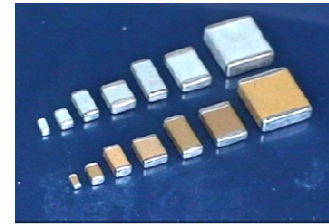


Automotive Grade MLCC

Rated Voltage :

- ◆ General (Up to 50V)
- ◆ Middle Voltage 100V – 500Vdc
- ◆ X1/Y2 Safety Capacitors



◆ Features

- AEC-Q200 qualified.
- Suitable for harsh Automotive environments without additional qualification testing
- Available with Polymer Termination (Super Term) to prevent mechanical cracking
- High Reliability
- Sizes 0805 and 2220 with capacitance range from 10pF – 10uF
- Rated voltage up to 500Vdc
- RoHS compliant
- 250Vac, X1/Y2 Safety capacitors available

◆ Applications

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

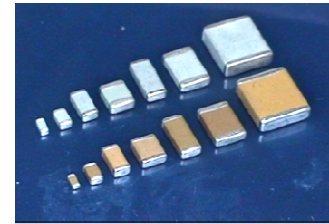
◆ Summary of Specifications

Operating Temperature	-55~+125 °C
Rated Voltage	16Vdc to 500Vdc , 250Vac X1/Y2 Safety capacitors
Temperature Coefficient	NP0 : ± 30 ppm/ °C , -55~+125 °C (EIA Class I)
	X7R : ± 15 % , -55~+125 °C (EIA Class II)
Capacitance Range	NP0 : 10pF to 100nF ; X7R : 330pF to 10uF
Dissipation Factor	NP0 : More than 30pF $Q \geq 1000$; 30pF & below $Q \geq 400+20C$ X7R : 2.5% ~ 10%
Insulation Resistance	10G Ω or 500/C Ω whichever is smaller (C in Farad)
Aging	NP0 : 0% ; X7R : 2.5% per decade of time
Dielectric Strength	V < 100V : 250% rated voltage
	100V \leq V < 500V : 200% rated voltage
	500V \leq V < 1000V : 150% rated voltage
	1000V \leq V : 120% rated voltage

Automotive Grade MLCC

Rated Voltage :

- ◆ General (Up to 50V)
- ◆ Middle Voltage 100V – 500Vdc



◆ How To Order : AEC-Q200

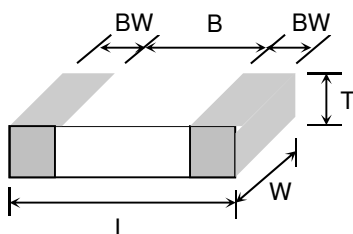
Product Code	Chip Size	Dielectric	Capacitance Unit : pF	Tolerance	Rated Voltage	Packaging	Special Requirement
AEC : Automotive Grade Capacitors AEC-Q200	EX : 0805 1206 1210 1812 1825 2220	EX : N : NP0 X : X7R	EX : 100 : 10 x 10 ⁰ 221 : 22 x 10 ¹ 332 : 33 x 10 ² 473 : 47 x 10 ³	EX : J : +/- 5% K : +/- 10% M : +/- 20%	EX : 025 : 25Vdc 050 : 50Vdc 101 : 100Vdc 251 : 250Vdc 501 : 500Vdc	EX : T : T/R 7" R : T/R 13" B : Bulk	EX : X: Polymer Termination (Super Term)

◆ How To Order : TS16949 (PPAP Level 3 +AEC-Q200)

Product Code	Chip Size	Dielectric	Capacitance Unit : pF	Tolerance	Rated Voltage	Packaging	Special Requirement
ACC : Automotive Grade Capacitors TS16949	EX : 0805 1206 1210 1812 1825 2220	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	EX : J : +/- 5% K : +/- 10% M : +/- 20%	EX : 025 : 25Vdc 050 : 50Vdc 101 : 100Vdc 251 : 250Vdc 501 : 500Vdc	EX : T : T/R 7" R : T/R 13" B : Bulk	EX : X: Polymer Termination (Super Term)

◆ Dimensions


Unit : mm





TYPE	L	W	T (max)	B (min)	BW (min)
0805	2.00±0.20	1.25±0.20	1.45	0.70	0.20
1206	3.20±0.30	1.60±0.20	1.80	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: X7R; 100nF~10uF ; 16V~50V


Size	Voltage (v)	Capacitance Range (pF)- X7R																		
		104	124	154	184	224	274	334	394	474	564	684	824	105	155	225	335	475	685	106
0805	16	C	C	C	C	C	C	C	C	D	D	D	D	D						
	25	C	C	C	C	C	C	C	C	D	D	D	D	D						
	50	C	C	C	C	C	C	C	C	D	D	D	D	D						
1206	25	E	B	B	B	C	C	C	D	D	D	D	E	E	E	E	E	E		
	50	E	B	B	B	C	C	C	D	D	D	D	E	E	E	E	E	E		
1210	25																			G
	50	D	D	D	D	D	D	E	E	F	F	F	F	F	F	F	F	F	\	\
1812	50	E	E	E	E	E	E	E	E	E	E	E	E	E	F	F	F	F		
2220	50	D	D	D	E	E	E	E	E	E	E	E	E	E	F	F	F	F	G	H

 CY2017/Q4

Note :  Available with Standard or Polymer Termination (Super Term)
 Only Polymer Termination (Super Term) Available



◆ Capacitance Range : X7R ; 100nF~10uF ; 100V~500V

Size	Voltage (v)	Capacitance Range (pF)- X7R																		
		104	124	154	184	224	274	334	394	474	564	684	824	105	155	225	335	475	685	106
0805	100	C	C	C	C	C	C	C	C	D	D	D	D	D						
1206	100	E	B	B	B	C	C	C	D	D	D	D	E	E		\				
	250	E																		
1210	100	D	D	D	D	D	D	E	E	F	F	F	F	F	F	F	\	\		
	500	\	\	\	\															
1812	100	E	E	E	E	E	E	E	E	E	E	E	E	F	G					
	500	\	\	\	\															
2220	100	D	D	D	E	E	E	E	E	E	E	E	E	E	F	F	F	F	G	G/H
	500									\										

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◆ Capacitance Range: NP0 ; 1000pF~100nF ; 100V~500V

Size	Voltage (v)	Capacitance Range (pF)- NPO																								
		102	122	152	182	222	272	332	392	472	562	682	822	103	123	153	183	223	333	393	473	563	683	823	104	
0805	100	B	B	B	B	C	D	D	D	D	D															
	250	B	B	B	B	C	D	D	D																	
1206	100	B	B	B	B	B	B	C	C	D	D	E	E													
	250	B	B	B	B	B	B	C	C	D	D	E	E													
1210	100	C	C	C	C	C	C	C	C	C	C	C	C	D	D	D	D	E	E	E						
1812	100	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	E	E	
1825	500													D	E	E	E	F	F	F	G					

Note :  Available with Standard or Polymer Termination (Super Term)
 Only Polymer Termination (Super Term) Available

Symbol Code	S	O	A	B	C	D	E	F	G	H
Thickness(mm)	0.3±0.03	0.5±0.05	0.6±0.1	0.85±0.1	1.0±0.1	1.25±0.20	1.6±0.2	2.0±0.2	2.4±0.2	2.8±0.2

■ Other dimensions, capacitance values and voltage ratings are available on request. Please contact your local Holy Stone office.