LOW COST AgENIG™ THICK FILM SUBSTRATES

Remtec produces cost effective, reliable, RoHS compliant ceramic substrates with AgENIG™ metallization without costly platinum/palladium materials.

Remtec Inc. has developed and commercialized a new proprietary process for manufacturing cost effective metallized ceramics. These versatile, high performance metallized ceramic substrates are an economic substitute for currently used expensive thick film materials containing platinum/palladium and are RoHS compliant. New AgENIG™ (silver with ENIG finish) lower cost metallized ceramic substrates combine silver thick film processing with ENIG (electroless nickel and immersion gold plating). They are 30% lower in price than commonly used Pd-Pt-Ag substrates.

In addition, the new AgENIG™ substrates offer a number of significant performance advantages. First, solder leaching, typical of conventional thick film substrates, is greatly reduced. This is especially important when using lead free soldering required for RoHS compliance processed at temperatures of 260°C or higher. Plated substrates assure more reliable solder connections and can withstand multiple SMT reflow solder cycles and repairs. The tracks' resistivity is improved tenfold to 1 mΩ/square, and the substrates can be used up to 170°C continuous operation temperature. Pattern definition can be held to .006" line and spaces.

A combination of various thick film metals and selective gold plating techniques results in achieving various types of surface finish suitable for different assembly types. Therefore, the same metallized ceramic substrate yields 2 µinch gold finish for SMT soldering and welding, 30 µinch for gold wire bonding and 100 µinch of gold for brazing and eutectic die attach.

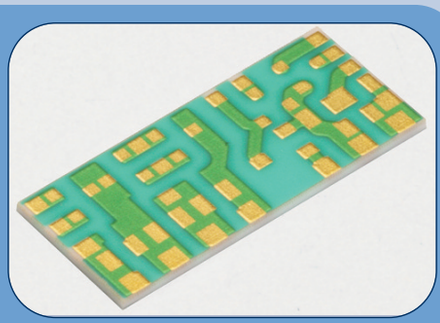
Major features of Remtec's Plated Copper on Thick Film (PCTF®) technology - multilayers, integrated resistors, plugged via holes and plated thru holes - are also available with the new AgENIG products.

Remtec, a RoHS compliant and ISO 9001:2000 registered company, supplies new, economic AgENIG substrates for miniature dc/dc converters, RF resonators and filters, TEC substrates and other applications.

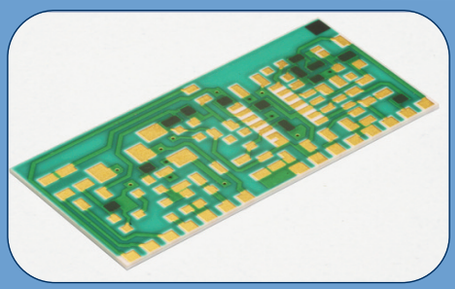
Please send your electronic files in DXF and/or DWG formats to sales@remtec.com. A complete set of design guidelines will be sent upon request. Additional data is available at www.remtec.com

REMTEC®

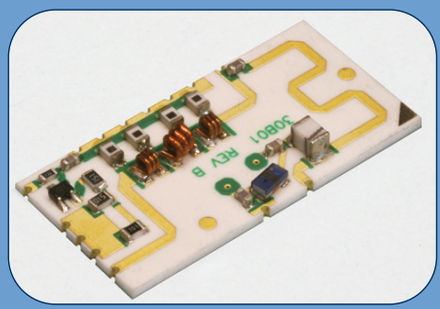
Ceramic Packaging Solutions For Optimum Performance



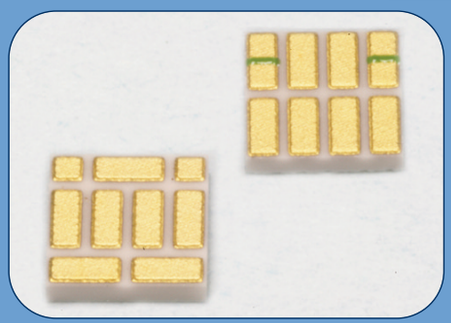
Substrate with AgENIG metallization and LPI solder mask for a commercial miniature high efficiency dc/dc converter.



Substrate with AgENIG metallization, plated through-holes and printed resistors for a peak detector.



Substrate for a Harmonic Filter. Use of AgENIG metallization reduced price and enhanced product reliability.



Substrate for a miniature TEC cooler. Use of AgENIG metallization with .0025" thick silver deposits and 0.35 mΩ/sq resistivity allowed current carrying capacity in excess of 10 AMP.

Brief Technical Data

Line Resolution (line & spacing), mil	6-8
Sheet Resistivity, mΩ/square	0.35 - 1.0
Solderability, Initial (95.5Sn/3.8Ag/.7Cu)	Excellent
Leach Resistance	No visible line reduction after 40 solder dip cycles at 260°C
Adhesion, 80x80 mil pad Initial Aged 48 hr, 150°C	 10 Lb 8 Lb