

# LTCC Design Guideline (Standard)

## 1. Features of Material

Item	Material	Dielectric Constant	Tangent delta	Color	Poisson's ratio	Density [kg/m <sup>3</sup> ]
YDM71	Glass Ceramic (Pb free)	7.3 @8GHz	0.005 @8GHz	White *1	0.24	2810
YDM74		7.4 @8GHz			0.22	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
Layer Thickness	um	Min. 100
Tolerances	X,Y plane	—
	Thickness	%
Warp	mm	0.1/100
Conductor	Thickness	um
	Resistivity	Ohm-cm
	Outer/Inner	—
	Adhesion Strength	kg/mm <sup>2</sup>
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	-	100/100	um
Land/ Space	c/d	-	100/100	um
Distance from edge	e	-	300	um
Via- Hole Diameter*3	f	Dia. 300	Dia. 70	um
Via/ Via Space	g	-	100	um
Distance from edge	h	-	300	um

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

