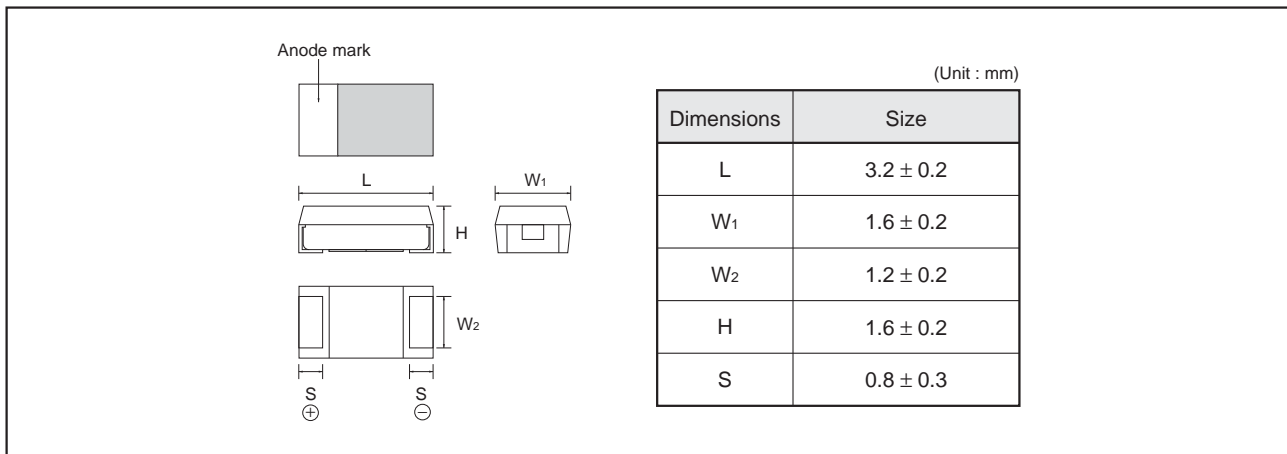


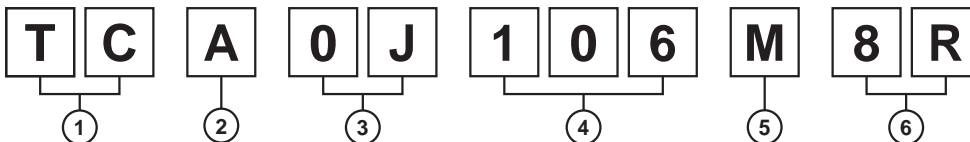
●Features

- 1) Small package, large capacitance chip tantalum capacitor.
- 2) Low impedance capacitors.
- 3) Screening by thermal shock.

●Dimensions



●Part No. Explanation



① Series name
TC

② Case style
A : 3216-18 (1206) size

③ Rated voltage

Rated voltage (V)	4	6.3	10	16	20	25
CODE	0G	0J	1A	1C	1D	1E

④ Nominal capacitance
Nominal capacitance in pF in 3 digits:
2 significant figures followed by the figure
representing the number of 0's.

⑤ Capacitance tolerance
M : ± 20%

⑥ Taping
8 : Real width : 8mm
R : Positive electrode on the side opposite to sprocket hole

●Rated table

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

Remark) Case size codes (A) in the above show products line-up.

☆ Under development

●Marking

The indications listed below should be given on the surface of a capacitor.

- (1) Polarity : The polarity should be shown by □ bar. (on the anode side)
- (2) Rated DC voltage : A voltage code is shown as below table.
- (3) Capacitance : A capacitance code is shown as below table.

Voltage Code	Rated DC Voltage (V)
g	4
j	6.3
A	10
C	16
D	20
E	25

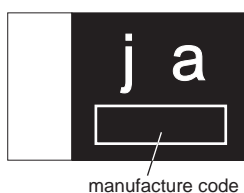
Capacitance Code	Nominal Capacitance (μF)
A	1.0
E	1.5
J	2.2
N	3.3
S	4.7
a	10
e	15
j	22
n	33
s	47
ā	100

Visual typical example
voltage code and capacitance code are variable with parts number.

[A case]

EX.) $\frac{j}{(1)}$ $\frac{a}{(2)}$

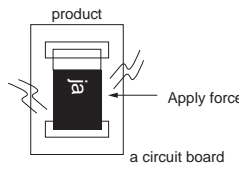
(1) voltage code (2) capacitance code



●Characteristics

Item		Performance	Test conditions (based on JIS C 5101-1 and JIS C 5101-3)															
Operating Temperature		-55°C~+125°C	Voltage reduction when temperature exceeds +85°C															
Maximum operating temperature with no voltage derating		+85°C																
Rated voltage (V.DC)		4 6.3 10 16 20 25	at 85°C															
Category voltage (V.DC)		2.5 4 6.3 10 13 16	at 125°C															
Surge voltage (V.DC)		5 8 13 20 26 32	at 85°C															
DC Leakage current		Shall be satisfied the value on " Standard list "	As per 4.9 JIS C 5101-1 As per 4.5.1 JIS C 5101-3 Voltage : Rated voltage for 1min															
Capacitance tolerance		Shall be satisfied allowance range. ±20%	As per 4.7 JIS C 5101-1 As per 4.5.2 JIS C 5101-3 Measuring frequency : 120±12Hz Measuring voltage : 0.5Vrms +1.5V.DC Measuring circuit : DC Equivalent series circuit															
Tangent of loss angle (Df, tan δ)		Shall be satisfied the value on " Standard list "	As per 4.8 JIS C 5101-1 As per 4.5.3 JIS C 5101-3 Measuring frequency : 120±12Hz Measuring voltage : 0.5Vrms +1.5V.DC Measuring circuit : DC Equivalent series circuit															
Impedance		Shall be satisfied the value on " Standard list "	As per 4.10 JIS C 5101-1 As per 4.5.4 JIS C 5101-3 Measuring frequency : 100±10kHz Measuring voltage : 0.5Vrms or less Measuring circuit : DC Equivalent series circuit															
Resistance to Soldering heat	Appearance	There should be no significant abnormality. The indications should be clear.	As per 4.14 JIS C 5101-1 As per 4.6 JIS C 5101-3 Dip in the solder bath Solder temp : 260±10°C Duration : 5±0.5s Repetition : 1 After the specimens, leave it at room temperature for over 24h and then measure the sample.															
	L.C.	TCA0J107M8R : Less than 200% of initial limit Others : Less than initial limit																
	ΔC / C	TCA0G107M8R : Within ±20% of initial value TCA0J107M8R : Within ±20% of initial value Others : Within ±5% of initial value																
	Df (tan δ)	TCA0J107M8R : Less than 200% of initial limit Others : Less than initial limit																
Temperature cycle	Appearance	There should be no significant abnormality. The indications should be clear.	As per 4.16 JIS C 5101-1 As per 4.10 JIS C 5101-3 Repetition : 5 cycles (1 cycle : steps 1 to 4) without discontinuation. <table border="1" data-bbox="901 1321 1204 1478"> <thead> <tr> <th></th> <th>Temp.</th> <th>Time</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-55±3°C</td> <td>30±3min.</td> </tr> <tr> <td>2</td> <td>Room temp.</td> <td>3min.or less</td> </tr> <tr> <td>3</td> <td>125±2°C</td> <td>30±3min.</td> </tr> <tr> <td>4</td> <td>Room temp.</td> <td>3min.or less</td> </tr> </tbody> </table> After the specimens, leave it at room temperature for over 24h and then measure the sample.		Temp.	Time	1	-55±3°C	30±3min.	2	Room temp.	3min.or less	3	125±2°C	30±3min.	4	Room temp.	3min.or less
		Temp.		Time														
	1	-55±3°C		30±3min.														
	2	Room temp.		3min.or less														
3	125±2°C	30±3min.																
4	Room temp.	3min.or less																
L.C.	TCA0J107M8R : Less than 200% of initial limit Others : Less than initial limit																	
ΔC / C	TCA0G107M8R : Within ±20% of initial value TCA0J476M8R : Within ±15% of initial value TCA0J107M8R : Within ±20% of initial value TCA1A226M8R : Within ±15% of initial value Others : Within ±10% of initial value																	
Df (tan δ)	TCA0J107M8R : Less than 200% of initial limit Others : Less than initial limit																	
Moisture resistance	Appearance	There should be no significant abnormality. The indications should be clear.	As per 4.22 JIS C 5101-1 As per 4.12 JIS C 5101-3 After leaving the sample under such atmospheric condition that the temperature and humidity are 60±2°C and 90 to 95% RH,respectively, for 500±12h leave it at room temperature for over 24h and then measure the sample.															
	L.C.	TCA0J107M8R : Less than 200% of initial limit Others : Less than initial limit																
	ΔC / C	TCA0G107M8R : Within ±20% of initial value TCA0J107M8R : Within ±20% of initial value Others : Within ±10% of initial value																
	Df (tan δ)	TCA0G107M8R : Less than 150% of initial limit TCA0J107M8R : Less than 200% of initial limit Others : Less than initial limit																

Item	Performance	Test conditions (based on JIS C 5101-1 and JIS C 5101-3)
Temperature Stability	Temp.	-55°C
	$\Delta C / C$	TCA0J107M8R : Within 0/-15% of initial value Others : Within 0/-12% of initial value
	Df (tan δ)	Shall be satisfied the voltage on " Standard list "
	L.C.	-
	Temp.	+85°C
	$\Delta C / C$	TCA0G107M8R : Within +12/0% of initial value TCA0J107M8R : Within +15/0% of initial value Others : Within +10/0% of initial value
	Df (tan δ)	Shall be satisfied the voltage on " Standard list "
	L.C.	Less than 1000% of initial limit
	Temp.	+125°C
	$\Delta C / C$	TCA0J107M8R : Within +20/0% of initial value Others : Within +15/0% of initial value
Surge voltage	Appearance	There should be no significant abnormality. The indications should be clear.
	L.C.	TCA0J107M8R : Less than 200% of initial limit Others : Less than initial limit
	$\Delta C / C$	TCA0G107M8R : Within $\pm 20\%$ of initial value TCA0J107M8R : Within +20% of initial value Others : $\pm 10\%$ of initial value
	Df (tan δ)	TCA0J107M8R : Less than 200% of initial limit Others : Less than initial limit
Loading at High temperature	Appearance	There should be no significant abnormality. The indications should be clear.
	L.C.	TCA0G107M8R : Less than 125% of initial limit TCA0J107M8R : Less than 200% of initial limit TCA1A226M8R : Less than 125% of initial limit TCA1E105M8R : Less than 125% of initial limit Others : Less than initial limit
	$\Delta C / C$	TCA0G107M8R : Within $\pm 20\%$ of initial value TCA0J476M8R : Within $\pm 15\%$ of initial value TCA0J107M8R : Within $\pm 20\%$ of initial value TCA1A226M8R : Within $\pm 15\%$ of initial value Others : Within $\pm 10\%$ of initial value
	Df (tan δ)	TCA0J107M8R : Less than 200% of initial limit Others : Less than initial limit
Terminal strength	Capacitance	The measured value should be stable.
	Appearance	There should be no significant abnormality.
		As per 4.29 JIS C 5101-1 As per 4.13 JIS C 5101-3 As per 4.26 JIS C 5101-1 As per 4.14 JIS C 5101-3 Apply the specified surge voltage via the serial resistance of 1k Ω every 5 \pm 0.5 min. for 30 \pm 5 s. each time in the atmospheric condition of 85 \pm 2°C. Repeat this procedure 1,000 times. After the specimens, leave it at room temperature for over 24h and then measure the sample. As per 4.23 JIS C 5101-1 As per 4.15 JIS C 5101-3 After applying the rated voltage for 2000+72/0 h without discontinuation via the serial resistance of 3 Ω or less at a temperature of 85 \pm 2°C, leave the sample at room temperature / humidity for over 24h and measure the value. As per 4.35 JIS C 5101-1 As per 4.9 JIS C 5101-3 A force is applied to the terminal until it bends to 1mm and by a prescribed tool maintain the condition for 5s. (See the figure below)
		<p>(Unit : mm)</p> <p>50 20 R230 F (Apply force) 1 thickness=1.6mm 45 45</p>

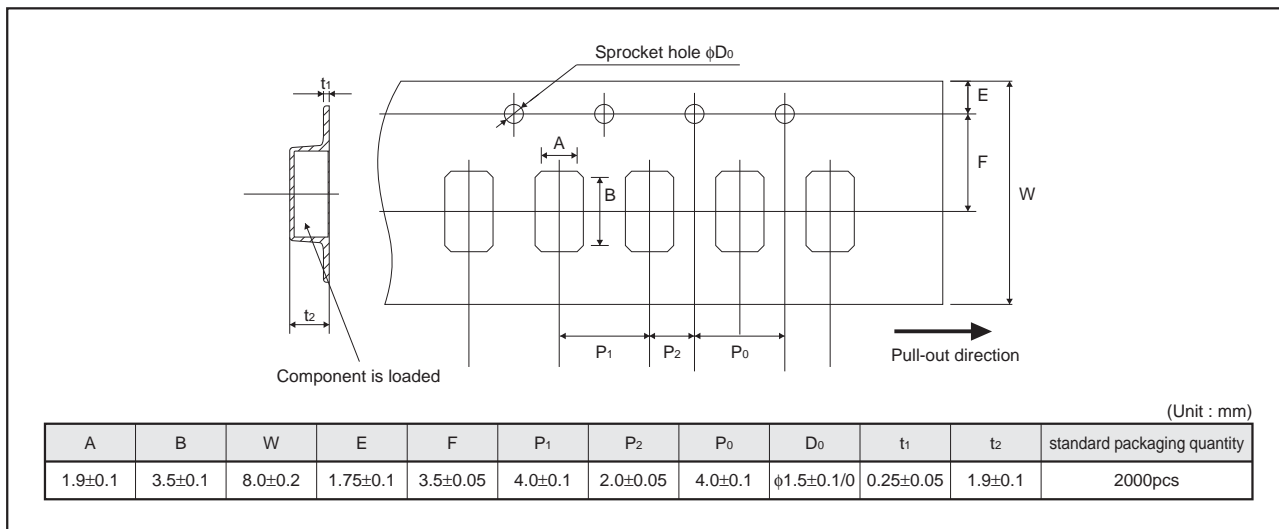
Item		Performance	Test conditions (JIS C 5101-1 and JIS C 5101-3)
Adhesiveness		The terminal should not come off.	<p>As per 4.34 JIS C 5101-1 As per 4.8 JIS C 5101-3 Apply force of 5N in the two directions shown in the figure below for 10±1s after mounting the terminal on a circuit board.</p> 
Dimensions		Refer to "External dimensions"	Measure using a caliper of JIS B 7507 Class 2 or higher grade.
Resistance to solvents		The indication should be clear	<p>As per 4.32 JIS C 5101-1 As per 4.18 JIS C 5101-3 Dip in the isopropyl alcohol for 30±5s, at room temperature.</p>
Solderability		3/4 or more surface area of the solder coated terminal dipped in the soldering bath should be covered with the new solder.	<p>As per 4.15.2 JIS C 5101-1 As per 4.7 JIS C 5101-3 Dip speed=25±2.5mm / s Pre-treatment(accelerated aging): Leave the sample on the boiling distilled water for 1 h. Solder temp. : 245±5°C Duration : 3±0.5s Solder : M705 Flux : Rosin 25% IPA 75%</p>
Vibration	Capacitance	Measure value should not fluctuate during the measurement.	<p>As per 4.17 JIS C 5101-1 Frequency : 10 to 55 to 10Hz/min. Amplitude : 1.5mm</p>
	Appearance	There should be no significant abnormality.	<p>Time : 2h each in X and Y directions Mounting : The terminal is soldered on a print circuit board.</p>

●Standard products list

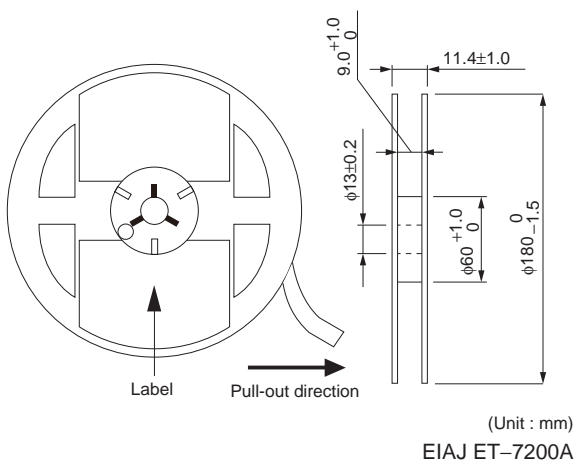
Part No.	Rated voltage 85°C (V)	Category voltage 125°C (V)	Surge voltage 85°C (V)	Cap. 120Hz (μ F)	Tolerance (%)	Leakage current 25°C 1WV.60s (μ A)	Df 120Hz (%)			Impedance 100kHz (Ω)
							-55°C	25°C 85°C	125°C	
TC A 0G 106 M8R	4	2.5	5	10	± 20	0.5	12	8	10	4.2
TC A 0G 156 M8R	4	2.5	5	15	± 20	0.6	12	8	10	4
TC A 0G 226 M8R	4	2.5	5	22	± 20	0.9	12	8	10	3
TC A 0G 336 M8R	4	2.5	5	33	± 20	1.3	14	10	12	3.5
TC A 0G 476 M8R	4	2.5	5	47	± 20	1.9	30	12	16	3.2
TC A 0G 107 M8R	4	2.5	5	100	± 20	4	54	30	36	3
TC A 0J 335 M8R	6.3	4	8	3.3	± 20	0.5	10	6	8	5.6
TC A 0J 475 M8R	6.3	4	8	4.7	± 20	0.5	12	8	10	4.9
TC A 0J 106 M8R	6.3	4	8	10	± 20	0.6	12	8	10	4
TC A 0J 156 M8R	6.3	4	8	15	± 20	0.9	12	8	10	3
TC A 0J 226 M8R	6.3	4	8	22	± 20	1.4	14	10	12	3.5
TC A 0J 336 M8R	6.3	4	8	33	± 20	2.1	30	12	16	3.2
TC A 0J 476 M8R	6.3	4	8	47	± 20	3.0	34	18	24	3.2
* TC A 0J 107 M8R	6.3	4	8	100	± 20	31.5	54	30	36	3
TC A 1A 155 M8R	10	6.3	13	1.5	± 20	0.5	10	6	8	8.8
TC A 1A 225 M8R	10	6.3	13	2.2	± 20	0.5	10	6	8	5.6
TC A 1A 335 M8R	10	6.3	13	3.3	± 20	0.5	12	8	10	4.9
TC A 1A 475 M8R	10	6.3	13	4.7	± 20	0.5	12	8	10	4.2
TC A 1A 106 M8R	10	6.3	13	10	± 20	1.0	12	8	10	3
TC A 1A 156 M8R	10	6.3	13	15	± 20	1.5	14	10	12	3.5
TC A 1A 226 M8R	10	6.3	13	22	± 20	2.2	30	12	16	3.2
TC A 1C 105 M8R	16	10	20	1	± 20	0.5	10	6	8	7
TC A 1C 155 M8R	16	10	20	1.5	± 20	0.5	10	6	8	5.6
TC A 1C 225 M8R	16	10	20	2.2	± 20	0.5	10	6	8	4.9
TC A 1C 335 M8R	16	10	20	3.3	± 20	0.5	10	6	8	4.8
TC A 1C 475 M8R	16	10	20	4.7	± 20	0.8	10	6	8	3.9
TC A 1C 106 M8R	16	10	20	10	± 20	1.6	12	8	10	3.5
TC A 1D 105 M8R	20	13	26	1	± 20	0.5	10	6	8	7
TC A 1D 155 M8R	20	13	26	1.5	± 20	0.5	10	6	8	6
TC A 1D 225 M8R	20	13	26	2.2	± 20	0.5	10	6	8	5.2
TC A 1D 335 M8R	20	13	26	3.3	± 20	0.7	10	6	8	4.8
TC A 1D 475 M8R	20	13	26	4.7	± 20	0.9	10	6	8	3.9
TC A 1E 105 M8R	25	16	32	1	± 20	0.5	10	6	8	7
TC A 1E 155 M8R	25	16	32	1.5	± 20	0.5	10	6	8	6
TC A 1E 225 M8R	25	16	32	2.2	± 20	0.6	10	6	8	5.2
TC A 1E 335 M8R	25	16	32	3.3	± 20	0.8	10	6	8	4.8
TC A 1E 475 M8R	25	16	32	4.7	± 20	1.2	12	8	10	3.4

* = Under development

●Packaging specifications



●Reel dimensions



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