

DuPont ALN11

SILVER CONDUCTOR

Technical Data Sheet

Product Description

Silver Conductor composition for use on Aluminum Nitride (AlN) substrates. DuPont ALN11 is a general purpose microcircuit conductor offering excellent performance and wide processing latitude. It has been designed to give high yields and to be cost-effective in demanding commercial circuit applications.

Product Benefits

- Very low resistivity of <3 mΩ/sq
- Excellent aged adhesion on AlN substrates
- Good solderability with 62Sn/36Pb/2Ag and 10Sn/88Pb/2Ag solders
- Nickel plateable
- Excellent thermal conductivity
- Brazable with gold/tin

Processing Substrates

Properties are based on test on Aluminum Nitride substrates. Substrates from several different vendors offered consistent results.

Printing

Print with 280 and/or 325 mesh stainless steel screens with 10-15 microns emulsion

Drying

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

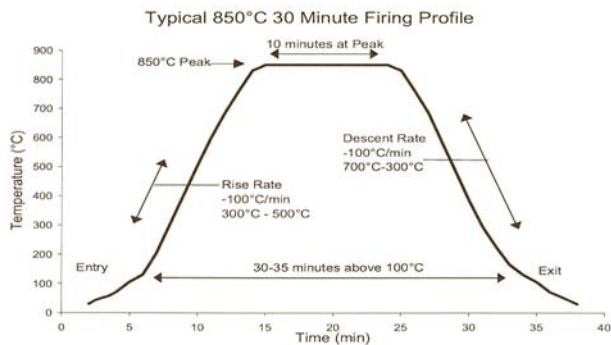
Typical Physical Properties

| Test | Properties |
|---|-------------------------|
| Fired Thickness (μm) | 9 - 11 |
| Line Resolution, (μm) (line/space) | 125/125 |
| Solder Acceptance on AlN, (%) ¹ 62Sn/36Pb/2Ag (220°C) 10Sn/88Pb/2Ag (330°C) | >95 >95 |
| Solder Leach Resistance on AlN ² 62Sn/36Pb/2Ag (230°C) 10Sn/88Pb/2Ag (340°C) | 1 dip 2 dips |
| Adhesion on AlN ³ Initial (N) Aged (150°C, 1000 hrs) (N) Aged (85°C/85% RH, 1000 hrs) (N) | 20 - 30 > 25 > 30 |
| <small>¹ Excellent characterized as complete wetting with smooth solder film after 5 second dip using mildly-activated flux residue (Alpha 611). ² Cycle consists of dip in mildly-activated flux (Alpha 611), 10-second dip in solder and washing off flux residue. ³ 90° wire peel test on 2 mm x 2 mm (80 mil x 80 mil) pads soldered with 62Sn/36Pb/2Ag solder at 220°C.</small> | |
| Composition Properties | |
| Viscosity (Pa.s) [Brookfield HBT, 10 rpm, UC&SP#14, 25 C] | 180 - 280 |
| Thinner | DuPont 9450 |

This table shows anticipate typical physical properties for DuPont ALN11 based on specific controlled experiments in our labs and are not intended to represent the product specifications, details of which are available upon request.

Firing

Fire in a well ventilated furnace, in air with 30 minutes cycle to a peak temperature of 850°C for 5-10 minutes. Properties are relatively unaffected by multiple re-firings at 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).

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