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CAPACITOR DIELECTRIC

4100 Series

Capacitor Dielectric Pastes With Dielectric Constants Between 20 And 300

ESL 4100 Series is a group of thick film dielectrics developed for firing at 930°C to 980°C and exhibits the excellent properties as shown below. The hermetic nature of this capacitor dielectric series provides excellent performance on moisture testing. Laser trimming of capacitors made with these pastes can be performed for adjustment of value, with subsequent overglazing. Chip capacitors, capacitor arrays, delay lines, RC networks, etc., of superior quality can be made at significant cost saving over discreet monolithic chip capacitors. These materials meet the characteristics of X7R.

PASTE DATA

RHEOLOGY:

Thixotropic, screen printable paste

VISCOSITY:

(Brookfield RVT, ABZ Spindle, 10 rpm, 25.5°C±0.5°C)

4113	250±25 Pa·s
4113-H	250±25 Pa·s
4114	250±25 Pa·s
4115	250±25 Pa·s
4117	350±50 Pa·s

COLOR:

Yellow-Green

SHELF LIFE: (25°C)

6 months

PROCESSING

SCREEN MESH/EMULSION:

200-325/37.5 μ m

LEVELING TIME:

5-10 minutes

4100 Series 0304-A

ESL Affiliates

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DRYING AT 125°C:	10-15 minutes
FIRING TEMPERATURE RANGE:	930°C-980°C
OPTIMUM:	980°C
TIME AT PEAK:	10-15 minutes
SUBSTRATE FOR CALIBRATION:	96% alumina
THINNER:	ESL 401

TYPICAL PROPERTIES

	<u>4113</u>	<u>4113-H</u>	<u>4114</u>	<u>4115</u>	<u>4117</u>
FIRED THICKNESS: (□m)	38-50	38-50	38-50	38-50	38-50
DIELECTRIC CONSTANT: (1 kHz, 25°C), K	90-130	120-160	40-60	15-25	270-330
DISSIPATION FACTOR: (1 kHz, 25°C), %	□ 0.50	□ 1.00	□ 1.00	□ 1.00	□ 1.50
INSULATION RESISTANCE: (100 V DC), □	≥ 10 ¹⁰	≥ 10 ¹⁰	≥ 10 ¹⁰	≥ 10 ¹⁰	≥ 10 ¹⁰
BREAKDOWN VOLTAGE: (25°C in air), V/25 □m	≥ 300	≥ 300	≥ 600	≥ 1000	≥ 500
FINISH:	Matte	Matte	Matte	Matte	Matte
ESL CONDUCTOR:	9635-B	9638	9635-B	9635-B	9638

4100 Series 0304-A

CAUTION: Proper industrial safety precautions should be exercised in using these products. Use with adequate ventilation. Avoid prolonged contact with skin or inhalation of any vapors emitted during use or heating of these compositions. The use of safety eye goggles, gloves or hand protection creams is recommended. Wash hands or skin thoroughly with soap and water after using these products. Do not eat or smoke in areas where these materials are used. Refer to appropriate MSDS sheet.

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