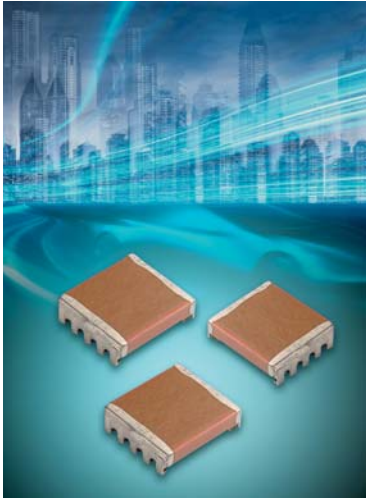


# Automotive RH



## AEC-Q200 RH X7R



With the increased demand from the automotive industry for additional capacitance and component level robustness, AVX developed the AEC-Q200 RH range to meet these demands. The RH range uses a high volumetric efficient X7R 2220 case size BME capacitor in a “J” style lead frame. When large ceramic capacitors are used in applications they can be affected by stresses caused during assembly processes and or by temperature variations, thermal shock, and mechanical vibrations over their lifetimes. The RH lead frame is designed to reduce these thermo-mechanical stresses to meet the different customers’ applications requirements.

### GENERAL CHARACTERISTICS

- Operating Temperature: -55°C to 125°C
- Capacitance Variation: ±15%

### HIGH CV TECHNOLOGY

- High CV technology
- PCB area savings using double stacks
- Low ESR/ESL in a rugged “J” lead frame

### APPLICATIONS

- Fuel Pumps
- DC/DC Converter
- Commercial Vehicle
- Electric water pumps
- Electric Power assist steering
- Active suspension

### HOW TO ORDER

<b>RH</b>	<b>22</b>	<b>3</b>	<b>C</b>	<b>226</b>	<b>M</b>	<b>4</b>	<b>3</b>	<b>0</b>	<b>A</b>	<b>3</b>
<b>Style Code</b> (see table above)	<b>Size Code</b>	<b>Voltage Code</b> 3 = 25V 5 = 50V 1 = 100V	<b>Dielectric Code</b> C = X7R	<b>Capacitance Code</b> (2 significant digits + no. of zeros) eg. 105 = 1 µF 104 = 0.1 µF	<b>Capacitance Tolerance</b> K = ±10% M = ±20%	<b>Specification Code</b> 4 = Automotive	<b>Package Code</b> 3 = Waffle Pack A = Tape & Reel	<b>Lead Dia. Code</b> 0 = Standard R = RoHS Compliant	<b>Lead Space Code</b> A = Standard	<b>Lead Style Code</b> 3 = 'J' Lead



### AEC-Q200 QUALIFIED RH RANGE

Cap F	RH21/RH22 Style		
	Voltage DC		
	25	50	100
1.2			
1.5			
1.8			
2.2			
3			
3.3			RH21
3.9			
4.7			
6.8			
8.2		RH21	RH22
10			
12			
15	RH21	RH22	DEV
18			
22			
33	RH22	RH22	
47			
68	DEV		

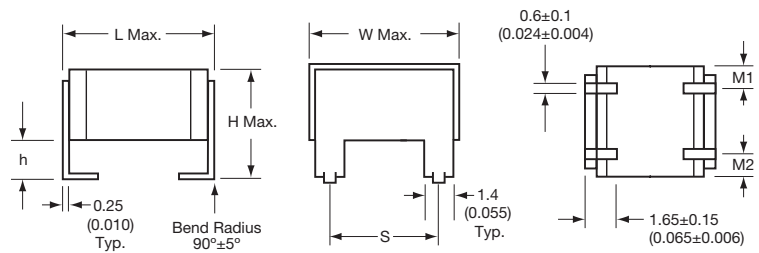
For availability of further parts in the RH21/RH22 Series, contact manufacturing.

### PACKAGING

Style	Qty/Reel 13"	Max. Qty/Waffle Pack
RH21	800	270
RH22	500	270

### DIMENSIONS

Style	millimeters (inches)					
	L max	W max	H max	S	h	No. of leads per side
RH21	7.20 (0.283)	5.40 (0.213)	4.60 (0.181)	6.20 ±0.50 (0.244 ±0.020)	1.50 ±0.30 (0.059 ±0.012)	2
RH22	7.20 (0.283)	5.40 (0.213)	7.50 (0.295)	6.20 ±0.50 (0.244 ±0.020)	1.50 ±0.30 (0.059 ±0.012)	2

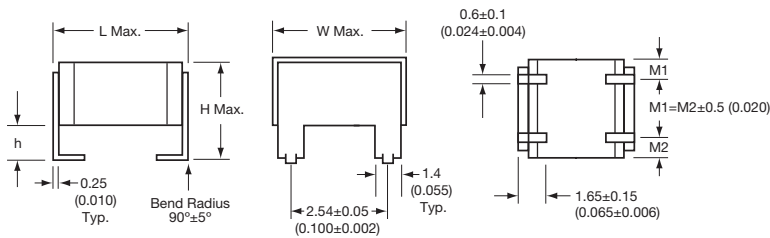


### ELECTRICAL CHARACTERISTICS

#### DIMENSIONS

millimeters (inches)

L max	W max	H max	S	h	No. of leads per side
7.20 (0.283)	5.40 (0.213)	7.50 (0.295)	6.20 ±0.50 (0.244 ±0.020)	1.50 ±0.30 (0.059 ±0.012)	2

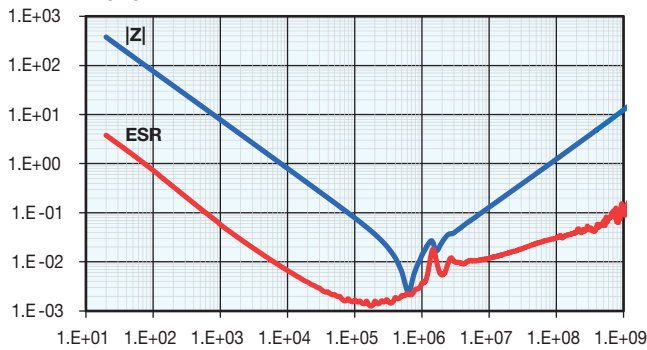


#### BASIC SPECIFICATIONS

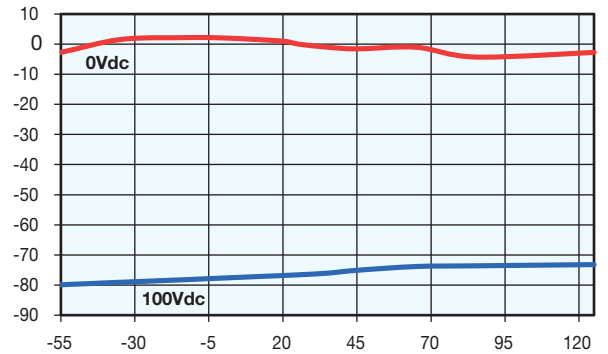
Item	Unit	Spec.	Conditions
Capacitance	uF	17.6 to 26.4	1 kHz, 1 Vrms
DF max.	%	2.	1 kHz, 1 Vrms
IR min.	MOhm	45	100 Vdc, t > 120 s
DWV	Vdc	250	I < 50 mA, t < 5 s

Operating Temperature: -55°C to +125°C  
Temp. Characteristic: X7R (±15%)

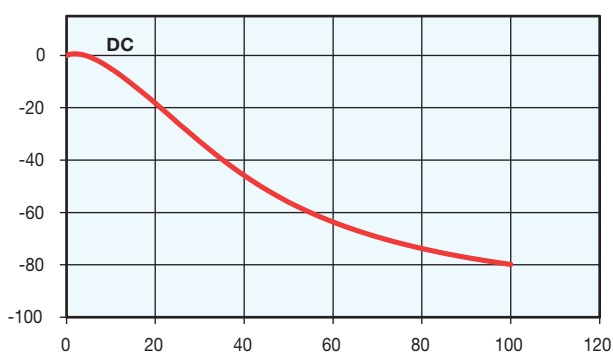
**|Z| & ESR [Ω] vs Frequency [Hz]** (axis x)



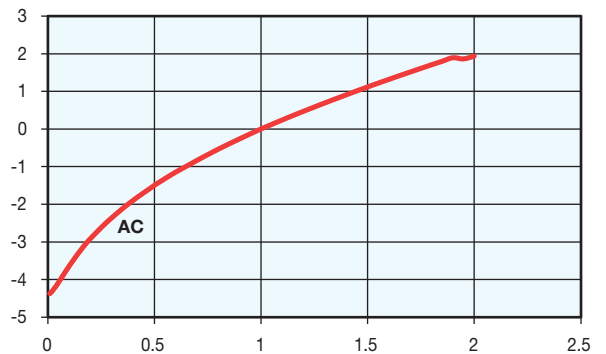
**Cap.Change [%] vs Temperature [°C]** (axis x)



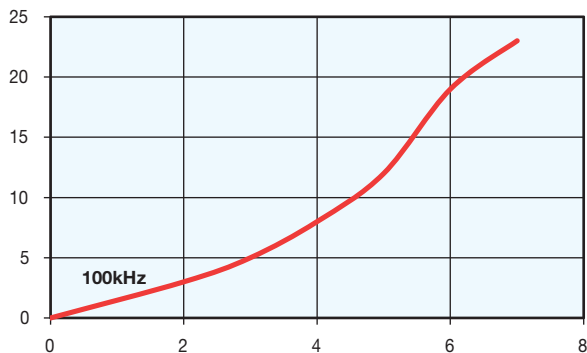
**Cap.Change [%] vs DC Bias [V<sub>DC</sub>]** (axis x)



**Cap.Change [%] vs AC Voltage [A<sub>RMS</sub>]** (axis x)



**Temp.Rise [°C] vs Ripple Current [A<sub>RMS</sub>]** (axis x)



**Q [-] vs Frequency [Hz]** (axis x)

