



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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High Capacitance Chip - X7R, X5R

A range of High Capacitance value BME MLC chip capacitors, in stable Class II dielectrics X7R and X5R, with a spread of capacitance values offered up to 100µF.

Comparable circuit designs can be achieved at typically a third to a fifth of the capacitance values because of the low ESR characteristics these parts exhibit. As a consequence they are also ideal to replace Tantalum and Low ESR Electrolytic Capacitors without polarity concerns. They find application as power supply bypass capacitors, smoothing capacitors, input/output filters in DC-DC Converters and in digital circuits and LCD modules.

Parts are RoHS Compliant and suitable for reflow soldering process.

- Nickel Barrier terminations with tin, tin/lead or gold flash
- Capacitance tolerances available: ±10%, ±20%
- Available with high reliability screening. Contact the Knowles Capacitors Sales Office for details



Capacitance values - High Capacitance Chip

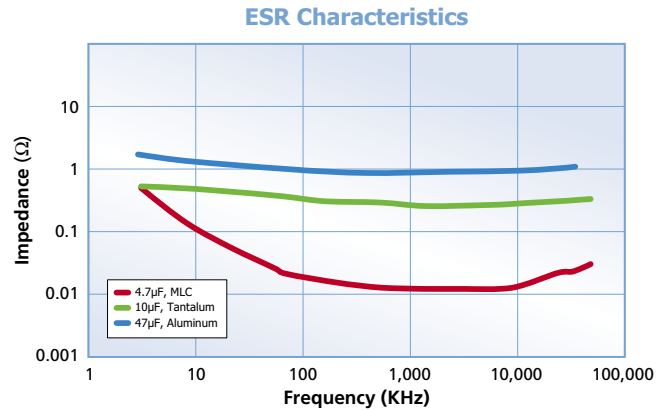
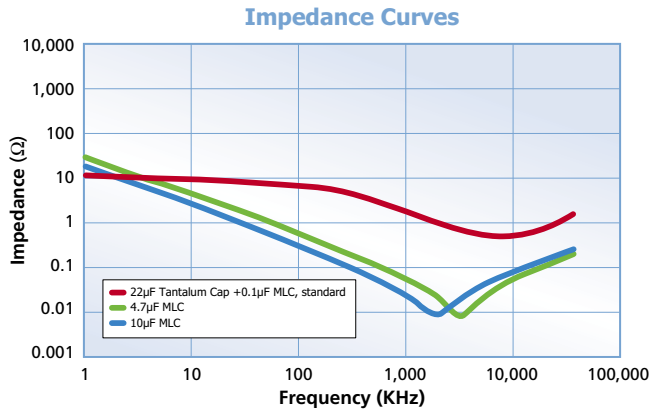
Size	0402		0603		0805		1206		1210				1812	
Tmax <small>inches: mm:</small>	0.024 0.61		0.035 0.89		0.054 1.37		0.072* 1.83		0.085* 2.16		0.110* 2.79		0.110* 2.79	
Dielectric	X7R	X5R	X7R	X5R	X7R	X5R	X7R	X5R	X7R	X5R	X7R	X5R	X7R	X5R
4V				22µF†				100µF†						-
6.3V	470nF	1µF 2.2µF† 4.7µF†		4.7µF 10µF†		22µF†		47µF†		47µF†	47µF†	100µF†		-
10V		1µF	2.2µF	4.7µF 10µF†	10µF†	10µF	22µF†	22µF†		22µF†		47µF†		-
16V	15nF 22nF 33nF 47nF 100nF 220nF	220nF 470nF 100nF 220nF 470nF	100nF 1µF	2.2µF 4.7µF	470nF 1.0µF 2.2µF 4.7µF†	4.7µF 10µF	10µF	10µF 22µF†	4.7µF† 10µF†			22µF†		-
25V	6.8nF 10nF 47nF 100nF	10nF 220nF	470nF 1.0µF	220nF 470nF 1.0µF 2.2µF	1.0µF 2.2µF 4.7µF	2.2µF 4.7µF	2.2µF 4.7µF 10µF	4.7µF 10µF	3.3µF† 4.7µF†	4.7µF† 10µF†	22µF†			-
35V										2.2µF† 4.7µF†		10µF		-
50V	10nF	100nF	220nF 470nF	100nF 470nF 1.0µF	220nF 470nF 1.0µF	220nF 470nF 1.0µF 2.2µF	470nF 1.0µF 2.2µF 4.7µF	4.7µF	1.0µF		4.7µF†	4.7µF† 10µF†		-
100V			100nF		220nF		1.0µF		1.0µF 2.2µF				1.0µF 2.2µF	-

* Denotes non standard chip thickness. Order code needs to have an 'X' inserted together with the dimension in inches -e.g. X072 where dimension is 0.072".

† Denotes only available in ±20% capacitance tolerance

High Capacitance Chip - X7R, X5R

Comparison with other dielectric capacitors



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.