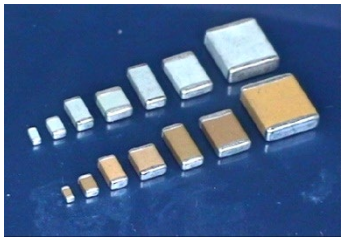
IHHEC

Multilayer Ceramic Capacitors

[Automotive Grade MLCCs]

ACC Series



◆ Features

- ❑ AEC-Q200 & IATF16949 qualified.
- ❑ Suitable for harsh Automotive environments without additional qualification testing
- ❑ Available with Polymer Termination (Super Term) to prevent mechanical cracking
- ❑ High Reliability
- ❑ RoHS compliant
- ❑ 250Vac, X1/Y2 Safety capacitors available

◆ Applications

- ❑ Power supplies
- ❑ Lighting
- ❑ Isolation
- ❑ Powertrain
- ❑ Safety equipment
- ❑ Custom applications , BMS ,On board charger

◆ Summary of Specifications

Operation Temperature	-55 ℃ to +125 ℃	
Rated Voltage	10Vdc ~ 3000Vdc , 250Vac X1/Y2 Safety capacitors	
Temperature Coefficient	NP0 : ≤ ± 30ppm/ ℃	-55 ℃ to +125 ℃ (EIA Class I)
	X7R : ± 15%	-55 ℃ to +125 ℃ (EIA Class Ⅱ)
Capacitance Range	NP0 : 10pF ~ 47nF ; X7R : 330pF ~ 4.7uF	
Dissipation Factor	NP0 : More than 30pF Q≧1000 ; 30pF & below Q≧400+20C X7R : Range 2.5% to 10%	
Insulation Resistance	10GΩ or 500/C Ω, whichever is smaller (C in Farad)	
Aging	NP0 : 0% ; X7R : 2.5% per decade of time	
Dielectric Withstanding	V ＜100V	250% rated voltage
	100V ≤ V ＜ 500V	200% rated voltage
	500V ≤ V ＜ 1000V	150% rated voltage
	1000V ≤ V	120% rated voltage

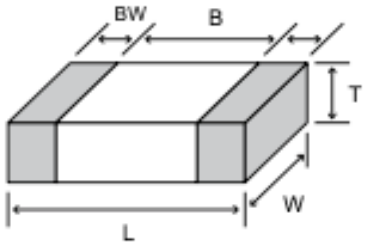
◆ How To Order

ACC	2220	N	333	K	102	T	I	X	Y
Product Code	**Chip Size**	**Dielectric**	**Capacitance Unit : pF**	**Tolerance**	**Rated Voltage**	**Packaging**	**Thickness (mm) (Optional)**	**Special Requirement**	**Suffix Code**
ACC : Automotive Grade Capacitors	EX : 0805 1206 1210 1812 1825 2222	EX : N : NP0 X : X7R	EX : 100 : 10 x 10^0 221 : 22 x 10^1 332 : 33 x 10^2 473 : 47 x 10^3 684 : 68 x 10^4	EX : J: +/- 5% K: +/-10% M: +/-20%	EX : 025 : 25Vdc 050 : 50Vdc 101 : 100Vdc 251 : 250Vdc 501 : 500Vdc 102 : 1000Vdc 202 : 2000Vdc 302 : 3000Vdc	EX : T : T&R 7” R : T&R 13” B : Bulk	Ex: D: 1.25±0.20 E: 1.60±0.20 I : 3.2±0.20	EX: X: Polymer Termination (Super Term) O: Arc Prevention Coating Z: Coating & Polymer Termination	Y

ACC Series – Automotive Grade Capacitors

IHHEC

◆ Dimensions



Unit : mm

SIZE	L	W	T (max)	B (min)	BW (min)
0402	1.00±0.05	0.5±0.05	0.55	0.30	0.15
0805	2.00 +0.45/-0.20	1.25 +0.25/-0.20	1.25±0.25	0.70	0.20
1206	3.20.±0.30	1.60±0.20	1.6±0.30	1.50	0.30
1210	3.20±0.30	2.50±0.20	2.60	1.60	0.30
1812	4.60±0.30	3.20±0.30	3.00	2.50	0.30
1825	4.60±0.30	6.35±0.40	3.00	2.50	0.30
2220	5.70±0.40	5.00±0.40	3.00	3.50	0.30

◆ Capacitance Range

Capacitance Range (pF)-ACC series-NPO

Size	Voltage (v)	100	120	150	180	200	220	270	300	330	390	470	560	680	820	101	121	151	181	221	271	331	391	471	561	681	821	102	122	152	182	222	272	332	392	472	562	682	822	103	123	153	183	223	273	333	393	473	563	683	823	104
0805	25	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	D	D	D	D	D															
	50	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	D	D	D	D	D															
	100	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	D	D	D	D	D															
	250	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	D	D	D																	
1206	25				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	D	D	D	D	D	E	E	E	E	E	E	E
	50				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	D	D	D	D	D	E	E	E	E	E	E	E
	100				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	D	D	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E
	200				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	D	D	E	E	E	E	E	E									
	250				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	D	D	E	E	E	E	E	E									
	500				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	C	D	D	E	E	E	E	E	E	E	E	E	E	E	E	E	E													
	630				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	C	D	D	E	E	E	E	E	E	E	E	E	E	E	E	E	E													
	1000				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	C	D	D	E	E																									
1808	1000	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	E	E	F	F																															
	2000	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	E	E	F	F																															
	3000	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	E	E	F	F																															
1210	500															D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	F	F	F	F	F	G	G	M	M	M	M	M	M	M						
	630															D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	F	F	F	F	F	G	G	M	M	M	M	M	M	M						
	1000															D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	F	F	F	F	F	G	G	M	M	M	M	M							
1812	1000																											E	E	F	F	F	F	F	F	F	G	G													
1825	500																																							D	E	E	E	F	F	F	F	G				
2220	500																					D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	G	G	H	I	F	F	G	G	H	H
	630																					D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	G	G	H	I	F	F	G	G	H	H
	1000																					D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	F	F	G	G	H	I						
	2000																						D	D	D	D	D	D	D	D	D	D	E	E	E	F	F	G													

Note :

- Only Polymer Termination (Super Term) Available
- Available with Standard or Polymer Termination (Super Term)
- Capacitors must be coated.

◆ Thickness Dimensions

Symbol Code	B	C	D	E	F	G	H	I
Thickness(mm)	0.85±0.15	1.0+0.1/-0.05	1.25±0.20	1.6±0.2	2.0±0.2	2.4±0.2	2.8±0.2	3.2±0.2

◆ Capacitance Range

Size	Voltage (v)	Capacitance Range (pF)-ACC series - X7R																																																				
		101	151	221	331	391	471	561	681	821	102	122	152	182	222	272	332	392	472	562	682	822	103	123	153	183	223	273	333	393	473	563	683	823	104	124	154	184	224	274	334	394	474	564	684	824	105	155	225	335	475	685	106	226
0402	16																																		0																			
	25																																		0																			
	50																																		0																			
0603	16																						B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B							
	25																						B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B							
	50		B	B	B	B	B	B	B	B	B												B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B															
	100		B	B	B	B	B	B	B	B	B												B	B	B	B	B	B	B	B	B	B	B	B	B																			
0805	10																												C	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D					
	16				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	D	C	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D					
	25				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	D	C	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D					
	50				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	D	C	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D	D	D	D					
	100				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	D	C	C	C	C	C	C	C	D	D	D	D	D	D	D	D	D	D	D	D							
	250				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	D																										
1206	10																																			E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E			
	16																																			E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E			
	25				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	D	D	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E			
	50				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	D	D	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E	E			
	100				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	D	D	E	E	E	E	E	E	E	E	E	E	E	E	E							
	250				B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	B	C	C	D	D	E	D	D	E	E															
	630										C	C	C	C	C	C	C	C	C	C	C	D	D																															
	1KV	C	C	C	C	C	C	C	C	C	D	D	D	D	D	E	E	E	E	E	E	E	E	E	E	E	E																											
1210	16																																														F	F	F	F	F	F	G	
	25																																														F	F	F	F	F	F	G	
	50V																																														F	F	F	F	F			
	100V																																								D	D	D	D	D	E	F	F	F	F	F			
	250V																													C	C	C	D	E	F	F	F	F	F															
	500V																		C	C	C	D	D	D	D	D	D	E	F	F	G	D	D	D	E	E	F																	
	630V																		C	C	C	D	D	D	D	D	D	E	F	F	G	D	D	D	E	E	F																	
	1KV										C	C	C	C	C	D	D	D	D	D	D	E	E	E	E	F	F																											
	2KV			C	C	C	C	C	C	C	D	D	E	E	E																																							

Note :

- Only Polymer Termination (Super Term) Available
- Available with Standard or Polymer Termination (Super Term)
- Capacitors must be coated.

◆ Thickness Dimensions

Symbol Code	B	C	D	E	F	G	H	I
Thickness(mm)	0.85±0.15	1.0+0.1/-0.05	1.25±0.20	1.6±0.2	2.0±0.2	2.4±0.2	2.8±0.2	3.2±0.2

- *Other dimensions, capacitance values and voltage ratings are available on request. Please contact Holy Stone.*
- *Specifications & Test Conditions for 0603 and larger sizes, please see P56~P60.*
- *Specifications & Test Conditions for 0402, please contact Holy Stone.*

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◆ Capacitance Range

Size	Voltage (v)	Capacitance Range (pF)-ACC series - X7R																																																		
		101	151	221	331	391	471	561	681	821	102	122	152	182	222	272	332	392	472	562	682	822	103	123	153	183	223	273	333	393	473	563	683	823	104	124	154	184	224	274	334	394	474	564	684	824	105	155	225	335	475	685	106	226
1808	1KV	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E																															
		D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	E	E	F	F																									
	2KV	D	D	D	D	D	D	D	D	D	D	D	D	D	D																																							
1812	25																																																E	E	E	E	M
	50																																																E	E			
	630V				D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E																															
	1KV				D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E																															
	2KV			D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	F	F	F																														
2220	50V																																															E	E	F	F	F	H	
	100V																																															E	E	F	F	F	H	
	250V																																						D	D	E	E	F	F	F	G	G							
	450V																																						D	D	E	E	F	F	F	G	G							
	500V																																						D	D	E	E	F	F	F	G	G							
	630V																										D	D	D	D	D	D	D	D	E	F	F		D	D	E	E	F	F	F	G	G							
	1KV															D	D	D	D	D	D	D	E	E	E	E	E	E	E	E	E	E	E	F	F																			
	2KV										F	F	F	F	F	F	F	F	F	F	F	F	F	G	G	G	G																											
	3KV		D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	F	F	F	F																															
2225	630V																										D	D	D	D	D	D	D	D	E	F	F	F	F	G	G	H	H											
	1KV															D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	E	E	F																			

Note :

■ Only Polymer Termination (Super Term) Available

■ Available with Standard or Polymer Termination (Super Term)

■ Capacitors must be coated.

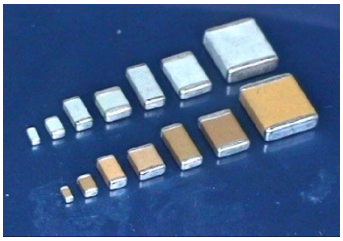
◆ Thickness Dimensions

Symbol Code	B	C	D	E	F	G	H	I
Thickness(mm)	0.85±0.15	1.0+0.1/-0.05	1.25±0.20	1.6±0.2	2.0±0.2	2.4±0.2	2.8±0.2	3.2±0.2

- *Other dimensions, capacitance values and voltage ratings are available on request. Please contact Holy Stone.*
- *Specifications & Test Conditions for 0603 and larger sizes, please see P56~P60.*
- *Specifications & Test Conditions for 0402, please contact Holy Stone.*

Multilayer Ceramic Capacitors

[Automotive Grade - X1/Y2 and X2 Safety Certified Capacitors]
Rated Voltage 250Vac



◆ Features

- ❑ Suitable for harsh Automotive environments without additional qualification testing
- ❑ Available with Polymer Termination (Super Term) to prevent mechanical cracking
- ❑ High Reliability
- ❑ IATF16949 & AEC-Q200 qualified
- ❑ RoHS compliant
- ❑ 250Vac, X1/Y2 and X2 Safety Capacitors available

◆ Applications

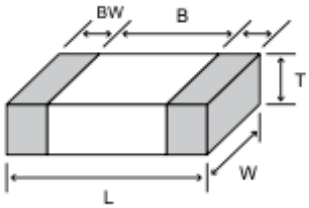
- ❑ CAN-Bus Isolation, On Board Charger
- ❑ Safety equipment
- ❑ Customized application

◆ Safety Details of Specifications

◆ How To Order :

SCC	2220	X	472	K	502	T	X	A
Product Code SCC: Safety Approved MLCC	**Chip Size** Ex.: 1808 2208 2211 2220	**Dielectric** Ex.: X: X7R	**Capacitance Unit : pF** Ex.: 100 : 10 x 10^0 221 : 22 x 10^1 332 : 33 x 10^2	**Tolerance** Ex.: J :+/-5% K :+/-10% M :+/-20%	**Class** Ex.: 202: X2 502: X1/Y2	**Packaging** Ex.: T: T&R 7” R: T&R 13” B: Bulk	**Special Requirement** Ex.: X: Polymer Termination (Super Term)	**Suffix Code** EX: A : Automotive Grade

◆ Dimension



Unit : mm

SIZE	L	W	T (max)	BW (min)
1808	4.70±0.30	2.00±0.20	2.2	0.2
2208	5.80±0.50	2.00±0.20	2.2	0.3
2211	5.80±0.50	2.80±0.30	3	0.3
2220	5.80±0.50	5.00±0.40	3	0.3

◆ Capacitance Range

| Size | Voltage (v) | Capacitance Range (pF)-ACC series-X7R | | |