Microwave Dielectric Substrate

I. Applications

It is mainly used for manufacturing thin-film circuits, microwave ceramic chip capacitors, etc.

II. Features

- high quality factor, high dielectric constant14~150;
- Near-zero resonant-frequency temperature coefficient, providing excellent temperature stability;
- Flat substrates, available up to 2 inches;
- Can be used to fabricate microwave ceramic chip capacitors, thin-film circuits, microwave dielectric antennas, and other components.

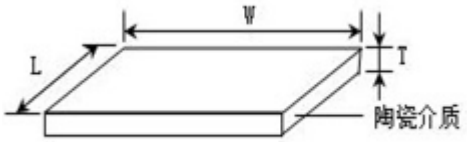
III. Part Numbering Rules

SC – 2 – 05 – （W）B

① ② ③ ④

① indicates product type: SC microwave dielectric substrate.

② indicates length and width dimensions.



length, width	length, width (mm)
1	25.4±1.5
2	38.1±1.5
3	50.8±1.5

Thickness Code	thickness (mm)
04	0.102±0.025
05	0.127±0.025
07	0.178±0.025
10	0.254±0.025
12	0.305±0.051
15	0.381±0.051
20	0.508±0.051

③ indicates product thickness.

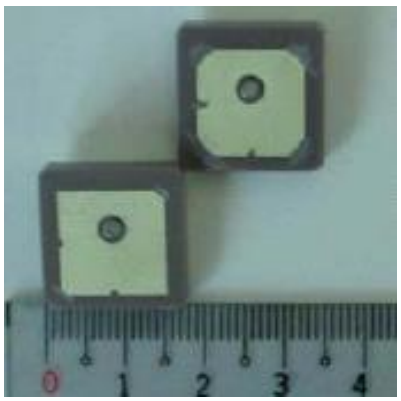
④ indicates dielectric type; see the microwave dielectric substrate and performance table.

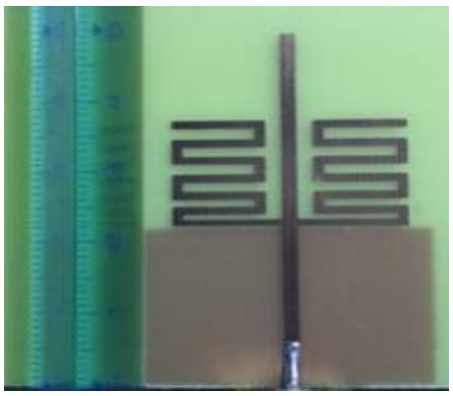
IV. Microwave Dielectric Substrates and Performance

The company's microwave dielectric substrates are available with main dielectric constants of 14, 20, 30, 35, 40, 45, 85, 90, 93, 100, 130, and 150. Properties of selected typical microwave dielectric materials are shown in the table below.

Property	**Unit**	**dielectric material and code**						
		W-B	**W-C**	**W-H**	**W-D**	**W-E**	**W-F**	**W-G**
Dielectric Constant	——	14±0.5	19.8±0.5	40±1.0	45.0±1.0	85.0±1.5	101.6±1.5	150.2±3.0
surface roughness Ra	μm	0.08~0.35	0.08~0.35	0.08~0.35	0.08~0.35	0.08~0.35	0.08~0.35	0.08~0.35
Density	g/cm^3	3.27	3.75	5.18	5.21	5.64	5.82	4.81
Warpage	%	0.3~0.8	0.3~0.8	0.3~0.8	0.3~0.8	0.3~0.8	0.3~0.8	0.3~0.8
thermal expansion coefficient	$\times 10^{-6}/K$	9.50	9.86	9.65	9.57	10.32	9.48	9.93
Thermal Conductivity	W/m.K	4.30	4.85	4.32	3.67	4.83	3.74	3.97
Temperature Coefficient	ppm/K	-30	6.42	6.38	7.16	7.36	10.8	15.2
Q value	----	2000@12GHz	6500@7GHz 7GHz	6000@7GHz 6GHz	5600@5GHz 5GHz	1850@3GHz 3GHz	1100@3GHz 3GHz	2000@3GHz 3GHz
Q*f*	GHz	≥24000	≥45000	≥30000	≥28000	≥5500	≥3200	≥6000

Microwave dielectric ceramic components can be customized according to customer requirements, such as microwave dielectric antennas made from customer drawings.





microwave dielectric antenna