

LTCC Design Guideline

1. Features of Material

Item	Material	Dielectric Constant	Tangent delta	Color	Poisson's ratio	Density [kg/m ³]
YDM71	Glass Ceramic (Pb free)	7.3 @8GHz	0.005 @8GHz	White *1	0.24	2810
YDM74		7.4 @8GHz			—	2950
YDM79		7.9 @1MHz	0.003@1MHz		0.26	3100
Item	Coefficient of Thermal Expansion [ppm/K]	Thermal Conductivity [W/(m K)]	Specific Heat [J/kg K]	Young's modulus [GPa]	Flexural Strength [MPa]	
YDM71	5.5	2.2	690	114	250	
YDM74	5.8	2.8	710	133	350	
YDM79	4.9	1.7	600	102	200	

*1: Light Shield Dark Brown and Black is Available *2: This data is typical value, but not guaranteed

2. Circuit Board Specifications

Item	Unit	Specification	
Dimension	mm	Max. 325x325x6	
Stacking Number	Layer	Max.90	
Layer Thickness	um	Min. 50	
Tolerances	X,Y plane	0.2% or 100um	
	Thickness	%	10
Warp	mm	0.1/100	
Conductor	Thickness	um	5 – 20 (depends on line width)
	Resistivity	Ohm-cm	Line : 2.5×10 ⁶ , Via : 3.0×10 ⁶
	Outer/Inner	—	Ag/ Ag (Ag/Pd, Ag/Pt are available)
	Adhesion Strength	kg/mm ²	cofire : 0.5 , post fire : 0.2
Plating		Ni/Au, Ni/Pd/Au, etc	

3. Design Rules (Tolerance of line width, space or via-hole dia. is ±10%)

Item	Symbol	Rules		Unit
		Max.	Min.	
Line/ Space	a/b	-	50/50	um
Land/ Space	c/d	-	50/50	um
Distance from edge	e	-	75	um
Via- Hole Diameter*3	f	Dia. 150	Dia. 50	um
Via/ Via Space	g	-	65	um
Distance from edge	h	-	100	um

*3 Max./min. via-hole diameter will be constrained by the layer thickness (thickness of the using sheet).

