Customer Change Notification
For Agilent Technologies Customers

CCN: 082100TC1

Notification Date: August 21, 2000

This CCN announces that Agilent is qualifying two different Subcontractors simultaneously. They will be referred to as Subcontractor A and Subcontractor B.

Subcontractor A, Parts Affected:

All of the Agilent Technologies RF and Microwave Semiconductor products in SOT-23 & 143 packages referenced in Appendix 1.

Extent of Changes, Subcontractor A

Agilent Technologies is transferring assembly and test manufacturing packaging processes and equipment to Subcontractor A. This subcontractor is already performing package trim, form, singulate and plating processes. The remaining processes, die attach, wire bond, mold, final test and tape & reel, will be transferred in phases and is expected to be complete by the end of December 2000. During the transition period, Agilent Technologies will continue to manufacture products until the transfer has been completed. Customers may receive parts from either manufacturing facility during this period of time.

Since there is no change in materials (including semiconductors) or processes, there is no change in form, fit or function. The subcontractor will manufacture all the SOT-23 & 143 products according to the same electrical and physical dimension specifications. Agilent Technologies will ensure appropriate process controls and monitors are in place to continue providing high quality products. Subcontractor operators will be given proper quality training and certified to Agilent Technologies’ standards of manufacturing process operations.

Reasons For Change, Subcontractor A:

This change is being made to increase production capacity and to improve customer deliveries. Subcontractor A was selected because of its proven capability. Subcontractor A has been successfully operating package trim, form, singulate and plate since August 1999. Appropriate qualifications are being performed to ensure continued high quality and performance.

Note: Reliability qualification data will be available upon request.

Effective Date of Change, Subcontractor A:

Depending on inventory levels and order rates, shipments of the first product built at this new subcontractor could begin as early as November 1, 2000. Products manufactured by either Agilent or Subcontractor A may be shipped to customers for up to one year after the date of change.
# Appendix 1: List of Part Numbers For Subcontractor A

## SOT-23 & 143 Products

<table>
<thead>
<tr>
<th>Standard Part Numbers</th>
<th>Special Part Numbers</th>
</tr>
</thead>
<tbody>
<tr>
<td>AT-XXX11</td>
<td>AT-XXX33</td>
</tr>
<tr>
<td>HSMP-38xN</td>
<td>HSMP-48xN</td>
</tr>
<tr>
<td>HSMS-2xxN</td>
<td></td>
</tr>
<tr>
<td>HBAT-54xN</td>
<td></td>
</tr>
<tr>
<td>INA-XXX11</td>
<td></td>
</tr>
<tr>
<td>MSA-XX11</td>
<td></td>
</tr>
<tr>
<td></td>
<td>QSBT-XXXX</td>
</tr>
<tr>
<td></td>
<td>QSMP-XXXX</td>
</tr>
<tr>
<td></td>
<td>QSMS-XXXX</td>
</tr>
<tr>
<td></td>
<td>QMSA-XXXX</td>
</tr>
<tr>
<td></td>
<td>SMA90-XXXX</td>
</tr>
<tr>
<td></td>
<td>SMA92-XXXX</td>
</tr>
</tbody>
</table>

Note: HBAT, HSMP and HSMS-xxxN part numbers ending with a Numeric character are SOT-23 or SOT-143. Part numbers ending with an alpha character are not included in this CCN.
**Subcontractor B: Parts Affected:**
SOT-143 Surface Mount Schottky and PIN diodes

**Subcontractor B: List of Part Numbers**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Part Number</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>HSMS-2805</td>
<td>HSMS-2825</td>
<td>HSMS-8207</td>
</tr>
<tr>
<td>HSMS-2807</td>
<td>HSMS-2827</td>
<td>HSMS-8208</td>
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<td>HSMS-2828</td>
<td>HSMS-8209</td>
<td>HSMS-8215</td>
</tr>
<tr>
<td>HSMS-2829</td>
<td>HSMS-2855</td>
<td>HSMS-2817</td>
</tr>
<tr>
<td>HSMS-2818</td>
<td>HSMS-2865</td>
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<tr>
<td>QSMS-2860</td>
<td>QSMS-2900</td>
<td>QSMS-2913</td>
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<tr>
<td>QSMS-2848</td>
<td>QSMS-2930</td>
<td>QSMS-2869</td>
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<tr>
<td>QSMS-2843</td>
<td>QSMS-2829</td>
<td>QSMS-2870</td>
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<tr>
<td>QSMS-2930</td>
<td>QSMS-2893</td>
<td>QSMS-2915</td>
</tr>
<tr>
<td>QSMS-2833</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HSMP-3895</td>
<td></td>
<td></td>
</tr>
<tr>
<td>QSMP-0033</td>
<td>QSMP-0034</td>
<td>QSMP-0012</td>
</tr>
<tr>
<td>QSMP-0020</td>
<td>QSMP-0027</td>
<td>QSMP-0035</td>
</tr>
</tbody>
</table>

**Subcontractor B: Extent of Change:**
Subcontractor B is being qualified as an alternate manufacturer for the above products. While these products will continue to be manufactured using Agilent Technologies’ processes, the same part numbers may also be manufactured at Subcontractor B for supplemental capacity. Customers may receive parts from either manufacturing facility. Additional information on the subcontractor is shown in Appendix 2.

Both facilities will manufacture to the same electrical specifications and will continue to use the same silicon diode chips made by Agilent’s wafer fab. The subcontractor packaging will have minor physical dimensional differences. Please refer Appendix 3 for physical outline comparison between Agilent and subcontractor built units. RF electrical differences will be minor, as found in Agilent’s earlier SOT-23 alternative manufacturer qualification of the same subcontractor. Please refer to Agilent Customer Change Notification, CCN#0323000TC2 for Agilent’s earlier SOT-23 change notice. Device marking will also be the same for both manufacturers. The first two digits identify the product. The marking codes are listed on the data sheet. The third digit identifies the month of manufacture. The date code matrix can be found on the web at [http://www.agilent.com/view/scr](http://www.agilent.com/view/scr). Look for “Mechanical and Packaging Information” at the bottom of the web page for the specific device.

**Subcontractor B: Reasons For Change:**
This change is being made to increase production capacity and to improve customer deliveries. The subcontractor was selected based on past proven capability and history of manufacturing other Agilent Technologies products. Appropriate qualifications are being performed to ensure continued high quality and performance. Please see Appendix 2 for the details of the reliability qualification tests conducted.

**Subcontractor B: Effective Date of Change:**
Depending on inventory levels and order rates, shipments of product built at the new subcontractor could begin as early as November 1, 2000.
Approved by Tad Custer

Worldwide Product Manager

Your local Agilent Technologies Technical Response Center, Field Sales Engineer, Authorized Representative, or Distributor will provide assistance, should you have any questions regarding this change.

Approved by Lexie Kekoa

Quality/Reliability Engineer
Appendix 2: Subcontractor B Information

- Qualified by HP/Agilent Technologies since 1994. They are located in Malaysia, not far from the Agilent Manufacturing facility.

- Agilent Technologies products already in production at this subcontractor are IAM-8x008, IVA-xxx08, HPMX-200x, MSA-xx86, SOT-323 and SOT-23.

- Experience in high volume manufacturing for Small Outline Transistor packages: SOT-23, 143, 323, 343, and 363.

- ISO-9000 certified and in the process of getting QS-9000 certification.
XXX - package marking.
All dimensions in millimeters.
Drawings are not in scale.
Appendix 4

SOT-23/143 Sub-Contractor Process Qualification Report

Prepared By :
Quality and Reliability Engineering
Agilent Technologies Malaysia

Summary

The manufacturing of SOT-23/143 at the subcontractor, involves similar processes and equipment used in the SOT-323 product line. Agilent Technologies Malaysia has completed the process qualification of the subcontractor for Agilent Technologies SOT-323 (SC70 3 leads) Schottky and PIN Surface Mount diodes. The following report summarises the process qualification of the subcontractor for Agilent Technologies’ SOT-323 Schottky and PIN Surface Mount diodes. Based on the extensive reliability tests done on the samples, Agilent QA qualifies the subcontractor as the alternate manufacturer of Agilent Technologies’ SOT-323 (SC70 3 leads) Schottky & PIN diodes. By similarity, the subcontractor is simultaneously qualified as an alternate manufacturer of SOT-23/143 Schottky & PIN diodes. SOT-23 is 3 leads whereas SOT-143 is 4 leads diode.

Qualification Report

Five individual reliability stress tests were used to assess the reliability of packages built in subcontractor. An initial JEDEC Level 1 Moisture Preconditioning tests consisting of 168 hours of 85°C/85%RH followed by 3X IR using JEDEC recommended IR profile.

a) Temperature Cycling (TMCL)
b) Autoclave
c) Unbiased 85/85 (WHTS)
d) High Temperature Storage and
e) High Temperature Reverse Biased.
Summary of SUBCONTRACTOR B: Qualification Result

<table>
<thead>
<tr>
<th>Stress Test</th>
<th>Test Point</th>
<th>HSMS-282C Subcon</th>
<th>HSMS-282C Agilent</th>
<th>HSMP-389F Subcon</th>
<th>HSMP-389F Agilent</th>
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</thead>
<tbody>
<tr>
<td>1. TMCL (-65/150C)</td>
<td>200X</td>
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<td>0/100</td>
<td>0/100</td>
<td>0/100</td>
</tr>
<tr>
<td></td>
<td>500X</td>
<td>0/100</td>
<td>0/100</td>
<td>0/100</td>
<td>0/100</td>
</tr>
<tr>
<td></td>
<td>1000X</td>
<td>0/100</td>
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<td>0/100</td>
<td>0/100</td>
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<tr>
<td>2. Unbiased autoclave</td>
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<td>0/52</td>
<td>0/52</td>
</tr>
<tr>
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<td>48 hrs</td>
<td>0/52</td>
<td>0/52</td>
<td>0/52</td>
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</tr>
<tr>
<td></td>
<td>96 hrs</td>
<td>0/52</td>
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<tr>
<td>3. WHTS (85C/85%RH)</td>
<td>168 hrs</td>
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<td>0/100</td>
<td>0/100</td>
<td>0/100</td>
</tr>
<tr>
<td></td>
<td>500 hrs</td>
<td>0/100</td>
<td>0/100</td>
<td>0/100</td>
<td>0/100</td>
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<tr>
<td></td>
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<tr>
<td>4. HTRB (V_r=80% V_{BR}) (Temp = 150C)</td>
<td>168 hrs</td>
<td>0/100</td>
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<td>5. HTSL (Temp = 150C)</td>
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</tr>
</tbody>
</table>

All units survived 1000 hours reliability stress tests without any process-related failures.

**Conclusion**

Based on the extensive reliability tests done on the samples, Agilent QA qualifies this subcontractor as an alternate manufacturer of SOT-323 (SC70 3 lead) Schottky & PIN diodes. By similarity, this subcontractor is simultaneously qualified as an alternate manufacturer of SOT-23/143 Schottky & PIN diodes as well.