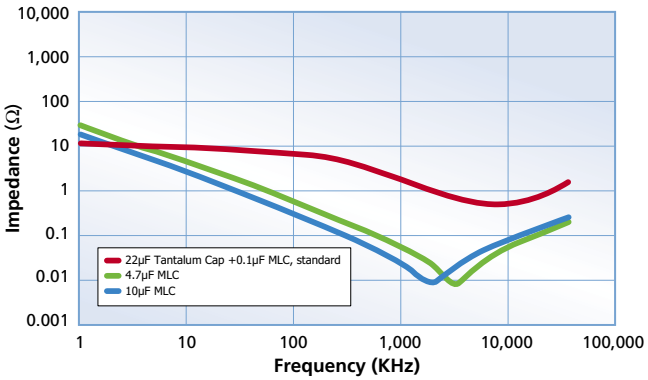
High Capacitance Chip - X7R, X5R

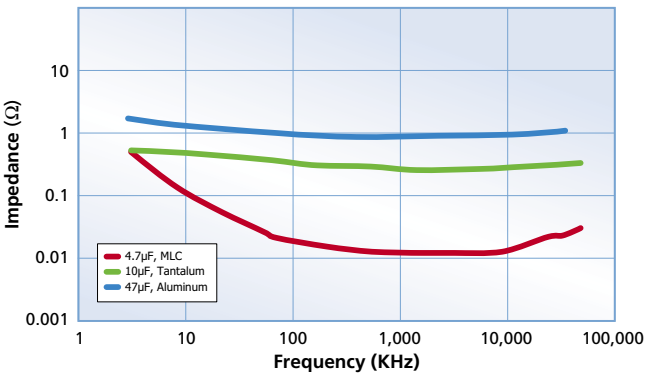
knowles
DLI•JohansonMFG•Novacap•Syfer•Voltronics

Comparison with other dielectric capacitors

Impedance Curves



ESR Characteristics



Dielectric characteristics

	X7R (BB) Stable	X5R (BW) Stable
Operating temperature range:	-55°C to 125°C	-55°C to 85°C
Temperature coefficient:	±15% ΔC Max.	±15% ΔC Max.
Dissipation factor:	3.5% max except: 0402 ≥ 0.1µF = 5%, 0603 ≥ 0.22µF = 10%, 0805 ≥ 1.0µF = 5%, 0805 ≥ 2.2µF = 10%, 1206 ≥ 2.2µF = 10%, 1210 ≥ 4.7µF = 5%, 1210 ≥ 22µF = 10%	5% max except: 0402 ≥ 1.0µF = 10%, 0603 ≥ 1.0µF = 10%, 0805 ≥ 4.7µF = 10%, 1206 ≥ 4.7µF = 10%, 1210 ≥ 10µF = 10%
Insulation resistance @25°C:	>10GΩ or >100ΩF whichever is less	>10GΩ or >100ΩF whichever is less
Dielectric withstanding voltage:	250%	250%
Ageing Rate:	X7R 3.5% typical	X5R 5% typical
Test parameters @ 25°C:	1KHz, 1.0 ±0.2 VRMS	1KHz, 1.0 ±0.2 VRMS 120Hz, 0.5 ±0.1 VRMS for 22µF, 47µF & 100µF

Ordering information - High Capacitance Chip Capacitors

1206	W	476	K	6R3	N	X080	T
Chip sizes	Dielectric	Capacitance	Tolerance	Voltage-VDCW	Termination	Thickness option	Packing
0402 **0603** **0805** **1206** **1210** **1812**	BB* = X7R BW*= X5R *Formerly B & W codes	Value in Picofarads. Two significant figures, followed by number of zeros: **476** = 47µF (47,000,000pF)	**K** = ± 10% **M** = ± 20%	Two significant figures, followed by number of zeros. R denotes decimal point: **6R3** = 6.3V **501** = 500V	**N** = Nickel Barrier (100% tin) **Y** = Nickel Barrier (90% tin/10% lead) **NG** = Nickel Barrier Gold Flash	Blank = Standard thickness **X** = special thickness, specified in inches: **X085** = 0.085"	No suffix = Bulk **T** = Tape & Reel

Note: BME parts available with added high reliability test. Consult the factory.