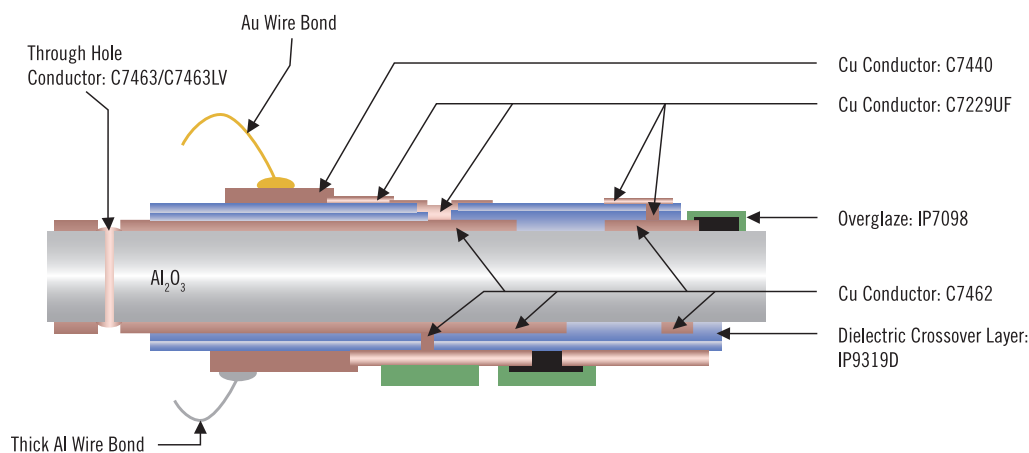


Heraeus Copper Pastes for Hybrid Electronic Circuits

Heraeus Electronics offers a series of thick film pastes for production of hybrid microelectronic circuits where copper conductors will be utilized on alumina substrates. The products include copper conductors, through hole conductors, dielectrics, and overglazes which all can be fired in a nitrogen atmosphere furnace.

Key Benefits:

- Low cost base metal composition
- Solderable
- Wire bondable
- ENIG plateable
- Etchable
- Compatible dielectric and overglaze materials



Conductors

	C7440	C7462	C7229UF
Description	Wire Bondable and Solderable Copper Conductor	ENIG Plateable Copper Conductor	Unfritted Copper Conductor
Resistivity	$\leq 1.5 \text{ m}\Omega/\text{square @ 25 microns}$	$\leq 1.75 \text{ m}\Omega/\text{square @ 25 microns}$	N/A
Firing Temperature	900-925°C (5-10 minute dwell)	900-925°C (5-10 minute dwell)	900°C (5-10 minute dwell)
ENIG Plateable	No	Yes	N/A
Al Wire Bondable	Yes	Yes with ENIG Plating	N/A
Au Wire Bondable	No	Yes with ENIG Plating	N/A
Solderable	Yes	Yes with ENIG Plating	N/A
Etchable	Yes	Yes	N/A
RoHS Compliant	Yes	Yes	Yes
REACH Compliant	Yes	Yes	Yes

Through Holes

	C7463/C7463LV	C7229V
Description	Through-hole Copper Conductor	Mix Bonded Via Fill Copper Conductor
Resistivity	$\leq 3 \text{ m}\Omega/\text{square @ 50 microns}$	$\leq 15 \text{ m}\Omega/\text{square @ 25 microns}$
Firing Temperature	925°C (5-10 minute dwell)	900°C (5-10 minute dwell)
ENIG Plateable	Yes	N/A
RoHS Compliant	Yes	Yes
REACH Compliant	Yes	Yes

Dielectrics

	IP9319D	IP7098
Description	Nitrogen Fireable Dielectric	Nitrogen Fireable Overglaze
Color	Blue	Green
Firing Temperature	900-925°C (5-10 minute dwell)	600-620°C (3-5 minute dwell)
Dielectric Constant	6-8 @ 1 KHz	N/A
Dissipation Factor	$\leq 0.5\%$	N/A
Insulation Resistance	$\geq 10^{11} \text{ ohms}$	N/A
Breakdown Voltage	$\geq 350 \text{ volt/mil}$	N/A
RoHS Compliant	Yes	Yes
REACH Compliant	Yes	Yes

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