

# Knowles/SYFER

## X7R AEC-Q200 & Industry Standard

	X7R (2R1)	0402	0603	0805	1206	1210	1808
Part number suffix	-	-	-	-	-	NC	NC
Maximum Thickness	0.61mm	0.8mm	0.9mm	1.37mm	1.7mm	1.7mm	2.0mm
16V	AEC-Q200	-	-	-	-	-	-
	Standard	-	100p - 120nF	-	100p - 470nF	100p - 1.2µF	100p - 2.7µF
25V	AEC-Q200	-	-	-	-	-	-
	Standard	47p - 10nF	100p - 100nF	-	100p - 390nF	100p - 1.0µF	100p - 2.2µF
50/63V	AEC-Q200	-	100p - 47nF	56n - 100nF	100p - 220nF	100p - 470nF	100p - 680nF
	Standard	47p - 5.6nF	100p - 47nF	56n - 100nF	100p - 330nF	100p - 680nF	100p - 1.0µF
100V	AEC-Q200	-	100p - 47nF	-	100p - 100nF	100p - 220nF	100p - 680nF
	Standard	47p - 3.3nF	100p - 47nF	-	100p - 100nF	100p - 330nF	100p - 680nF
200/250V	AEC-Q200	-	100p - 10nF	-	100p - 47nF	100p - 150nF	100p - 330nF
	Standard	47p - 1.0nF	100p - 10nF	-	100p - 56nF	100p - 150nF	100p - 330nF
500V	AEC-Q200	-	-	-	100p - 15nF	100p - 68nF	100p - 150nF
	Standard	-	100p - 1.5nF	-	100p - 15nF	100p - 68nF	100p - 150nF
630V	AEC-Q200	-	-	-	100p - 10nF	100p - 47nF	100p - 100nF
	Standard	-	-	-	100p - 12nF	100p - 47nF	100p - 100nF
1kV	AEC-Q200	-	-	-	100p - 4.7nF	100p - 10nF	100p - 47nF
	Standard	-	-	-	100p - 10nF	100p - 27nF	100p - 47nF
1.2kV	AEC-Q200	-	-	-	-	100p - 3.3nF	100p - 18nF
	Standard	-	-	-	-	100p - 15nF	100p - 18nF
1.5kV	AEC-Q200	-	-	-	-	100p - 2.7nF	100p - 6.8nF
	Standard	-	-	-	-	100p - 10nF	100p - 12nF
2kV	AEC-Q200	-	-	-	-	100p - 2.2nF	100p - 4.7nF
	Standard	-	-	-	-	100p - 2.2nF	2.7n - 3.3nF
2.5kV	AEC-Q200	-	-	-	-	100p - 1.5nF	100p - 4.7nF
	Standard	-	-	-	-	100p - 2.7nF	100p - 4.7nF
3kV	AEC-Q200	-	-	-	-	100p - 1.0nF	100p - 3.3nF
	Standard	-	-	-	-	100p - 1.5nF	100p - 3.3nF
4kV*	AEC-Q200	-	-	-	-	-	-
	Standard	-	-	-	-	-	100p - 1.0nF
5kV*	Standard	-	-	-	-	-	100p - 680pF
6kV*	Standard	-	-	-	-	-	100p - 390pF
8kV*	Standard	-	-	-	-	-	-
10kV*	Standard	-	-	-	-	-	-
12kV*	Standard	-	-	-	-	-	-

- Notes: 1) \*Parts rated 4kV and above may require conformal coating post soldering.  
 2) WS2 suffix relates to StackCap™ high capacitance parts.  
 3) NC suffix parts maximise capacitance at high voltages. These parts **must** be conformally coated after mounting, especially between the board and the component.  
 4) Parts in this range may be dual-use under export control legislation and as such may be subject to export licence restrictions. Please refer to page 9 for more information on the dual-use regulations and contact the Sales office for further information on specific part numbers.

WS2 = relates to Stackcap /// NC suffix parts maximize capacitance at high voltage

Contact: Bredemeier Electronics GmbH Tel 089-908024



# Knowles/SYFER

## X7R AEC-Q200 & Industry Standard

	X7R (2R1)	1812		1825	2220		2225	3640		5550		
	Part number suffix	-	NC	WS2	-	-	NC	WS2	-	-	WS2	-
	Maximum Thickness	2.5mm	2.5mm	3.2mm	2.5mm	2.5mm	2.5mm	4.5mm	2.5mm	2.5mm	4.5mm	2.5mm
16V	AEC-Q200	-	-	-	-	-	-	-	-	-	-	-
	Standard	150p - 6.8µF	-	-	220p - 12µF	220p - 12µF	-	-	330p - 15µF	-	-	-
25V	AEC-Q200	-	-	-	-	-	-	-	-	-	-	-
	Standard	150p - 4.7µF	-	-	220p - 10µF	220p - 10µF	-	-	330p - 12µF	-	-	-
50/63V	AEC-Q200	150p - 2.2µF	-	-	220p - 2.2µF	220p - 3.3µF	-	-	330p - 3.3µF	470p - 4.7µF	-	-
	Standard	150p - 3.3µF	-	-	220p - 2.2µF	220p - 6.8µF	-	-	330p - 10µF	470p - 10µF	-	1.0n - 15µF
100V	AEC-Q200	150p - 1.0µF	-	-	220p - 1.5µF	220p - 1.5µF	-	-	330p - 2.2µF	470p - 3.3µF	-	-
	Standard	150p - 1.5µF	-	-	220p - 1.5µF	220p - 2.2µF	-	-	330p - 2.7µF	470p - 5.6µF	-	1.0n - 10µF
200/250V	AEC-Q200	150p - 680nF	-	820n - 1.0µF	220p - 1.0µF	220p - 1.0µF	-	-	330p - 1.5µF	470p - 1.5µF	-	-
	Standard	150p - 680nF	-	820n - 1.0µF	220p - 1.0µF	220p - 1.0µF	-	1.2µ - 2.2µF	330p - 1.5µF	470p - 3.3µF	3.9µ - 5.6µF	1.0n - 5.6µF
500V	AEC-Q200	150p - 330nF	-	390n - 470nF	220p - 560nF	220p - 560nF	-	-	330p - 680nF	470p - 1.0µF	-	-
	Standard	150p - 330nF	-	390n - 470nF	220p - 560nF	220p - 560nF	-	680n - 1.2µF	330p - 820nF	470p - 1.0µF	1.2µ - 2.7µF	1.0n - 1.8µF
630V	AEC-Q200	150p - 150nF	-	180n - 330nF	220p - 180nF	220p - 330nF	-	390n - 1.0µF	330p - 390nF	470p - 680nF	-	-
	Standard	150p - 180nF	-	220n - 330nF	220p - 180nF	220p - 330nF	-	390n - 1.0µF	330p - 390nF	470p - 680nF	820n - 2.2µF	1.0n - 1.2µF
1kV	AEC-Q200	150p - 68nF	-	82n - 180nF	220p - 180nF	220p - 120nF	-	150n - 470nF	330p - 150nF	470n - 180nF	220n - 1.0µF	-
	Standard	150p - 100nF	-	120n - 180nF	220p - 180nF	220p - 120nF	-	150n - 470nF	330p - 150nF	470p - 180nF	220n - 1.0µF	1.0n - 390nF
1.2kV	AEC-Q200	150p - 33nF	-	-	220p - 68nF	220p - 82nF	-	-	330p - 100nF	470p - 150nF	-	-
	Standard	150p - 33nF	-	39n - 100nF	220p - 68nF	220p - 82nF	-	100n - 220nF	330p - 100nF	470p - 150nF	180n - 470nF	1.0n - 220nF
1.5kV	AEC-Q200	150p - 22nF	-	-	220p - 47nF	220p - 47nF	-	-	330p - 68nF	470p - 100nF	-	-
	Standard	150p - 22nF	-	27n - 56nF	220p - 47nF	220p - 47nF	-	56n - 150nF	330p - 68nF	470p - 100nF	120n - 330nF	1.0n - 150nF
2kV	AEC-Q200	150p - 10nF	-	-	220p - 10nF	220p - 27nF	-	-	330p - 33nF	470p - 47nF	-	-
	Standard	150p - 10nF	12n - 12nF	-	220p - 10nF	220p - 33nF	-	39n - 100nF	330p - 33nF	470p - 47nF	56n - 150nF	1.0n - 82nF
2.5kV	AEC-Q200	150p - 3.3nF	3.9n - 5.6nF	-	220p - 4.7nF	220p - 8.2nF	10n - 12nF	-	330p - 12nF	470p - 22nF	-	-
	Standard	150p - 3.3nF	3.9n - 8.2nF	-	220p - 6.8nF	220p - 8.2nF	10n - 22nF	-	330p - 12nF	470p - 33nF	-	1.0n - 68nF
3kV	AEC-Q200	150p - 2.7nF	3.3n - 3.3nF	-	220p - 2.7nF	220p - 6.8nF	8.2n - 10nF	-	330p - 8.2nF	470p - 18nF	-	-
	Standard	150p - 2.7nF	3.3n - 4.7nF	-	220p - 3.9nF	220p - 6.8nF	8.2n - 10nF	-	330p - 8.2nF	470p - 22nF	-	1.0n - 47nF
4kV*	AEC-Q200	150p - 2.2nF	-	-	-	220p - 2.2nF	-	-	-	-	-	-
	Standard	150p - 2.2nF	2.7n - 3.3nF	-	220p - 2.2nF	220p - 4.7nF	5.6n - 6.8nF	-	330p - 5.6nF	470p - 6.8nF	-	1.0n - 15nF
5kV*	Standard	150p - 1.2nF	-	-	220p - 1.8nF	220p - 3.9nF	4.7n - 4.7nF	-	330p - 4.7nF	470p - 5.6nF	-	1.0n - 10nF
6kV*	Standard	150p - 1.0nF	-	-	220p - 1.5nF	220p - 2.2nF	-	-	330p - 2.7nF	470p - 4.7nF	-	1.0n - 8.2nF
8kV*	Standard	-	-	-	-	-	-	-	-	470p - 1.5nF	-	1.0n - 4.7nF
10kV*	Standard	-	-	-	-	-	-	-	-	470p - 1.0nF	-	1.0n - 2.2nF
12kV*	Standard	-	-	-	-	-	-	-	-	470p - 820pF	-	1.0n - 1.2nF

WS2 = relates to Stackicap /// NC suffix parts maximize capacitance at high voltage

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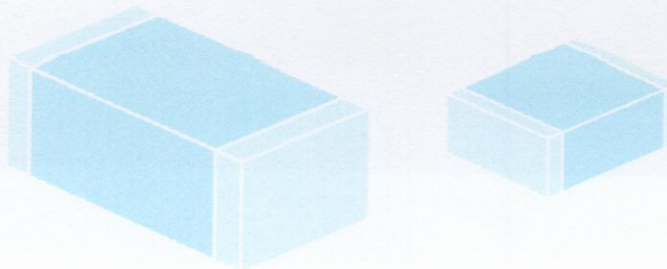
## Ordering Information X7R AEC-Q200 & Industry Standard

### Ordering information - AEC-Q200 ranges

0805	Y	100	0103	K	S	T	---
Chip size	Termination	Voltage	Capacitance in picofarads (pF)	Capacitance tolerance	Dielectric Release codes	Packaging	Suffix code
0603 0805 1206 1210 1808 1812 1825 2220 2225 3640	<p><b>Y</b> = FlexiCap™ termination base with Ni barrier (100% matte tin plating). RoHS compliant.</p> <p><b>H</b> = FlexiCap™ termination base with Ni barrier (Tin/lead plating with min. 10% lead). Not RoHS compliant.</p> <p><b>J</b> = Nickel barrier (100% matte tin plating). RoHS compliant. Lead free.</p> <p><b>A</b> = Nickel barrier (Tin/lead plating with min. 10% lead). Not RoHS compliant.</p> <p>Note: X7R (2R1) to AEC-Q200 is only available in Y or H termination.</p>	<p>016 = 16V 025 = 25V 050 = 50V 063 = 63V 100 = 100V 200 = 200V 250 = 250V 500 = 500V 630 = 630V 1K0 = 1kV 1K2 = 1.2kV 1K5 = 1.5kV 2K0 = 2kV 2K5 = 2.5kV 3K0 = 3kV</p>	<p>First digit is 0. Second and third digits are significant figures of capacitance code. The fourth digit is number of zeros following Example: 0103 = 10nF</p>	<p>F = ±1% G = ±2% J = ±5% K = ±10% M = ±20%</p> <p>Note: X7R (2R1) parts are available in J, K &amp; M tolerances only.</p>	<p>A = COG/NP0 (1B) to AEC-Q200 - original K = COG/NP0 (1B) to AEC-Q200 - recommended E = X7R (2R1) to AEC-Q200 - original S = X7R (2R1) to AEC-Q200 - recommended</p>	<p>T = 178mm (7") reel R = 330mm (13") reel B = Bulk pack - tubs or trays</p>	<p>AG1 = Special Thickness U99 = Special Thickness WS2 = StackiCap™ NC = Conformal coating required</p>

### Ordering information - Standard ranges

1210	Y	200	0103	K	C	T	---
Chip size	Termination	Voltage	Capacitance in picofarads (pF)	Capacitance tolerance	Dielectric Release codes	Packaging	Suffix code
0402 0603 0805 1206 1210 1808 1812 1825 2220 2225 3640 5550 8060	<p><b>Y</b> = FlexiCap™ termination base with Ni barrier (100% matte tin plating). RoHS compliant.</p> <p><b>H</b> = FlexiCap™ termination base with Ni barrier (Tin/lead plating with min. 10% lead). Not RoHS compliant.</p> <p><b>J</b> = Nickel barrier (100% matte tin plating). RoHS compliant. Lead free.</p> <p><b>A</b> = Nickel barrier (Tin/lead plating with min. 10% lead). Not RoHS compliant.</p>	<p>010 = 10V 016 = 16V 025 = 25V 050 = 50V 063 = 63V 100 = 100V 200 = 200V 250 = 250V 500 = 500V 630 = 630V 1K0 = 1kV 1K2 = 1.2kV 1K5 = 1.5kV 2K0 = 2kV 2K5 = 2.5kV 3K0 = 3kV 4K0 = 4kV 5K0 = 5kV 6K0 = 6kV 8K0 = 8kV 10K = 10kV 12K = 12kV</p>	<p>First digit is 0. Second and third digits are significant figures of capacitance code. The fourth digit is number of zeros following Example: 0103 = 10nF</p>	<p>F = ±1% G = ±2% J = ±5% K = ±10% M = ±20%</p> <p>Note: X7R (2R1) parts are available in J, K &amp; M tolerances only.</p>	<p>C = COG/NP0 (1B) X = X7R (2R1)</p>	<p>T = 178mm (7") reel R = 330mm (13") reel B = Bulk pack - tubs or trays</p>	<p>AG1 = Special Thickness U99 = Special Thickness WS2 = StackiCap™ NC = Conformal coating required</p>



WS2 = relates to Stackicap /// NC suffix parts maximise capacitance at high voltage