE |
|----------------------|-----------------------------|-----------------------------|
| Cover Tape Supplier | Avantek | Hwa Shu |
| Material Type | Anti-static, heat activated | Anti-static, heat activated |
| Material Thickness | 0.056 ± 0.005 mm | 0.056 ± 0.005 mm |
| Cover Tape Width | 9.20 ± 0.10 mm | 9.20 ± 0.10 mm |
| Inside Core Diameter | 76.20mm | 76.20mm |
| Color | Transparent pale blue | Transparent |

The new materials (tray, carrier tape, cover tape and lock reel) have been qualified to have a second source local supplier.

Cypress has also qualified a new cover tape type from Advantek (Cypress qualified supplier), to be used for Tape and Reel shipments. This HUB type cover tape was modified to have lesser peel back force range and improved sealing performance. This cover tape also features a higher transparency which is an advantage for visual inspection of units inside the sealed carrier tape pockets. Below is the current and HUB type cover tape width comparison:

| Carrier Tape Width | CURRENT Cover tape | | NEWLY QUALIFIED Cover tape | | REMARKS |
|--------------------|--------------------|------------|----------------------------|-------------|---------------------------------------|
| | AA Type | Color | HUB Type | Color | |
| 12.0mm | 9.2 +/- 0.1mm | Light Blue | 9.2 +/- 0.1mm | Transparent | Same width dimension. HUB is clearer. |
| 16.0mm | 13.3 +/- 0.1mm | Light Blue | 13.3 +/- 0.1mm | Transparent | Same width dimension. HUB is clearer. |
| 24.0mm | 21.3 +/- 0.1mm | Light Blue | 21.3 +/- 0.1mm | Transparent | Same width dimension. HUB is clearer. |
| 32.0mm | 25.5 +/- 0.1mm | Light Blue | 25.5 +/- 0.1mm | Transparent | Same width dimension. HUB is clearer. |
| 44.0mm | 37.5 +/- 0.1mm | Light Blue | 37.5 +/- 0.1mm | Transparent | Same width dimension. HUB is clearer. |

No changes made to the following attributes:

- # Shelf life: 24 months
- # Storage: Environment 20°C - 25°C and relative humidity 50°C - 75°C
- # Unit orientation on carrier pocket
- # Carrier tape material
- # Color of carrier tape
- # Length and width
- # EIA compliance

Benefit of Change:

Aside from the advantages of the newly qualified materials mentioned above, the supplier provides better technical support and shorter material delivery time. The ASE Tray and Hwa Shu factories are located in Kaohsiung Taiwan. The local vendor can provide immediate support for any technical or material shipment problem that may cause production downtime.

Advantek HUB type cover tape will improve the sealed carrier/cover tape Peel Back Force Test performance. This is also a Green material compliant (Halogen free), higher transparency for better visual inspection of units inside the sealed carrier tape.

Affected Part Numbers:

Affected Parts:

1944. Please see the attachment for the parts list.

Qualification Status:

These changes are qualified through a series of tests detailed in the Qualification Test Plan reports in the first table in this letter. The QTP reports can be found in the attachment to this notification or by visiting www.cypress.com, typing the QTP number in the search window, and clicking on the magnifying glass icon.

Approximate Implementation Date:

This change will be implemented from the date of this notification.

Anticipated Impact:

No anticipated impact. The new materials have been certified to be equivalent to the current materials from a functional and quality performance perspective.

Cypress recommends that customers take this opportunity to review these changes against their current pick & place programs and equipment parameters to assess if any minor adjustments are needed.

Method of Identification:

The new materials can be identified by external visual inspection:

Tray: Tray name "ASE" is written on the tab of the tray.

Tape & Reel Materials: The name "Hwa Shu" can be seen on the actual carrier tape, cover tape and lock reel.

Cover Tape: Advantek HUB cover tape is natural non-pigment in white plastic core. Part number (which starts in "HUB") is written in the inner part of the white plastic core.

Cypress also maintains traceability of product using the lot number as reference, which is also marked on the package.

Response Required:

This is an information only announcement. No response is required.

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

Sincerely,

Cypress PCN Administration