

ROHS-Y

SPECIFICATION

For Reference

Date : 6/September/2019

Product Description : Polymer Aluminum Electrolytic Capacitor

Customer Part Number :

Murata Part Number : ECAS*****00 Series

Murata Manufacturing Co.,Ltd.
Chemical Device Dept.
Planning & Sales Promotion Sec.1

(Company name/Dept.)

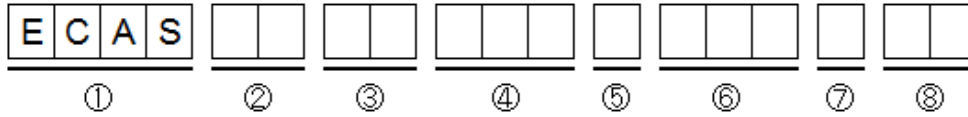
All specifications may be changed without notice.
Please check with our sales representatives or product engineers before ordering.

1. Scope

These specifications are applied to Polymer Aluminum Electrolytic Capacitor for electronic equipment use.

Please contact us beforehand when you use it besides this use.

2. Part Number Description

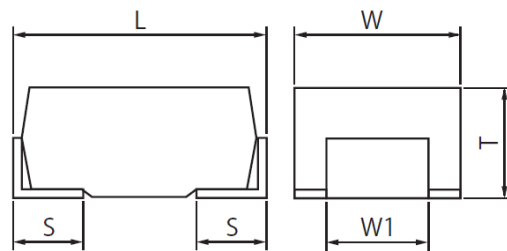


- ① Series : ECAS
- ② Dimensions : See 3.1
- ③ Rated Voltage : See 3.2
- ④ Capacitance : See 3.3
- ⑤ Capacitance Tolerance : See 3.4
- ⑥ ESR : See 3.5
- ⑦ Packing : See 3.6
- ⑧ Individual Specification Code : Murata management Code

3. Descriptions

3.1 Dimensions (mm)

Case Code	L	W	T	W1	S
D3	7.3±0.3	4.3±0.2	1.4±0.1	2.4±0.2	1.3±0.2
D4	7.3±0.3	4.3±0.2	1.9±0.1	2.4±0.2	1.3±0.2
D6	7.3±0.3	4.3±0.2	2.8±0.3	2.4±0.2	1.3±0.2
D9	7.3±0.3	4.3±0.3	4.2±0.3	2.4±0.2	1.3±0.2



3.2 Rated Voltage

Code	Voltage
0D	2V
0E	2.5V
0G	4V
0J	6.3V
0K	8V
1A	10V
1B	12.5V
1C	16V
1E	25V

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3.3 Capacitance

These code are shown by three-digit numeric. The unit is pico-farad (pF). The first and the second figures show the significant digits of the nominal capacitance, and the third figure shows the number of "0" following the significant digit.

Ex.)

Code	Capacitance
476	47 μ F
107	100 μ F
227	220 μ F
477	470 μ F

3.4 Capacitance Tolerance

Code	Tolerance
M	$\pm 20\%$
Y	+10, -35%

3.5 ESR

These code are shown by three-digit alphanumeric. The unit is milli-ohm (m Ω). If there is a decimal point, it is expressed by the capital letter "R".

Ex.)

Code	ESR
4R5	4.5m Ω
009	9m Ω
010	10m Ω

3.6 Packing

Code	Specification
K	$\Phi 330$ mm plastic taping packing

3.7 Individual Specification Code

Expressed by two figures.

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4. Part Number and Minimum Packaging Quantity

4.1 Part Numbers and Standards

Murata Part Number	Rated Voltage (V.DC)	Cap. (μ F)	Cap Tol. (%)	Case Size	ESR (m Ω) 100kHz/ +25 $^{\circ}$ C	Leakage Current (μ A)	Ripple Current (Arms) 100kHz
ECASD40D107M016K00	2	100	\pm 20	D4	16	20.0	2.0
ECASD40D157M009K00	2	150	\pm 20	D4	9	30.0	3.0
ECASD40D227M009K00	2	220	\pm 20	D4	9	44.0	3.0
ECASD60D337M007K00	2	330	\pm 20	D6	7	66.0	3.5
ECASD60D477M4R5K00	2	470	\pm 20	D6	4.5	94.0	4.0
ECASD60D477M006K00	2	470	\pm 20	D6	6	94.0	3.5
ECASD90D567M4R5K00	2	560	\pm 20	D9	4.5	112.0	4.0
ECASD60E477M4R5K00	2.5	470	\pm 20	D6	4.5	117.5	4.0
ECASD60E477M006K00	2.5	470	\pm 20	D6	6	117.5	3.5
ECASD60E477M009K00	2.5	470	\pm 20	D6	9	117.5	3.0
ECASD40G686M020K00	4	68	\pm 20	D4	20	27.2	1.9
ECASD40G107M016K00	4	100	\pm 20	D4	16	40.0	2.1
ECASD40G157M016K00	4	150	\pm 20	D4	16	60.0	2.1
ECASD40G227M009K00	4	220	\pm 20	D4	9	88.0	3.0
ECASD60G227M010K00	4	220	\pm 20	D6	10	88.0	3.0
ECASD90G337M008K00	4	330	\pm 20	D9	8	132.0	3.3
ECASD40J106M055K00	6.3	10	\pm 20	D4	55	6.3	1.0
ECASD40J226M045K00	6.3	22	\pm 20	D4	45	13.9	1.0
ECASD40J336M025K00	6.3	33	\pm 20	D4	25	20.8	1.8
ECASD40J476M025K00	6.3	47	\pm 20	D4	25	29.7	1.8
ECASD40J686M015K00	6.3	68	\pm 20	D4	15	42.9	2.0
ECASD40J107M015K00	6.3	100	\pm 20	D4	15	63.0	2.0
ECASD40J157M015K00	6.3	150	\pm 20	D4	15	94.5	2.0
ECASD60J157M010K00	6.3	150	\pm 20	D6	10	94.5	3.0
ECASD60J227M010K00	6.3	220	\pm 20	D6	10	138.6	3.0
ECASD90J337M009K00	6.3	330	\pm 20	D9	9	207.9	3.4
ECASD41A106M055K00	10	10	\pm 20	D4	55	10.0	1.0
ECASD41A226M028K00	10	22	\pm 20	D4	28	22.0	1.6
ECASD41A336M025K00	10	33	\pm 20	D4	25	33.0	1.8
ECASD41A476M025K00	10	47	\pm 20	D4	25	47.0	1.8
ECASD61A686M015K00	10	68	\pm 20	D6	15	68.0	2.0
ECASD91A107M010K00	10	100	\pm 20	D9	10	100.0	3.0
ECASD91A157M010K00	10	150	\pm 20	D9	10	150.0	3.0

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Murata Part Number	Rated Voltage (V.DC)	Cap. (μ F)	Cap Tol. (%)	Case Size	ESR (m Ω) 100kHz/ +25 $^{\circ}$ C	Leakage Current (μ A)	Ripple Current (Arms) 100kHz
ECASD41B106M055K00	12.5	10	\pm 20	D4	55	12.5	1.0
ECASD41B156M045K00	12.5	15	\pm 20	D4	45	18.8	1.0
ECASD41B226M030K00	12.5	22	\pm 20	D4	30	27.5	1.6
ECASD41B336M025K00	12.5	33	\pm 20	D4	25	41.3	1.8
ECASD61B476M020K00	12.5	47	\pm 20	D6	20	58.8	2.0
ECASD61B566M020K00	12.5	56	\pm 20	D6	20	70.0	2.0
ECASD91B107M012K00	12.5	100	\pm 20	D9	12	125.0	2.5
ECASD41C685M070K00	16	6.8	\pm 20	D4	70	10.9	1.0
ECASD41C106M060K00	16	10	\pm 20	D4	60	16.0	1.0
ECASD41C156M040K00	16	15	\pm 20	D4	40	24.0	1.0
ECASD61C226M030K00	16	22	\pm 20	D6	30	35.2	1.6

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4.2 Minimum Packaging Quantity

Case Size	Minimum Packaging Quantity(pcs)
D3	3,000
D4	3,000
D6	2,500
D9	2,000

5. Markings

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Capacitance Code (3 digits)

Code	Capacitance
476	47μF
107	100μF
227	220μF
477	470μF

Polarity indicator bar (+)

Rated Voltage (2 digits)

Code	Voltage
0D	2V
0E	2.5V
0G	4V
0J	6.3V
0K	8V
1A	10V
1B	12.5V
1C	16V
1E	25V

6. Characteristics

No	Item	Characteristics	Test Conditions
1	Operating temperature range	-40°C ~ +105°C	-
2	Leakage Current	≤ The value of No.4.1	Series resistor: 1000 ohm Applied voltage: Rated Voltage Measuring after 2 minutes of application Please conduct pre-conditioning below, if you have a doubt. Pre-conditioning: • Temperature: 105°C. • Applied voltage :Rated Voltage • Series resistor:1000 ohm • Charge time:1 hour. Then discharge and keep in the room temperature for 4h to 24h.
3	Capacitance tolerance	(See No.4.1)	Measuring frequency: 120Hz ±10% Measuring circuit: Equivalent series circuit Measuring voltage: +1Vr.m.s. Measuring temperature: 25 °C
4	Dissipation Factor	≤ 0.06	
5	ESR	≤ The value of No.4.1	Measuring frequency: 100kHz ±10% Measuring voltage: no more than +1Vr.m.s. Measuring temperature: 25 °C
6	Allowable Ripple Current	(See No.4.1)	Measuring frequency: 100kHz ±10% Part temperature: +20 to +105 °C
7	Solderability	More than 75% of each terminal face is covered by new solder	Lead Free Solder : Sn/3.0Ag/0.5Cu Flux : Rosin 25%, IPA 75% Solder Temperature : 245±3°C Immersing Duration : 3±0.3sec

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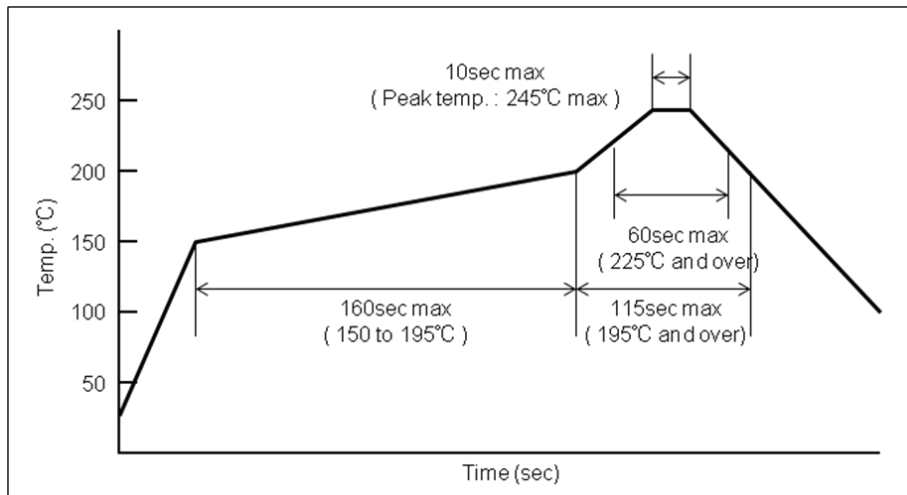
No.	Item	Characteristics	Test Conditions	
8	Moisture resistance under no bias	Leakage Current	Test temperature: 60±2°C Relative humidity: 90~95%RH Test time: 500+24, -0h	
		Capacitance Change		$\leq 300\%$ of initial specified value $\leq 75\%$ of initial specified value(ECAS D40J157M015K00)
		Dissipation Factor		-20% and +50% of initial measured value
		Appearance		≤ 0.12 No defects or abnormalities
9	Moisture resistance under load	Leakage Current	Test temperature: 60±2°C Relative humidity: 90~95%RH Test time: 500+24, -0h Applied voltage: Rated Voltage	
		Capacitance Change		\leq The value of No.4.1
		Dissipation Factor		-20% and +50% of initial measured value
		Appearance		≤ 0.12 No defects or abnormalities
10	Shelf life	Leakage Current	Test temperature: 105±2°C Test time: 1000+48, -0h	
		Capacitance Change		\leq The value of No.4.1
		Dissipation Factor		±10% of initial measured value
		Appearance		≤ 0.06 No defects or abnormalities
11	Endurance	Leakage Current	Test temperature: 105±2°C Test time: 2000+48, -0h Applied voltage: Rated Voltage	
		Capacitance Change		\leq The value of No.4.1
		Dissipation Factor		±20% of initial measured value
		Appearance		≤ 0.06 No defects or abnormalities
12	Surge	Leakage Current	Temperature: +85°C for W.V. 2V~10V Room temp. for W.V. 12.5V~16V Applied voltage: Rated voltage x1.25 for W.V.2V~10V Rated voltage x1.15 for W.V.12.5V~16V Current Limiting resistance: 33 ohm(in series) for W.V. 2V~10V 1k ohm(in series) for W.V. 12.5V~16V Discharge resistance: 33 ohm(in series) for W.V. 2V~10V 1k ohm(in series) for W.V. 12.5V~16V Charge on/off: 30 sec. each, 1000 times	
		Capacitance Change		\leq The value of No.4.1
		Dissipation Factor		±10% of initial measured value
		Appearance		≤ 0.06 No defects or abnormalities

The measurement condition in No.2 to 4 applies to No.8 to 12.

< 7 > Reflow Soldering

- ① Please not to apply excessive force to the capacitor during insertion as well as after soldering.
The excessive force may result in damage to electrode terminals and/or degradation of electrical performance.
- ② Resistance testing to reflow soldering was conducted in accordance with the reflow profile described in Figure 1. If this profile is adopted, reflow soldering can be repeated no more than two times.

< Figure 1. > Our Recommended Reflow Profile



- ③ Please refer to figure below for designing land pattern.

< 8 > Operating environment

Confirm the environment in which the equipment will operate is under the specified conditions. Do not use the equipment under the following environments.

- ① Being spattered with water or oil.
- ② Being exposed to direct sunlight.
- ③ Being exposed to Ozone, ultraviolet rays or radiation.
- ④ Being exposed to toxic gas (e.g. hydrogen sulfide, sulfur dioxide, chlorine, ammoniagas, etc.)
- ⑤ Being exposed to excessive vibrations or mechanical shocks.
- ⑥ Being exposed to condensable environments.

