

# Chip Solid MnO<sub>2</sub> Tantalum Capacitors – TC2 Series

Operating Temp.: -55°C ~ +125°C



## FEATURES

- Meets or exceeds EIA-535BAAC standard
- Self-healing capability, high reliability
- Excellent stability of capacitance during operating temperature range
- High volumetric efficiency
- 100% surge current test

## APPLICATIONS

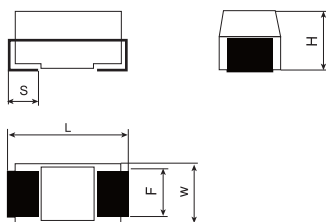
- Communication
- Consumer electronics
- Automotive electronics
- Instruments
- Medical electronics

## PRODUCT IDENTIFICATION

TC	212	B	105	M	035	A																																		
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## SHAPE AND DIMENSIONS

Unit: mm [inch]



Case	EIA	L	W	H	F	S
P	2012-12	2.00±0.15 [.078±.006]	1.25±0.15 [.049±.006]	1.10±0.15 [.043±.006]	0.90±0.10 [.035±.004]	0.50±0.30 [.020±.012]
A	3216-18	3.20±0.20 [.126±.008]	1.60±0.20 [.063±.008]	1.60±0.20 [.063±.008]	1.20±0.10 [.040±.004]	0.80±0.30 [.031±.012]
B	3528-21	3.50±0.20 [.138±.008]	2.80±0.20 [.110±.008]	1.90±0.20 [.075±.008]	2.20±0.10 [.087±.004]	0.80±0.30 [.030±.012]
C	6032-28	6.00±0.30 [.236±.012]	3.20±0.30 [.126±.012]	2.50±0.30 [.098±.012]	2.20±0.10 [.087±.004]	1.30±0.30 [.051±.012]
D	7343-31	7.30±0.30 [.287±.012]	4.30±0.30 [.169±.012]	2.80±0.30 [.110±.012]	2.40±0.10 [.094±.004]	1.30±0.30 [.051±.012]
E	7343-43	7.30±0.30 [.287±.012]	4.30±0.30 [.169±.012]	4.00±0.30 [.161±.012]	2.40±0.10 [.094±.004]	1.30±0.30 [.051±.012]

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## TECHNICAL SPECIFICATION

Item	SPEC									Test Condition
Operating Temp	-55℃~+125℃									
C <sub>R</sub> Range	0.10μF~680μF									25℃, 120Hz
C <sub>R</sub> Tolerance	±10% or ±20%									25℃, 120Hz
Rated Voltage (V <sub>R</sub> )	2.5V	4V	6.3V	10V	16V	20V	25V	35V	50V	85℃
Category Voltage (V <sub>C</sub> )	1.6V	2.5V	4V	6.3V	10V	13V	16V	20V	32V	125℃
Surge Voltage (V <sub>S</sub> )	3.3V	5.2V	8V	13V	20V	26V	32V	46V	65V	85℃
Surge Voltage (V <sub>S</sub> )	2.2V	3.4V	5V	8V	13V	16V	20V	28V	40V	125℃

## STANDARD C-V VALUE BY CASE CODE

Rated Voltage (V <sub>R</sub> )	2.5	4	6.3	10	16	20	25	35	50	
Voltage Code	e	G	J	A	C	D	E	V	T	
C <sub>R</sub> (μF)	C Code	Case Code								
0.1	104					P		A/P	A	
0.15	154					P		A	B/A	
0.22	224					P	A	A	B/A	
0.33	334					P	A	A	B/A	
0.47	474				P	A/P	A/P	B/A	C/B/A	
0.68	684			P	A/P	A/P	B/A	B/A	C/B/A	
1.0	105		A/P	A/P	A/P	B/A/P	B/A/P	B/A	C/B	
1.5	155		A/P	A/P	B/A/P	B/B/A	B/A	C/B	C/B	
2.2	225	A	A/P	B/A/P	B/A/P	B/A	C/B/A	C/B/A	D/C/B	
3.3	335	A/P	B/A/P	B/A/P	B/A	C/B/A	C/B/A	C/B	D/C/B	
4.7	475	B/A/P	B/A/P	B//A/P	C/B/A/P	C/B/A	D/C/B/A	D/C/B	D	
6.8	685	B/A/P	B/A/P	C/B/A/P	C/B/A	D/C/B	D/C/B	D/C	D	
10	106	A/P	B/A/P	C/B/A/P	C/B/A/P	C/B/A	D/C/B	D/C/B	E/D/C	
15	156	B/A	C/B/A	C/B/A/P	C/B/A	D/C/B	D/C	D/C/B	E/D	
22	226	A/P	C/B/A	D/B/A/P	D/C/B/A	D/C/B/A	D/C/B	D/C	E/D	
33	336	A/P	D/C/B/A/P	D/C/B/A	D/C/B/A	D/C/B	D/C	E/D	E	
47	476	A	D/C/B/A	D/C/B/A	D/C/B/A	D/C/B	E/D/C	E/D	E	
68	686	B/A	D/C/B	D/C/B	D/C/B	D	E/D	E		
100	107	B/A	D/C/B/A	D/C/B/A	D/C/B	D/C	E/D	D		
150	157	B	D/C/B	D/C/B	E/D/C	E/D	E			
220	227	B	D/C/B	E/D/C/B	E/D	E/D				
330	337		E/D/C/B	E/D	E/D	E				
470	477		E	E/D	E					
680	687		E							

※: The first case code is standard product and the others are expansion products.

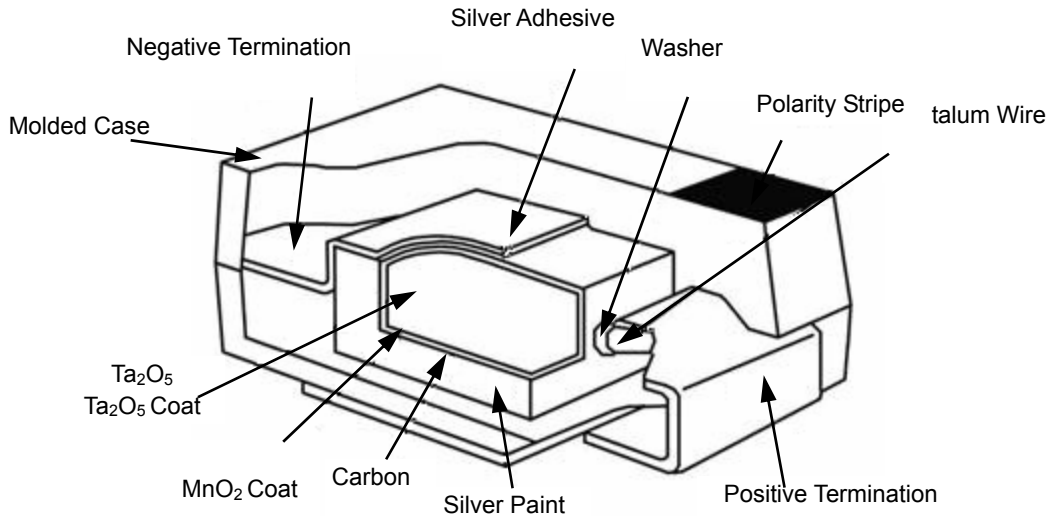
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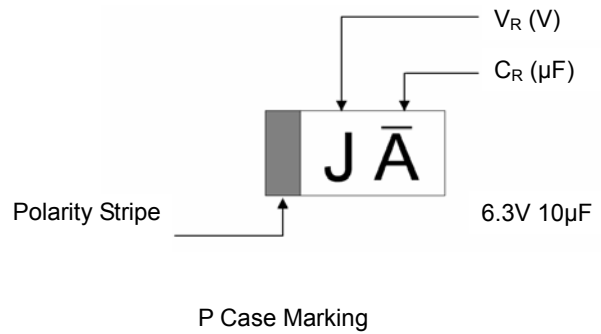
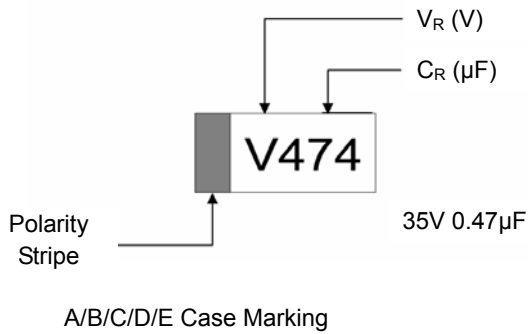
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## CONSTRUCTION



## MARKINGS



### Rated Voltage Code

Rated Voltage( $V_R$ )	2.5	4	6.3	10	16	20	25	35	50
Code	e	G	J	A	C	D	E	V	T

### Capacitance Code

Capacitance ( $\mu F$ )	0.1	0.15	0.22	0.33	0.47	0.68	1.0	1.5	2.2	3.3	4.7	6.8
Code (P Case)	<u>A</u>	<u>E</u>	<u>J</u>	<u>N</u>	<u>S</u>	<u>W</u>	A	E	J	N	S	W
Code (A/B/C/D/E Case)	104	154	224	334	474	684	105	155	225	335	475	685
Capacitance ( $\mu F$ )	10	15	22	33	47	68	100	150	220	330	470	680
Code (P Case)	<u>A</u>	<u>E</u>	<u>J</u>	<u>N</u>	<u>S</u>	<u>W</u>						
Code (A/B/C/D/E Case)	106	156	226	336	476	686	107	157	227	337	477	687

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 网址: www.denovocn.com

# SPECIFICATIONS

## TC211 TYPE

Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.
2.5V, +85°C (1.6V @ +125°C)					
10.0	P	TC211P106◎002□	0.5	6.0	6.0
10.0	A	TC211A106◎002□	0.5	6.0	5.0
15.0	A	TC211A156◎002□	0.5	6.0	6.0
15.0	B	TC211B156◎002□	0.5	6.0	4.0
22.0	P	TC211P226◎002□	0.55	20.0	6.0
22.0	A	TC211A226◎002□	0.55	6.0	4.0
33.0	P	TC211P336◎002□	0.82	15.0	6.0
33.0	A	TC211A336◎002□	0.82	6.0	4.0
47.0	A	TC211A476◎002□	1.17	10.0	4.0
68.0	A	TC211A686◎002□	1.7	10.0	3.0
68.0	B	TC211B686◎002□	1.7	6.0	2.0
100.0	A	TC211A107◎002□	2.5	20.0	2.5
100.0	B	TC211B107◎002□	2.5	8.0	1.5
150.0	B	TC211B157◎002□	3.75	10.0	2.0
220.0	B	TC211B227◎002□	5.5	18.0	2.0
4V, +85°C (2.5V @ +125°C)					
2.2	A	TC211A225◎004□	0.5	6.0	8.0
3.3	P	TC211P335◎004□	0.5	6.0	10.0
3.3	A	TC211A335◎004□	0.5	6.0	8.0
4.7	P	TC211P475◎004□	0.5	6.0	10.0
4.7	A	TC211A475◎004□	0.5	6.0	8.0
6.8	P	TC211P685◎004□	0.5	6.0	10.0
6.8	A	TC211A685◎004□	0.5	6.0	6.0
10.0	P	TC211P106◎004□	0.5	8.0	10.0
10.0	A	TC211A106◎004□	0.5	6.0	6.0
10.0	B	TC211B106◎004□	0.5	6.0	3.5
15.0	A	TC211A156◎004□	0.6	6.0	4.0
15.0	B	TC211B156◎004□	0.6	6.0	3.5
22.0	A	TC211A226◎004□	0.88	6.0	4.0
22.0	B	TC211B226◎004□	0.88	6.0	3.5
33.0	P	TC211P336◎004□	1.32	20.0	4.5
33.0	A	TC211A336◎004□	1.32	6.0	4.0
33.0	B	TC211B336◎004□	1.32	6.0	3.5
33.0	C	TC211C336◎004□	1.32	6.0	1.8
47.0	A	TC211A476◎004□	1.88	6.0	3.0
47.0	B	TC211B476◎004□	1.88	6.0	3.0
47.0	C	TC211C476◎004□	1.88	6.0	1.8
68.0	B	TC211B686◎004□	2.72	6.0	3.5
68.0	C	TC211C686◎004□	2.72	6.0	1.6
68.0	D	TC211D686◎004□	2.72	6.0	0.8
100.0	A	TC211A107◎004□	4.0	18.0	5.0
100.0	B	TC211B107◎004□	4.0	8.0	2.0
100.0	C	TC211C107◎004□	4.0	8.0	1.3
100.0	D	TC211D107◎004□	4.0	8.0	0.8
150.0	B	TC211B157◎004□	6.0	15.0	2.0
150.0	C	TC211C157◎004□	6.0	8.0	1.2
150.0	D	TC211D157◎004□	6.0	8.0	0.8
220.0	B	TC211B227◎004□	8.8	15.0	0.5
220.0	C	TC211C227◎004□	8.8	8.0	1.0
220.0	D	TC211D227◎004□	8.8	8.0	0.8

Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.
330.0	B	TC211B337◎004□	13.2	18.0	1.2
330.0	C	TC211C337◎004□	13.2	8.0	1.2
330.0	D	TC211D337◎004□	13.2	8.0	0.7
330.0	E	TC211E337◎004□	13.2	8.0	0.7
470.0	E	TC211E477◎004□	18.8	8.0	0.8
680.0	E	TC211E687◎004□	27.2	8.0	0.5
6.3V, +85°C (4.0V @ +125°C)					
1.0	P	TC211P105◎006□	0.5	6.0	25.0
1.0	A	TC211A105◎006□	0.5	6.0	14.0
1.5	P	TC211P155◎006□	0.5	8.0	25.0
1.5	A	TC211A155◎006□	0.5	6.0	8.0
2.2	P	TC211P225◎006□	0.5	8.0	20.0
2.2	A	TC211A225◎006□	0.5	6.0	8.0
3.3	P	TC211P335◎006□	0.5	6.0	10.0
3.3	A	TC211A335◎006□	0.5	6.0	8.0
4.7	P	TC211P475◎006□	0.5	6.0	10.0
4.7	A	TC211A475◎006□	0.5	6.0	6.0
6.8	P	TC211P685◎006□	0.5	6.0	10.0
6.8	A	TC211A685◎006□	0.5	6.0	6.0
6.8	B	TC211B685◎006□	0.5	6.0	3.5
10.0	P	TC211P106◎006□	0.63	8.0	10.0
10.0	A	TC211A106◎006□	0.63	6.0	4.0
10.0	B	TC211B106◎006□	0.63	6.0	3.5
15.0	P	TC211P156◎006□	0.94	10.0	7.0
15.0	A	TC211A156◎006□	0.94	6.0	4.0
15.0	B	TC211B156◎006□	0.94	6.0	3.5
22.0	P	TC211P226◎006□	1.3	18.0	6.0
22.0	A	TC211A226◎006□	1.38	6.0	4.0
22.0	B	TC211B226◎006□	1.38	6.0	3.5
33.0	A	TC211A336◎006□	2.07	8.0	4.5
33.0	B	TC211B336◎006□	2.07	6.0	3.0
33.0	C	TC211C336◎006□	2.07	6.0	1.8
47.0	A	TC211A476◎006□	2.96	8.0	3.5
47.0	B	TC211B476◎006□	2.96	6.0	3.0
47.0	C	TC211C476◎006□	2.96	6.0	1.6
68.0	B	TC211B686◎006□	4.28	10.0	1.2
68.0	C	TC211C686◎006□	4.28	6.0	1.0
68.0	D	TC211D686◎006□	4.28	6.0	0.8
100.0	A	TC211A107◎006□	6.3	20.0	4.0
100.0	B	TC211B107◎006□	6.3	10.0	3.0
100.0	C	TC211C107◎006□	6.3	8.0	1.2
100.0	D	TC211D107◎006□	6.3	8.0	0.8
150.0	B	TC211B157◎006□	9.45	15.0	1.0
150.0	C	TC211C157◎006□	9.45	8.0	1.2
150.0	D	TC211D157◎006□	9.45	8.0	0.8
220.0	B	TC211B227◎006□	13.86	18.0	1.0
220.0	C	TC211C227◎006□	13.86	8.0	1.2
220.0	D	TC211D227◎006□	13.86	8.0	0.7
220.0	E	TC211E227◎006□	13.86	8.0	0.5
330.0	D	TC211D337◎006□	20.79	8.0	0.5
330.0	E	TC211E337◎006□	20.79	8.0	0.5

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# SPECIFICATIONS

## TC211 TYPE

Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.
470.0	D	TC211D477①006□	29.61	12.0	0.4
470.0	E	TC211E477①006□	29.61	10.0	0.5
10V, +85°C (6.3V @ +125°C)					
0.68	P	TC211P684①010□	0.5	4.0	28.0
1.0	P	TC211P105①010□	0.5	10.0	25.0
1.0	A	TC211A105①010□	0.5	4.0	13.0
1.5	P	TC211P155①010□	0.5	10.0	10.0
1.5	A	TC211A155①010□	0.5	6.0	8.0
2.2	P	TC211P225①010□	0.5	6.0	10.0
2.2	A	TC211A225①010□	0.5	6.0	8.0
3.3	P	TC211P335①010□	0.5	6.0	15.0
3.3	A	TC211A335①010□	0.5	6.0	6.0
4.7	P	TC211P475①010□	0.5	6.0	10.0
4.7	A	TC211A475①010□	0.5	6.0	6.0
4.7	B	TC211B475①010□	0.5	6.0	3.5
6.8	P	TC211P685①010□	0.68	8.0	5.0
6.8	A	TC211A685①010□	0.68	6.0	6.0
6.8	B	TC211B685①010□	0.68	6.0	3.5
10.0	P	TC211P106①010□	1.0	15.0	10.0
10.0	A	TC211A106①010□	1.0	6.0	4.0
10.0	B	TC211B106①010□	1.0	6.0	3.5
10.0	C	TC211C106①010□	1.0	6.0	1.8
15.0	A	TC211A156①010□	1.5	6.0	6.0
15.0	B	TC211B156①010□	1.5	6.0	3.5
15.0	C	TC211C156①010□	1.5	6.0	1.8
22.0	A	TC211A226①010□	2.2	8.0	4.0
22.0	B	TC211B226①010□	2.2	6.0	3.0
22.0	C	TC211C226①010□	2.2	6.0	1.8
33.0	A	TC211A336①010□	3.3	15.0	6.0
33.0	B	TC211B336①010□	3.3	6.0	3.5
33.0	C	TC211C336①010□	3.3	6.0	1.6
33.0	D	TC211D336①010□	3.3	6.0	0.8
47.0	A	TC211A476①010□	4.7	15.0	4.0
47.0	B	TC211B476①010□	4.7	6.0	1.0
47.0	C	TC211C476①010□	4.7	6.0	1.2
47.0	D	TC211D476①010□	4.7	6.0	0.8
68.0	B	TC211B686①010□	6.8	10.0	3.0
68.0	C	TC211C686①010□	6.8	6.0	1.2
68.0	D	TC211D686①010□	6.8	6.0	0.8
100.0	B	TC211B107①010□	10.0	15.0	1.5
100.0	C	TC211C107①010□	10.0	8.0	1.2
100.0	D	TC211D107①010□	10.0	8.0	0.7
150.0	C	TC211C157①010□	15.0	10.0	0.9
150.0	D	TC211D157①010□	15.0	8.0	0.7
150.0	E	TC211E157①010□	15.0	8.0	0.5
220.0	D	TC211D227①010□	22.0	8.0	0.5
220.0	E	TC211E227①010□	22.0	8.0	0.5
330.0	D	TC211D337①010□	33.0	10.0	0.5
330.0	E	TC211E337①010□	33.0	10.0	0.5
470.0	E	TC211E477①010□	47.0	10.0	0.5

Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.
16V, +85°C (10V @ +125°C)					
0.47	P	TC211P474①016□	0.5	6.0	25.0
0.68	P	TC211P684①016□	0.5	6.0	25.0
1.0	P	TC211P105①016□	0.5	6.0	25.0
1.0	A	TC211A105①016□	0.5	4.0	10.0
1.5	P	TC211P155①016□	0.5	6.0	20.0
1.5	A	TC211A155①016□	0.5	6.0	8.0
2.2	P	TC211P225①016□	0.5	6.0	25.0
2.2	A	TC211A225①016□	0.5	6.0	6.0
2.2	B	TC211B225①016□	0.5	6.0	4.0
3.3	A	TC211A335①016□	0.52	6.0	6.0
3.3	B	TC211B335①016□	0.52	6.0	3.5
4.7	P	TC211P475①016□	0.8	18.0	15.0
4.7	A	TC211A475①016□	0.75	6.0	6.0
4.7	B	TC211B475①016□	0.75	6.0	3.5
4.7	C	TC211C475①016□	0.8	6.0	2.4
6.8	A	TC211A685①016□	1.08	6.0	7.0
6.8	B	TC211B685①016□	1.08	6.0	3.5
6.8	C	TC211C685①016□	1.08	6.0	2.0
10.0	A	TC211A106①016□	1.6	8.0	7.0
10.0	B	TC211B106①016□	1.6	6.0	2.8
10.0	C	TC211C106①016□	1.6	6.0	1.8
15.0	B	TC211B156①016□	2.4	6.0	3.0
15.0	C	TC211C156①016□	2.4	6.0	1.8
22.0	A	TC211A226①016□	3.52	15.0	4.0
22.0	B	TC211B226①016□	3.52	8.0	2.2
22.0	C	TC211C226①016□	3.52	6.0	1.6
22.0	D	TC211D226①016□	3.52	6.0	0.8
33.0	B	TC211B336①016□	5.28	8.0	2.0
33.0	C	TC211C336①016□	5.28	6.0	1.2
33.0	D	TC211D336①016□	5.28	6.0	0.8
47.0	B	TC211B476①016□	7.52	18.0	1.0
47.0	C	TC211C476①016□	7.52	6.0	1.2
47.0	D	TC211D476①016□	7.52	6.0	0.8
68.0	D	TC211D686①016□	10.8	6.0	0.8
100.0	C	TC211C107①016□	16.0	10.0	1.0
100.0	D	TC211D107①016□	16.0	8.0	0.7
150.0	D	TC211D157①016□	24.0	12.0	0.7
150.0	E	TC211E157①016□	24.0	8.0	0.5
220.0	D	TC211D227①016□	35.2	15.0	0.9
220.0	E	TC211E227①016□	35.2	10.0	0.5
330.0	E	TC211E337①016□	52.8	10.0	0.5
20V, +85°C (13V @ +125°C)					
0.1	P	TC211P104①020□	0.5	4.0	25.0
0.15	P	TC211P154①020□	0.5	4.0	25.0
0.22	P	TC211P224①020□	0.5	4.0	25.0
0.33	P	TC211P334①020□	0.5	4.0	25.0
0.47	P	TC211P474①020□	0.5	4.0	25.0
0.68	P	TC211P684①020□	0.5	4.0	25.0
0.68	A	TC211A684①020□	0.5	4.0	12.0

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# SPECIFICATIONS

## TC211 TYPE

Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.
1.0	P	TC211P105◎020□	0.5	6.0	15.5
1.0	A	TC211A105◎020□	0.5	4.0	10.0
1.5	A	TC211A155◎020□	0.5	6.0	8.0
1.5	B	TC211B155◎020□	0.5	6.0	5.0
2.2	A	TC211A225◎020□	0.5	6.0	7.0
2.2	B	TC211B225◎020□	0.5	6.0	3.5
3.3	A	TC211A335◎020□	0.66	6.0	7.0
3.3	B	TC211B335◎020□	0.66	6.0	3.5
4.7	A	TC211A475◎020□	0.94	6.0	4.0
4.7	B	TC211B475◎020□	0.94	6.0	3.5
4.7	C	TC211C475◎020□	0.94	6.0	2.4
6.8	B	TC211B685◎020□	1.36	6.0	3.5
6.8	C	TC211C685◎020□	1.36	6.0	2.0
6.8	D	TC211D685◎020□	1.36	6.0	1.9
10.0	B	TC211B106◎020□	2.0	6.0	3.0
10.0	C	TC211C106◎020□	2.0	6.0	1.8
10.0	D	TC211D106◎020□	2.0	6.0	1.0
15.0	C	TC211C156◎020□	3.0	6.0	1.7
15.0	D	TC211D156◎020□	3.0	6.0	1.0
22.0	B	TC211B226◎020□	4.4	8.0	4.0
22.0	C	TC211C226◎020□	4.4	6.0	1.2
22.0	D	TC211D226◎020□	4.4	6.0	0.8
33.0	C	TC211C336◎020□	6.6	6.0	1.2
33.0	D	TC211D336◎020□	6.6	6.0	0.8
47.0	C	TC211C476◎020□	9.4	10.0	1.0
47.0	D	TC211D476◎020□	9.4	6.0	0.8
47.0	E	TC211E476◎020□	9.4	6.0	0.8
68.0	D	TC211D686◎020□	13.6	6.0	0.8
68.0	E	TC211E686◎020□	13.6	6.0	0.8
100.0	D	TC211D107◎020□	20.0	8.0	0.6
100.0	E	TC211E107◎020□	20.0	8.0	0.5
150.0	E	TC211E157◎020□	30.0	8.0	0.5
25V, +85°C (16V @ +125°C)					
0.22	A	TC211A224◎025□	0.5	4.0	15.0
0.33	A	TC211A334◎025□	0.5	4.0	15.0
0.47	A	TC211A474◎025□	0.5	4.0	14.0
0.47	P	TC211P474◎025□	0.5	4.0	13.0
0.68	A	TC211A684◎025□	0.5	4.0	10.0
1.0	P	TC211P105◎025□	0.5	6.0	12.0
1.0	A	TC211A105◎025□	0.5	4.0	8.0
1.0	B	TC211B105◎025□	0.5	4.0	5.0
1.5	A	TC211A155◎025□	0.5	6.0	10.0
1.5	B	TC211B155◎025□	0.5	6.0	5.0
2.2	A	TC211A225◎025□	0.6	6.0	6.0
2.2	B	TC211B225◎025□	0.55	6.0	4.5
2.2	C	TC211C225◎025□	0.55	6.0	3.5
3.3	A	TC211A335◎025□	0.82	6.0	7.0
3.3	B	TC211B335◎025□	0.82	6.0	3.5
3.3	C	TC211C335◎025□	0.82	6.0	2.5
4.7	A	TC211A475◎025□	1.17	8.0	6.0
4.7	B	TC211B475◎025□	1.17	6.0	2.0

Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.
4.7	C	TC211C475◎025□	1.17	6.0	2.4
6.8	B	TC211B685◎025□	1.7	6.0	3.0
6.8	C	TC211C685◎025□	1.7	6.0	1.9
6.8	D	TC211D685◎025□	1.7	6.0	1.2
10.0	B	TC211B106◎025□	2.5	6.0	3.0
10.0	C	TC211C106◎025□	2.5	6.0	1.5
10.0	D	TC211D106◎025□	2.5	6.0	1.0
15.0	B	TC211B156◎025□	3.75	8.0	4.0
15.0	C	TC211C156◎025□	3.75	6.0	1.5
15.0	D	TC211D156◎025□	3.75	6.0	1.0
22.0	C	TC211C226◎025□	5.5	6.0	1.4
22.0	D	TC211D226◎025□	5.5	6.0	0.8
33.0	D	TC211D336◎025□	8.25	6.0	0.8
33.0	E	TC211E336◎025□	8.25	6.0	0.7
47.0	D	TC211D476◎025□	11.7	6.0	0.8
47.0	E	TC211E476◎025□	11.7	6.0	0.7
68.0	E	TC211E686◎025□	17.0	6.0	0.7
100.0	D	TC211D107◎025□	25.0	10.0	1.2
35V, +85°C (20V @ +125°C)					
0.1	P	TC211P104◎035□	0.5	4.0	30.0
0.1	A	TC211A104◎035□	0.5	4.0	20.0
0.15	A	TC211A154◎035□	0.5	4.0	19.0
0.22	A	TC211A224◎035□	0.5	4.0	18.0
0.33	A	TC211A334◎035□	0.5	4.0	15.0
0.47	A	TC211A474◎035□	0.5	4.0	14.0
0.47	B	TC211B474◎035□	0.5	4.0	8.0
0.68	A	TC211A684◎035□	0.5	4.0	10.0
0.68	B	TC211B684◎035□	0.5	4.0	6.5
1.0	A	TC211A105◎035□	0.5	4.0	10.0
1.0	B	TC211B105◎035□	0.5	4.0	5.0
1.5	B	TC211B155◎035□	0.52	6.0	5.0
1.5	C	TC211C155◎035□	0.52	6.0	4.5
2.2	A	TC211A225◎035□	0.77	6.0	6.0
2.2	B	TC211B225◎035□	0.77	6.0	4.0
2.2	C	TC211C225◎035□	0.77	6.0	3.5
3.3	B	TC211B335◎035□	1.15	6.0	3.5
3.3	C	TC211C335◎035□	1.15	6.0	2.5
4.7	B	TC211B475◎035□	1.64	6.0	2.0
4.7	C	TC211C475◎035□	1.64	6.0	2.5
4.7	D	TC211D475◎035□	1.64	6.0	1.5
6.8	C	TC211C685◎035□	2.38	6.0	2.0
6.8	D	TC211D685◎035□	2.38	6.0	1.5
10.0	C	TC211C106◎035□	3.5	6.0	2.0
10.0	D	TC211D106◎035□	3.5	6.0	1.0
10.0	E	TC211E106◎035□	3.5	6.0	1.0
15.0	D	TC211D156◎035□	5.25	6.0	1.0
15.0	E	TC211E156◎035□	5.25	6.0	0.9
22.0	D	TC211D226◎035□	8.25	6.0	0.8
22.0	E	TC211E226◎035□	8.25	6.0	0.7
33.0	E	TC211E336◎035□	13.0	6.0	0.6
47.0	E	TC211E476◎035□	16.5	8.0	0.6

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# SPECIFICATIONS

## TC211 TYPE

Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.
50V, +85°C (32V @ +125°C)					
0.1	A	TC211A104@050□	0.5	4.0	22.0
0.15	A	TC211A154@050□	0.5	4.0	19.0
0.15	B	TC211B154@050□	0.5	4.0	16.0
0.22	A	TC211A224@050□	0.5	4.0	18.0
0.22	B	TC211B224@050□	0.5	4.0	14.0
0.33	A	TC211A334@050□	0.5	4.0	15.0
0.33	B	TC211B334@050□	0.5	4.0	10.0
0.47	A	TC211A474@050□	0.5	4.0	3.0
0.47	B	TC211B474@050□	0.5	4.0	9.0
0.47	C	TC211C474@050□	0.5	4.0	8.0
0.68	A	TC211A684@050□	0.5	4.0	4.0
0.68	B	TC211B684@050□	0.5	4.0	8.0
0.68	C	TC211C684@050□	0.5	4.0	7.0

Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.
1.0	B	TC211B105@050□	0.5	6.0	6.0
1.0	C	TC211C105@050□	0.5	4.0	5.5
1.5	B	TC211B155@050□	0.75	6.0	4.5
1.5	C	TC211C155@050□	0.75	6.0	3.5
2.2	B	TC211B225@050□	1.1	6.0	2.0
2.2	C	TC211C225@050□	1.1	6.0	3.5
2.2	D	TC211D225@050□	1.1	6.0	2.5
3.3	B	TC211B335@050□	1.65	6.0	1.7
3.3	C	TC211C335@050□	1.65	6.0	3.0
3.3	D	TC211D335@050□	1.65	6.0	2.0
4.7	D	TC211D475@050□	2.35	6.0	1.5
6.8	D	TC211D685@050□	3.4	6.0	1.2
10.0	D	TC211D106@050□	5.0	6.0	1.0
10.0	E	TC211E106@050□	5.0	6.0	0.7
15.0	E	TC211E156@050□	7.5	6.0	0.7

## TC212 TYPE

Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.
2.5V, +85°C (1.6V @ +125°C)					
10.0	P	TC212P106@002□	0.5	6.0	5.0
10.0	A	TC212A106@002□	0.5	6.0	4.0
15.0	A	TC212A156@002□	0.5	6.0	4.0
15.0	B	TC212B156@002□	0.5	6.0	3.0
22.0	P	TC212P226@002□	0.55	20.0	4.0
22.0	A	TC212A226@002□	0.55	6.0	3.0
33.0	P	TC212P336@002□	0.82	15.0	4.0
33.0	A	TC212A336@002□	0.82	6.0	3.0
47.0	A	TC212A476@002□	1.17	10.0	3.0
68.0	A	TC212A686@002□	1.7	10.0	2.5
68.0	B	TC212B686@002□	1.7	6.0	1.8
100.0	A	TC212A107@002□	2.5	10.0	2.0
100.0	B	TC212B107@002□	2.5	8.0	1.5
150.0	B	TC212B157@002□	3.75	10.0	1.5
220.0	B	TC212B227@002□	5.5	18.0	1.5
4V, +85°C (2.5V @ +125°C)					
2.2	A	TC212A225@004□	0.5	6.0	6.0
3.3	P	TC212P335@004□	0.5	6.0	8.0
3.3	A	TC212A335@004□	0.5	6.0	6.0
4.7	P	TC212P475@004□	0.5	6.0	6.0
4.7	A	TC212A475@004□	0.5	6.0	5.0
6.8	P	TC212P685@004□	0.5	6.0	7.0
6.8	A	TC212A685@004□	0.5	6.0	4.0
10.0	P	TC212P106@004□	0.5	8.0	6.0
10.0	A	TC212A106@004□	0.5	6.0	3.0
10.0	B	TC212B106@004□	0.5	6.0	1.5
15.0	A	TC212A156@004□	0.6	6.0	1.5
15.0	B	TC212B156@004□	0.6	6.0	1.2
22.0	A	TC212A226@004□	0.88	6.0	1.5
22.0	B	TC212B226@004□	0.88	6.0	0.6

Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.
33.0	P	TC212P336@004□	1.32	20.0	2.0
33.0	A	TC212A336@004□	1.32	6.0	2.5
33.0	B	TC212B336@004□	1.32	6.0	0.5
33.0	C	TC212C336@004□	1.32	6.0	0.8
47.0	A	TC212A476@004□	1.88	6.0	2.0
47.0	B	TC212B476@004□	1.88	6.0	0.8
47.0	C	TC212C476@004□	1.88	6.0	1.0
68.0	B	TC212B686@004□	2.72	6.0	2.5
68.0	C	TC212C686@004□	2.72	6.0	0.5
68.0	D	TC212D686@004□	2.72	6.0	0.5
100.0	A	TC212A107@004□	4.0	18.0	3.0
100.0	B	TC212B107@004□	4.0	8.0	1.0
100.0	C	TC212C107@004□	4.0	8.0	0.35
100.0	D	TC212D107@004□	4.0	8.0	0.2
150.0	B	TC212B157@004□	6.0	15.0	1.0
150.0	C	TC212C157@004□	6.0	8.0	0.3
150.0	D	TC212D157@004□	6.0	8.0	0.2
220.0	B	TC212B227@004□	8.8	15.0	0.4
220.0	C	TC212C227@004□	8.8	8.0	0.5
220.0	D	TC212D227@004□	8.8	8.0	0.3
330.0	B	TC212B337@004□	13.2	18.0	0.7
330.0	C	TC212C337@004□	13.2	8.0	0.8
330.0	D	TC212D337@004□	13.2	8.0	0.2
330.0	E	TC212E337@004□	13.2	8.0	0.2
470.0	E	TC212E477@004□	18.8	8.0	0.2
680.0	E	TC212E687@004□	27.2	8.0	0.2
6.3V, +85°C (4.0V @ +125°C)					
1.0	P	TC212P105@006□	0.5	6.0	15.0
1.0	A	TC212A105@006□	0.5	6.0	9.0
1.5	P	TC212P155@006□	0.75	6.0	10.0
1.5	A	TC212A155@006□	0.75	6.0	6.0

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# SPECIFICATIONS

## TC212 TYPE

Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.	Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.
2.2	P	TC212P225@006□	0.5	8.0	10.0	3.3	A	TC212A335@010□	0.5	6.0	4.0
2.2	A	TC212A225@006□	0.5	6.0	6.0	4.7	P	TC212P475@010□	0.5	6.0	8.0
3.3	P	TC212P335@006□	0.5	6.0	5.0	4.7	A	TC212A475@010□	0.5	6.0	3.0
3.3	A	TC212A335@006□	0.5	6.0	6.0	4.7	B	TC212B475@010□	0.5	6.0	1.5
4.7	P	TC212P475@006□	0.5	6.0	6.0	6.8	P	TC212P685@010□	0.68	8.0	3.0
4.7	A	TC212A475@006□	0.5	6.0	4.0	6.8	A	TC212A685@010□	0.68	6.0	3.0
6.8	P	TC212P685@006□	0.5	6.0	8.0	6.8	B	TC212B685@010□	0.68	6.0	1.2
6.8	A	TC212A685@006□	0.5	6.0	3.5	10.0	P	TC212P106@010□	1.0	15.0	6.0
6.8	B	TC212B685@006□	0.5	6.0	3.0	10.0	A	TC212A106@010□	1.0	6.0	1.8
10.0	P	TC212P106@006□	0.63	8.0	6.0	10.0	B	TC212B106@010□	1.0	6.0	0.8
10.0	A	TC212A106@006□	0.63	6.0	2.0	10.0	C	TC212C106@010□	1.0	6.0	0.6
10.0	B	TC212B106@006□	0.63	6.0	1.0	15.0	A	TC212A156@010□	1.5	6.0	4.0
15.0	P	TC212P156@006□	0.94	10.0	5.0	15.0	B	TC212B156@010□	1.5	6.0	0.7
15.0	A	TC212A156@006□	0.94	6.0	2.0	15.0	C	TC212C156@010□	1.5	6.0	0.5
15.0	B	TC212B156@006□	0.94	6.0	0.7	22.0	A	TC212A226@010□	2.2	8.0	2.5
22.0	P	TC212P226@006□	1.3	18.0	4.0	22.0	B	TC212B226@010□	2.2	6.0	1.0
22.0	A	TC212A226@006□	1.38	6.0	2.5	22.0	C	TC212C226@010□	2.2	6.0	0.4
22.0	B	TC212B226@006□	1.38	6.0	0.8	33.0	A	TC212A336@010□	3.3	15.0	4.0
33.0	A	TC212A336@006□	2.07	8.0	1.5	33.0	B	TC212B336@010□	3.3	6.0	1.0
33.0	B	TC212B336@006□	2.07	6.0	0.8	33.0	C	TC212C336@010□	3.3	6.0	0.4
33.0	C	TC212C336@006□	2.07	6.0	0.3	33.0	D	TC212D336@010□	3.3	6.0	0.25
47.0	A	TC212A476@006□	2.96	8.0	2.5	47.0	A	TC212A476@010□	4.7	15.0	1.5
47.0	B	TC212B476@006□	2.96	6.0	0.5	47.0	B	TC212B476@010□	4.7	6.0	0.65
47.0	C	TC212C476@006□	2.96	6.0	0.3	47.0	C	TC212C476@010□	4.7	6.0	0.30
68.0	B	TC212B686@006□	4.28	10.0	0.65	47.0	D	TC212D476@010□	4.7	6.0	0.22
68.0	C	TC212C686@006□	4.28	6.0	0.2	68.0	B	TC212B686@010□	6.8	10.0	1.5
68.0	D	TC212D686@006□	4.28	6.0	0.2	68.0	C	TC212C686@010□	6.8	6.0	0.30
100.0	A	TC212A107@006□	6.3	20.0	2.0	68.0	D	TC212D686@010□	6.8	6.0	0.20
100.0	B	TC212B107@006□	6.3	10.0	1.5	100.0	B	TC212B107@010□	10.0	15.0	1.0
100.0	C	TC212C107@006□	6.3	8.0	0.3	100.0	C	TC212C107@010□	10.0	8.0	0.20
100.0	D	TC212D107@006□	6.3	8.0	0.2	100.0	D	TC212D107@010□	10.0	8.0	0.15
150.0	B	TC212B157@006□	9.45	15.0	0.6	150.0	C	TC212C157@010□	15.0	10.0	0.70
150.0	C	TC212C157@006□	9.45	8.0	0.3	150.0	D	TC212D157@010□	15.0	8.0	0.15
150.0	D	TC212D157@006□	9.45	8.0	0.2	150.0	E	TC212E157@010□	15.0	8.0	0.15
220.0	B	TC212B227@006□	13.86	18.0	0.7	220.0	D	TC212D227@010□	22.0	8.0	0.15
220.0	C	TC212C227@006□	13.86	8.0	0.3	220.0	E	TC212E227@010□	22.0	8.0	0.15
220.0	D	TC212D227@006□	13.86	8.0	0.15	330.0	D	TC212D337@010□	33.0	10.0	0.15
220.0	E	TC212E227@006□	13.86	8.0	0.15	330.0	E	TC212E337@010□	33.0	10.0	0.2
330.0	D	TC212D337@006□	20.79	8.0	0.15	470.0	E	TC212E477@010□	47.0	10.0	0.2
330.0	E	TC212E337@006□	20.79	8.0	0.15	16V, +85°C (10V @ +125°C)					
470.0	D	TC212D477@006□	29.61	12.0	0.15	0.47	P	TC212P474@016□	0.5	6.0	15.0
470.0	E	TC212E477@006□	29.61	10.0	0.12	0.68	P	TC212P684@016□	0.5	6.0	15.0
10V, +85°C (6.3V @ +125°C)						1.0	P	TC212P105@016□	0.5	6.0	10.0
0.68	P	TC212P684@010□	0.5	4.0	15.0	1.0	A	TC212A105@016□	0.5	4.0	8.0
1.0	P	TC212P105@010□	0.5	10.0	10.0	1.5	P	TC212P155@016□	0.5	6.0	10.0
1.0	A	TC212A105@010□	0.5	4.0	8.0	1.5	A	TC212A155@016□	0.5	6.0	8.0
1.5	P	TC212P155@010□	0.5	10.0	6.0	2.2	P	TC212P225@016□	0.5	6.0	15.0
1.5	A	TC212A155@010□	0.5	6.0	6.0	2.2	A	TC212A225@016□	0.5	6.0	6.0
2.2	P	TC212P225@010□	0.5	6.0	8.0	2.2	B	TC212B225@016□	0.5	6.0	6.0
2.2	A	TC212A225@010□	0.5	6.0	6.0	2.2	B	TC212B225@016□	0.5	6.0	6.0
3.3	A	TC212A335@010□	0.5	6.0	6.0	3.3	A	TC212A335@016□	0.5	6.0	5.0
3.3	P	TC212P335@010□	0.5	6.0	10.0	3.3	B	TC212B335@016□	0.52	6.0	2.5

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# SPECIFICATIONS

## TC212 TYPE

Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.	Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.
4.7	P	TC212P475②016□	0.8	18.0	10.0	6.8	D	TC212D685②020□	1.36	6.0	0.8
4.7	A	TC212A475②016□	0.75	6.0	5.0	10.0	B	TC212B106②020□	2.0	6.0	2.0
4.7	B	TC212B475②016□	0.75	6.0	2.5	10.0	C	TC212C106②020□	2.0	6.0	1.2
4.7	C	TC212C475②016□	0.8	6.0	1.5	10.0	D	TC212D106②020□	2.0	6.0	0.8
6.8	A	TC212A685②016□	1.08	6.0	5.0	15.0	C	TC212C156②020□	3.0	6.0	1.2
6.8	B	TC212B685②016□	1.08	6.0	2.5	15.0	D	TC212D156②020□	3.0	6.0	0.8
6.8	C	TC212C685②016□	1.08	6.0	1.0	22.0	B	TC212B226②020□	4.4	8.0	3.0
10.0	A	TC212A106②016□	1.6	8.0	3.0	22.0	C	TC212C226②020□	4.4	6.0	0.4
10.0	B	TC212B106②016□	1.6	6.0	0.8	22.0	D	TC212D226②020□	4.4	6.0	0.5
10.0	C	TC212C106②016□	1.6	6.0	1.5	33.0	C	TC212C336②020□	6.6	6.0	0.6
15.0	B	TC212B156②016□	2.4	6.0	2.0	33.0	D	TC212D336②020□	6.6	6.0	0.4
15.0	C	TC212C156②016□	2.4	6.0	1.2	47.0	C	TC212C476②020□	9.4	10.0	0.8
22.0	A	TC212A226②016□	3.52	15.0	2.0	47.0	D	TC212D476②020□	9.4	6.0	0.6
22.0	B	TC212B226②016□	3.52	8.0	1.5	47.0	E	TC212E476②020□	9.4	6.0	0.3
22.0	C	TC212C226②016□	3.52	6.0	1.2	68.0	D	TC212D686②020□	13.6	6.0	0.4
22.0	D	TC212D226②016□	3.52	6.0	0.6	68.0	E	TC212E686②020□	13.6	6.0	0.3
33.0	B	TC212B336②016□	5.28	8.0	1.0	100.0	D	TC212D107②020□	20.0	8.0	0.2
33.0	C	TC212C336②016□	5.28	6.0	1.0	100.0	E	TC212E107②020□	20.0	8.0	0.2
33.0	D	TC212D336②016□	5.28	6.0	0.5	150.0	E	TC212E157②020□	30.0	8.0	0.2
47.0	B	TC212B476②016□	7.52	18.0	0.7	25V, +85°C (16V @ +125°C)					
47.0	C	TC212C476②016□	7.52	6.0	0.8	0.22	A	TC212A224②025□	0.5	4.0	10.0
47.0	D	TC212D476②016□	7.52	6.0	0.5	0.33	A	TC212A334②025□	0.5	4.0	12.0
68.0	D	TC212D686②016□	10.8	6.0	0.5	0.47	P	TC212P474②025□	0.5	4.0	8.0
100.0	C	TC212C107②016□	16.0	10.0	0.7	0.47	A	TC212A474②025□	0.5	4.0	10.0
100.0	D	TC212D107②016□	16.0	8.0	0.5	0.68	A	TC212A684②025□	0.5	4.0	6.0
150.0	D	TC212D157②016□	24.0	12.0	0.4	1.0	P	TC212P105②025□	0.5	6.0	8.0
150.0	E	TC212E157②016□	24.0	8.0	0.15	1.0	A	TC212A105②025□	0.5	4.0	6.0
220.0	D	TC212D227②016□	35.2	15.0	0.6	1.0	B	TC212B105②025□	0.5	4.0	4.0
220.0	E	TC212E227②016□	35.2	10.0	0.2	1.5	A	TC212A155②025□	0.5	6.0	5.0
330.0	E	TC212E337②016□	52.8	10.0	0.2	1.5	B	TC212B155②025□	0.5	6.0	3.5
20V, +85°C (13V @ +125°C)						2.2	A	TC212A225②025□	0.6	6.0	4.0
0.1	P	TC212P104②020□	0.5	4.0	15.0	2.2	B	TC212B225②025□	0.55	6.0	3.0
0.15	P	TC212P154②020□	0.5	4.0	15.0	2.2	C	TC212C225②025□	0.55	6.0	2.0
0.22	P	TC212P224②020□	0.5	4.0	15.0	3.3	A	TC212A335②025□	0.82	6.0	3.0
0.33	P	TC212P334②020□	0.5	4.0	15.0	3.3	B	TC212B335②025□	0.82	6.0	2.5
0.47	P	TC212P474②020□	0.5	4.0	15.0	3.3	C	TC212C335②025□	0.82	6.0	2.0
0.68	P	TC212P684②020□	0.5	4.0	15.0	4.7	A	TC212A475②025□	1.17	8.0	3.0
0.68	A	TC212A684②020□	0.5	4.0	10.0	4.7	B	TC212B475②025□	1.17	6.0	1.0
1.0	P	TC212P105②020□	0.5	6.0	15.0	4.7	C	TC212C475②025□	1.17	6.0	2.4
1.0	A	TC212A105②020□	0.5	4.0	8.0	6.8	B	TC212B685②025□	1.7	6.0	1.2
1.5	A	TC212A155②020□	0.5	6.0	4.5	6.8	C	TC212C685②025□	1.7	6.0	0.8
1.5	B	TC212B155②020□	0.5	6.0	1.5	6.8	D	TC212D685②025□	1.7	6.0	0.5
2.2	A	TC212A225②020□	0.5	6.0	4.0	10.0	B	TC212B106②025□	2.5	6.0	2.0
2.2	B	TC212B225②020□	0.5	6.0	3.0	10.0	C	TC212C106②025□	2.5	6.0	1.4
3.3	A	TC212A335②020□	0.66	6.0	6.0	10.0	D	TC212D106②025□	2.5	6.0	0.8
3.3	B	TC212B335②020□	0.66	6.0	2.5	15.0	B	TC212B156②025□	3.75	8.0	3.0
4.7	A	TC212A475②020□	0.94	6.0	3.5	15.0	C	TC212C156②025□	3.75	6.0	1.2
4.7	B	TC212B475②020□	0.94	6.0	2.5	15.0	D	TC212D156②025□	3.75	6.0	0.8
4.7	C	TC212C475②020□	0.94	6.0	1.2	22.0	C	TC212C226②025□	4.4	6.0	0.4
6.8	B	TC212B685②020□	1.36	6.0	2.5	22.0	D	TC212D226②025□	4.4	6.0	0.5
6.8	C	TC212C685②020□	1.36	6.0	1.2	33.0	D	TC212D336②025□	6.6	6.0	0.6

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# SPECIFICATIONS

## TC212 TYPE

Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.	Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.
33.0	E	TC212E336◎025□	8.25	6.0	0.5	15.0	E	TC212E156◎035□	5.25	6.0	0.6
47.0	D	TC212D476◎025□	11.7	6.0	0.4	22.0	D	TC212D226◎035□	7.7	6.0	0.6
47.0	E	TC212E476◎025□	11.7	6.0	0.4	22.0	E	TC212E226◎035□	7.7	6.0	0.3
68.0	E	TC212E686◎025□	17.0	6.0	0.3	33.0	E	TC212E336◎035□	11.0	6.0	0.5
100.0	D	TC212D107◎025□	25.0	10.0	0.7	47.0	E	TC212E476◎035□	16.5	8.0	0.5
35V, +85°C (20V @ +125°C)						50V, +85°C (32V @ +125°C)					
0.1	P	TC212P104◎035□	0.5	4.0	20.0	0.1	A	TC212A104◎050□	0.5	4.0	15.0
0.1	A	TC212A104◎035□	0.5	4.0	15.0	0.15	A	TC212A154◎050□	0.5	4.0	15.0
0.15	A	TC212A154◎035□	0.5	4.0	12.0	0.15	B	TC212B154◎050□	0.5	4.0	12.0
0.22	A	TC212A224◎035□	0.5	4.0	12.0	0.22	A	TC212A224◎050□	0.5	4.0	15.0
0.33	A	TC212A334◎035□	0.5	4.0	12.0	0.22	B	TC212B224◎050□	0.5	4.0	12.0
0.47	A	TC212A474◎035□	0.5	4.0	10.0	0.33	A	TC212A334◎050□	0.5	4.0	12.0
0.47	B	TC212B474◎035□	0.5	4.0	6.0	0.33	B	TC212B334◎050□	0.5	4.0	2.5
0.68	A	TC212A684◎035□	0.5	4.0	6.0	0.47	A	TC212A474◎050□	0.5	4.0	2.0
0.68	B	TC212B684◎035□	0.5	4.0	6.0	0.47	B	TC212B474◎050□	0.5	4.0	6.0
1.0	A	TC212A105◎035□	0.5	4.0	8.0	0.47	C	TC212C474◎050□	0.5	4.0	5.0
1.0	B	TC212B105◎035□	0.5	4.0	2.0	0.68	A	TC212A684◎050□	0.5	4.0	3.0
1.5	B	TC212B155◎035□	0.52	6.0	4.0	0.68	B	TC212B684◎050□	0.5	4.0	5.0
1.5	C	TC212C155◎035□	0.52	6.0	3.0	0.68	C	TC212C684◎050□	0.5	4.0	4.0
2.2	A	TC212A225◎035□	0.77	6.0	3.0	1.0	B	TC212B105◎050□	0.5	6.0	4.0
2.2	B	TC212B225◎035□	0.77	6.0	3.0	1.0	C	TC212C105◎050□	0.5	4.0	3.5
2.2	C	TC212C225◎035□	0.77	6.0	2.5	1.5	B	TC212B155◎050□	0.75	6.0	3.5
3.3	B	TC212B335◎035□	1.15	6.0	3.0	1.5	C	TC212C155◎050□	0.75	6.0	2.5
3.3	C	TC212C335◎035□	1.15	6.0	2.0	2.2	B	TC212B225◎050□	1.1	6.0	1.5
4.7	B	TC212B475◎035□	1.64	6.0	1.0	2.2	C	TC212C225◎050□	1.1	6.0	3.0
4.7	C	TC212C475◎035□	1.64	6.0	2.0	2.2	D	TC212D225◎050□	1.1	6.0	2.0
4.7	D	TC212D475◎035□	1.64	6.0	1.0	3.3	B	TC212B335◎050□	1.65	6.0	1.2
6.8	C	TC212C685◎035□	2.38	6.0	1.2	3.3	C	TC212C335◎050□	1.65	6.0	2.0
6.8	D	TC212D685◎035□	2.38	6.0	0.8	3.3	D	TC212D335◎050□	1.65	6.0	1.0
10.0	C	TC212C106◎035□	3.5	6.0	1.5	4.7	D	TC212D475◎050□	2.35	6.0	0.8
10.0	D	TC212D106◎035□	3.5	6.0	0.6	6.8	D	TC212D685◎050□	3.4	6.0	0.7
10.0	E	TC212E106◎035□	3.5	6.0	0.6	10.0	D	TC212D106◎050□	5.0	6.0	0.7
15.0	D	TC212D156◎035□	5.25	6.0	0.8	10.0	E	TC212E106◎050□	5.0	6.0	0.4
						15.0	E	TC212E156◎050□	7.5	6.0	0.4

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# SPECIFICATIONS

## ATC214 TYPE

Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF (%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.	Capacitance (μF)	Case	Part Number	DCL (μA) +25°C Max.	DF 损耗(%) +25°C 120Hz Max.	ESR(Ω) +25°C 100kHz Max.
4V, +85°C (2.5V @ +125°C)						25V, +85°C (16V @ +125°C)					
2.2	A	ATC214A225①004□	0.5	6.0	6.0	0.68	A	ATC214A684①020□	0.5	4.0	8.0
3.3	A	ATC214A335①004□	0.5	6.0	6.0	1.0	B	ATC214B105①020□	0.5	4.0	6.0
4.7	B	ATC214B475①004□	0.5	6.0	6.0	1.5	B	ATC214B155①020□	0.5	6.0	1.5
6.8	B	ATC214B685①004□	0.5	6.0	6.0	2.2	B	ATC214B225①020□	0.5	6.0	3.0
10	B	ATC214B106①004□	0.5	6.0	1.5	3.3	C	ATC214C335①020□	0.7	6.0	1.5
15.0	C	ATC214C156①004□	0.5	6.0	1.5	4.7	C	ATC214C475①020□	0.9	6.0	1.2
22.0	C	ATC214C226①004□	0.6	6.0	1.0	6.8	D	ATC214D685①020□	1.4	6.0	0.8
33.0	D	ATC214D336①004□	1.3	6.0	1.0	10.0	D	ATC214D106①020□	2.0	6.0	0.8
47.0	D	ATC214D476①004□	1.9	6.0	1.0	15.0	D	ATC214D156①020□	3.0	6.0	0.8
68.0	D	ATC214D686①004□	2.7	6.0	0.5	22.0	D	ATC214D226①020□	4.4	6.0	0.5
100	D	ATC214D107①004□	4.0	8.0	0.3	35V, +85°C (20V @ +125°C)					
6.3V, +85°C (4.0V @ +125°C)						0.33	A	ATC214A334①025□	0.5	4.0	12.0
1.5	A	ATC214A155①006□	0.5	6.0	6.0	0.47	A	ATC214A474①025□	0.5	4.0	10.0
2.2	A	ATC214A225①006□	0.5	6.0	6.0	0.68	B	ATC214B684①025□	0.5	4.0	6.0
3.3	B	ATC214B335①006□	0.5	6.0	8.0	1.0	B	ATC214B105①025□	0.5	4.0	4.0
4.7	B	ATC214B475①006□	0.5	6.0	10.0	1.5	B	ATC214B155①025□	0.5	6.0	3.5
6.8	B	ATC214B685①006□	0.5	6.0	1.2	2.2	C	ATC214C225①025□	0.6	6.0	2.0
10.0	C	ATC214C106①006□	0.6	6.0	0.6	3.3	C	ATC214C335①025□	0.8	6.0	2.0
15.0	C	ATC214C156①006□	0.9	6.0	0.6	4.7	D	ATC214D475①025□	1.2	6.0	1.5
22.0	D	ATC214D226①006□	1.3	6.0	0.5	6.8	D	ATC214D685①025□	1.7	6.0	1.0
33.0	D	ATC214D336①006□	2.1	6.0	0.3	10.0	D	ATC214D106①025□	2.5	6.0	0.8
47.0	D	ATC214D476①006□	3.0	6.0	0.3	15.0	D	ATC214D156①025□	3.8	6.0	0.8
68.0	D	ATC214D686①006□	4.3	6.0	0.2	50V, +85°C (32V @ +125°C)					
10V, +85°C (6.3V @ +125°C)						0.1	A	ATC214A104①035□	0.5	4.0	15.0
1.0	A	ATC214A105①010□	0.5	4.0	6.0	0.15	A	ATC214A154①035□	0.5	4.0	12.0
1.5	A	ATC214A155①010□	0.5	6.0	6.0	0.22	A	ATC214A224①035□	0.5	4.0	12.0
2.2	B	ATC214B225①010□	0.5	6.0	3.0	0.33	A	ATC214A334①035□	0.5	4.0	12.0
3.3	B	ATC214B335①010□	0.5	6.0	3.0	0.47	B	ATC214B474①035□	0.5	4.0	2.5
4.7	B	ATC214B475①010□	0.5	6.0	1.5	0.68	B	ATC214B684①035□	0.5	4.0	2.5
6.8	C	ATC214C685①010□	0.7	6.0	0.8	1.0	B	ATC214B105①035□	0.5	4.0	2.0
10.0	C	ATC214C106①010□	1.0	6.0	0.6	1.5	B	ATC214B155①035□	0.5	4.0	2.0
15.0	C	ATC214C156①010□	1.5	6.0	0.5	1.5	C	ATC214C155①035□	0.5	6.0	2.5
22.0	D	ATC214D226①010□	2.2	6.0	0.4	2.2	C	ATC214C225①035□	0.8	6.0	1.5
33.0	D	ATC214D336①010□	3.3	6.0	0.25	3.3	D	ATC214D335①035□	1.2	6.0	1.5
47.0	D	ATC214D476①010□	4.7	6.0	0.22	4.7	D	ATC214D475①035□	1.6	6.0	1.0
16V, +85°C (10V @ +125°C)						6.8	D	ATC214D685①035□	2.4	6.0	0.8
0.68	A	ATC214A684①016□	0.5	6.0	10.0	10.0	D	ATC214D106①035□	3.5	6.0	0.6
1.0	A	ATC214A105①016□	0.5	4.0	6.0	50V, +85°C (32V @ +125°C)					
1.5	B	ATC214B155①016□	0.5	6.0	4.0	0.1	A	ATC214A104①050□	0.5	4.0	15.0
2.2	B	ATC214B225①016□	0.5	6.0	3.0	0.15	B	ATC214B154①050□	0.5	4.0	12.0
3.3	B	ATC214B335①016□	0.5	6.0	2.5	0.22	B	ATC214B224①050□	0.5	4.0	12.0
4.7	C	ATC214C475①016□	0.8	6.0	1.5	0.33	B	ATC214B334①050□	0.5	4.0	2.5
6.8	C	ATC214C685①016□	1.1	6.0	1.0	0.47	C	ATC214C474①050□	0.5	4.0	5.0
10	C	ATC214C106①016□	1.6	6.0	1.5	0.68	C	ATC214C684①050□	0.5	4.0	4.0
15.0	D	ATC214D156①016□	2.4	6.0	0.5	1.0	C	ATC214C105①050□	0.5	4.0	3.5
22.0	D	ATC214D226①016□	3.5	6.0	0.25	1.5	D	ATC214D155①050□	0.8	6.0	2.5
33.0	D	ATC214D336①016□	5.3	6.0	0.25	2.2	D	ATC214D225①050□	1.1	6.0	2.0
20V, +85°C (13V @ +125°C)						3.3	D	ATC214D335①050□	2.2	6.0	0.8
0.47	A	ATC214A474①020□	0.5	4.0	10.0	4.7	D	ATC214D475①050□	2.4	6.0	0.8

※①:Capacitance tolerance code (K=±10%, M=±20%); □: Internal code (A=Black molded case, Y=Yellow molded case).

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