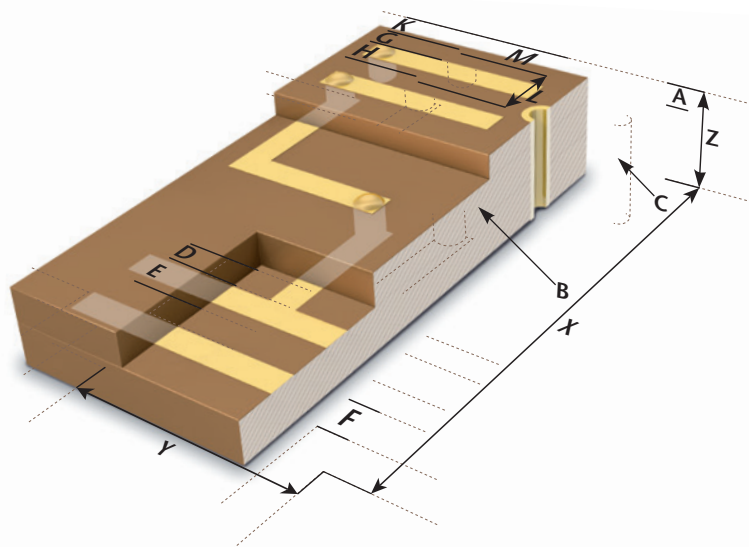


Design rules for High Temperature Cofired Ceramics (HTCC) substrates

Packages for:

- Pump lasers
- MEMS applications
- IR Sensors
- Sensor feedthroughs for high temperature and/or high pressure applications
- Miniaturized electrical feedthrough arrays
- And many other examples



Material Data	Mark	Standard (mm)	Tolerance	Special (mm)	Tolerance	
Structure Parameters	Length/ Width	X/Y	5 – 25	± 1% (as fired) ± 100 µm (machined)	2 – 100	± 0.5% (as fired) ± 50 µm (machined)
	Substrate Thickness	Z	0.4 – 3	± 3 %	0.2 – 5	± 1.5 %
	Layer Thickness	A	0.12, 0.2, 0.25 0.32, 0.4, 0.5	± 10%	0.1	± 5%
	Flatness (as-fired)		0.08 / 10 x 10		0.05 / 30 x 30	
	Flatness (machined)		0.02 / 10 x 10		0.005 / 10 x 10	
Vertical Interconnects	Filled Via					
	Typical Diameter	B	0.18		0.1	
	Diameter Range		0.1 – 0.3		0.1 – 0.5	
	Via-to-Via Centerline	L	1		0.45	
	Via-to-Edge	M	thickness + via diameter			
	Bore Coated Via					
Typical Diameter (ID)	C	0.4	± 0.2			
Diameter Range		0.4 – 0.8	± 0.2			
Internal Metal Circuit	Line Width (without via)	D	0.08	± 20 %	0.05	
	Line-to-Line Space (far from via)	E	0.08	± 20 %	0.05	
	Line Width (with via)		0.25	± 20 %		
	Line-to-Line Space (near via)		0.2	± 20 %		
	Space from edge	F	0.7		0.2	
Surface Metal Circuit	Line Width (without via)	G	0.1	± 20 %	0.06	± 20 %
	Line-to-Line Space (far from via)	H	0.1	± 20 %	0.04	± 20 %
	Line Width (with via)		0.3	± 20 %		
	Line-to-Line Space (near via)		0.25	± 20 %		
	Space from edge	K	0.4		0*	

No responsibility can be taken for the accuracy of this information. Despite the fact that all reasonable care was taken in presenting and keeping this information up to date, SCHOTT neither accepts legal responsibilities nor guarantees the completeness, accuracy and up-to-dateness of the information presented here.

*Special process case

SCHOTT AG
 Christoph-Dorner-Strasse 29
 84028 Landshut
 Germany
 Phone: +49 (0)871/826-329
 ep.info@schott.com
www.schott.com/epackaging

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