

Technical Information

7600 RESISTOR SERIES

10 Ohm/sq – 10 Mohm/sq BLENDABLE COMPOSITIONS

The 7600 series resistor system was designed for a variety of applications. The standard series is calibrated on 100% silver conductor and is suitable for the fabrication of resistor chips and networks. The system is also compatible with most Ag:Pd and gold conductors. Factory calibration may be required, however, to obtain the specified jar value and TCR. Key features of the system include:

- Tight TCR
- Blendability Across the Full Range.
- Firing in Standard 850°C Profile.
- Compatibility with 100% Ag, Ag:Pd, and Gold Termination.
- Passivation with Low Temperature and Acid Resistant Overglazes.

TYPICAL FIRED FILM CHARACTERISTICS⁽¹⁾

	7611	7612	7613	7614	7615	7616	7617
Resistivity ⁽²⁾ Ohms / Sq	10	100	1K	10 K	100K	1M	10M
Tolerance	± 15%	± 15%	± 15%	± 15%	± 15%	± 15%	± 15%
TCR ⁽³⁾ ppm/°C	± 100	± 100	± 100	± 100	± 100	± 100	± 100
STOL ⁽⁴⁾ DC Volts, 5 Sec	7	20	60	150	300	300	300
Quan-Tech Noise	< -25	< -20	< -14	< -10	< -5	<+ 10	<+ 10
Thermal Stability ⁽⁵⁾ %Change, 250 hrs@150°C	< ±1.0	<± 0.1	< ±0.1	<± 0.1	< ±0.1	< ±0.1	< ±0.3

(1) Typical properties are based on testing of several batches under various processing conditions. They are not intended as specification limits.

(2) The electrical results are based on 0.040" x 0.040" pads, fabricated with 7600 series resistors and 6107 silver termination, at 18 microns dried thickness. All firing done in a standard 36 minute furnace profile with 10 minutes at 850°C.

(3) From +25°C to -55°C and from +25°C to +125°C.

(4) The typical maximum voltage, causing < ± 0.2 % shift in resistance value when applied for 5 seconds.

(5) Untrimmed parts, glazed with KOARTAN 5650.

COMPOSITION PROPERTIES

Viscosity: 150 ± 30 Kcps, when measured with Brookfield HBT, Spindle #14, utility cup, 10 RPM, 25°C.

Specific Gravity: 2.0 - 2.4 g/cm³

Recommended Thinner: KOARTAN A-1039

RECOMMENDED PROCESSING PROCEDURE

Printing: For best results, printing with a 325 mesh stainless steel screen with 10-15 μm emulsion and 45 degree angle is recommended. Other mesh counts, 200-250, and emulsion thicknesses, 5-25 μm , may be used for special applications.

Coverage is approximately 120 cm²/g, when utilizing 325 mesh screen and a dry print thickness of about 18 μm .

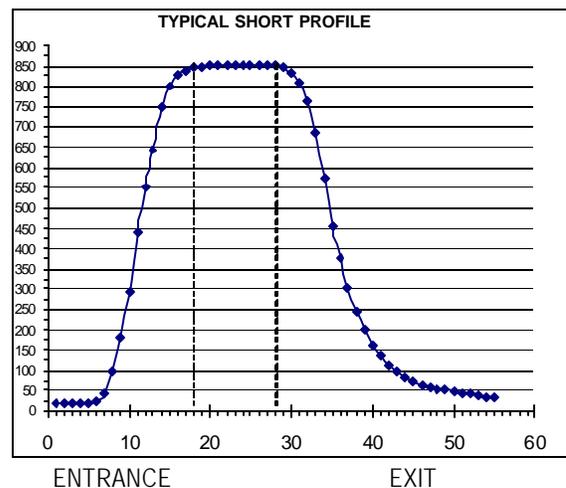
Drying: Wet prints should be allowed to level for 5-10 minutes prior to drying. Dry for 10-15 minutes in a convection oven or belt dryer at 125°C-150°C.

Firing: Firing in air using a belt furnace and a 36-60 minute profile, with 10 minutes at a peak temperature of 850°C, is recommended. Air flow rates must be optimized to ensure that the products of binder burn-off discharge properly and create a fully oxidizing atmosphere in the muffle.

Application Notes:

The 7600 series resistors are fully blendable across the range. Blending of adjacent members is recommended. The 7600 series resistors are calibrated on alumina with silver termination. Also available are 7600G for gold termination, 7600D for silver termination on dielectric, and 7600GD for gold termination on dielectric.

The system is compatible with KOARTAN low temperature overglaze 5650. For chip applications, or when water washable fluxes are involved, KOARTAN 5600 acid resistant glaze is recommended.



Storage and Shelf Life: Store in tightly capped containers at room temperature. Shelf life is 6 months for unopened jars. Thorough mixing of the paste before each use is recommended. Under ordinary conditions of storage and use the product should not require thinning. However, solvent loss during extended printing runs may be corrected by incorporating up to 0.5% of KOARTAN A-1039 thinner.

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