



Trans-Tech, a world leader in technical ceramics for over 40 years, has perfected the art of transforming the earth's minerals and oxides into high quality ceramic compound. Applications for our materials include wireless communications, cable television, circuit miniaturization, and technical powders, where the applications are endless.

Using state-of-the-art equipment Trans-Tech designs and manufactures a broad range of advanced technical ceramics. Our products include; dielectric resonators and coaxial transmission line elements for DRO and VCO applications, ceramic band-pass filters, ferrite and garnet material for circulators/isolators. Trans-Tech's product line family and engineering support provide RF engineers the ability to optimize their ceramic requirements. Trans-Tech offers superior performance, quality and delivery for both low and high volume requirements.

**Applications:**

- Cellular base station filters and combiners
- PCS/PCN filters and combiners
- Direct Broadcast Satellite (DBS) receivers
- WiMAX filters; telematics
- Motion detectors
- Telematics

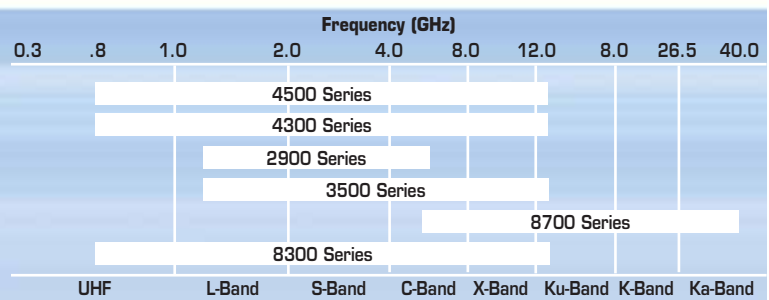
## Dielectric Resonators

Trans-Tech's dielectric resonators (DRs) fill the need for compact, temperature-stable high Q-factor microwave resonating elements. DRs are well understood and documented in engineering literature, and are commonly used in dielectric resonator oscillators (DROs) and low-loss filters. The ceramic material's electrical properties do not degrade or "age" within the limits of measurement accuracy.

Figures 1 and 2 present a brief comparative overview of the temperature compensated dielectric resonators available from Trans-Tech. Use the below charts to determine which material will work best for you.



### Materials Selection Chart



### Product Characteristics

		Series					
		4500	4300	2900	3500	8700	8300
Dielectric Constant		44.7-46.2	43.0	29.0-30.7	34.6-36.7	27.6-30.6	35.0-36.5
Q (1/tanδ)		>9.500	>9,500	>50.000	>35.000	10.000	>9.500
		at 4.36 GHz	at 4.3 GHz	at 2.0 GHz	at 2.0 GHz	at 10.0 GHz	at 4.5 GHz
Available Frequency (MHz)	Disc Type	800-13800	800-13,800	1500-5550	1500-13800	5550-32150	800-13800
	Cylinder Type	800-9010	800-9010	1500-5550	1500-9010	5550-9870	800-9010
Available τ <sub>f</sub> Tolerance (ppm/°C)		6/3/0/-3/-6	6/3/0/-3/-6	4/2/0/-2	6/3/0/-3	4/2/0	9/6/3/0/-3
Available τ <sub>f</sub> Tolerance (ppm/°C)		±2 or ±1	±2 or ±1	±2 or ±1	±2 or ±1	±2 or ±1	±2 or ±1
Composition		Zr Titanium Based	Zr Titanium Based	BaZnTa Oxide	BaZnCoNb	BaZnTa Oxide	Titanate Based