

DuPont 7484F

PALLADIUM/SILVER CONDUCTOR

Technical Data Sheet

Product Description

DuPont 7484F palladium/silver conductor composition is intended to be applied to ceramic substrates by screen printing and fired in a conveyor furnace in an air atmosphere to form interconnection tracks and pads for component and lead attachment, in hybrid microcircuits and networks.

Product Benefits

- Excellent fine line resolution
- Thin, dense fired films
- Limited spreading after printing
- Fireable on 30 or 60 minutes 850°C profiles
- Excellent solderability on Alumina, DuPont 5704 Dielectric and DuPont QM44
- Excellent aged adhesion on Alumina, DuPont 5704 Dielectric and DuPont QM44

Design Notes

When processed under recommended conditions, DuPont 7484F causes no significant shifts in resistivity or TCR when used to terminate DuPont 1900 and DuPont QS80 series resistors. DuPont 7484F is compatible with DuPont 5704 dielectric when separately fired. Cofiring of DuPont 7484F on top of DuPont 5704 is not recommended. Overlaps of DuPont 7484F Pd/Ag with DuPont 6160 Ag on top of DuPont 5704 dielectric: depending on the sequence and the number of firing some blistering may occur. Overlaps of DuPont 7484F with DuPont 5723 Au on top of DuPont 5704: print DuPont 7484F over DuPont 5723 to avoid blistering.

Drying

Allow prints to level for 5-10 minutes at room temperature followed by drying for 10-15 minutes at 150°C in a well ventilated oven or conveyor dryer.

Typical Physical Properties

Test	Properties
Viscosity (Pa.s) (Brookfield HBT 5X Cone and Plate, [#51 cone], 1rpm, 25°C)	300 - 410
Coverage (cm ² /g) Based on fired thickness of 11µm	85 - 95
Shrinkage (%) Wet to Dry Dried to Fired	≈ 40 ≈ 50
Thinner	DuPont 7502

Typical Fired Conductor Properties

Fired Thickness (µm)	8 - 13
Print resolution ¹ (x1 firing) [lines/space µm]	≥ 100
Resistivity on alumina (mΩ/sq) [@12 µm fired thickness]	15 - 30
Solder Acceptance ² (%) 62Sn/36Pb/2Ag @ 220°C	≥ 96 Coverage
Solder Leach Resistance 62Sn/Pb/Ag @ 230°C	≥ 7 cycles
Adhesion (x5 firings) ³ [N] Initial Aged 1000hrs @150°C	≥ 20 ≥ 20

¹ Finest lines are best achieved using a 200 or 290 threads per inch mesh screen with 20 µm diameter wires.

² Using Alpha 611 flux. Solder coverage measured after a 5s dip in solder. A leaching cycle is represented by a 10 s dip in solder and tested um lines.

³ 90° wire peel test on 2mm x 2mm pads soldered with 62Sn/36Pb/2Ag solder at 220°C and using mildly-activated, Alpha 611.

This table show anticipated typical physical properties for DuPont 7484F based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

Printing

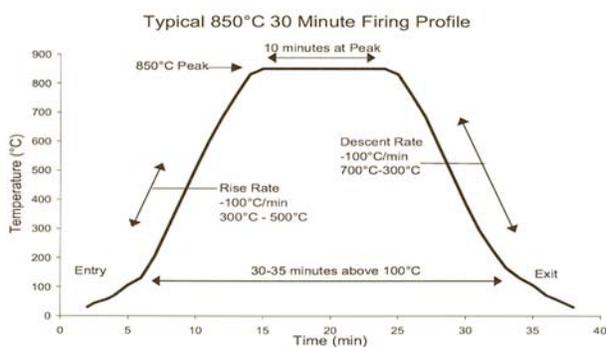
Conductor compositions DuPont 7484F should be thoroughly mixed before use. This is best achieved by slow, gentle, hand stirring with a clean, burr-free spatula (flexible plastic) for 1-2 minutes. Care must be taken on avoid air-bubble entrapment. Printing should be carried out in a clean, well-ventilated area.

A 325-mesh stainless steel screen with a 12µm emulsion thickness is normally suggested. 200 mesh screens, can be used but will result in greater fired thickness.

Note: Optimum printing characteristics of DuPont 7484 are generally achieved in the temperature range 20-23°C. It is therefore important that the material, in its container, is at this temperature prior to printing.

Firing

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



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).



The miracles of science™

For more information on DuPont 7484F 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

Tel: +81-44-820-7575

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

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.



The miracles of science™

MCM7484F (10/2013)