OUTLINE (Type TCA)

Type TCA is a tantalum solid electrolytic capacitor which uses conductive polymer as cathode layer.
Their equivalent series resistance (ESR) is extremely lowered with the characteristics of the polymer having high electric conductivity.
This ensures higher permissible ripple current and excellent noise absorption performance on high-frequency circuits.

APPLICATION

Mobile phones, digital cameras, high-performance portable equipments, personal computers, digital TV sets, DC/DC converters, regulators and peripherals.

FEATURES

1. Low ESR and Low impedance
   Using a conductive polymer as cathode layer makes low ESR and impedance possible.
   Type TCA makes high permissible ripple current and is suitable for noise bypass application.
2. Stable ESR over temperature
   ESR is extremely stable from low temperature through high temperature.
3. Compact and Large capacitance
   The capacitor is smaller and has larger capacitance than ceramic capacitor and aluminum electrolytic capacitor.
4. Benign Failure Mode
   Type TCA offers very safe characteristics which makes ignition and smoking harder by taking advantages of characteristics of conductive polymer if the capacitor be short-circuited.
5. Lead Free and RoHS Compliant.

RATINGS

Item	Ratings
Failure Rate Level	1% / 1000 h
Category Temperature Range	-55 to +105℃（to be used at derated voltage when temperature exceeds 85℃）
Rated Voltage	2.5 - 4 - 6.3 - 10 VDC
Derated Voltage	2.0 - 3.2 - 5.0 - 8.0 VDC（105℃）
Capacitance	10～680 μF
Capacitance Tolerance	±20 %（M）

ORDERING INFORMATION

TCA (TYPE) 6301 (RATED VOLTAGE) 106 (CAPACITANCE) M (CAPACITANCE TOLERANCE) R (STYLE OF REELED PACKAGE) 12S (CASE CODE) 200 (ESR（mΩ）)

Rated voltage	Marking
2.5V	2501
4V	4001
6.3V	6301
10V	1002

Capacitance	Marking	Capacitance	Marking
10μF	106	100μF	107
15μF	156	150μF	157
22μF	226	220μF	227
33μF	336	330μF	337
47μF	476	470μF	477
68μF	686	680μF	687

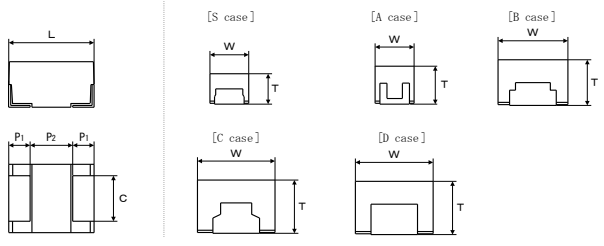
Capacitance Tolerance	Marking
±20%	M

Anode Notation	Reel Size	Code
Feed hole: -	φ180 Reel	R
Feed hole: -	φ330 Reel	N

Case Code	Height of component max.(mm)	EIA Code
S	1.2	2012
A	1.8	3216
B	2.1	3528
C	2.7	6032
D	3.0	7343

Note : For a capacitor with special requirements from customers, a 2-digit specific numbers will be added between the case code and the ESR for our product management.

DIMENSIONS

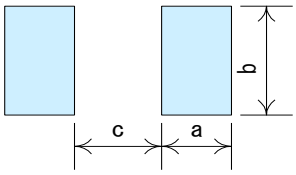


(mm)

Case Code	EIA Code	L±0.2	W±0.2	T±0.2	P_1±0.2	P_2min.	C±0.1
S	2012	2.0	1.25	1.2max.	0.5	0.8	0.9
A	3216	3.2	1.6	1.6	0.75	1.4	1.2
B	3528	3.5	2.8	1.9	0.8	1.5	2.2
C	6032	6.0	3.2	2.5	1.3	3.0	2.2
D	7343	7.3	4.4	2.8	1.3	4.0	2.4

Note : Dimension T of the case code “S” specifies max. value.

RECOMMENDED PAD DIMENSIONS

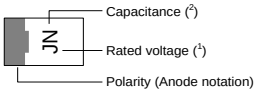


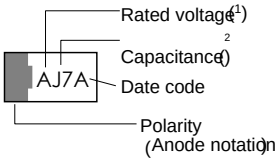
(mm)

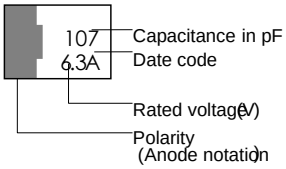
Case Code	a	b	c
S	1.4	1.2	0.9
A	2.0	1.5	1.5
B	2.0	2.4	1.8
C	2.4	2.5	3.3
D	2.4	2.7	4.6

In order to expect the self alignment effect, it is recommended that the land width is almost the same size as terminal of capacitor, and space between lands(c) nearly equal to the space between terminals for appropriate soldering.

MARKING







Note (1) Rated voltage is described as shown below.

Rated Voltage(VDC)	Case S	Case A
2.5	e	e
4	G	g
6.3	J	j
10	A	A

(2)Capacitance is described as shown below.

Capacitance	Case S	Case A
10μF	A	A7
15μF	E	E7
22μF	J	J7
33μF		N7
47μF		S7
68μF		W7

STANDRARD RATING

Feb.,2017

R.V.(VDC) / Cap.(μF)	2.5	4	6.3	10
10			S(200,500)	
15		S(200,500)		
22	S(200,500), A(180,200)	A(180,200)	A(180,200)	A(180,200)
33	A(180,200)	A(180,200)	A(180,200), B(80,60)	B(80,60)
47	A(180,200)	A(180,200)	B(70,60)	B(70,60)
68	A(200), B(70,55)	B(70,55)	B(70)	C(45,60)
100	B(70,55)	B(70,55)	B(70,55)	
150	B(70,55)	B(70,55)	C(40,60)	D(40,55)
220		C(40,60)	D(40)	
330			D(40,55)	
470		D(40,55)		
680	D(30)			

The parenthesized values show ESR.(maximum values in mΩat 100kHz)

CATALOG NUMBERS AND RATING

Feb.,2017

Catalog number (1)	Rated Voltage (VDC)	Capacitance (μF)	Tolerances (±%)	Case Code	Lct. (μA)			Max. Dissipation Factor			ESR (mΩ) 100 kHz	Max. permissible Ripple Current (2) (mArms) 100 kHz
					20℃	85℃	105℃	-55℃	20℃	105℃		
TCA 2501 226 M _1 S 0500	2.5	22	20	S	5.50	55.0	55.0	0.06	0.06	0.09	500	293
TCA 2501 226 M _1 S 0200	↓	22	↓	S	5.50	55.0	55.0	0.06	0.06	0.09	200	463
TCA 2501 226 M _1 A 0200	↓	22	↓	A	5.50	55.0	55.0	0.06	0.06	0.09	200	474
TCA 2501 226 M _1 A 0180	↓	22	↓	A	5.50	55.0	55.0	0.06	0.06	0.09	180	500
TCA 2501 336 M _1 A 0200	↓	33	↓	A	8.25	82.5	82.5	0.06	0.06	0.09	200	474
TCA 2501 336 M _1 A 0180	↓	33	↓	A	8.25	82.5	82.5	0.06	0.06	0.09	180	500
TCA 2501 476 M _1 A 0200	↓	47	↓	A	11.7	117	117	0.06	0.06	0.09	200	474
TCA 2501 476 M _1 A 0180	↓	47	↓	A	11.7	117	117	0.06	0.06	0.09	180	500
TCA 2501 686 M _1 A 0200	↓	68	↓	A	17.0	170	170	0.06	0.06	0.09	200	474
TCA 2501 686 M _1 B 0070	↓	68	↓	B	17.0	170	170	0.08	0.08	0.12	70	845
TCA 2501 686 M _1 B 0055	↓	68	↓	B	17.0	170	170	0.08	0.08	0.12	55	953
TCA 2501 107 M _1 B 0070	↓	100	↓	B	25.0	250	250	0.08	0.08	0.12	70	845
TCA 2501 107 M _1 B 0055	↓	100	↓	B	25.0	250	250	0.08	0.08	0.12	55	953
TCA 2501 157 M _1 B 0070	↓	150	↓	B	37.5	375	375	0.08	0.08	0.12	70	845
TCA 2501 157 M _1 B 0055	↓	150	↓	B	37.5	375	375	0.08	0.08	0.12	55	953
TCA 2501 687 M _1 D 0030	↓	680	↓	D	170.0	1,700	1,700	0.10	0.10	0.15	30	1683
TCA 4001 156 M _1 S 0500	4	15	20	S	6.00	60.0	60.0	0.06	0.06	0.09	500	293
TCA 4001 156 M _1 S 0200	↓	15	↓	S	6.00	60.0	60.0	0.06	0.06	0.09	200	474
TCA 4001 226 M _1 A 0200	↓	22	↓	A	8.80	88.0	88.0	0.06	0.06	0.09	200	474
TCA 4001 226 M _1 A 0180	↓	22	↓	A	8.80	88.0	88.0	0.06	0.06	0.09	180	500
TCA 4001 336 M _1 A 0200	↓	33	↓	A	13.2	132	132	0.06	0.06	0.09	200	474
TCA 4001 336 M _1 A 0180	↓	33	↓	A	13.2	132	132	0.06	0.06	0.09	180	500
TCA 4001 476 M _1 A 0200	↓	47	↓	A	18.8	188	188	0.06	0.06	0.09	200	474
TCA 4001 476 M _1 A 0180	↓	47	↓	A	18.8	188	188	0.06	0.06	0.09	180	500
TCA 4001 686 M _1 B 0070	↓	68	↓	B	27.2	272	272	0.08	0.08	0.12	70	845
TCA 4001 686 M _1 B 0055	↓	68	↓	B	27.2	272	272	0.08	0.08	0.12	55	953
TCA 4001 107 M _1 B 0070	↓	100	↓	B	40.0	400	400	0.08	0.08	0.12	70	845
TCA 4001 107 M _1 B 0055	↓	100	↓	B	40.0	400	400	0.08	0.08	0.12	55	953
TCA 4001 157 M _1 B 0070	↓	150	↓	B	60.0	600	600	0.08	0.08	0.12	70	845
TCA 4001 157 M _1 B 0055	↓	150	↓	B	60.0	600	600	0.08	0.08	0.12	55	953
TCA 4001 227 M _1 C 0060	↓	220	↓	C	88.0	880	880	0.08	0.08	0.12	60	1040
TCA 4001 227 M _1 C 0040	↓	220	↓	C	88.0	880	880	0.08	0.08	0.12	40	1275
TCA 4001 477 M _1 D 0055	↓	470	↓	D	188	1880	1880	0.10	0.10	0.15	55	1243
TCA 4001 477 M _1 D 0040	↓	470	↓	D	188	1880	1880	0.10	0.10	0.15	40	1458
TCA 6301 106 M _1 S 0500	6.3	10	20	S	6.30	63.0	63.0	0.06	0.06	0.09	500	293
TCA 6301 106 M _1 S 0200	↓	10	↓	S	6.30	63.0	63.0	0.06	0.06	0.09	200	474
TCA 6301 226 M _1 A 0200	↓	22	↓	A	13.8	138	138	0.06	0.06	0.09	200	474
TCA 6301 226 M _1 A 0180	↓	22	↓	A	13.8	138	138	0.06	0.06	0.09	180	500
TCA 6301 336 M _1 A 0200	↓	33	↓	A	20.8	208	208	0.06	0.06	0.09	200	474
TCA 6301 336 M _1 A 0180	↓	33	↓	A	20.8	208	208	0.06	0.06	0.09	180	500
TCA 6301 336 M _1 B 0080	↓	33	↓	B	20.8	208	208	0.08	0.08	0.12	80	791
TCA 6301 336 M _1 B 0060	↓	33	↓	B	20.8	208	208	0.08	0.08	0.12	60	912
TCA 6301 476 M _1 B 0070	↓	47	↓	B	29.6	296	296	0.08	0.08	0.12	70	845
TCA 6301 476 M _1 B 0060	↓	47	↓	B	29.6	296	296	0.08	0.08	0.12	60	912
TCA 6301 686 M _1 B 0070	↓	68	↓	B	42.8	428	428	0.08	0.08	0.12	70	845
TCA 6301 107 M _1 B 0070	↓	100	↓	B	63.0	630	630	0.08	0.08	0.12	70	845
TCA 6301 107 M _1 B 0055	↓	100	↓	B	63.0	630	630	0.08	0.08	0.12	55	953
TCA 6301 157 M _1 C 0060	↓	150	↓	C	94.5	945	945	0.08	0.08	0.12	60	1040
TCA 6301 157 M _1 C 0040	↓	150	↓	C	94.5	945	945	0.08	0.08	0.12	40	1275
TCA 6301 227 M _1 D 0040	↓	220	↓	D	138	1380	1380	0.10	0.10	0.15	40	1458
TCA 6301 337 M _1 D 0055	↓	330	↓	D	208	2080	2080	0.10	0.10	0.15	55	1243
TCA 6301 337 M _1 D 0040	↓	330	↓	D	208	2080	2080	0.10	0.10	0.15	40	1458
TCA 1002 226 M _1 A 0200	↓	22	↓	A	22.0	220	220	0.06	0.06	0.09	200	474
TCA 1002 226 M _1 A 0180	↓	22	↓	A	22.0	220	220	0.06	0.06	0.09	180	500
TCA 1002 336 M _1 B 0080	↓	33	↓	B	33.0	330	330	0.08	0.08	0.12	80	791
TCA 1002 336 M _1 B 0060	↓	33	↓	B	33.0	330	330	0.08	0.08	0.12	60	912
TCA 1002 476 M _1 B 0070	↓	47	↓	B	47.0	470	470	0.08	0.08	0.12	70	845
TCA 1002 476 M _1 B 0060	↓	47	↓	B	47.0	470	470	0.08	0.08	0.12	60	912
TCA 1002 686 M _1 C 0060	↓	68	↓	C	68.0	680	680	0.08	0.08	0.12	60	1040
TCA 1002 686 M _1 C 0045	↓	68	↓	C	68.0	680	680	0.08	0.08	0.12	45	1202
TCA 1002 157 M _1 D 0055	↓	150	↓	D	150	1500	1500	0.10	0.10	0.15	55	1243
TCA 1002 157 M _1 D 0040	↓	150	↓	D	150	1500	1500	0.10	0.10	0.15	40	1458

Notes : (1) _1:No code for single item. 'R' and 'N' for taping specification

(2) Reference value.

PERFORMANCE

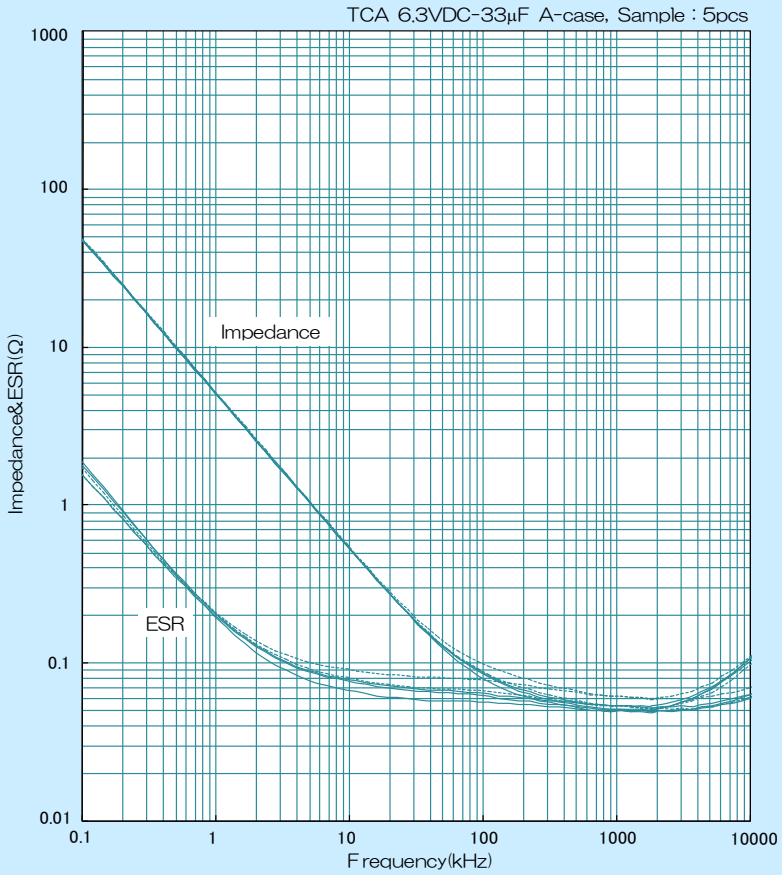
No	Item	Performance			Test Method
1	Leakage Current (μA)	Shall not exceed 0.1 CV Max. or the values shown in CATALOG NUMBERS AND RATING.			JIS C 5101-1, 4.9 Applied voltage : Rated voltage Duration : 5 min Measuring temperature : 20±2℃
2	Capacitance (μF)	Shall be within specified tolerances.			JIS C 5101-1, 4.7 Measuring frequency : 120 Hz±20% Measuring temperature : 20±2℃
3	Dissipation Factor	Shall not exceed the values shown in CATALOG NUMBERS AND RATING.			JIS C 5101-1, 4.8 Test conditions shown in No.2
4	Equivalent Series Resistance	Shall not exceed the values shown in CATALOG NUMBERS AND RATING.			EIAJ RC-2378, 4.5.4 Measuring frequency : 100 kHz±10% Measuring temperature : 20±2℃
5	Characteristics at High and Low Temperature	Leakage Current	Capacitance	Dissipation Factor	JIS C 5101-1, 4.29
	Step 1	Shall not exceed the value in No.1.	Within specified tolerances	Shall not exceed the value in No.3.	20±2℃
	Step 2	–	Within $^{0}_{-20}$ %of value at Step 1	Shall not exceed the value in No.3.	-55±3℃
	Step 3	Shall not exceed the value in No.1.	Within ± 5% of value at Step 1	Shall not exceed the value in No.3.	20±2℃
	Step 4	Shall not exceed 10-times of the value in No.1.	–	–	85±2℃
	Step 5	Shall not exceed 10-times of the value in No.1.	Within $^{+50}_{0}$ %of value at Step 1	Shall not exceed 1.5-times of the value in No.3.	105±2℃ Derated voltage at 105℃
	Step 6	Shall not exceed the value in No.1.	Within ± 5% of value at Step 1	Shall not exceed the value in No.3.	20±2℃
6	Surge	Leakage current : Shall not exceed 3-times of the value in No.1. Capacitance change : Within ±20% of the value before test Dissipation Factor : Shall not exceed the value in No.3. Visual Examination : There shall be no evidence of mechanical damage.			JIS C 5101-1, 4.26 Test temperature : 85℃ and 105℃ Applied voltage : According to the following table

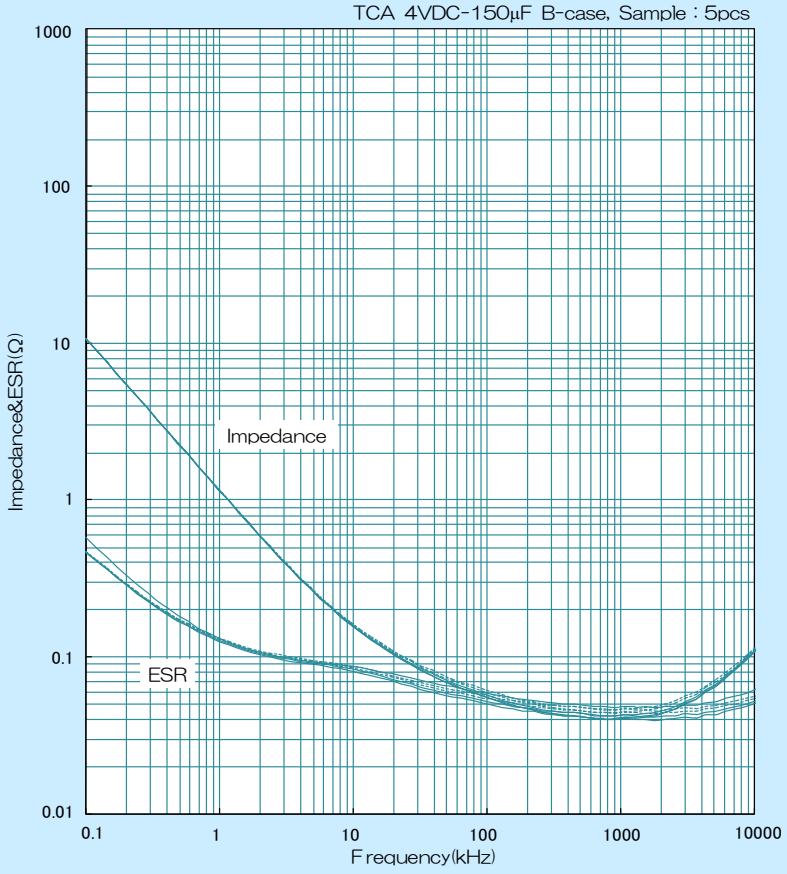
Rated voltage (VDC)		2.5	4	6.3	10
Surge voltage (VDC)	85℃	3.3	5.2	8.2	13
	105℃	2.6	4.2	6.5	10.4

Series protective resistance : 1000 Ω
Discharge resistance : 1000 Ω
Number of cycles : 1000 cycles

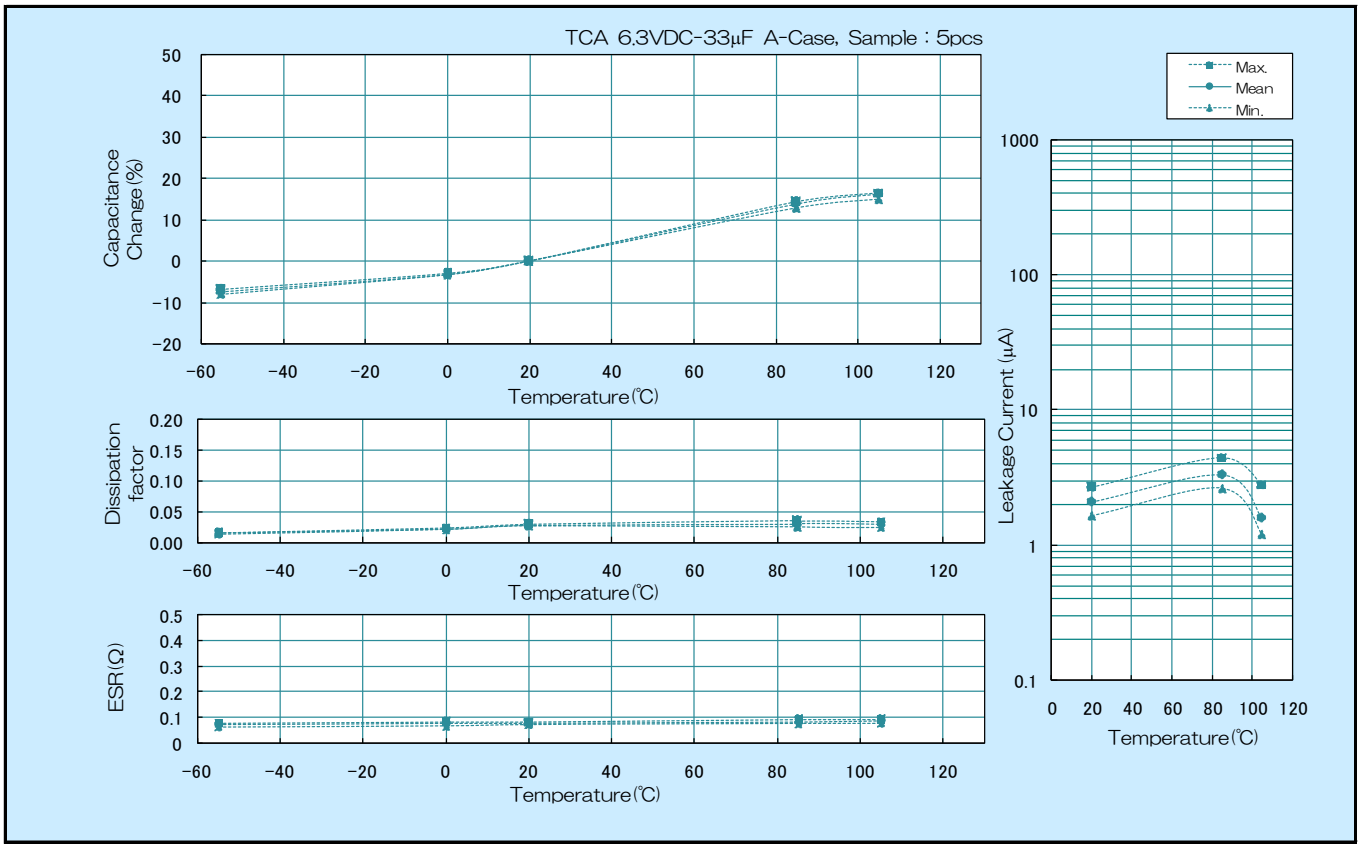
7	Shear Test	No separation of terminal from solder.			JIS C 5101-1, 4.34 Force : 5 N Holding time : 5±1 sec
8	Substrate Bending Test	Capacitance : Initial value to remain steady during measurement. Visual Examination : There shall be no evidence of mechanical damage.			JIS C 5101-1, 4.35 Bending : 3 mm
9	Vibration	Capacitance : Initial value to remain steady during measurement. Visual Examination : There shall be no evidence of mechanical damage.			JIS C 5101-1 4.17 Frequency range : 10-55 Hz Swing width : 1.5 mm Vibration direction : 3 directions with mutually right-angled Duration : 2 hours in each of these mutually perpendicular directions (total 6 hours) Mounting : Solder terminal to the printed board
10	Shock	There shall be no intermittent contact of 0.5 ms or greater, short, or open. Nor shall there be any spark discharge, insulation breakdown, or evidence of mechanical damage.			JIS C 5101-1 4.19 Peak acceleration : 490 m/s^2 Duration : 11 ms Wave form : Half-sine
11	Solderability	Shall be covered to over 3/4 of terminal surface by new soldering.			JIS C 5101-1 4.15 Solder temperature : 230±5℃ Dipping time : 3 to 5 seconds Dipping depth : Terminal shall be dipped into melted solder
12	Resistance to Soldering Heat	Leakage Current : Shall not exceed 2-times of the value in No.1. Capacitance change : Within ±20% of the value before test. Dissipation Factor : Shall not exceed 1.3-times of the value in No.3. Visual Examination : There shall be no evidence of mechanical damage.			EIAJ RC-2378, 4.6 IR reflow Preheating : 140 to 160℃, 110 to 130 sec Reflow : 200℃, 25 to 30 sec Peak : 240℃ max. Number of cycles : 2
13	Rapid Change of Temperature	Leakage Current : Shall not exceed 2-times of the value in No.1. Capacitance change : Within ±20% of the value before test. Dissipation Factor : Shall not exceed 1.5-times of the value in No.3. Visual Examination : There shall be no evidence of mechanical damage.			JIS C 5101-1, 4.16 Step 1 : -55 ±3℃, 30±3 min Step 2 : 25 $^{+10}_{-5}$ ℃, 3 min or less Step 3 : 105 ±2℃, 30 ±3 min Step 4 : 25 $^{+10}_{-5}$ ℃, 3 min or less Number of cycles : 5
14	Damp Heat, Steady State	Leakage Current : Shall not exceed 2-times of the value in No.1. Capacitance change : Within -20% to +40% of the value before test. Dissipation Factor : Shall not exceed 1.5-times of the value in No.3. Visual Examination : There shall be no evidence of mechanical damage.			JIS C 5101-1, 4.21 Temperature : 40±2℃ Moisture : 90 to 95% RH Duration : 500 $^{+24}_{0}$ hrs
15	Endurance I	Leakage Current : Shall not exceed 2-times of the value in No.1. Capacitance change : Within ±20% of the value before test. Dissipation Factor : Shall not exceed 1.5-times of the value in No.3. Visual Examination : There shall be no evidence of mechanical damage.			JIS C 5101-1, 4.23 Test temperature : 85±2℃ Applied voltage : Rated voltage Duration : 1000 $^{+48}_{0}$ hrs
16	Endurance II	Leakage Current : Shall not exceed 2-times of the value in No.1. Capacitance change : Within ±20% of the value before test. Dissipation Factor : Shall not exceed 3-times of the value in No.3. Visual Examination : There shall be no evidence of mechanical damage.			JIS C 5101-1, 4.23 Test temperature : 105±2℃ Applied voltage : Derated voltage Duration : 1000 $^{+48}_{0}$ hrs

FREQUENCY CHARACTERISTICS

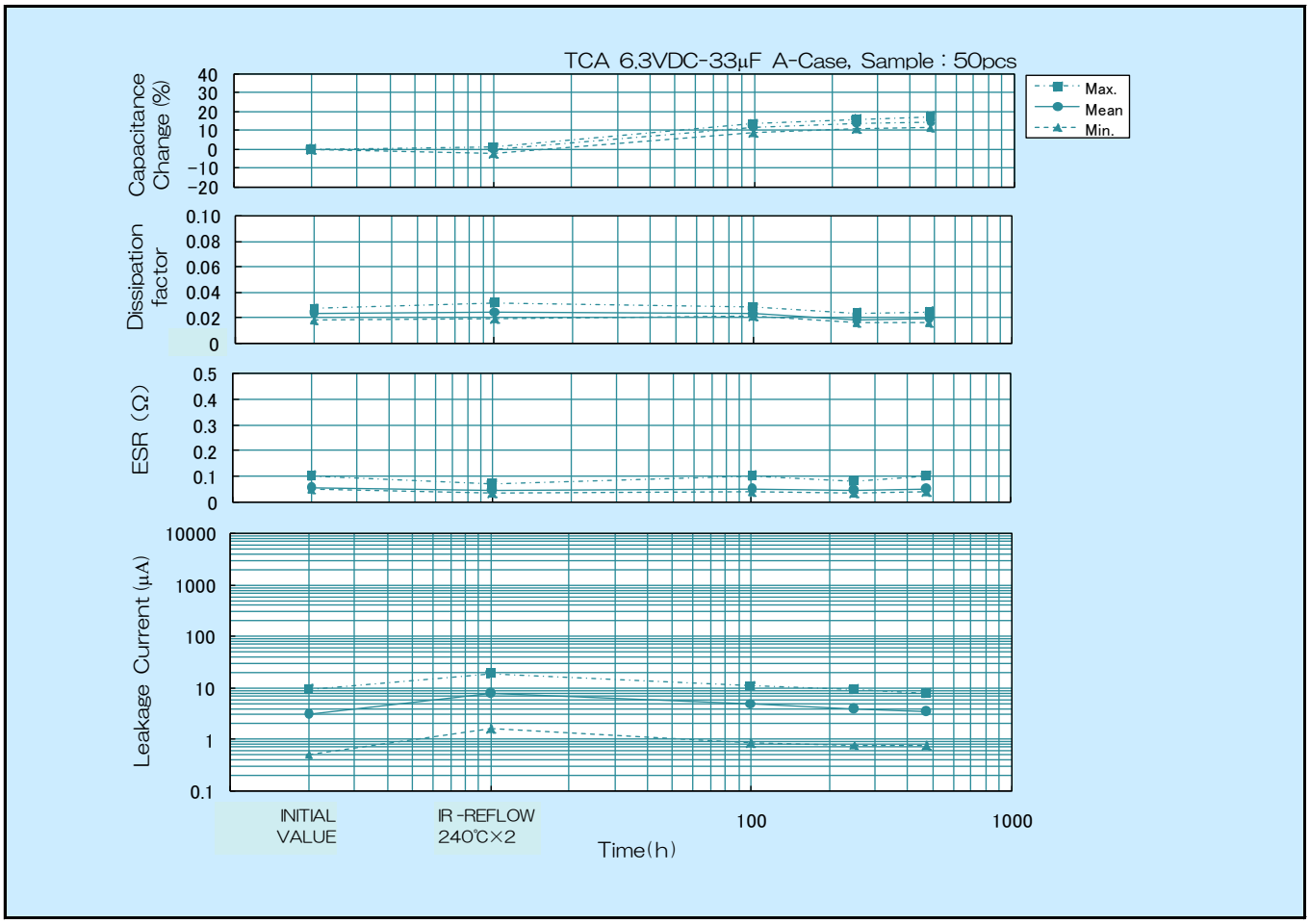




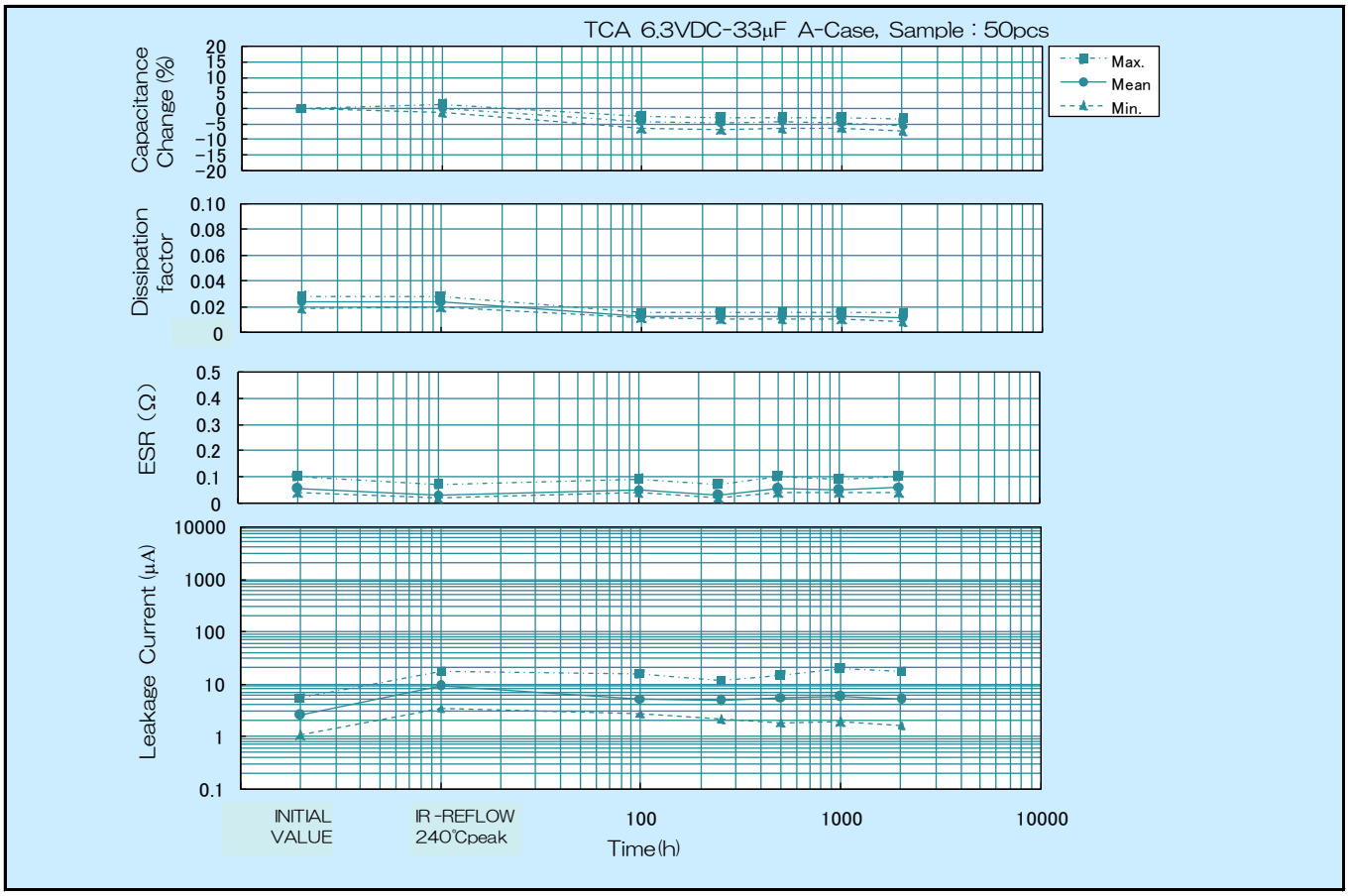
CHARACTERISTICS AT HIGH AND LOW TEMPERATURE



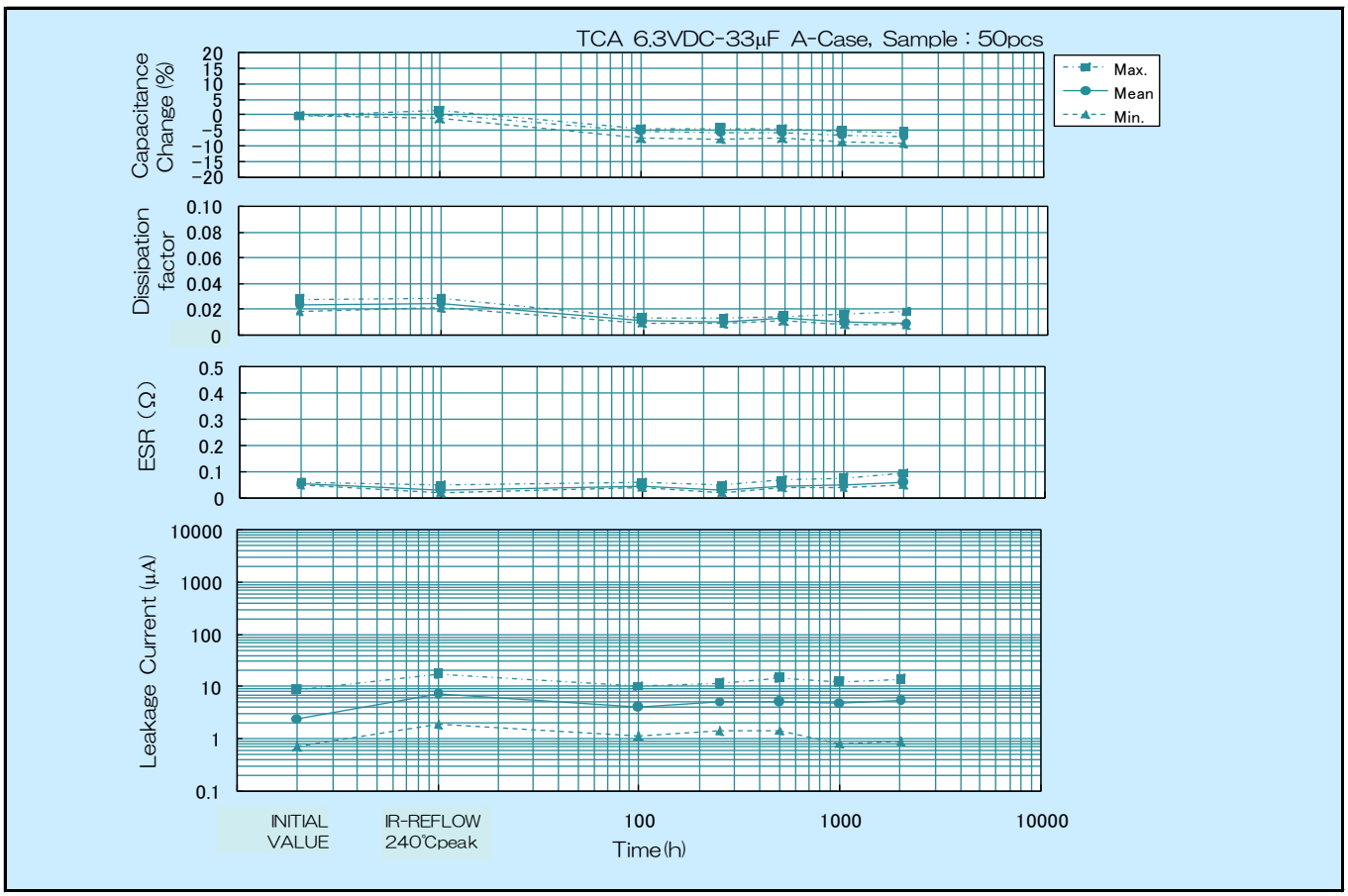
HIGH TEMPERATURE / MOISTURE 40℃ , 95%RH



ENDURANCE Ⅰ 85℃ RATED VOLTAGE



ENDURANCE Ⅱ 105℃ DERATED VOLTAGE

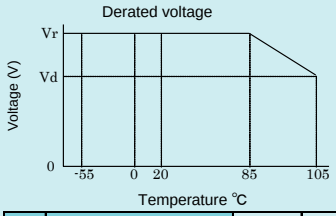


⚠ Application Notes for Tantalum Solid Electrolytic Capacitor with Conductive Polymer

1. Operating voltage

The capacitors shall be operated at the rated voltage or lower. Over rated voltage applied even for a short time may cause short failure.
When designing the circuit, the equipment's required reliability must be considered and appropriate voltage derating must be performed.

- Recommended operating voltage : 80% or less of the rated voltage
- When the operating temperature exceeds 85℃, derate the applied voltage. The voltage derating formula is shown below.



Derating voltage Vt at any temperature T between 85℃ and 105℃ shall be calculated by the follwing formula.

$$Vt = Vr - \frac{Vr-Vd}{20} \quad (T-85)$$

Vr : Rated voltage
Vd : Derating voltage at 105℃

Vr	Rated voltage (VDC)	2.5	4	6.3	10
Vd	Derated voltage (VDC)	2.0	3.2	5.0	8.0

2. Application that contain AC Voltage

Special attention to the following 3 items.
(1) The sum of the DC bias voltage and the positive peak value of the AC voltage should not exceed the rated voltage.
(2) Reverse voltage should not exceed the allowable values of the negative peak AC voltage.
(3) Ripple voltage should not exceed the allowable values.

3. Reverse voltage

Special attention to the polar character.
Reverse Voltage should not be applied.

4. Permissible ripple current

The permissible ripple current and voltage at about 100 kHz or higher can be determined by the following formula from the permissible power loss for each case size (Pmax value) shown in Table 1 and the specified ESR value. However, when the expected operating temperature is higher than room temperature, determine the permissible values multiplying the Pmax value by the specified multiplier (Table 2).
For the permissible values at different frequencies, consult our Sales Department.

$$P=I^2 \times ESR \text{ or } P=\frac{E^2 \times ESR}{Z^2}$$

Permissible ripple current $I_{max}=\sqrt{\frac{P\,max}{ESR}}$ (Arms)

Permissible ripple voltage $E_{max}=\sqrt{\frac{P\,max}{ESR}} \times Z = I_{max} \times Z$ (Vrms)

I m a x: Permissible ripple current at regulated frequency (Arms : RMS value)
E m a x: Permissible ripple voltage at regulated frequency (Vrms : RMS value)
P m a x: Permissible power loss (W)
E S R: Specified ESR value at regulated frequency (Ω)
Z : Impedance at regulated frequency (Ω)

Table 1 Permissible power loss for each case size

Case size	Pmax (W)
S	0.043
A	0.045
B	0.050
C	0.065
D	0.085

Note: Above values are measured at 0.8t glass epoxy board mounting in free air and may be changed depending on the kind of board, packing density, and air convection condition. Please consult us if calculated power loss value is equal to or greater than above list of P max value.

Table 2 Pmax multiplier at each operating temperature

Operating temperature(℃)	Multiplier
20	1.0
55	0.9
85	0.8
105	0.4

5. Non Polar Connection

The capacitor cannot be used as a non-polar unit.

6. Soldering

6.1 Preheating

To obtain optimal reliability, lowering the heat shock during the soldering process is favorable. Capacitors should be pre-heated at 130-160℃ for approximately 60 seconds.

6.2 Soldering

The body of the capacitor should not exceed 240℃ during soldering.
(1) Reflow Soldering
Reflow soldering is a process in which the capacitors are mounted on a printed circuit board with solder paste. Two methods of Reflow Soldering: Direct and Atmospheric Heat.
- Direct Heat (Hot plate)
- Atmospheric Heat
  a) Near and Far IR Ray
  b) Convection Oven

Vapor Phase Soldering and Flow Soldering are not recommended.
(2) Soldering Iron
Soldering with a soldering iron cannot be recommended due to the lack of consistency in maintaining temperatures and process times. If this method should be necessary, the iron should never touch the capacitor's terminals, and the temperature of the soldering iron should never exceed 350℃. The application of the iron should not exceed 3 seconds and 30 watt.
(3) Please consult us for other methods.

7. Solvent cleaning

Cleaning by organic solvent may damage capacitor's appearance and performance. However, our capacitors are not effected even when soaked at 20-30℃ 2-propanol for 5 minutes. When introducing new cleaning methods or changing the cleaning term, please consult us.

8. Ultrasonic cleaning

Ultrasonic cleaning under severe condition may break terminals. Also, from an electrical characteristics aspect, it is unfavorable. Therefore, please do not use ultrasonic cleaning if possible. If the Ultrasonic cleaning process will be used, please note the following.
(1) The solvent should not be boiled. (Lower the ultrasonic wave output or use solvent with the high boiling point.)
(2) The recommended wattage is less than 0.5 watts per cm^2.
(3) The cleaning time should be kept to a minimum. Also, samples must be swang in the solvent. Please consult us.

9. Storage

Capacitors should be tightly sealed in moisture prevention bag and stored with supplied reel.

10. Inapplicable circuits

The capacitors may cause nonconformity if they are used on the following circuits.
(1) High-impedance voltage holding circuits
(2) Coupling circuits
(3) Time constant circuits
(4) Circuits significantly affected by leakage current

If a short circuit occurs, the capacitors may generate heat or smoke depending on the short-circuit current.
When designing a circuit, take the instructions stated herein into consideration, and take as much redundant measures as possible.

These application notes are prepared based on the technical report RCR-2368B "Guideline of notabilia for fixed tantalum electrolytic capacitors with solid electrolyte for use in electronic equipment" issued by Japan Electronics and Information Technology Industries Association. For the details of the instructions (explanation, reasons and concrete examples), please refer to this guideline, or consult our Sales Department.

MATSUO ELECTRIC CO., LTD.

Please feel free to ask our Sales Department for more information on Tantalum Solid Electrolytic Capacitor with Conductive Polymer.

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