DuPont 6277
SILVER/PALLADIUM CONDUCTOR

Product Description
DuPont 6277 is a general purpose microcircuit conductor offering excellent adhesion, fired density and wide processing latitude. It has been designed to give high yields and to be cost-effective in demanding, commercial circuit applications.

Product Benefits
- High thermal cycle and long term aged adhesion
- Broad process latitude: insensitive to firing temperature, profile, refiring and thickness
- Excellent solderability
- Compatible with DuPont QS87 Resistor Series

Processing
Printing
DuPont 6277 prints easily using 200-325 mesh stainless steel screens with a 10-15 µm emulsion, at printing speeds up to 25 cm/s (10 in/s).

Drying
Allow prints to level for 5-10 minutes at room temperature. Then dry for 10-15 minutes at 150°C, in a well ventilated oven or belt dryer.

Firing
Fire in well ventilated moving conveyor furnace, in air with a 30-60 minute cycle to a peak temperature of 850°C.

Typical Physical Properties

<table>
<thead>
<tr>
<th>Test</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistivity (mΩ/sq @ 15 µm)</td>
<td>&lt;18</td>
</tr>
<tr>
<td>Fired Thickness (µm)</td>
<td>13-17</td>
</tr>
<tr>
<td>Solder Acceptance^2 on Al₂O₃</td>
<td>Excellent</td>
</tr>
<tr>
<td>Solder Leach Resistance^3 on Al₂O₃</td>
<td>6-8 cycles</td>
</tr>
<tr>
<td>Adhesion^4</td>
<td></td>
</tr>
<tr>
<td>Initial (N) after 5000 thermal cycles (N)</td>
<td>34</td>
</tr>
<tr>
<td>after 3000 hours at 150°C (N)</td>
<td>19</td>
</tr>
<tr>
<td>&gt;18</td>
<td></td>
</tr>
<tr>
<td>Line Resolution</td>
<td></td>
</tr>
<tr>
<td>Lines/spaces using 125µm/125µm</td>
<td>140-110</td>
</tr>
</tbody>
</table>

Compatibility
No significant shifts in Resistivity or TCR when used to terminate QS87 Resistors.

Composition Properties

<table>
<thead>
<tr>
<th>Test</th>
<th>Properties</th>
</tr>
</thead>
<tbody>
<tr>
<td>Viscosity (Pa.S) (Brookfield HBT, UC&amp;SP, #14, 10 rpm, 25°C)</td>
<td>120-180</td>
</tr>
<tr>
<td>Thinner</td>
<td>DuPont 4553</td>
</tr>
</tbody>
</table>

1 Excellent characterized as greater than 95%, wetting smooth solder film after 5 seconds dip in 62Sn/36Pb/2Ag solder at 220°C using mildly-activated flux. Equivalent results for 30 or 60 minute firing profiles.

2 Cycle consists of dip in mildly-activated flux (Alpha 611), 10-second dip in solder (62Sn/36Pb/2Ag solder at 230°C) and washing off flux residue. Equivalent results for 30 or 60 firing profiles.

3 90° wire peel test on 2 mm x 2 mm pads soldered with 62Sn/36Pb/2Ag solder at 220°C and mildly-activated flux. Equivalent results for 30 or 60 firing profiles. Average values are stated.

4 Thermal Cycle Conditions: ±40/+125°C with 30 minutes at each temperature and approximately 10 minute transition time between temperatures.

This table show anticipated typical physical properties for DuPont 6277 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.
Storage and Shelf Life

Containers should be stored, tightly sealed, in a clean, stable environment at room temperature (<25°C). Shelf life of material in unopened containers is six months from date of shipment. Some settling of solids may occur and compositions should be thoroughly mixed prior to use.

Safety and Handling

For Safety and Handling information pertaining to this product, read the Material Safety Data Sheet (MSDS).

Typical 30 minutes fire profile

For more information on DuPont 6277 or other DuPont Microcircuit Materials products, please contact your local representative:

America
DuPont Microcircuit Materials
14 T.W. Alexander Drive
Research Triangle Park, NC 27709
Tel.: 800-284-3382

Europe
Du Pont (U.K.) Limited
Coldharbour Lane
Bristol BS16 1QD
U.K.
Tel.: 44-117-931-3191

Asia
DuPont Kabushiki Kaisha
Sanno Park Tower, 11-1 Nagata-cho 2-chome
Chiyoda-ku, Tokyo 100-611
Japan
Tel.: 81-3-5521-8650

DuPont Taiwan Ltd
45, Hsing-Pont Road,
Taoyuan, Taiwan 330
Tel.: 886-3-377-3616

DuPont China Holding Co. Ltd
Bldg 11, 399 Keyuan Rd., Zhangji Hi-Tech Park,
Pudong New District, Shanghai 201203, China
Tel.: 86-21-6386-6366 ext.2202

DuPont Korea Inc.
3~5th Floor, Asia tower #726,
Yeoksam-dong, Gangnam-gu
Seoul 135-719, Korea
Tel.: 82-10-6385-5399

E. I. DuPont India Private Limited
7th Floor, Tower C, DLF Cyber Greens,
Sector-25A, DLF City, Phase-III,
Gurgaon 122 002 Haryana, India
Tel.: 91-124-4091818

Du Pont Company (Singapore) Pte Ltd
1 HarbourFront Place, #11-01
HarbourFront Tower One,
Singapore 098633
Tel.: 65-6586-3022

http://mcm.dupont.com

Copyright © 2009 DuPont. All rights reserved. The DuPont Oval, DuPont™, The miracles of science™, Green Tape™ and all products or words denoted with ® or ™ are registered trademarks or trademarks of E. I. du Pont de Nemours and Company or its affiliates ("DuPont"). NO PART OF THIS MATERIAL MAY BE REPRODUCED, STORED IN A RETRIEVAL SYSTEM OR TRANSMITTED IN ANY FORM OR BY ANY MEANS ELECTRONIC, MECHANICAL, PHOTOCOPYING, RECORDING OR OTHERWISE WITHOUT THE PRIOR WRITTEN PERMISSION OF DUPONT.

Caution: Do not use in medical applications involving implantation in the human body or contact with internal body fluids or tissue unless the product is provided by DuPont under a formal written contract consistent with the DuPont Policy Regarding Medical Applications of DuPont Materials H-50102-2 ("Medical Applications Policy") and which expressly acknowledges the contemplated use. For additional information, please request a copy of DuPont Medical Caution Statement H-50102-2 and the DuPont Medical Applications Policy.

The information provided herein is offered for the product user’s consideration and examination. While the information is based on data believed to be reliable, DuPont makes no warranties, expressed or implied as to the data’s accuracy or reliability and assumes no liability arising out of its use. The data shown are the result of DuPont laboratory experiments and are intended to illustrate potential product performance within a given experimental design under specific, controlled laboratory conditions. While the data provided herein falls within anticipated normal range of product properties based on such experiments, it should not be used to establish specification limits or used alone as the basis of design. It is the product user’s responsibility to satisfy itself that the product is suitable for the user’s intended use. Because DuPont neither controls nor can anticipate the many different end-uses and end-use and processing conditions under which this information and/or the product described herein may be used, DuPont does not guarantee the usefulness of the information or the suitability of its products in any given application. Users should conduct their own tests to determine the appropriateness of the products for their particular purpose.

The product user must decide what measures are necessary to safely use the product, either alone or in combination with other products, also taking into consideration the conditions of its facilities, processes, operations, and its environmental, health and safety compliance obligations under any applicable laws.

This information may be subject to revision as new knowledge and experience become available. This publication is not to be taken as a license to operate under, or recommendation to infringe any patent.