

SMPS Capacitors (RH Style)



RH - Surface Mount 'J' Lead Range



The RH range uses high volumetric efficient X7R capacitors in a "J" style lead frame.

The range of components are uncoated and are suitable for input or output filter capacitors in high frequency DC-DC convertor, automotive, telecom, industrial and military applications

When large ceramic capacitors are used in applications they can easily be affected stresses caused by temperature variations, thermal shock, and mechanical vibrations. PCB bend movement and temperature stresses on the ceramic capacitors. The RH range allows the capacitors to be double stacked so a higher volumetric efficiency can be achieved by the customer and this saves on PCB space.

FEATURES

- RH 21/22 are AEC-Q200 compliant.
- RH range has low ESR/ESL capability
- PCB space saving using double stacked MLCCs
- Enhanced thermo mechanical stress resistance.

Note: AVX does not recommend or advise the use of adhesives to secure the RH components to the PCB.

ELECTRICAL SPECIFICATIONS

Temperature Coefficient CECC 30 000, (4.24.1)

X7R: C Temperature Characteristic - $\pm 15\%$, -55°C to $+125^{\circ}\text{C}$

Capacitance Test

Measured at 1 VRMS max at 1KHz

Dissipation Factor 25°C

2.5% max at 1KHz, 1 VRMS max

Insulation Resistance 25°C

100K megohms or 1000 megohms- μF , whichever is less

Dielectric Withstanding Voltage 25°C (Flash Test)

250% rated voltage for 5 seconds with 50 mA max charging current. (500 Volt units @ 150% rated voltage)

Life Test (1000 hrs) CECC 30 000 (4.23)

200% rated voltage at $+125^{\circ}\text{C}$.

(500 Volt units @ 120% rated voltage)

Thermal Shock IEC 68.2.14

-55°C to $+125^{\circ}\text{C}$, 5 cycles

Resistance to Solder Heat IEC 68.2.20

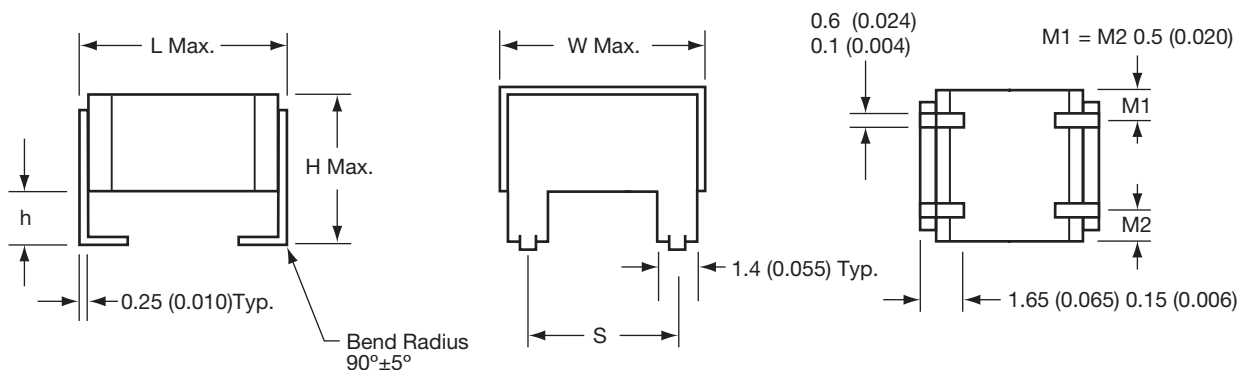
Typical ESR (m Ω) 3 μF , 100V X7R	
ESR @ 100KHz	17
ESR @ 500KHz	12
ESR @ 1MHz	14

DIMENSIONS

millimeters (inches)

Style	L max	W max	H max	S ± 0.1 (± 0.004)	h	No. of leads per side
RH21	7.20 (0.283)	5.40 (0.213)	4.60 (0.181)	2.50 (0.098)	1.50 ± 0.30 (0.059 ± 0.012)	2
RH22	7.20 (0.283)	5.40 (0.213)	7.50 (0.295)	2.50 (0.098)	1.50 ± 0.30 (0.059 ± 0.012)	2
RH31	7.62 (0.300)	7.00 (0.270)	5.08 (0.200)	5.08 (0.200)	1.78 ± 0.25 (0.070 ± 0.010)	3
RH32	7.62 (0.300)	7.00 (0.270)	8.13 (0.320)	5.08 (0.200)	1.78 ± 0.25 (0.070 ± 0.010)	3
RH41	9.20 (0.362)	8.70 (0.342)	4.90 (0.192)	5.08 (0.200)	1.60 ± 0.10 (0.062 ± 0.004)	3
RH42	9.20 (0.362)	8.70 (0.342)	8.20 (0.323)	5.08 (0.200)	1.60 ± 0.10 (0.062 ± 0.004)	3
RH51	10.7 (0.421)	10.7 (0.421)	4.90 (0.192)	7.62 (0.300)	1.60 ± 0.10 (0.062 ± 0.004)	4
RH52	10.7 (0.421)	10.7 (0.421)	8.20 (0.323)	7.62 (0.300)	1.60 ± 0.10 (0.062 ± 0.004)	4
RH61	14.9 (0.586)	13.6 (0.535)	4.90 (0.192)	10.2 (0.400)	1.60 ± 0.10 (0.062 ± 0.004)	5
RH62	14.9 (0.586)	13.6 (0.535)	8.20 (0.323)	10.2 (0.400)	1.60 ± 0.10 (0.062 ± 0.004)	5

DIMENSIONS millimeters (inches)



Performance of SMPS capacitors can be simulated by downloading SpiCalci software program -

<http://www.avx.com/SpiApps/default.asp#spicalci>

Custom values, ratings and configurations are also available.



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X7R STABLE DIELECTRIC

	RH21/RH22 Style					RH31/RH32 Style				RH41/RH42 Style				RH51/RH52 Style				RH61/RH62 Style			
Voltage DC																					
Cap μ F	25	50	100	200	500	50	100	200	500	50	100	200	500	50	100	200	500	50	100	200	500
0.047																					
0.056																					
0.068									RH31												
0.082																					
0.1																					
0.12																					
0.15									RH32				RH41								
0.18																					
0.22																					
0.27									RH31												
0.33													RH42								
0.39																		RH51			
0.47													RH41								
0.56									RH32									RH52			
0.68																					RH61
0.78																					
0.82																					
1								RH31					RH42								
1.2																					
1.5							RH31														
1.8												RH41									
2.2								RH32													
3												RH41									
3.3				RH21																	
3.9							RH32					RH42									
4.7																					
6.8																					
8.2			RH21	RH22																	
10																					
12																					
15																					
18	RH21	RH22																			
22																					
33																					
47	RH22																				

For availability of further parts in the RH21/RH22 Series, contact manufacturing.

PACKAGING

Style	Qty/Reel 13"	Max. Qty/Waffle Pack
RH21	800	270
RH22	500	270
RH31	800	108
RH32	500	108
RH41	see note	108
RH42	500	100
RH51	750	88
RH52	see note	88
RH61	500	42
RH62	see note	42

Note: T&R is not yet available. Contact manufacturing for further information as this will be available in the future.



HOW TO ORDER

RH	31	5	C	225	M	A	3	0	A	3
Style Code (see table above)	Size Code	Voltage Code 3 = 25V 5 = 50V 1 = 100V 2 = 200V 7 = 500V	Dielectric Code C = X7R	Capacitance Code (2 significant digits + no. of zeros) eg. 105 = 1 μ F 104 = 0.1 μ F	Capacitance Tolerance K = $\pm$ 10% M = $\pm$ 20%	Specification Code A = Non customized	Package Code 3 = Waffle Pack A = Tape & Reel	Lead Dia. Code 0 = Standard R = RoHS Compliant	Lead Space Code A = Standard	Lead Style Code 3 = 'J' Lead



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