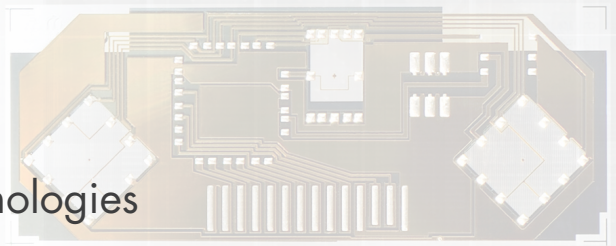


Technology offerings and services



Metalization systems, isolating layers, technologies

Metalization Systems (e.g.)

Substrate Material	Layer System	Solder System
Glass, Ceramic, Silicon	Ti, CuNi, Cu, Ti	e.g. SAC305 Sn3.0Cu0.5 ¹⁾
Glass, Ceramic, Silicon	Ti, Au	
Glass, Ceramic, Silicon, LTCC, Steel	CrNi, Ni, Au	e.g. SAC305 Sn3.0Cu0.5 ¹⁾
Glass, Ceramic, Silicon, LTCC	CrNi, FeNi, Au	e.g. SAC305 Sn3.0Cu0.5 ¹⁾
Glass, Ceramic, Silicon, LTCC, Steel	Cr, Al, FeNi	e.g. SAC305 Sn3.0Cu0.5 ¹⁾
Glass, Ceramic, Silicon	CrNi, Al, FeNi, Au	e.g. SAC305 Sn3.0Cu0.5 ¹⁾
Glass, Ceramic, Silicon, LTCC	CrNi, Al, CrNi	
Thick Film Ceramic	TiW, Cu	e.g. SAC305 Sn3.0Cu0.5 ¹⁾
Thin Film Ceramic, LTCC	Ti, Pt	
Silicon	Pt, Au	
Glass	Ti, Ag	

1) lead-free

Isolating Layers

Substrate	Layer System	Thickness
Glass, Ceramic, Silicon, LTCC, Steel	SiO ₂	1 ... 8 µm
Glass, Ceramic, Silicon, LTCC, Steel	Si ₃ N ₄	0.5 ... 5 µm
Glass, Ceramic, Silicon, LTCC, Steel	SiO ₂ / Si ₃ N ₄ (sandwich)	1 ... 10 µm

Technologies

Process	Method	Remark
Surface finishing	Lapping, polishing	
Substrate cleaning	Chemical, mechanical	
Substrate desorption	HF-Sputter etching, substrate heating in vacuum	
Coating	DC-plasmatron (linear) DC-plasmatron (rotating) E-beam evaporating HF-plasmatron Galvanic DC-pulse	max. 5 layers without vacuum interruption
Micro structuring	Photo lithography	Resolution: 5 µm Error: 0.5 µm Max. Size: 5 * 5"
Formation processes	Plasma technology, thermal	
Resistor adjustment	Laser	R-tolerances ≥ 0.025 %
Dicing	Laser, disc saw	
Assembly/Services	Passivation, gluing, soldering, E-beam welding, laser welding	