

Microwave Dielectric Materials

Our extensive selection of microwave dielectric materials can be fully customized to fulfill your exact technical specifications.



Coaxial resonator



TE mode resonator



Substrate

Material Code	ϵ_r	$F_0 \times Q$ Value	τ_f (ppm/°C)		Density (g/cm ³)	Sintered Color
D-6	6±1	>50,000 (@16.5GHz)	0±10		2.7	White
D-9	9±1	>35,000 (@9.5GHz)	6±5		3.3	Gray
D-21	21±1	>60,000 (@6.5GHz)	5±5		3.7	Brown
D-24	24±1	>300,000 (@10GHz)	2±1		7.5	Yellow
D-24G	24.5±1	>200,000 (@10GHz)	0~3±1	*1	7.5	Ivory
D-30	30±1	>150,000 (@10GHz)	0~5±1	*1	7.7	Ivory
D-34	34±1	>90,000 (@10GHz)	-2~5±1	*1	7.1	Ivory
D-36	37±1	>20,000 (@5.0GHz)	+3±3		4.7	Ivory
D-38	38±1	>47,000 (@5.0GHz)	1±3		5.1	Green
D-40	40±1	>70,000 (@5.0GHz)	-2~6±5	*1	5.6	Brown
D-45	45±1	>45,000 (@6.0GHz)	-2~6±1	*1	4.7	Ivory
D-90	92±2	>5,000 (@3.5GHz)	0±5		5.7	Yellow
HiQ Al ₂ O ₃	9.8±1	>300,000 (@12GHz)	-60		3.9	White
D-3800	3800±10%	Tan δ < 1.5%	TC ±10%		IR >1*10 ⁴ (MΩ)	

*1 We can adjust according to your requirements.

*2 The τ_f curve is linear with respect to

We can produce other ceramic materials to meet your needs.(Forsterite, Cordierite, Alumina, Nitride)

Ceramic Substrate & Thin-Film Circuit

Our high-frequency substrates combine an exceptionally high Q factor with outstanding temperature stability. By integrating these materials with our precision micromachining and thin/thick-film technologies, we deliver solutions – from high-performance circuit boards and single-layer capacitors to antenna elements – that bring your design visions to life.

Material Specifications

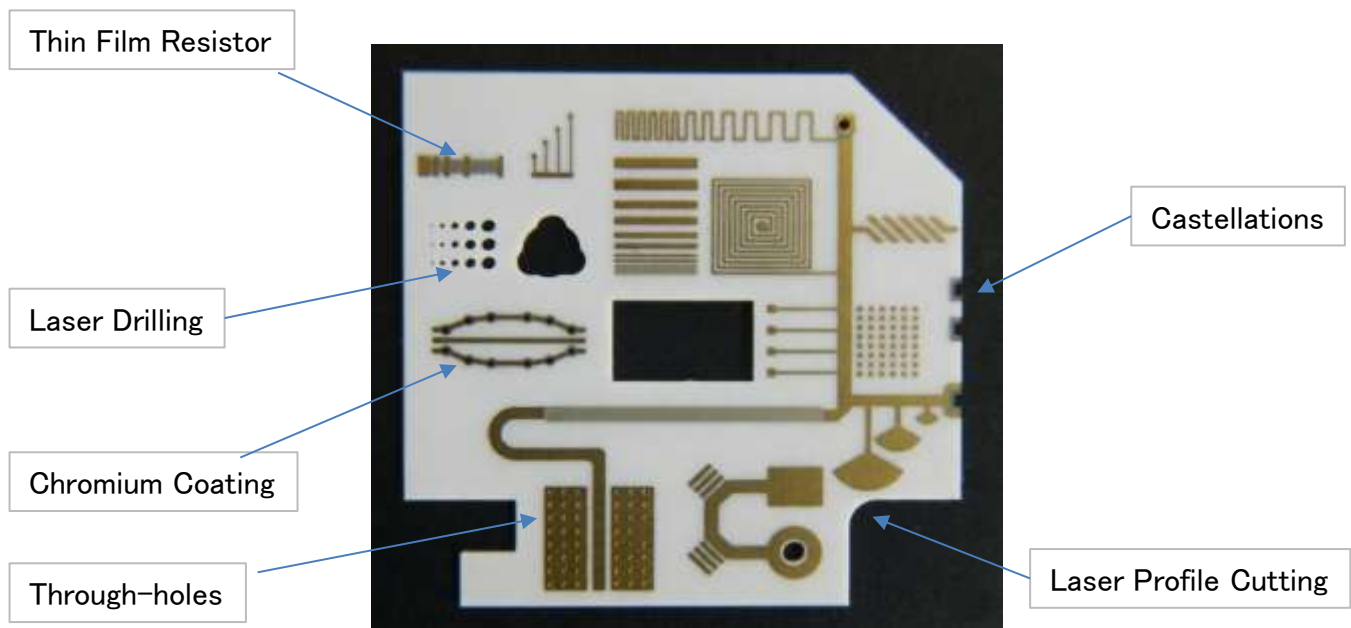
Materials	Size (mm)	Thickness	Metallization
D-6, D-9, D-21, D-38, D-45, D-90, HiQ-Al ₂ O ₃	< 55 × 55	0.254~10	Ag, Cr/Pd/Cu/Ni/Au, Ti/Pt(Pd)/Au



Ceramic substrates



Microstrip line filter (Substrate: D-9)



Precision Ceramic Substrate Processing: Patterning and Micromachining

Coaxial Resonators

TEM Mode Resonator

Our resonators achieve high Q factors through optimized silver-metallized conductor coatings. We provide extensive frequency coverage and a wide range of sizes to meet diverse needs. Custom options like tabbed terminals, SIR profiles, and special geometries are available upon request.

Specifications

Frequency:	60MHz to 7000MHz
Size:	1.55mm sq. ~ 18mm sq. φ 16 mm ~ φ 60 mm
Maximum Length:	Up to 100 mm
Materials :	D-9, D-21, D-36, D-38, D-92

Product Variations

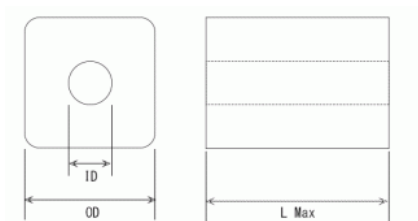
Coaxial Resonator with Tab

SIR (Step Impedance resonator)

Tape and reel packaging available for automated assembly.



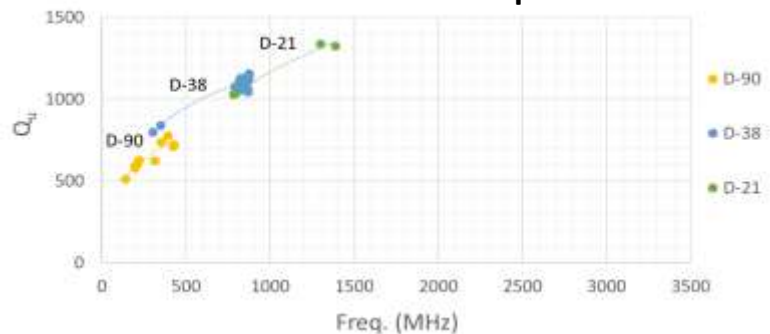
Resonator size vs Qu



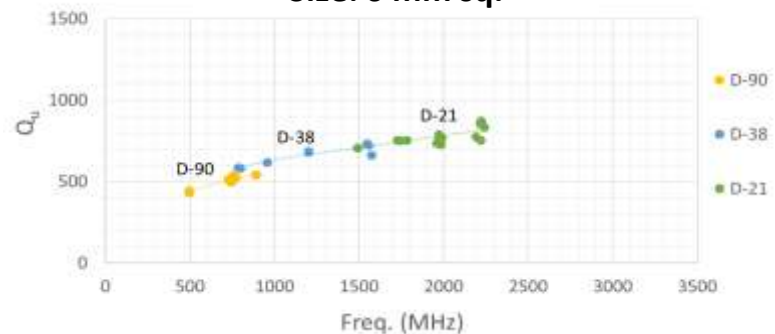
Square type

OD sq.(mm)	ID φ (mm)	L MAX(mm)
1.5	0.62	10
1.8	0.85	10
2.0	0.83	10
3.0	0.98	11
4.0	1.2	26
5.0	1.6	26
6.0	2.2	33
6.0	2.4	33
6.0x7.0	2.4	33
7.0	2.2	15
8.0	2.6	40
10.0	2.9	55
12.0	3.5	55
18.0	5.3	55

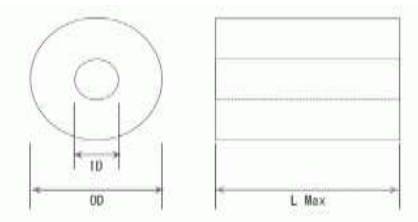
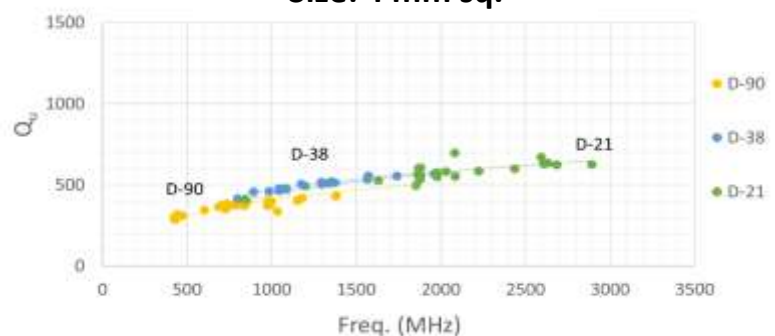
Size: 12 mm sq.



Size: 6 mm sq.



Size: 4 mm sq.



Cylindrical type

OD φ (mm)	ID φ (mm)	L Max(mm)
16	5.2	55
17.5	4.6	55
24.5	8.6	80
30	8.8	80
45	12.8	100

TE mode Resonators

Our TE-mode resonators are engineered using proprietary dielectric materials that deliver exceptionally high Q-factors and superior temperature stability.

Product Series Highlights

Microwave Band: Ultra-High Q-Factor Series

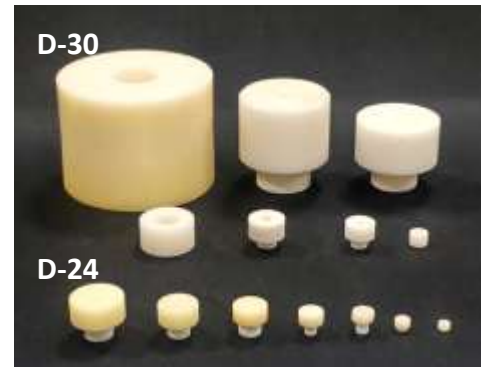
D-24 Series FxQ@10GHz >300,000

D-30 Series FxQ@10GHz >150,000

UHF Band: High Stability & Cost-Effective Series

D-45 Series: FxQ@6 GHz >45,000

Balancing high performance with cost-efficiency.



Target Applications

UHF-band Base Stations & Satellite Communications.

STL / TTL / FPU for broadcasting

Dielectric Resonator Oscillators (DRO).



Resonator Specifications (Sample Data)

Material	OD (mm)	I.D (mm)	Hight (mm)	Cavity (mm)	F0	Qu
D-24	14	-	5	32 ϕ x 14H	5.0 GHz	20,000
	9	-	4	32 ϕ x 14H	7.5 GHz	20,000
D-30	46	14	20	130 ϕ x 80H	1.3 GHz	52,000
	8	3	5	32 ϕ x 14H	7.5 GHz	15,000
D-45	160	60	96	350sq. x 250H	270 MHz	45,000
	110	20	70	145sq. x 110H	480 MHz	22,000

Authorized U.S. Distributor

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