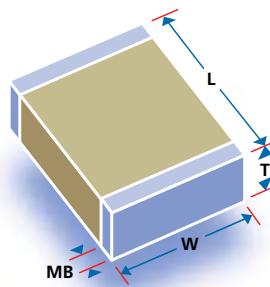
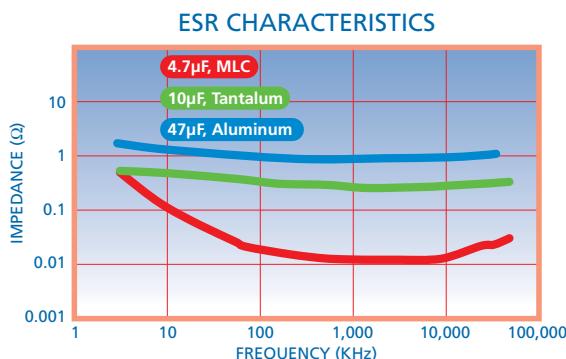
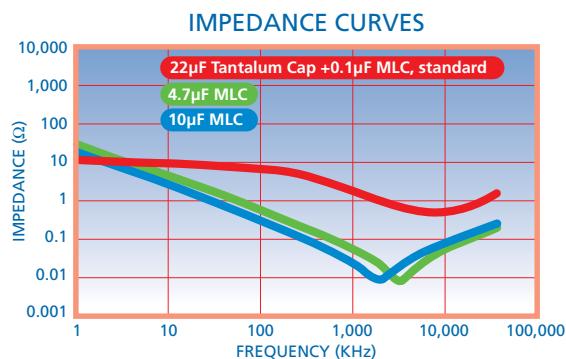


High Capacitance Chip X7R & X5R

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



Comparison with other dielectric capacitors



Dimensions and Tolerances - inches/mm

Size	L	W	MB	
0402	inches mm	0.040 \pm 0.004 1.02 \pm 0.10	0.020 \pm 0.004 0.51 \pm 0.10	0.010 \pm 0.004 0.25 \pm 0.10
0603	inches mm	0.063 \pm 0.006 1.60 \pm 0.15	0.032 \pm 0.006 0.81 \pm 0.15	0.014 \pm 0.010 0.36 \pm 0.25
0805	inches mm	0.080 \pm 0.008 2.00 \pm 0.20	0.050 \pm 0.008 1.30 \pm 0.20	0.020 \pm 0.010 0.51 \pm 0.25
1206	inches mm	0.126 \pm 0.008 3.20 \pm 0.20	0.063 \pm 0.008 1.60 \pm 0.20	0.020 \pm 0.010 0.51 \pm 0.30
1210	inches mm	0.126 \pm 0.012 3.20 \pm 0.31	0.100 \pm 0.012 2.50 \pm 0.31	0.024 \pm 0.012 0.61 \pm 0.31
1812	inches mm	0.180 \pm 0.016 4.60 \pm 0.41	0.125 \pm 0.012 3.20 \pm 0.31	0.035 \pm 0.020 0.90 \pm 0.51

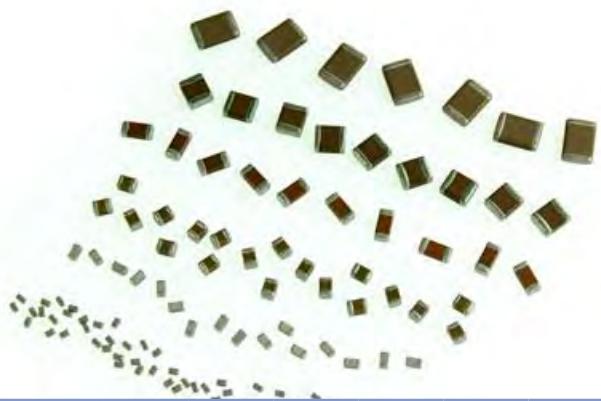
Dielectric Characteristics	X7R (BB) Stable	X5R (BW) Stable
Operating temperature range:	-55°C to 125°C	-55°C to 85°C
Temperature coefficient:	$\pm 15\%$ ΔC Max.	$\pm 15\%$ ΔC Max.
Dissipation factor:	3.5% max except: 0402 $\geq 0.1\mu$ F = 5%, 0603 $\geq 0.22\mu$ F = 10%, 0805 $\geq 1.0\mu$ F = 5%, 0805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

How to Order - High Capacitance Chip Capacitors

1206	W	476	K	6R3	N	X080	T
SIZE See Chart	DIELECTRIC BB* = X7R BW* = X5R	CAPACITANCE Value in Picofarads. Two significant figures, followed by number of zeros: 476 = 47 μ F (47,000,000pF)	TOLERANCE K = \pm 10% M = \pm 20%	VOLTAGE- VDCW Two significant figures, followed by number of zeros. R denotes decimal point: 6R3 = 6.3V 501 = 500V	TERMINATION N = Nickel Barrier (100%tin) Y = Nickel Barrier (90%tin 10% lead) NG = Nickel Barrier Gold Flash	THICKNESS OPTION Blank = Standard thickness X = special thickness, specified in inches: X085 = 0.085"	PACKING No suffix = Bulk T = Tape & Reel
<small>*Formally B & W codes</small>							

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

High Capacitance Chip X7R & X5R



- For dielectric characteristics see page 44.
- Nickel Barrier terminations with tin, tin/lead or gold flash
- Capacitance tolerances available: $\pm 10\%$, $\pm 20\%$
- Available with high reliability screening. Contact sales office for details

Note: Capacitance values are shown below as 3 digit code:
2 significant figures followed by the no. of zeros
e.g. 183 = 18,000pF.

Capacitance values														
Size		0402		0603		0805		1206		1210			1812	
Tmax	inches: mm:	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	0.110* 2.79	0.110* 2.79	0.110* 2.79	0.110* 2.79	0.110* 2.79	
Dielectric		X7R	X5R	X7R	X5R	X7R	X5R	X7R	X5R	X7R	X5R	X7R	X5R	
4V					226†				107†				-	
6.3V	224	105 225† 475†		475 106†		226†		476†		476† 476† 107†			-	
10V		474	225	475 106†	106†	106	226†	226†		226† 476†			-	
16V	153 223 333 473 104	224 474 105	105	225 475	474 105 225 475	475 106	106	106 226†	475† 106†		226†		-	
25V	682 103 473	104 224	474 105	224 474 105 225	105 225 475	225 475	225 475 106	475 106	335† 475†	475† 106† 226†			-	
35V										225† 475†			-	
50V	103	104	224 474	104 474 105	224 474 105	224 474 105	474 105 225 475	475	105	475†	475† 106†		-	
100V			104		224		105		105 225			105 225	-	

* 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 $\pm 20\%$ capacitance tolerance

Mouser Electronics

Authorized Distributor

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[0402W475K6R3NT](#)