

DuPont 5081 & 5082

SILVER BRAZING LOW-TEMPERATURE BRAZE SYSTEM

Technical Data Sheet

Product Description

DuPont 5081 and DuPont 5082 braze systems constitute a two-component, all thick film paste system designed to facilitate the use of high-temperature solders and low-temperature braze alloys on:

- Low-temperature cofire ceramic
- Alumina
- Multilayer hybrid circuits

Product Benefits

When used with standard brazing preform or paste alloys, DuPont 5081 and DuPont 5082 offer the following benefits:

- High strength, high reliability attachment mechanism
- Hermetic packaging
- Compatibility with thick film resistors, as well as all conventional IC and lid attach processes

Processing

DuPont 5081

Print DuPont 5081 onto fired substrate using a 325 mesh, 0.5 mil emulsion screen.

Dry in air at 150°C for 15 - 20 minutes.

Fire using recommended profile. Total fired thickness should be 12~15µm.

DuPont 5082

Print DuPont 5082 directly on top of the fired DuPont 5081 print using a 280 to 325 mesh, 0.5 mil emulsion screen.

Dry in air at 150°C for 15 minutes.

Repeat previous print and dry step. Ensure DuPont 5082 completely covers the DuPont 5081 print.

**Table 1
Typical Fired Properties**

	5081	5082
Thickness (µm)	12 - 15	≥ 20
Resistivity (mΩ/sq)	<5	<5
PGA Reliability ^(a)		
Thermal Cycle ^(b) , N (lb)	65 (15)	65 (15)
Thermal Aging ^(c) , N (lb)	65 (15)	65 (15)
Seal Ring Reliability ^(d)		
Atm. cm ³ /s	<10 ⁻⁸	<10 ⁻⁸

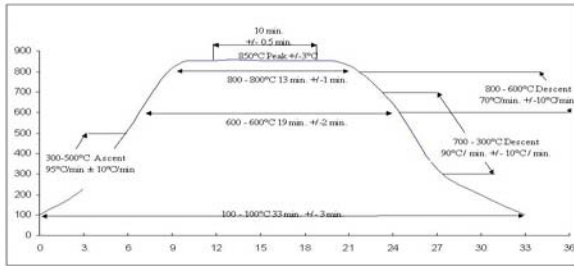
**Table 2
Composition Properties**

	5081	5082
Coverage, cm ² /g ^(e)	70	90
Viscosity, Pa·s @25°C (2xHA SC4-14/6R@10RPM)	70 - 130	225 - 325
Thinner	DuPont 7502	DuPont 9180
<small>^(a) Average tensile pull strength of a pin in a standard pin grid array (PGA) brazed to DuPont Green Tape™ 951. PGA consists of 1.8 mm diameter pad of DuPont 5081/DuPont 5082 and a 400µm diameter Kovar pin with a 800µm diameter nail head. 80Au/20Sn Braze preform ^(b) 200 cycles, -40°C to +125°C. ^(c) 200 hours in air at 150°C. ^(d) Helium leak test to Kovar seal ring on Green Tape™ 951, 100 thermal cycles, -25°C to +85°C. ^(e) At 25µm wet print thickness.</small>		

Table 1 and 2 show anticipate typical properties for DuPont 5081 and DuPont 5082 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of

Fire using recommended profile. Total DuPont 5082 fired thickness should be a minimum of 20µm. The thickness of the DuPont 5082 depends on the type of brazing alloy and brazing temperature used.

Typical 30 minute Furnace Profile



DUPONT

Attachment

Once the substrate has been prepared with DuPont 5081 and DuPont 5082, pins, window frames, or heat sinks may be attached with braze alloy, performs, or pastes. Brazing is performed in a nitrogen or nitrogen/hydrogen atmosphere using fixtures that position the attachment and braze alloy directly on top of the DuPont 5081/5082 metallization. Specific application details are contained in the "Brazing Guidelines" data sheet.

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).

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-50103-2 ("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.

For more information on DuPont 5081 & 5082 or other DuPont Microcircuit Materials products, please contact your local representative:

Americas

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
DuPont Electronic Center
KSP R&D B213, 2-1, Sakado 3-chome, Takatsu-ku,
Kawasaki-shi, Kanagawa, 213-0012, Japan

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>



The miracles of science™

MCM5081&5082 (10/2013)