

## Surface Mount Type

Series: **S** Type : **V**

■ Features Endurance : 85°C 2000 h  
5.4 mm (≤ φ6.3) height

■ Specifications

Country of Origin  
Japan  
Malaysia (φ4,φ5,φ6.3)



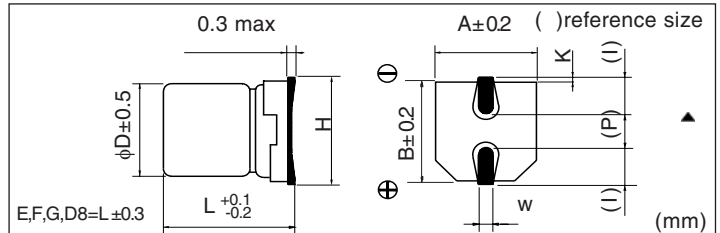
Category temp. range	-40 to +85°C												
Rated W.V. Range	4 to 100 V .DC												
Nominal Cap. Range	0.1 to 1500 μF												
Capacitance Tolerance	±20 % (120Hz/+20°C)												
DC Leakage Current	I ≤ 0.01 CV or 3(μA) after 2 minutes (Bi-Polar I ≤ 0.02 CV or 6 (μA)) (Whichever, greater)												
tan δ	Please see the attached standard products list												
Characteristics at Low Temperature	W.V. (V)	4	6.3	10	16	25	35	50	63	100	(Impedance ratio at 120 Hz)		
	-25 / +20 °C	7	4	3	2	2	2	2	3	3			
	-40 / +20 °C	15	8	6	4	4	3	3	4	4			
Endurance	After applying rated working voltage for 2000 hours at +85±2°C and then being stabilized at +20°C, capacitors shall meet the following limits.												
	Capacitance change : ±20% of initial measured value										tan δ	≤ 200% of initial specified value	
	Size code	Rated W.V.	Cap. change								DC leakage current		≤ initial specified value
	A(φ3)	4 to 50W.V.	±30%	initial measured value for 1000 hours									
A(φ3) to D8(φ6.3)	4 W.V.												
≤ D(φ6.3)Minature	6.3 W.V.	±20%											
	≥ 10 W.V.												
Shelf Life	After storage for 1000 hours at +85±2°C with no voltage applied and then being stabilized at +20°C, capacitors shall meet the limits specified in Endurance.(With voltage treatment)												
Resistance to Soldering Heat	After reflow soldering ( Refer to page 184 for recommendable temperature profile.) and then being stabilized at +20°C, capacitor shall meet the following limits.												
	Capacitance change	±10% of initial measured value											
	tan δ	≤ initial specified value											
	DC leakage current	≤ initial specified value											

■ Marking

Example:50V 1 μF (Polarized)

Rated voltage (V.DC)  
Capacitance (μF)  
Negative polarity marking (No marking for the bi-polar)  
Series identification (A size=Lot number)  
Lot number (No marking = A size)

■ Dimensions in mm (not to scale)



Size code	D	L	A,B	H	I	W	P	K
A	3.0	5.4	3.3	4.5MAX	1.5	0.55±0.1	0.6	0.35 -0.20 to +0.15
B	4.0	5.4	4.3	5.5MAX	1.8	0.65±0.1	1.0	0.35 -0.20 to +0.15
C	5.0	5.4	5.3	6.5MAX	2.2	0.65±0.1	1.5	0.35 -0.20 to +0.15
D	6.3	5.4	6.6	7.8MAX	2.6	0.65±0.1	1.8	0.35 -0.20 to +0.15
D8	6.3	7.7	6.6	7.8MAX	2.6	0.65±0.1	1.8	0.35 -0.20 to +0.15
E	8.0	6.2	8.3	9.5MAX	3.4	0.65±0.1	2.2	0.35 -0.20 to +0.15
F	8.0	10.2	8.3	10.0MAX	3.4	0.90±0.2	3.1	0.70±0.2
G	10.0	10.2	10.3	12.0MAX	3.5	0.90±0.2	4.6	0.70±0.2

■ Case size

W.V.(V)	4 (0G)		6.3 (0J)		10 (1A)		16 (1C)		25 (1E)		35 (1V)		50 (1H)		63 (1J)		100 (2A)	
Cap. (μF)	Polar-ized	Polar-ized	Bi-polar	Polar-ized	Bi-polar	Polar-ized	Bi-polar	Polar-ized	Bi-polar	Polar-ized	Bi-polar	Polar-ized	Bi-polar	Polar-ized	Bi-polar	Polar-ized	Bi-polar	
0.1												A,B						
0.22												A,B	B					
0.33												A,B	B					
0.47												A,B	B					
1.0												A,B	B					
2.2											A	B	A,B	C				
3.3											B	A	B	C			E	
4.7											B	A	B	C			F(E)	
10											B	A	B	C			F(E)	
22	A	B(A)	C	(B)	B	A,B	C	C(B)	D	C(B)	D	C(B)	D	D(C)		D	F(E)	
33	B	(B)		C(B)	D	(C)	D	D(C)		D(C)		E(D)		F(E),D8		F	G(F)	
47	B	C(B)	D	(C)		D(C)		(D)		E(D)		G(F),D8		G(F)		G		
100	C	D(C)		D(C)		E(D)		F(E),D8		G(F),D8		G		G				
220	D	(D)		E,D8		F,D8		G(F)		G(F)								
330	(D)	E,D8		F		G(F)		G(F)		G								
470	D8	F		G(F)		G(F)		G										
1000		G(F)		G														
1500		G																

Design, and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and / or use. Should a safety concern arise regarding this product, please be sure to contact us immediately.

■ Standard Products

W.V. (V)	Cap. (±20%) (μF)	Case size			Specification			Part No.	Min.Packaging Qty
		Dia. (mm)	Length (mm)	Size Code	Ripple Current (120Hz) (+85°C) (mA)	tan δ (120Hz) (+20°C)	Endurance (hours)		Taping (pcs)
4	22	3	5.4	A	19	0.37	1000	ECEV0GS220SR	2000
	33	4	5.4	B	26	0.35	1000	ECEV0GA330SR	2000
	47	4	5.4	B	34	0.35	1000	ECEV0GA470SR	2000
	100	5	5.4	C	61	0.35	1000	ECEV0GA101SR	1000
	220	6.3	5.4	D	82	0.35	1000	ECEV0GA221SP	1000
	330	6.3	5.4	D	80	0.50	1000	ECEV0GA331WP	1000
	470	6.3	7.7	D8	200	0.35	2000	ECEV0GA471XP	900
6.3	22	3	5.4	A	20	0.35	1000	ECEV0JS220WR	2000
		4	5.4	B	29	0.26	2000	ECEV0JA220SR	2000
	33	4	5.4	B	22	0.35	1000	ECEV0JA330WR	2000
		4	5.4	B	36	0.35	1000	ECEV0JA470WR	2000
	47	5	5.4	C	46	0.26	2000	ECEV0JA470SR	1000
		5	5.4	C	47	0.35	1000	ECEV0JA101WR	1000
	100	6.3	5.4	D	71	0.26	2000	ECEV0JA101SP	1000
		6.3	5.4	D	74	0.35	1000	ECEV0JA221WP	1000
	330	6.3	7.7	D8	188	0.26	2000	ECEV0JA331XP	900
		8	6.2	E	300	0.35	2000	ECEV0JA331P	1000
	470	8	10.2	F	380	0.35	2000	ECEV0JA471P	500
1000	8	10.2	F	500	0.35	2000	ECEV0JA102UP	500	
	10	10.2	G	700	0.35	2000	ECEV0JA102P	500	
1500	10	10.2	G	750	0.35	2000	ECEV0JA152P	500	
10	22	4	5.4	B	28	0.30	1000	ECEV1AA220WR	2000
		4	5.4	B	29	0.30	1000	ECEV1AA330WR	2000
	33	5	5.4	C	43	0.20	2000	ECEV1AA330SR	1000
		5	5.4	C	47	0.30	1000	ECEV1AA470WR	1000
	100	5	5.4	C	50	0.30	1000	ECEV1AA101WR	1000
		6.3	5.4	D	70	0.26	2000	ECEV1AA101SP	1000
	220	6.3	7.7	D8	173	0.20	2000	ECEV1AA221XP	900
		8	6.2	E	250	0.26	2000	ECEV1AA221P	1000
	330	8	10.2	F	390	0.26	2000	ECEV1AA331P	500
		8	10.2	F	390	0.26	2000	ECEV1AA471UP	500
470	10	10.2	G	400	0.26	2000	ECEV1AA471P	500	
	10	10.2	G	580	0.26	2000	ECEV1AA102P	500	
16	10	3	5.4	A	20	0.18	1000	ECEV1CS100SR	2000
		4	5.4	B	28	0.16	2000	ECEV1CA100SR	2000
	22	4	5.4	B	28	0.26	1000	ECEV1CA220WR	2000
		5	5.4	C	39	0.16	2000	ECEV1CA220SR	1000
	33	5	5.4	C	35	0.26	1000	ECEV1CA330WR	1000
		5	5.4	C	39	0.26	1000	ECEV1CA470WR	1000
	47	6.3	5.4	D	70	0.16	2000	ECEV1CA470SP	1000
		6.3	5.4	D	70	0.26	1000	ECEV1CA101WP	1000
	100	8	6.2	E	200	0.20	2000	ECEV1CA101P	1000
		6.3	7.7	D8	162	0.16	2000	ECEV1CA221XP	900
	220	8	10.2	F	280	0.20	2000	ECEV1CA221P	500

The taping dimension are explained on p.187 of our Catalog.  
Please use it as a reference guide.

Design, and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and / or use. Should a safety concern arise regarding this product, please be sure to contact us immediately.

## ■ Standard Products

W.V. (V)	Cap. (±20%) (μF)	Case size			Specification			Part No.	Min.Packaging Q'ty
		Dia. (mm)	Length (mm)	Size Code	Ripple Current (120Hz) (+85°C) (mA)	tan δ (120Hz) (+20°C)	Endurance (hours)		Taping (pcs)
16	330	8	10.2	F	320	0.20	2000	ECEV1CA331UP	500
		10	10.2	G	380	0.20	2000	ECEV1CA331P	500
	470	8	10.2	F	350	0.20	2000	ECEV1CA471UP	500
		10	10.2	G	420	0.20	2000	ECEV1CA471P	500
25	4.7	3	5.4	A	12	0.16	1000	ECEV1ES4R7SR	2000
		4	5.4	B	22	0.14	2000	ECEV1EA4R7SR	2000
	10	4	5.4	B	22	0.20	1000	ECEV1EA100WR	2000
		5	5.4	C	28	0.14	2000	ECEV1EA100SR	1000
	22	5	5.4	C	35	0.20	1000	ECEV1EA220WR	1000
		6.3	5.4	D	55	0.14	2000	ECEV1EA220SP	1000
	33	5	5.4	C	42	0.20	1000	ECEV1EA330WR	1000
		6.3	5.4	D	65	0.14	2000	ECEV1EA330SP	1000
	47	6.3	5.4	D	70	0.20	1000	ECEV1EA470WP	1000
		6.3	7.7	D8	143	0.14	2000	ECEV1EA101XP	900
	100	8	6.2	E	91	0.16	2000	ECEV1EA101UP	1000
		8	10.2	F	180	0.16	2000	ECEV1EA101P	500
	220	8	10.2	F	230	0.16	2000	ECEV1EA221UP	500
		10	10.2	G	310	0.16	2000	ECEV1EA221P	500
	330	8	10.2	F	270	0.16	2000	ECEV1EA331UP	500
		10	10.2	G	340	0.16	2000	ECEV1EA331P	500
470	10	10.2	G	380	0.16	2000	ECEV1EA471P	500	
35	2.2	3	5.4	A	8	0.14	1000	ECEV1VS2R2SR	2000
		3	5.4	A	10	0.14	1000	ECEV1VS3R3SR	2000
	4.7	4	5.4	B	22	0.12	2000	ECEV1VA4R7SR	2000
		4	5.4	B	22	0.16	1000	ECEV1VA100WR	2000
	10	5	5.4	C	30	0.12	2000	ECEV1VA100SR	1000
		5	5.4	C	36	0.16	1000	ECEV1VA220WR	1000
	22	6.3	5.4	D	60	0.12	2000	ECEV1VA220SP	1000
		6.3	5.4	D	60	0.16	1000	ECEV1VA330WP	1000
	33	8	6.2	E	130	0.14	2000	ECEV1VA330P	1000
		6.3	5.4	D	70	0.16	1000	ECEV1VA470WP	1000
	47	8	6.2	E	165	0.14	2000	ECEV1VA470P	1000
		6.3	7.7	D8	132	0.12	2000	ECEV1VA101XP	900
	100	8	10.2	F	140	0.14	2000	ECEV1VA101UP	500
		10	10.2	G	210	0.14	2000	ECEV1VA101P	500
	220	8	10.2	F	200	0.14	2000	ECEV1VA221UP	500
		10	10.2	G	310	0.14	2000	ECEV1VA221P	500
330	10	10.2	G	350	0.14	2000	ECEV1VA331P	500	
	0.1	3	5.4	A	1	0.14	1000	ECEV1HS0R1SR	2000
50	0.1	4	5.4	B	1	0.12	2000	ECEV1HA0R1SR	2000
		3	5.4	A	2	0.14	1000	ECEV1HSR22SR	2000
	0.22	4	5.4	B	2	0.12	2000	ECEV1HAR22SR	2000
		3	5.4	A	3	0.14	1000	ECEV1HSR33SR	2000
	0.33	4	5.4	B	3	0.12	2000	ECEV1HAR33SR	2000

The taping dimension are explained on p.187of our Catalog.  
Please use it as a reference guide.

Design, and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and / or use. Should a safety concern arise regarding this product, please be sure to contact us immediately.

## ■ Standard Products

W.V. (V)	Cap. (±20%) (μF)	Case size			Specification			Part No.	Min.Packaging Qty
		Dia. (mm)	Length (mm)	Size Code	Ripple Current (120Hz) (+85°C) (mA)	tan δ (120Hz) (+20°C)	Endurance (hours)		Taping (pcs)
50	0.47	3	5.4	A	5	0.14	1000	ECEV1HSR47SR	2000
		4	5.4	B	5	0.12	2000	ECEV1HAR47SR	2000
	1	3	5.4	A	8	0.14	1000	ECEV1HS010SR	2000
		4	5.4	B	10	0.12	2000	ECEV1HA010SR	2000
	2.2	3	5.4	A	10	0.14	1000	ECEV1HS2R2SR	2000
		4	5.4	B	16	0.12	2000	ECEV1HA2R2SR	2000
	3.3	4	5.4	B	16	0.12	2000	ECEV1HA3R3SR	2000
	4.7	4	5.4	B	18	0.14	1000	ECEV1HA4R7WR	2000
		5	5.4	C	23	0.12	2000	ECEV1HA4R7SR	1000
	10	5	5.4	C	27	0.14	1000	ECEV1HA100WR	1000
		6.3	5.4	D	35	0.12	2000	ECEV1HA100SP	1000
	22	6.3	5.4	D	40	0.14	1000	ECEV1HA220WP	1000
		8	6.2	E	120	0.12	2000	ECEV1HA220P	1000
	33	6.3	7.7	D8	65	0.12	2000	ECEV1HA330XP	900
		8	6.2	E	65	0.12	2000	ECEV1HA330UP	1000
		8	10.2	F	110	0.12	2000	ECEV1HA330P	500
	47	6.3	7.7	D8	105	0.12	2000	ECEV1HA470XP	900
		8	10.2	F	110	0.12	2000	ECEV1HA470UP	500
		10	10.2	G	130	0.12	2000	ECEV1HA470P	500
	100	8	10.2	F	200	0.12	2000	ECEV1HA101UP	500
10		10.2	G	250	0.12	2000	ECEV1HA101P	500	
220	10	10.2	G	300	0.12	2000	ECEV1HA221P	500	
63	10	6.3	5.4	D	35	0.18	2000	ECEV1JA100SP	1000
	22	8	6.2	E	35	0.18	2000	ECEV1JA220UP	1000
		8	10.2	F	40	0.18	2000	ECEV1JA220P	500
	33	8	10.2	F	45	0.18	2000	ECEV1JA330P	500
	47	8	10.2	F	45	0.18	2000	ECEV1JA470UP	500
		10	10.2	G	50	0.18	2000	ECEV1JA470P	500
100	10	10.2	G	60	0.18	2000	ECEV1JA101P	500	
100	3.3	8	6.2	E	50	0.18	2000	ECEV2AA3R3P	1000
	4.7	8	6.2	E	50	0.18	2000	ECEV2AA4R7UP	1000
		8	10.2	F	80	0.18	2000	ECEV2AA4R7P	500
	10	8	6.2	E	50	0.18	2000	ECEV2AA100UP	1000
		8	10.2	F	85	0.18	2000	ECEV2AA100P	500
	22	8	10.2	F	70	0.18	2000	ECEV2AA220UP	500
		10	10.2	G	85	0.18	2000	ECEV2AA220P	500
33	10	10.2	G	90	0.18	2000	ECEV2AA330P	500	

The taping dimension are explained on p.187of our Catalog.

Please use it as a reference guide.

■ Standard Products(Bi-polar)

W.V. (V)	Cap. (±20%) (μF)	Case size			Specification			Part No.	Min.Packaging Qty
		Dia. (mm)	Length (mm)	Size Code	Ripple Current (120Hz) (+85°C) (mA)	tan δ (120Hz) (+20°C)	Endurance (hours)		Taping (pcs)
6.3	22	5	5.4	C	29	0.52	2000	ECEV0JA220NR	1000
	47	6.3	5.4	D	46	0.52	2000	ECEV0JA470NP	1000
10	10	4	5.4	B	25	0.40	2000	ECEV1AA100NR	2000
	33	6.3	5.4	D	43	0.40	2000	ECEV1AA330NP	1000
16	4.7	4	5.4	B	20	0.32	2000	ECEV1CA4R7NR	2000
	10	5	5.4	C	25	0.32	2000	ECEV1CA100NR	1000
	22	6.3	5.4	D	39	0.32	2000	ECEV1CA220NP	1000
25	3.3	4.0	5.4	B	12	0.28	2000	ECEV1EA3R3NR	2000
	4.7	5	5.4	C	21	0.28	2000	ECEV1EA4R7NR	1000
	10	6.3	5.4	D	28	0.28	2000	ECEV1EA100NP	1000
35	2.2	4	5.4	B	12	0.24	2000	ECEV1VA2R2NR	2000
	4.7	5	5.4	C	22	0.24	2000	ECEV1VA4R7NR	1000
	10	6.3	5.4	D	30	0.24	2000	ECEV1VA100NP	1000
50	0.22	4	5.4	B	2	0.24	2000	ECEV1HAR22NR	2000
	0.33	4	5.4	B	3	0.24	2000	ECEV1HAR33NR	2000
	0.47	4	5.4	B	5	0.24	2000	ECEV1HAR47NR	2000
	1	4	5.4	B	10	0.24	2000	ECEV1HA010NR	2000
	2.2	5	5.4	C	16	0.24	2000	ECEV1HA2R2NR	1000
	3.3	5	5.4	C	21	0.24	2000	EEVNZ1H3R3R	1000
	4.7	6.3	5.4	D	31	0.24	2000	ECEV1HA4R7NP	1000

The taping dimension are explained on p.187of our Catalog.  
Please use it as a reference guide.