

VA Series

Features

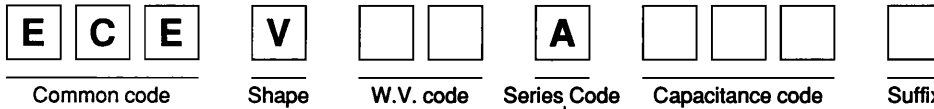
- For general purpose
- Life: 1000 hours at 85°C
- $\phi 3\sim 6.3 \times 6\text{mm}$ products
- Excellent space factor
- Bi-polar type is available on request



Specifications

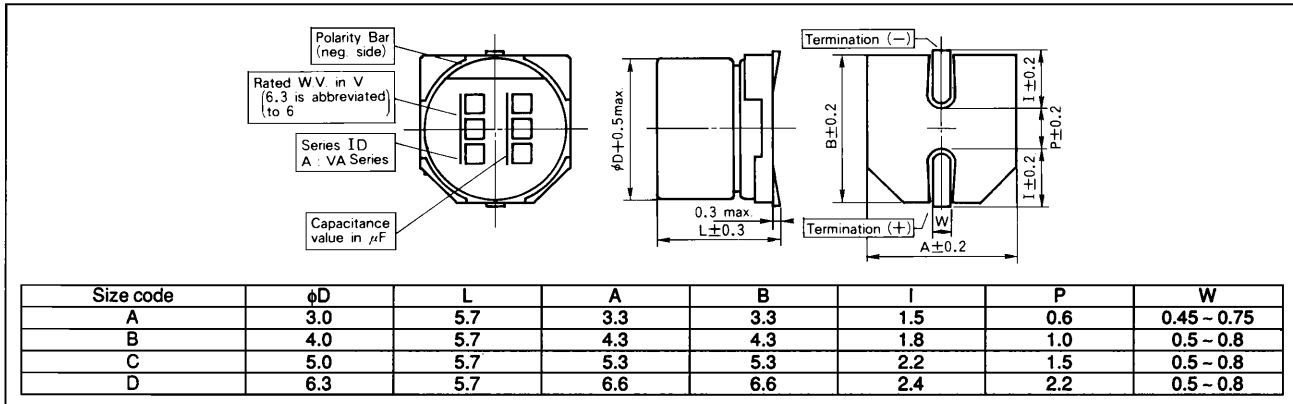
Item	Performance Characteristics							
Operating Temperature Range	-40 to +85°C							
Rated Working Voltage Range	4 to 50V DC							
Nominal Capacitance Range	0.1 to 220 μ F							
Capacitance Tolerance	$\pm 20\%$ (120Hz, +20°C)							
Leakage Current	$I \leq 0.01\text{CV}$ or 3 μA whichever is greater measured after 2 minutes application of rated working voltage at +20°C. (Bi-polar type: $I \leq 0.02\text{CV}$ or 6 μA)							
tan δ (120Hz, +20°C)	Working voltage [V]	4	6.3	10	16	25	35	50
	tan δ max.	0.35	0.26	0.20	0.16	0.14	0.12	0.12
	tan δ (Bi-polar) max.	0.70	0.52	0.40	0.32	0.28	0.24	0.24
Characteristics at Low Temperature	Impedance ratio max. at 120Hz.							
	Working voltage [V]	4	6.3	10	16	25	35	50
	-25°C/+20°C	7	4	3	2	2	2	2
	-40°C/+20°C	15	8	6	4	4	3	3
High Temperature Loading	Test conditions Duration : 1000 hours Applied voltage : Rated DC working voltage (Bi-polar type: 500 hours for each polarity) Ambient temperature : +85°C Post test requirements at +20°C Leakage current : \leq Initial specified value Capacitance change : $\leq \pm 20\%$ of initial measured value ($\leq \pm 30\%$ for 4 W.V.) tan δ : $\leq 200\%$ of initial specified value							
Shelf Life	Test conditions Duration : 1000 hours Ambient temperature : +85°C Applied voltage : (None) Post test requirements at +20°C Leakage current : \leq Initial specified value Capacitance change : $\leq \pm 20\%$ of initial measured value ($\leq \pm 30\%$ for 4 W.V.) tan δ : $\leq 150\%$ of initial specified value							
Resistance to Soldering Heat	Test conditions Capacitors shall be placed for 30 seconds on a plate (termination face down onto the plate) heated to +250°C. Post test requirements at +20°C Leakage current : \leq Initial specified value Capacitance change : $\leq \pm 10\%$ of initial measured value tan δ : \leq Initial specified value							
Cleaning	Capacitors shall be capable of withstanding exposure to following cleaning solvents.							
	Conditions		Solvent condition	Exposure time	Temperature	Ultrasonic wave		
Solvents		Liquid or vapor	≤ 5 min (total)	\leq boiling point at 1 atm	Acceptable			
Freon-TE, TES, TP35 or equivalents								

Part Number System

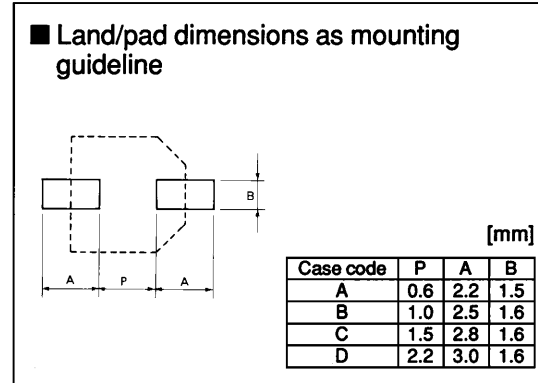
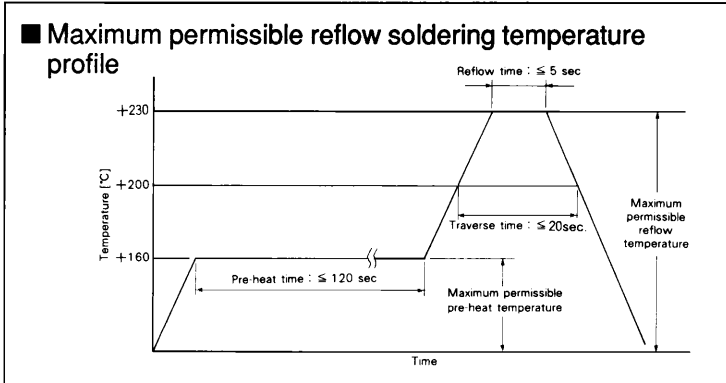


Dimensions

A	VA Series $\phi 4 \sim 6.3$	R	12.0mm width tape
AS	VA Series $\phi 3$	P	16.0mm width tape
AN	Bi-polar		



Soldering



Case Size Table

W.V.[V.DC]	4	6.3	10	16	25	35	50
Cap.[μF]	(0G)	(0J)	(1A)	(1C)	(1E)	(1V)	(1H)
0.1 (0R1)							B, A
0.15 (R15)							B, A
0.22 (R22)							B, A
0.33 (R33)							B, A
0.47 (R47)							B, A
0.68 (R68)							B, A
1 (010)							B, A
2.2 (2R2)						A	B
3.3 (3R3)						A	B
4.7 (4R7)					B, A	B	C
6.8 (6R8)					B		D
10 (100)				B, A	C	C	D
22 (220)	A	B	C	C	D	D	
33 (330)	B	C	C	D	D		
47 (470)	B	C	D	D			
100 (101)	C	D					
220 (221)	D						

(Following Bi-polar type is available on request)

W.V.[V.DC]	4	6.3	10	16	25	35	50
Cap.[μF]							
0.1							B
0.22							B
0.33							B
0.47							B
1							B
2.2						B	C
3.3				B	C		
4.7				B	C		
10			B	C	D		
22			D	D			
33		D	D				
47		D					

() shows W.V. & capacitance code

Standard Products Table

W.V. [V.DC]	Cap. [μF]	Part No.	D.C.L. (+20°C/2 min.) [μA] max.	tan δ (120Hz/+20°C) max.	Ripple current (120Hz/+105°C) [mA] rms max.	Size code
4	22	ECEV0GAS220R	3.0	0.35	19	A
	33	ECEV0GA330R	3.0	0.35	26	B
	47	ECEV0GA470R	3.0	0.35	34	B
	100	ECEV0GA101P	4.0	0.35	61	C
	220	ECEV0GA221P	8.8	0.35	82	D
6.3	22	ECEV0JA220R	3.0	0.26	29	B
	33	ECEV0JA330P	3.0	0.26	38	C
	47	ECEV0JA470P	3.0	0.26	38	C
	100	ECEV0JA101P	6.3	0.26	71	D
10	22	ECEV1AA220P	3.0	0.20	35	C
	33	ECEV1AA330P	3.3	0.20	43	C
	47	ECEV1AA470P	4.7	0.20	65	D
16	10	ECEV1CAS100R ECEV1CA100R	3.0	0.16	20 28	A B
	22	ECEV1CA220P	3.5	0.16	39	C
	33	ECEV1CA330P	5.2	0.16	60	D
	47	ECEV1CA470P	7.5	0.16	70	D
25	4.7	ECEV1EAS4R7R ECEV1EA4R7R	3.0	0.14	12 22	A B
	6.8	ECEV1EA6R8R	3.0	0.14	25	B
	10	ECEV1EA100P	3.0	0.14	28	C
	22	ECEV1EA220P	5.5	0.14	55	D
	33	ECEV1EA330P	8.2	0.14	65	D
35	2.2	ECEV1VAS2R2R	3.0	0.12	8	A
	3.3	ECEV1VAS3R3R	3.0	0.12	10	A
	4.7	ECEV1VA4R7R	3.0	0.12	22	B
	10	ECEV1VA100P	3.5	0.12	30	C
	22	ECEV1VA220P	7.7	0.12	60	D
50	0.1	ECEV1HAS0R1R ECEV1HA0R1R	3.0	0.12	1 1	A B
	0.15	ECEV1HASR15R ECEV1HAR15R	3.0	0.12	1.5 1.5	A B
	0.22	ECEV1HASR22R ECEV1HAR22R	3.0	0.12	2 2	A B
	0.33	ECEV1HASR33R ECEV1HAR33R	3.0	0.12	3 3	A B
	0.47	ECEV1HASR47R ECEV1HAR47R	3.0	0.12	5 5	A B
	0.68	ECEV1HASR68R ECEV1HAR68R	3.0	0.12	7 7	A B
	1.0	ECEV1HAS010R ECEV1HA010R	3.0	0.12	8 10	A B
	2.2	ECEV1HA2R2R	3.0	0.12	16	B
	3.3	ECEV1HA3R3R	3.0	0.12	16	B
	4.7	ECEV1HA4R7P	3.0	0.12	16	C
	6.8	ECEV1HA6R8P	3.4	0.12	27	D
	10	ECEV1HA100P	5.0	0.12	35	D