DuPont Microcircuit Materials

5715 Gold Conductor

Thick Film Composition

All values reported here are results of experiments in our laboratories intended to illustrate product performance potential with a given experimental design. They are not intended to represent the product's specifications.

Product Description

5715 is a screen printable, gold conductor composition. It is used as a gold wire-bondable conductor in high density hybrids. 5715 is capable of good automatic gold wire bonding yields with 1-mil wire.

Processing

Substrates

Properties are based on tests using 96% alumina substrates. Substrates of other compositions and from various manufacturers may result in variations in performance properties.

Screen Printing Equipment

A 325– mesh stainless steel screen with an 8-12 µm (0.3—0.5 mil) emulsion thickness is recommended. Printing speeds up to 15 cm/s (6 in/s) can be achieved.

Drying

Allow the wet print to level for 10-15 minutes at room temperature. Dry for 15 minutes at 150°C.

Firing

Dried prints should be fired in a belt furnace. Use either a 30 or 60 minute cycle with a peak temperature of 850°C for 10 minutes. No significant changes in performance characteristics were seen after multiple refirings at 850°C .

Table 1
Typical Fired Properties

Line Resolution	125/125 µm [5/5 mil] lines/spaces
Fired Thickness	7-10 µm (0.3 - 0.4 mil.)
Resistivity	<5.0 mΩ/sq at 8 µm fired thickness
Automatic Thermosonic Gold Wire Bonding[1] 1 mil Au	
Yield	0 misses/10,000 bonds
Strength	
Initial	>9 grams
Aged	>8 grams (150ºC, 1000 hrs)

[1]All wire breaks. No bond lifts.

Table 2
Composition Properties

Viscosity (Pa•s) (Brookfield HBT, SC-4-14/6r [UC&SP], 10 rpm, 25°C)	240-360
Coverage[1], cm^2/g	60-65 (9-10 in^2/g).
Thinner	8672

[1] Based on average fired thickness of 8 µm [0.3 mil])

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. Jar rolling is not recommended.

Resistor Compatibility
5715 is compatible with BIROX® Series 17G, 1400, and 1600 Series resistor compositions.

Safety and Handling

This product contains organic solvent and materials. The following precautions should be exercised when handling 5715:

- Use with adequate ventilation
- Avoid prolonged contact with skin
- Avoid prolonged breathing of vapor
- If contact with skin occurs, wash affected area immediately with soap and water
- Dangerous if swallowed — DO NOT CONSUME
- Refer to MSDS for more details

Other System Components:

- 5715H Gold Conductor
- 5727 Via Fill Gold Conductor
- 5725/9910 Aluminum Wire Bondable Gold Conductors
- 4596 Solderable Gold Conductor
- 9537 Encapsulant
- 9507 Crossover Dielectric
- Series 17G High Reliability Resistors

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