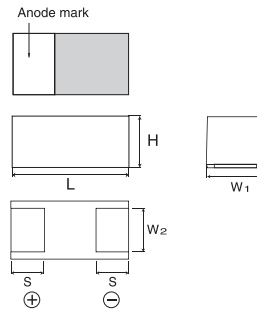


New Bottom Surface Electrode (Extra Large Capacitance): TCS series

- M case: 1608-10 (0603) size
- P case: 2012-12 (0805) size

■ Dimensions



(Unit: mm)

Dimensions	Size	
	M case	P case
L	1.6+0.2/-0	2.0±0.2
W ¹	0.85±0.1	1.25±0.2
W ²	0.55±0.1	0.85±0.2
H	0.8+0.2/-0	Max 1.2
S	0.5±0.1	0.5±0.1

Series Name	Case Name	Capacitance Tolerance	Operating Temperature	Tangent of Loss Angle	Leakage Current	ESR
TCS series	M case 1608-10 (0603) size	±20% (M)	-55°C to +125°C Rated Voltage at -55°C to +85°C DeRated Voltage at +85°C to +125°C	Max 40% at 120Hz (25°C)*	Max 0.2CV (25°C, 5 min.)*	Max 6.0Ω (at 100kHz)*
	P case 2012-12 (0805) size				Max 0.1CV (25°C, 5 min.)*	

*Spec. values are specified for each parts number.

■ Capacitance Range

- M case: 1608-10 (0603) size

Capacitance (μF)	Rated Voltage (V.DC)			
	4	6.3	10	16
10 (106)				M
22 (226)			M	
47 (476)		M		
100 (107)	M			

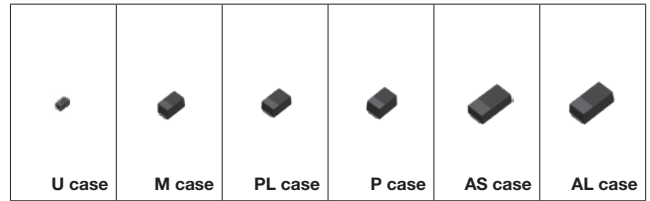
- P case: 2012-12 (0805) size

Capacitance (μF)	Rated Voltage (V.DC)			
	4	6.3	10	20
10 (106)				P
47 (476)			P	
100 (107)		P		
150 (157)		P		
220 (227)	P			

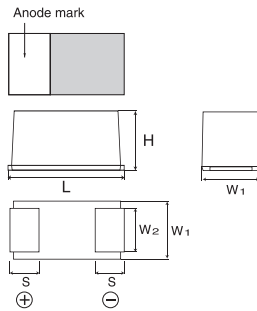
*Usage precaution: Based on JEITA Technical Report "EIAJ RCR-2368A"

Bottom Surface Electrode (Large Capacitance): TCT, TC series

- **U case: 1005-055 (0402) size**
- **M case: 1608-09 (0603) size**
- **PL case: 2012-10 (0805) size H=Max 1.0mm**
- **P case: 2012-12 (0805) size H=Max 1.2mm**
- **AS case: 3216-10 (1206) size H=Max 1.0mm**
- **AL case: 3216-12 (1206) size H=Max 1.2mm**



■ Dimensions



(Unit: mm)

Dimensions	Size					
	U case	M case	PL case	P case	AS case	AL case
L	1.0+0.2/-0	1.6±0.1	2.0±0.2	2.0±0.2	3.2±0.2	3.2±0.2
W ¹	0.5+0.2/-0	0.85±0.1	1.25±0.2	1.25±0.2	1.6±0.2	1.6±0.2
W ²	0.35±0.1	0.55±0.1	0.85±0.2	0.85±0.2	1.2±0.2	1.2±0.2
H	Max 0.55	0.8±0.1	0.9±0.1	Max 1.2	0.9±0.1	1.1±0.1
S	0.35±0.1	0.5±0.1	0.5±0.2	0.5±0.2	0.8±0.2	0.8±0.2

Series Name	Case Name	Capacitance Tolerance	Operating Temperature	Tangent of Loss Angle	Leakage Current	ESR
TCT series	U case 1005-055 (0402) size	±10% (K) ±20% (M)	-55°C to +125°C Rated Voltage at -55°C to +85°C DeRated Voltage at +85°C to +125°C	Max 50% at 120Hz (25°C)*	0.5µA or 0.1CV whichever is greater (25°C, 5 min.)*	Max 35.0Ω (at 100kHz)*
TC series	M case 1608-09 (0603) size	±20%(M)		Max 30% at 120Hz (25°C)*	0.5µA or 0.01CV whichever is greater (25°C, 5 min.)*	Max 15.0Ω (at 100kHz)*
TCT series	PL case 2012-10 (0805) size			Max 0.05CV (25°C, 5 min.)*	Max 8.0Ω (at 100kHz)*	
	P case 2012-12 (0805) size					
	AL case 3216-12 (1206) size					

*Spec. values are specified for each parts number.

■ Capacitance Range

● U case: 1005-055 (0402) size

Capacitance (µF)	Rated Voltage (V.DC)			
	2.5	4	6.3	20
0.33 (334)				U
0.47 (474)			U	
1 (105)			U	
2.2 (225)			U	
4.7 (475)		U	U	
10 (106)				
15 (156)	U			

● M case: 1608-09 (0603) size

Capacitance (µF)	Rated Voltage (V.DC)				
	4	6.3	10	16	25
1 (105)				M	M
2.2 (225)			M	M	
4.7 (475)		M	M		
10 (106)		M	M		
22 (226)	M	M			
33 (336)		M			

● PL case: 2012-10 (0805) size H=Max 1.0mm

Capacitance (µF)	Rated Voltage (V.DC)			
	4	6.3	10	16
1 (105)				
2.2 (225)				
4.7 (475)				
10 (106)				PL
22 (226)			PL	
33 (336)				
47 (476)		PL		
100 (107)	PL			

● P case: 2012-12 (0805) size H=Max 1.2mm

Capacitance (µF)	Rated Voltage (V.DC)				
	4	6.3	10	16	25
2.2 (225)					P
4.7 (475)					
10 (106)				P	
22 (226)			P		
33 (336)			P		
47 (476)	P	P	☆P		
100 (107)	P				

☆: contact us

● AS case: 3216-10 (1206) size H=Max 1.0mm

Capacitance (µF)	Rated Voltage (V.DC)			
	4	6.3	10	35
1 (105)				AS
2.2 (225)				
4.7 (475)				
10 (106)				
22 (226)				
33 (336)				
47 (476)		AS	AS	
100 (107)		AS		
220 (227)	AS			

● AL case: 3216-12 (1206) size H=Max 1.2mm

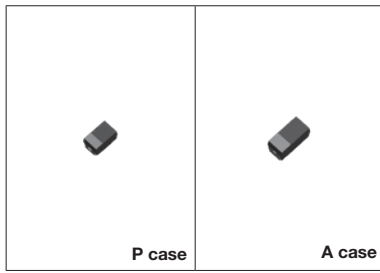
Capacitance (µF)	Rated Voltage (V.DC)						
	4	6.3	10	16	20	25	35
3.3 (335)							AL
4.7 (475)						AL	
10 (106)					AL	AL	
22 (226)				AL	AL		
33 (336)				AL			
47 (476)			AL				
100 (107)		AL	☆AL				
150 (157)		AL					
220 (227)	AL	☆AL					

☆: contact us

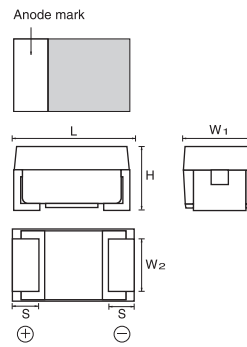
*Usage precaution: Based on JEITA Technical Report "EIAJ RCR-2368A"

Standard: TC series

- P case: 2012-12 (0805) size
- A case: 3216-18 (1206) size



Dimensions



(Unit: mm)

Dimensions	Size	
	P case	A case
L	2.0±0.2	3.2±0.2
W ¹	1.25±0.2	1.6±0.2
W ²	0.9±0.2	1.2±0.2
H	Max 1.2	1.6±0.2
S	0.45±0.3	0.8±0.3

Series Name	Case Name	Capacitance Tolerance	Operating Temperature	Tangent of Loss Angle	Leakage Current	ESR
TC series	P case 2012-12 (0805) size	±20% (M)	-55°C to +125°C Rated Voltage at -55°C to +85°C DeRated Voltage at +85°C to +125°C	Max 25% at 120Hz (25°C)*	0.5µA or 0.01CV whichever is greater (25°C, 1 min.)*	Max 17.5Ω (at 100kHz)*
	A case 3216-18 (1206) size			Max 30% at 120Hz (25°C)*		Max 8.8Ω (at 100kHz)*

*Spec. values are specified for each parts number.

Capacitance Range

● P case: 2012-12 (0805) size

Capacitance (µF)	Rated Voltage (V.DC)				
	4	6.3	10	16	25
1 (105)			P	P	P
1.5 (155)		P	P		
2.2 (225)	P	P	P		
3.3 (335)	P	P	P	P	
4.7 (475)	P	P	P		
6.8 (685)		P			
10 (106)	P	P	P		
15 (156)	P	P			
22 (226)	P	P			

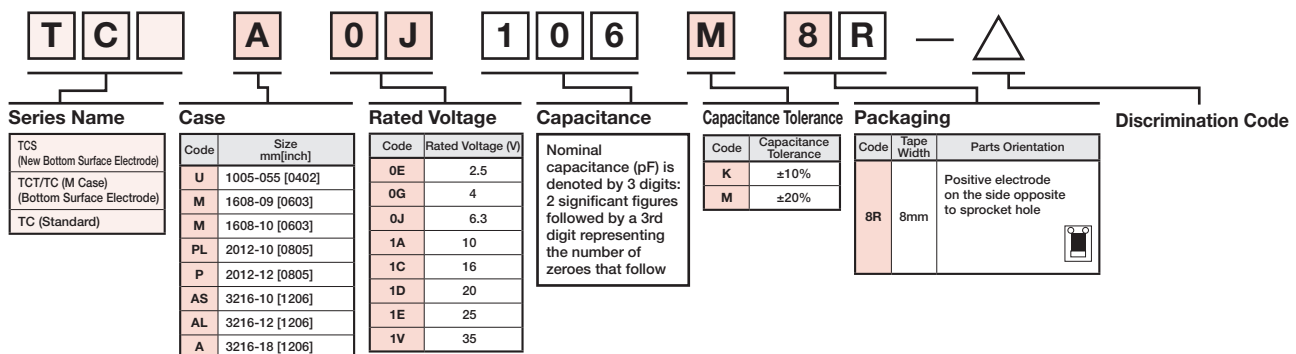
● A case: 3216-18 (1206) size

Capacitance (µF)	Rated Voltage (V.DC)						
	4	6.3	10	16	20	25	35
1 (105)				A	A	A	☆A
1.5 (155)			A	A			
2.2 (225)			A	A			
3.3 (335)		A	A	A		A	
4.7 (475)	A	A	A	A	A	A	
6.8 (685)		A	A	A			
10 (106)		A	A	A			
15 (156)	A	A	A				
22 (226)	A	A	A	☆A			
33 (336)	A	A	☆A				
47 (476)	A	A					
68 (686)	A	A					
100 (107)	A	☆A					

☆: Under Development

Part Number Explanation

■ Tantalum Capacitors



Package Quantity

■ Tantalum Capacitors

Case (mm[inch])	Series	Package Quantity (pcs)
U (1005-055 [0402])	TCT	10,000
M (1608-09 [0603])	TC	4,000
M (1608-10 [0603])	TCS	3,000
PL (2012-10 [0805])	TCT	
P (2012-12 [0805])	TCS/TCT/TC	
AS (3216-10 [1206])	TCT	2,000
AL (3216-12 [1206])	TCT	
A (3216-18 [1206])	TC	

*Usage precaution: Based on JEITA Technical Report "EIAJ RCR-2368A"