Tray Pocket Design Change Proposal for 7x7x1.0 mm QFN packages (from ITW 40707-15-1026-9 or PEAK TX QFN0707 1.0 1026 6 Rev D to Peak TXQFN0707 1.0 1026 6 Rev H)

Freescale Semiconductor
August 2013
Summary of Change

• Freescale has qualified an improved shipment tray design for 7x7x1.0 mm QFN packages.

• The new tray has an improved pocket design which minimizes the rotational free play for the device whilst in the tray.

• Only one Critical Dimension Change:
  - Small dimensional change to Z-height seating plane
    ▪ ITW to Peak Rev H: 0.20mm deeper
    ▪ Peak Rev D to Peak Rev H: 0.15mm deeper

• Non-Critical Changes:
  - Tray Pocket Fence design
  - End-Tab markings
  - Color strip removal (for Peak Rev D tray)
  - Anti-reverse/interlock design & location

• Note: NO CHANGE to pocket pitch and matrix
Tray Qualification Testing Results - PASSED

- Dimensional qualification (Tray’s length, width, thickness, pocket pitch)
- Stacked Tray Alignment
- Surface Resistivity
- 3-Point Bending
- Bake / Warpage
- Strapping
- Drop
- Functional Line
Tray Pocket Features
(Pocket Fence)

- Peak TX QFN0707 1.0 1026 6 REV.D (Current)
  - Side Fence Support on Top
  - Corner Fence Support on Bottom

- ITW 40707-15-1026-9 (Current)
  - Corner Fence Support on Top
  - Side Fence Support on Bottom

- Peak TX QFN0707 1.0 1026 6 REV.H (Proposed)
  - Multi-Fence Support on Top
  - Multi-Fence Support on Bottom
### Pocket Cavity Dimensions

**Pocket Dimensions & Tolerances**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peak TX QFN0707 1.0 1026 6 REV.D (Current)</td>
<td></td>
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<tr>
<td>- Pocket openings on top and bottom is at 7.25+/−0.08mm.</td>
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<tr>
<td>- Pocket depths of 1.55mm and 1.85mm on top and bottom respectively.</td>
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<tr>
<td>ITW 40707-15-1026-9 (Current)</td>
<td></td>
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<tr>
<td>Peak TX QFN0707 1.0 1026 6 REV.H (Proposed)</td>
<td></td>
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<tr>
<td>- Optimized pocket openings on top and bottom as per PODs given by most customers.</td>
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<tr>
<td>- Balance design with pocket depths of 1.70mm on top and bottom.</td>
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</tbody>
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**Only one critical dimension change:** Z-seating height is deeper by 0.15mm (from TX QFN0707 1.0 1026 6 REV.D) and 0.20mm (from 40707-15-1026-9)
Non-Critical Features
(End Tab Marking, Stripe Color, etc)

- **Peak TX QFN0707 1.0 1026 6 REV.D (Current)**
  - Tray chamfer (orientation)
  - Silkscreen thickness = 3mm +/- 0.5
  - Tray Sidenotch
  - Distance from side-notch = 30mm +/- 1
  - 150°C MAX

- **ITW 40707-15-1026-9 (Current)**
  - Tray chamfer (orientation)
  - No stripe
  - Tray Sidenotch
  - 40707-15-1026-9 REV F 150°C MAX SMA-9

- **Peak TX QFN0707 1.0 1026 6 REV.H (Proposed)**
  - Tray chamfer (orientation)
  - No stripe
  - Tray Sidenotch
  - 150°C MAX

- **Peak TX QFN0707 1.0 1026 6 REV.H (Proposed)**
  - Tray chamfer (orientation)
  - No stripe
  - Tray Sidenotch
  - 150°C MAX
Other Non-Critical Features
(Anti-reverse / Interlocks)

• Peak TX QFN0707 1.0 1026 6 REV.D

• ITW 40707-15-1026-9 (Current)

• Peak TX QFN0707 1.0 1026 6 REV.H (Proposed)
Benefit – Minimize rotational free-play

**Top Pocket**

Current:
ITW 40707-15-1026-9

Proposed:
Peak TX
QFN0707 1.0
1026 6 REV.H

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**Bottom Pocket**

Current:
Peak TX
QFN0707 1.0
1026 6 REV.D

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3.608°
3.293°

1.949°
2.584°