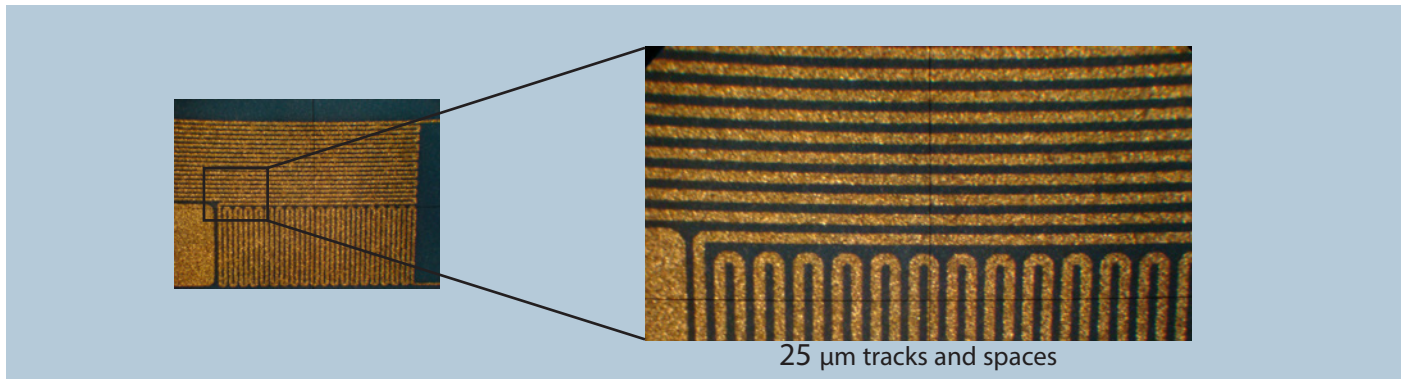


# Fine Line Thick Film Solutions

## Ultra-Fine Line Photo-Defined Thick Film Technology



### Core Competence

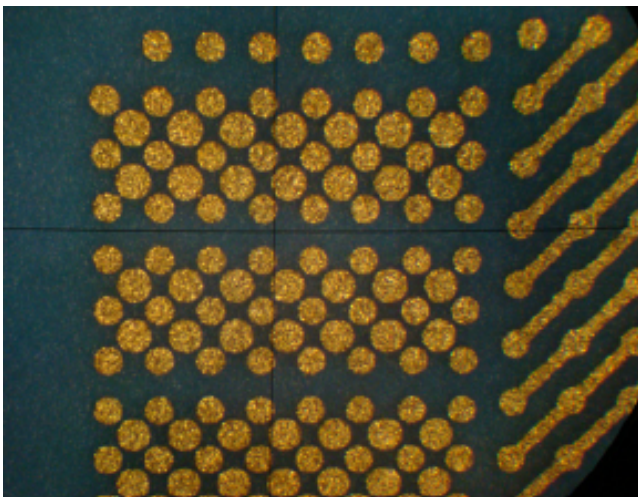
- High density interconnect
- Cost effective alternative to thin film
- Line and space widths to 25µm
- High level of edge definition suited to distributed passive circuit components
- Compatible with standard thick film, Alumina and LTCC
- Excellent wire bonding characteristics
- Smooth, dense surface 95% gold content
- Low resistivity
- Suited to high density semiconductor I/O

API Technologies manufactures thick film conductors with 25 µm width and space on ceramic and Low Temperature Cofired Ceramic (LTCC) substrates. This photoetchable technology can be combined with standard thick-film processing to provide complex, high-density multi-layer substrates suitable for RF and microwave applications.

Conventional thick-film screen printing is the industry standard technology. For higher density packaging and critical signal routine associated with high-frequency modules, the standard printed conductor line width and definition are inadequate. Photo-defined technology can be seen as an extension of standard thick-film technology, offering lines and spacings down to 25 µm. With its high level edge definition and high conductivity, the technology is well suited to RF and microwave applications.

Characteristics	Typical values		Units
	Au	Ag	
Substrate material	Al <sub>2</sub> O <sub>3</sub> 96% and LTCC		
<b>Layout rules</b>		5	µs
Typical line width	35	35	µm
Minimum line width	25	25	µm
Typical line spacing	25	25	µm
Minimum line spacing	25	25	µm
Typical thickness	6	9	µm
Available thickness range	4...8	7...11	µm
<b>Physical properties</b>			
Sheet resistance (6µm thickness)	<3.0	<2.0	mOhms/s
<b>Wire bond characteristics<sup>1</sup></b>			
Au wire pull strength (25 µm on alumina)	>8	-	g
• Initial	>8	-	g
• Aged (100h, 150°C)			
• Al wire pull strength (250 µm, on alumina)	-	>480	g
• Initial	-	>475	g
• Aged (1h, 300°C)			

<sup>1</sup>These values are given by Hereaus



100 µm and 120 µm pads with 20 µm spaces

Whilst every effort is made to ensure the accuracy of the information contained in this document is correct, no responsibility can be accepted for any errors and/or omissions.

Descriptions and specifications of products are subject to change without notice. April 2021