

Challenge “Precision LTCC” HIRAI Precision

Features

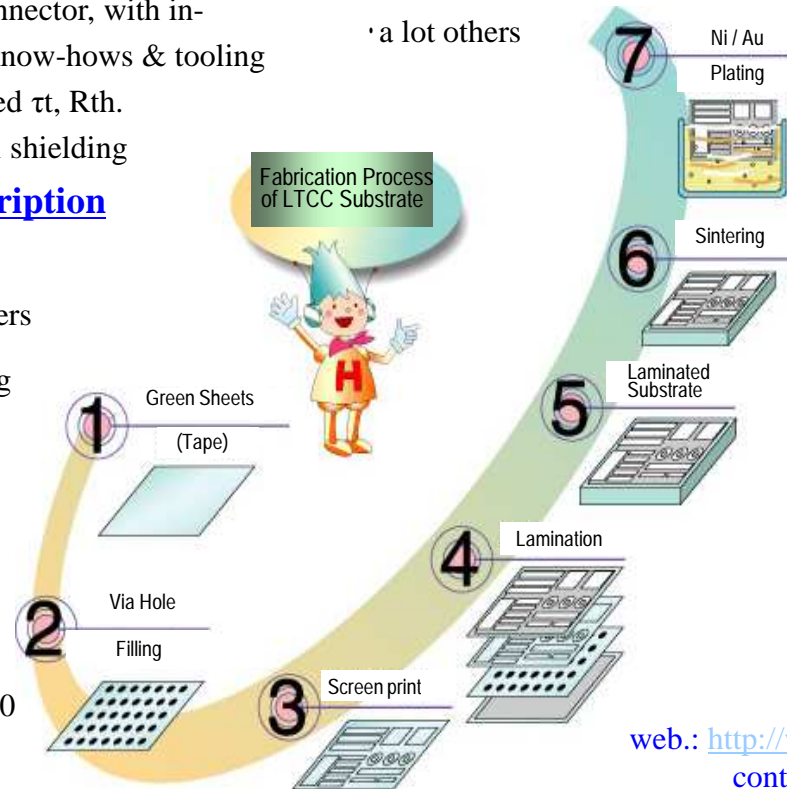
- Mechanical/chemical/environmental durabilities
- Very smooth surface(good surface flatness)
- Small contraction and warpage
- Excellent scw, camber & inter-layer via alignm't
- Embedded passive components of high Q
- Strict ledge shaping of cavity structure
- Specific 3D structures, μ -connector, with in-house etching and forming know-hows & tooling
- Low and/or optimum matched τ , Rth.
- Hermetic sealing and optical shielding

Process/material description

- Big plate for multiple pieces
- House-made via-hole punchers
- Accurate cond. paste printing
- High density process with precise shrink control
- Batch+belted firing ovens
- In-house plating
- Clean room(cl.10k), ISO9000
- All above for high yield, high & reliable performance

Applications

- Automotive ECU, medical use
- substrate for thin film, mm-wave, and probe card
- MCM, flip-chip, packages, SiP
- RF module, FEM, Antenna
- a lot others



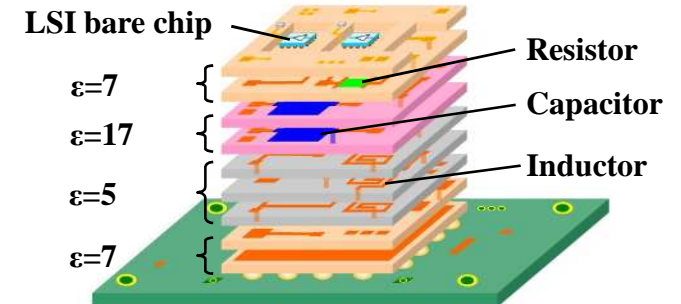
Design Rule @Foundry Service

UNIT [mm]

Item	Std. (Option)		
Dielectric Layers	Panel size	120sq.max. (180sq.)(*)	
	Thickness of each layer	(**)0.05 ~ 0.3	
	No. of layers	10max. (30)	
	Error	X-Y	$\pm 0.5\%$ max. (0.2)
		Z	$\pm 10\%$ max. (6)
	Warpage	10 μ m,max./10mm	
S'face roughness	0.5 μ m,max. (0.05 μ m)		
	Line and space		
Line and space	Line width	0.1min. (0.05)	
	Space	0.1min. (0.05)	
Via-hole	Diameter	0.1min. (0.08)	
	Spacing	0.1min. (0.05)	

(*)300mmsq.:under dev. (**)0.02mm:coming soon

FEM



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