

DuPont 4593

SILVER/PALLADIUM/PLATINUM CONDUCTOR

Technical Data Sheet

Product Description

DuPont 4593 silver/palladium/platinum conductor is for use in thick film microcircuits, which require high resistance to solder leaching and silver migration. It exhibits excellent solder acceptance on alumina substrates and over thick film dielectric.

Processing Printing

Print with 200-325 mesh stainless steel screens with 0.5 mil emulsion.

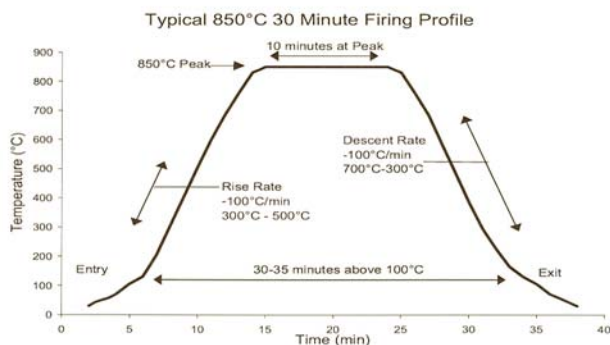
Drying

Allow print to level 5-10 min at room temperature. Then dry 10-15min at 150°C.

Firing

Fire with a 30-60 min cycle to a peak temperature of 850°C for 10 min. Properties are relatively unaffected by firing at peak temperatures of 850-950°C and by multiple refiring at 850°C.

Typical 30 minutes fire profile



Typical Composition Properties

Test	Properties
Coverage, cm ² /g [Calculated value based on 12 μm fired thickness]	80-85
Viscosity (Pa.s) [Brookfield 2xHAT, UC&SP#14, 10 rpm, 25°C]	250 - 350
Thinner	DuPont 8250
Line Resolution (μm)	150 lines/100 space
Fired Thickness (μm)	16-20
Resistivity (mΩ/sq@14 μm)	≤ 60
Solder Acceptance ¹ 62Sn/36Pb/2Ag 63Sn/37Pb	Excellent Excellent
Solder Leach Resistance ² (cycles) 62Sn/36Pb/2Ag 63Sn/37Pb	9 - 10 6 - 7
Adhesion ³ Initial (N) Aged 48 hr, 150°C (N)	>20 >20
¹ Excellent characterized as complete wetting with smooth solder film after 5 sec dip at 220°C in 62Sn/36Pb/2Ag solder and at 240°C in 63Sn/37Pb solder using mildly activated flux (Alpha 611). ² Cycle consist of dip in mildly-activated flux (Alpha 611), 10-sec dip in 62Sn/36Pb/2Ag solder at 230°C or in 63Sn/37Pb solder at 250°C followed by washing off flux residue. ³ 90° wire peel test on 2x2 mm pads soldered with 62Sn/36Pb/2Ag solder at 220°C using mildly-activated flux (Alpha 611).	

This table shows anticipated typical physical properties for DuPont 4593 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).

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