

# 2018

## VCHIP

## ALUMINUM ELECTROLYTIC CAPACITORS

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# CONTENTS

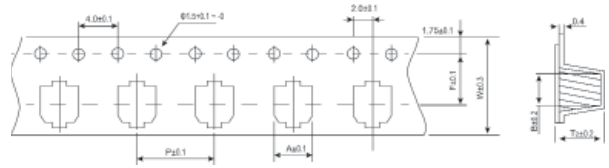
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Taping of chip type aluminum electrolytic capacitor and size	P2
Chip Type\Standard \85°C \2000 hours	RVS series P3~P4
Chip Type\Low-Leakage\105°C \2000 hours	RVK series P5~P6
Chip Type\Wide Temperature\105°C \2000 hours	RVT series P7~P8
Chip Type\Low Impedance\105°C \2000 hours	RVE series P9~P10
Chip Type\Wide Temperature\105°C \3000 hours	RVW series P11~P12
Chip Type\Wide Temperature\125°C \2000 hours	RVH series P13~P14
Chip Type\Bi-polarity\105°C \2000 hours	RVN series P15~P16
Chip Type\Extra Low Impedance\105°C \2000 hours	RVZ series P17~P18
Chip Type\Wide Temperature\105°C \5000 hours	RVL series P19~P20

## TAPING OF CHIP TYPE ALUMINUM ELECTROLYTIC CAPACITOR AND SIZE

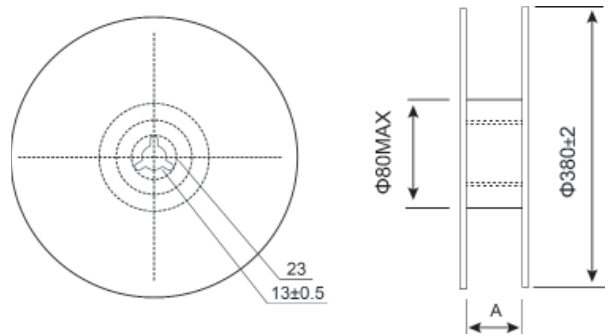
### CARRIER TAPE

ΦD×L	4×5.4	5×5.4	6.3×5.4	6.3×7.7	8×6.5	8×10.2	10×10.2	8×12	10×12
W	12.0	12.0	16.0	16.0	16.0	24.0	24.0	24.0	24.0
P	8.0	12.0	12.0	12.0	12.0	16.0	16.0	16.0	16.0
F	5.5	5.5	7.5	7.5	7.5	11.5	11.5	11.5	11.5
A	4.7	6.0	7.0	7.0	8.7	8.7	10.7	8.7	10.7
B	4.7	6.0	7.0	7.0	8.7	8.7	10.7	8.7	10.7
T <sub>2</sub>	5.8	5.8	5.8	8.3	7.0	11.0	11.0	12.8	12.8



### REEL

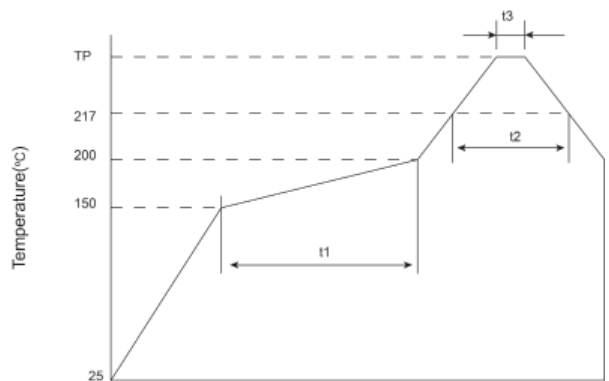
ΦD×L	Quantity/Reel	Quantity/Bag	A
4×5.4	2000pcs	20000pcs	12.5
5×5.4	1000pcs	10000pcs	12.5
6.3×5.4	1000pcs	10000pcs	16.5
6.3×7.7	1000pcs	10000pcs	16.5
8×6.5	1000pcs	10000pcs	16.5
8×10.2	500pcs	5000pcs	24.5
10×10.2	500pcs	5000pcs	24.5
8×12	400pcs	4000pcs	24.5
10×12	400pcs	4000pcs	24.5



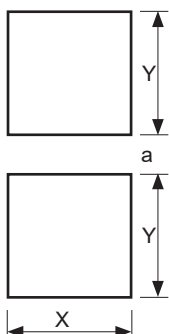
### SOLDERING METHOD AND ALLOWABLE RANGE OF THE REFLOW

Size	Thickness (mm)	TP(°C)	t1	t2	t3	Reflow cycles
Φ4~Φ6.3	≥ 2.5	260±0	120s	90s	5s	1
Φ8~6.5/12	≥ 2.5	240±0	100s	60s	5s	1
Φ10~10.2/12	≥ 2.5	235±0	100s	40s	5s	1

- Average ramp-up rate is 3°C /second max.
- Ramp-down rate is 6°C /second max.
- Time from 25°C to peak temperature is 7 minutes max.



### RECOMMENDED LAND SIZE



SIZE	X	Y	a
Φ4	1.6	2.6	1.0
Φ5	1.6	3.0	1.4
Φ6.3	1.6	3.5	2.1
Φ8	2.5	3.5	3.0
Φ10	2.5	4.0	4.0

- Pre-heating shall be done less than +150°C and for 120 seconds.
- The temperature at capacitor top shall not exceed +260°C .
- The duration for over +200°C at capacitor top shall not exceed 90 seconds.
- The standard temperature profile differs by every reflow method.
- If the conditions capacitors can bear are different, from the allowable range of reflow.

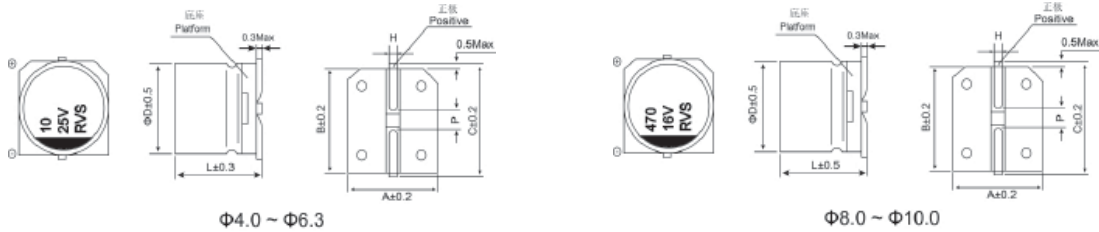
# RVS Series

- Reflow soldering available for reflow soldering
- Available for high density surface mounting
- High stability and reliability
- Lifetime:85°C ,2000 hours long life product
- Adapted to the ROHS. REACH directive

Items	Performance characteristics									
<b>Operating temperature range</b>	-40 ~ +85°C									
<b>Rated voltage range</b>	4V~100V									
<b>Nominal capacitance range</b>	1~1500μF									
<b>Nominal capacitance tolerance</b>	±20% at 120 Hz, 20°C									
<b>Leakage current</b>	Less than 0.01CV(μA) or 3μA whichever is greater (after 2 minutes)									
<b>Dissipation factor (at 120Hz, 20°C )</b>	WV	4	6.3	10	16	25	35	50	63	100
	Tanδ	0.35	0.30	0.24	0.20	0.18	0.16	0.14	0.14	0.14
<b>Temperature characteristics (Impedance ratio at 120Hz)</b>	WV	4	6.3	10	16	25	35	50	63	100
	Z-40°C /Z+20°C	17	10	8	6	4	3	3	3	4
<b>Load life</b>	After applying rated voltage for 2000 hours at +85°C and then resumed 16 hours, the capacitor shall meet the following limits.									
	Capacitance change					≤ ±30% of initial measured value				
	Leakage					≤ Initial specified value				
	Dissipation factor					≤ 300% of initial specified value				
<b>Shelf life</b>	After storage for 1000 hours at +85°C and then resumed 16 hours ,the capacitor shall meet the following limits.									
	Capacitance change					≤ ±30% of initial measured value				
	Leakage					≤ 200% of initial specified value				
	Dissipation factor					≤ 300% of initial specified value				
<b>Resistance to soldering heat</b>	The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, then meet the following requirement.									
	Capacitance change					≤ ±10% of initial measured value				
	Leakage					≤ Initial specified value				
	Dissipation factor					≤ Initial specified value				

# RVS Series

DIMENSIONS & MARKING



ΦD	A	B	C	P	L	H	mm	
4.0	4.3	4.3	5.0	1.0	5.4	0.5~0.8		
5.0	5.3	5.3	6.0	1.5	5.4	0.5~0.8		
6.3	6.6	6.6	7.2	2.1	5.4	0.5~0.8		
6.3	6.6	6.6	7.2	2.1	7.7	0.5~0.8		
8.0	8.3	8.3	9.1	3.1	6.5	0.8~1.1		
8.0	8.3	8.3	9.1	3.1	10.2	0.8~1.1		
10.0	10.3	10.3	11.1	4.5	10.2	0.8~1.1		

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV μF	4		6.3		10		16		25		35		50		63		100	
	1.0													4×5.4	8			
2.2													4×5.4	12				
3.3											4×5.4	15	4×5.4	14	5×5.4	17	6.3×5.4	22
4.7									4×5.4	16	4×5.4	18	4×5.4	14	5×5.4	20	6.3×5.4	23
													5×5.4	17	6.3×5.4	30	6.3×7.7	28
10					4×5.4	24	4×5.4	24	4×5.4	24	4×5.4	24	5×5.4	30	6.3×5.4	35	6.3×7.7	35
									5×5.4	24	5×5.4	30	6.3×5.4	40	6.3×7.7	60	8×10.2	70
22			4×5.4	28	4×5.4	26	4×5.4	26	5×5.4	40	5×5.4	40	6.3×5.4	47	6.3×7.7	60	8×10.2	90
					5×5.4	37	5×5.4	37	6.3×5.4	37	6.3×5.4	47	6.3×7.7	60	8×10.2	100	10×10.2	120
33	4×5.4	25	4×5.4	28	4×5.4	28	5×5.4	37	5×5.4	47	6.3×5.4	54	6.3×7.7	70	8×10.2	110	10×10.2	120
	5×5.4	28	5×5.4	30	5×5.4	37	6.3×5.4	45	6.3×5.4	54	8×6.5	70						
47	4×5.4	30	4×5.4	33	5×5.4	44	5×5.4	33	6.3×5.4	60	6.3×5.4	60	6.3×7.7	85	8×10.2	130	10×10.2	120
	5×5.4	34	5×5.4	44	6.3×5.4	60	6.3×5.4	60	8×6.5	70	6.3×7.7	70	8×10.2	130	10×10.2	170	10×10.2	120
100	5×5.4	40	5×5.4	55	5×5.4	55	6.3×5.4	70	6.3×7.7	120	6.3×7.7	120	8×10.2	190	10×10.2	200		
	6.3×5.4	52	6.3×5.4	70	6.3×5.4	70	6.3×7.7	120	8×6.5	120	8×10.2	190	10×10.2	210				
150	6.3×5.4	70	6.3×5.4	71	6.3×5.4	79	6.3×7.7	116	8×10.2	210	8×10.2	210	10×10.2	238				
220	6.3×5.4	80	6.3×5.4	88	6.3×5.4	88	6.3×7.7	130	8×10.2	260	8×10.2	260	10×10.2	320	10×10.2	320		
			6.3×7.7	130	6.3×7.7	130	8×6.5	130	10×10.2	300	10×10.2	320						
330	6.3×7.7	135	6.3×7.7	135	6.3×7.7	135	8×10.2	270	8×10.2	280	10×10.2	360						
			8×10.2	270	8×10.2	270												
470	6.3×7.7	150	6.3×7.7	150	8×10.2	280	8×10.2	280	10×10.2	400	10×10.2	410						
	8×10.2	240	8×10.2	280	10×10.2	350	10×10.2	350										
680	8×10.2	260	8×10.2	290	10×10.2	370	10×10.2	380										
1000	8×10.2	320	8×10.2	290	10×10.2	430	10×10.2	430										
	10×10.2	430	10×10.2	430														
1500	10×10.2	347	10×10.2	480														

↑ Rated ripple current (mA) at 85°C, 120Hz  
 ↑ Case size ΦD×L(mm)

● FREQUENCY COEFFICIENT OF RATED RIPPLE CURRENT

μF	Frequency				
	50Hz	120Hz	300Hz	1kHz	≥ 10kHz
1~47	0.80	1.00	1.20	1.30	1.50
100~1500	0.80	1.00	1.10	1.15	1.20

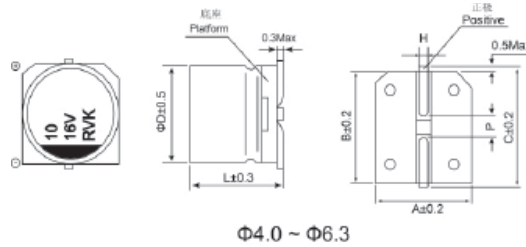
**RVK** Series

- Operating over wide temperature range
- The low leakage SMD capacitor type reflow soldering is available
- High stability and reliability
- Lifetime:105°C ,2000 hours
- Adapted to the ROHS. REACH directive

Items	Performance characteristics						
<b>Operating temperature range</b>	-55 ~ +105°C						
<b>Rated voltage range</b>	6.3V~50V						
<b>Nominal capacitance range</b>	1~220μF						
<b>Nominal capacitance tolerance</b>	±20% at 120 Hz, 20°C						
<b>Leakage current</b>	Less than 0.002CV(μA) or 0.4μA whichever is greater (after 2 minutes)						
<b>Dissipation factor (at 120Hz, 20°C )</b>	WV	6.3	10	16	25	35	50
	Tanδ	0.30	0.24	0.20	0.18	0.16	0.14
<b>Temperature characteristics (Impedance ratio at 120Hz)</b>	WV	6.3	10	16	25	35	50
	Z-25°C /Z+20°C	4	3	2	2	2	2
	Z-55°C /Z+20°C	10	8	6	4	3	3
<b>Load life</b>	After applying rated voltage for 2000 hours at +105°C and then resumed 16 hours, the capacitor shall meet the following limits.						
	Capacitance change	≤ ±30% of initial measured value					
	Leakage	≤ Initial specified value					
	Dissipation factor	≤ 300% of initial specified value					
<b>Shelf life</b>	After storage for 1000 hours at +105°C and then resumed 16 hours ,the capacitor shall meet the following limits.						
	Capacitance change	≤ ±30% of initial measured value					
	Leakage	≤ 200% of initial specified value					
	Dissipation factor	≤ 300% of initial specified value					
<b>Resistance to soldering heat</b>	The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, then meet the following requirement.						
	Capacitance change	≤ ±10% of initial measured value					
	Leakage	≤ Initial specified value					
	Dissipation factor	≤ Initial specified value					

# RVK Series

DIMENSIONS & MARKING



Φ4.0 ~ Φ6.3

ΦD	A	B	C	P	L	H	mm	
4.0	4.3	4.3	5.0	1.0	5.4	0.5~0.8		
5.0	5.3	5.3	6.0	1.5	5.4	0.5~0.8		
6.3	6.6	6.6	7.2	2.1	5.4	0.5~0.8		
6.3	6.6	6.6	7.2	2.1	7.7	0.5~0.8		

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

μF \ WV	6.3		10		16		25		35		50	
	Case size	Rated ripple current (mA)	Case size	Rated ripple current (mA)	Case size	Rated ripple current (mA)	Case size	Rated ripple current (mA)	Case size	Rated ripple current (mA)	Case size	Rated ripple current (mA)
1.0											4×5.4	10
2.2											4×5.4	15
3.3											4×5.4	19
4.7							4×5.4	19	4×5.4	20	5×5.4	26
10			4×5.4	20	4×5.4	25	5×5.4	24	5×5.4	29	6.3×5.4	44
22	4×5.4	31	5×5.4	35	5×5.4	39	6.3×5.4	36	6.3×5.4	54		
33	5×5.4	39	5×5.4	43	6.3×5.4	57	6.3×5.4	44	6.3×7.7	105		
47	5×5.4	47	6.3×5.4	59	6.3×5.4	68	6.3×7.7	52	6.3×7.7	110		
100	6.3×5.4	75	6.3×5.4	76	6.3×7.7	96	6.3×7.7	120				
220	6.3×7.7	85										

↑ Rated ripple current (mA) at 105°C, 120Hz  
 ↑ Case size ΦD×L(mm)

● FREQUENCY COEFFICIENT OF RATED RIPPLE CURRENT

Frequency	50Hz	120Hz	300Hz	1kHz	≥ 10kHz
Coefficient	0.70	1.00	1.17	1.36	1.50

**RVT** Series

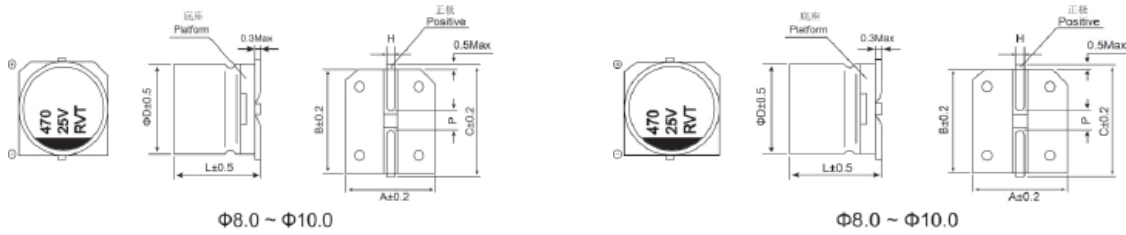
- Reflow soldering available for reflow soldering
- Available for high density surface mounting
- High stability and reliability
- Lifetime:105°C ,2000 hours
- Adapted to the ROHS.REACH directive

Items	Performance characteristics								
<b>Operating temperature range</b>	-55 ~ +105°C								
<b>Rated voltage range</b>	6.3V~100V								
<b>Nominal capacitance range</b>	1~1500μF								
<b>Nominal capacitance tolerance</b>	±20% at 120 Hz, 20°C								
<b>Leakage current</b>	Less than 0.01CV(μA) or 3μA whichever is greater (after 2 minutes)								
<b>Dissipation factor (at 120Hz, 20°C )</b>	WV	6.3	10	16	25	35	50	63	100
	Tanδ	0.30	0.24	0.20	0.18	0.16	0.14	0.14	0.14
<b>Temperature characteristics (Impedance ratio at 120Hz)</b>	WV	6.3	10	16	25	35	50	63	100
	Z-25°C /Z+20°C	4	3	2	2	2	2	2	3
	Z-55°C /Z+20°C	10	8	6	4	3	3	3	4
<b>Load life</b>	After applying rated voltage for 2000 hours at +105°C and then resumed 16 hours, the capacitor shall meet the following limits.								
	Capacitance change ≤ ±30% of initial measured value								
	Leakage ≤ Initial specified value								
	Dissipation factor ≤ 300% of initial specified value								
<b>Shelf life</b>	After storage for 1000 hours at +105°C and then resumed 16 hours ,the capacitor shall meet the following limits.								
	Capacitance change ≤ ±30% of initial measured value								
	Leakage ≤ 200% of initial specified value								
	Dissipation factor ≤ 300% of initial specified value								
<b>Resistance to soldering heat</b>	The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, then meet the following requirement.								
	Capacitance change ≤ ±10% of initial measured value								
	Leakage ≤ Initial specified value								
	Dissipation factor ≤ Initial specified value								



# RVT Series

DIMENSIONS & MARKING



$\Phi D$	A	B	C	P	L	H
4.0	4.3	4.3	5.0	1.0	5.4	0.5~0.8
5.0	5.3	5.3	6.0	1.5	5.4	0.5~0.8
6.3	6.6	6.6	7.2	2.1	5.4	0.5~0.8
6.3	6.6	6.6	7.2	2.1	7.7	0.5~0.8
8.0	8.3	8.3	9.1	3.1	6.5	0.8~1.1
8.0	8.3	8.3	9.1	3.1	10.2	0.8~1.1
10.0	10.3	10.3	11.1	4.5	10.2	0.8~1.1

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV $\mu F$	6.3		10		16		25		35		50		63		100	
	1.0											4x5.4	8			
2.2											4x5.4	12			6.3x5.4	15
3.3									4x5.4	14	4x5.4	14	5x5.4	14	6.3x5.4	22
4.7							4x5.4	14	4x5.4	15	4x5.4	14	5x5.4	17	6.3x5.4	23
10					4x5.4	17	4x5.4	15	4x5.4	15	5x5.4	17	6.3x5.4	26	6.3x7.7	38
22	4x5.4	22	4x5.4	21	4x5.4	21	5x5.4	26	5x5.4	28	6.3x5.4	43	6.3x7.7	53	8x10.2	90
33	4x5.4	23	4x5.4	23	5x5.4	29	5x5.4	30	6.3x5.4	45	6.3x7.7	63	8x10.2	116	10x10.2	136
47	4x5.4	26	5x5.4	31	5x5.4	33	6.3x5.4	49	6.3x5.4	54	6.3x7.7	66	8x10.2	125	10x10.2	148
68							6.3x5.4	55	6.3x7.7	80						
100	5x5.4	40	5x5.4	40	6.3x5.4	63	6.3x7.7	93	6.3x7.7	87	8x10.2	146	10x10.2	200		
150	6.3x5.4	56	6.3x5.4	65	6.3x7.7	100	6.3x7.7	100	8x10.2	158	10x10.2	178				
220	6.3x5.4	69	6.3x5.4	69	6.3x7.7	110	8x10.2	183	8x10.2	195	10x10.2	230				
330	6.3x7.7	108	6.3x7.7	108	8x10.2	201	8x10.2	228	10x10.2	247						
470	6.3x7.7	125	8x10.2	214	8x10.2	240	10x10.2	286	10x10.2	286						
680	8x10.2	214	10x10.2	277	10x10.2	322										
1000	8x10.2	235	10x10.2	320	10x10.2	347										
1500	10x10.2	320														

Rated ripple current (mA) at 105°C, 120Hz  
Case size  $\Phi D \times L$ (mm)

● FREQUENCY COEFFICIENT OF RATED RIPPLE CURRENT

Frequency	50Hz	120Hz	300Hz	1kHz	$\geq 10$ kHz
Coefficient	0.70	1.00	1.17	1.36	1.50

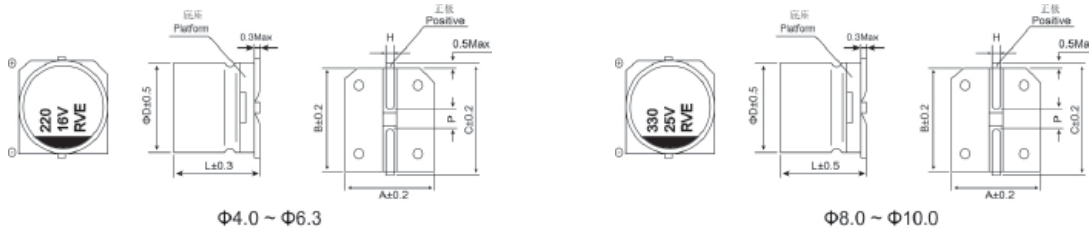
**RVE** Series

- Reflow soldering available for reflow soldering
- Available for high density surface mounting
- Low impedance
- Lifetime:105°C ,2000 hours long life product
- Adapted to the ROHS.REACH directive

Items	Performance characteristics						
<b>Operating temperature range</b>	-55 ~ +105°C						
<b>Rated voltage range</b>	6.3V~50V						
<b>Nominal capacitance range</b>	1~1500μF						
<b>Nominal capacitance tolerance</b>	±20% at 120 Hz, 20°C						
<b>Leakage current</b>	Less than 0.01CV(μA) or 3μA whichever is greater (after 2 minutes)						
<b>Dissipation factor (at 120Hz, 20°C )</b>	WV	6.3	10	16	25	35	50
	Tanδ	0.26	0.20	0.16	0.14	0.12	0.12
<b>Temperature characteristics (Impedance ratio at 120Hz)</b>	WV	6.3	10	16	25	35	50
	Z-25°C /Z+20°C	4	3	2	2	2	2
	Z-55°C /Z+20°C	12	8	6	4	3	3
<b>Load life</b>	After applying rated voltage for 2000 hours at +105°C and then resumed 16 hours, the capacitor shall meet the following limits.						
	Capacitance change	≤ ±30% of initial measured value					
	Leakage	≤ Initial specified value					
	Dissipation factor	≤ 300% of initial specified value					
<b>Shelf life</b>	After storage for 1000 hours at +105°C and then resumed 16 hours ,the capacitor shall meet the following limits.						
	Capacitance change	≤ ±30% of initial measured value					
	Leakage	≤ 200% of initial specified value					
	Dissipation factor	≤ 300% of initial specified value					
<b>Resistance to soldering heat</b>	The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, then meet the following requirement.						
	Capacitance change	≤ ±10% of initial measured value					
	Leakage	≤ Initial specified value					
	Dissipation factor	≤ Initial specified value					

# RVE Series

DIMENSIONS & MARKING



$\Phi D$	A	B	C	P	L	H	mm		
4.0	4.3	4.3	5.0	1.0	5.4	0.5~0.8			
5.0	5.3	5.3	6.0	1.5	5.4	0.5~0.8			
6.3	6.6	6.6	7.2	2.1	5.4	0.5~0.8			
6.3	6.6	6.6	7.2	2.1	7.7	0.5~0.8			
8.0	8.3	8.3	9.1	3.1	10.2	0.8~1.1			
10.0	10.3	10.3	11.1	4.5	10.2	0.8~1.1			

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV μF	6.3			10			16			25			35			50		
	1.0																4×5.4	5.0
2.2																4×5.4	5.0	30
3.3																4×5.4	5.0	30
4.7										4×5.4	3.2	60	4×5.4	3.2	60	5×5.4	3.0	50
10							4×5.4	3.2	60	4×5.4	3.2	60	4×5.4	3.2	60	6.3×5.4	2.0	70
22	4×5.4	3.2	60	4×5.4	3.2	60	5×5.4	1.5	110	5×5.4	1.5	110	5×5.4	1.5	110	6.3×5.4	2.0	70
33	5×5.4	1.5	110	5×5.4	1.5	110	5×5.4	1.5	110	6.3×5.4	0.85	170	6.3×5.4	0.85	170	6.3×7.7	1.0	120
47	5×5.4	1.5	110	5×5.4	1.5	110	5×5.4	1.5	110	6.3×5.4	0.85	170	6.3×5.4	0.85	170	6.3×7.7	1.0	120
100	5×5.4	1.5	110	6.3×5.4	0.85	170	6.3×5.4	0.85	170	6.3×7.7	0.60	230	6.3×7.7	0.60	230	8×10.2	0.60	300
150	6.3×5.4	0.85	170	6.3×5.4	0.85	170	6.3×7.7	0.60	230	6.3×7.7	0.60	230	8×10.2	0.43	450	10×10.2	0.30	500
220	6.3×5.4	0.85	170	6.3×7.7	0.60	230	6.3×7.7	0.60	230	8×10.2	0.43	450	10×10.2	0.23	670	10×10.2	0.30	500
330	6.3×7.7	0.60	230	8×10.2	0.43	450	8×10.2	0.43	450	8×10.2	0.43	450	10×10.2	0.23	670			
470	8×10.2	0.43	450	8×10.2	0.43	450	8×10.2	0.43	450	10×10.2	0.23	670						
680	8×10.2	0.43	450	10×10.2	0.23	670	10×10.2	0.23	670									
1000	8×10.2	0.43	450	10×10.2	0.23	670												
1500	10×10.2	0.23	670															

↑ Rated ripple current (mA) at 105°C, 100kHz  
 ↑ Impedance:(Ω) max, at 20°C, 100kHz  
 ↑ Case size  $\Phi D \times L$ (mm)

● FREQUENCY COEFFICIENT OF RATED RIPPLE CURRENT

Frequency	50Hz	120Hz	300Hz	1kHz	≥ 10kHz
Coefficient	0.64	0.80	0.85	0.93	1.00

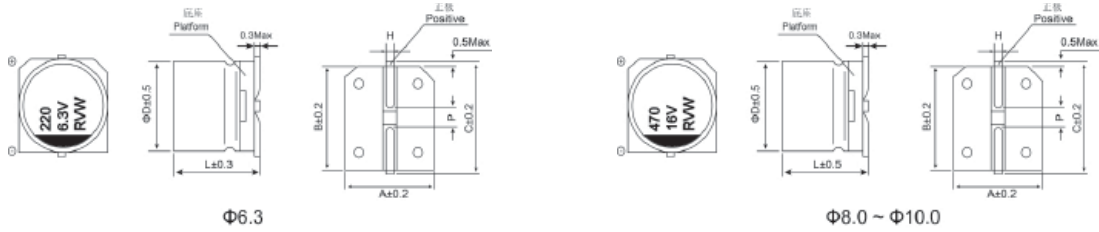
**RVW** Series

- Reflow soldering available for reflow soldering
- Available for high density surface mounting
- High stability and reliability
- Lifetime:105°C ,3000 hours long life product
- Adapted to the ROHS.REACH directive

Items	Performance characteristics							
<b>Operating temperature range</b>	-55 ~ +105°C							
<b>Rated voltage range</b>	6.3V~63V							
<b>Nominal capacitance range</b>	10~1500μF							
<b>Nominal capacitance tolerance</b>	±20% at 120 Hz, 20°C							
<b>Leakage current</b>	Less than 0.01CV(μA) or 3μA whichever is greater (after 2 minutes)							
<b>Dissipation factor (at 120Hz, 20°C )</b>	WV	6.3	10	16	25	35	50	63
	Tanδ	0.30	0.24	0.20	0.18	0.16	0.14	0.14
<b>Temperature characteristics (Impedance ratio at 120Hz)</b>	WV	6.3	10	16	25	35	50	63
	Z-25°C /Z+20°C	4	3	2	2	2	2	3
	Z-55°C /Z+20°C	8	6	4	4	3	3	4
<b>Load life</b>	After applying rated voltage for 3000 hours at +105°C and then resumed 16 hours, the capacitor shall meet the following limits.							
	Capacitance change	≤ ±30% of initial measured value						
	Leakage	≤ Initial specified value						
	Dissipation factor	≤ 300% of initial specified value						
<b>Shelf life</b>	After storage for 1000 hours at +105°C and then resumed 16 hours ,the capacitor shall meet the following limits.							
	Capacitance change	≤ ±30% of initial measured value						
	Leakage	≤ 200% of initial specified value						
	Dissipation factor	≤ 300% of initial specified value						
<b>Resistance to soldering heat</b>	The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, then meet the following requirement.							
	Capacitance change	≤ ±10% of initial measured value						
	Leakage	≤ Initial specified value						
	Dissipation factor	≤ Initial specified value						

**RVW** Series

DIMENSIONS & MARKING



							mm
$\Phi D$	A	B	C	P	L	H	
6.3	6.6	6.6	7.2	2.1	7.7	0.5~0.8	
8.0	8.3	8.3	9.1	3.1	10.2	0.8~1.1	
10.0	10.3	10.3	11.1	4.5	10.2	0.8~1.1	

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV $\mu F$	6.3		10		16		25		35		50		63	
	10													6.3×7.7
22											6.3×7.7	70	8×10.2	98
33									6.3×7.7	84	8×10.2	90	8×10.2	100
47							6.3×7.7	90	6.3×7.7	98	8×10.2	120	10×10.2	120
100					6.3×7.7	90	6.3×7.7	130	8×10.2	175	10×10.2	170		
220	6.3×7.7	105	6.3×7.7	105	8×10.2	210	8×10.2 10×10.2	140 190	10×10.2	315	10×10.2	170		
330	8×10.2	210	8×10.2	210	8×10.2	210	10×10.2	315	10×10.2	315				
470	8×10.2	210	8×10.2 10×10.2	210 315	8×10.2 10×10.2	210 315	10×10.2	315						
1000	10×10.2	315												
1500	10×10.2	315												

↑ Rated ripple current (mA) at 105°C, 120Hz  
 ← Case size  $\Phi D \times L$  (mm)

● FREQUENCY COEFFICIENT OF RATED RIPPLE CURRENT

Frequency	50Hz	120Hz	300Hz	1kHz	$\geq 10\text{kHz}$
Coefficient	0.70	1.00	1.15	1.30	1.40

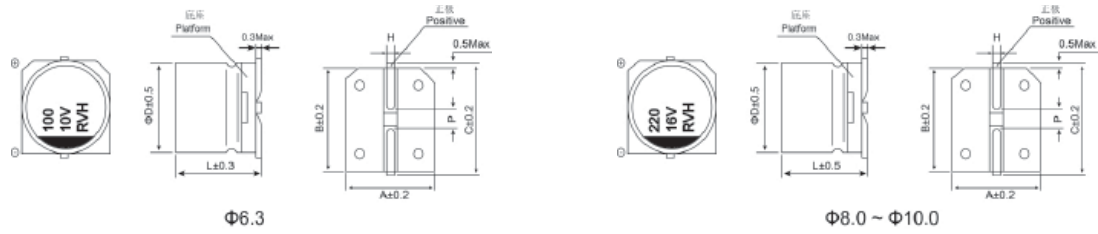
**RVH** Series

- Reflow soldering available for reflow soldering
- Available for high density surface mounting
- High stability and reliability
- Lifetime:125°C ,2000 hours
- Adapted to the ROHS.REACH directive

Items	Performance characteristics						
<b>Operating temperature range</b>	-40 ~ +125°C						
<b>Rated voltage range</b>	6.3V~50V						
<b>Nominal capacitance range</b>	10~470μF						
<b>Nominal capacitance tolerance</b>	±20% at 120 Hz, 20°C						
<b>Leakage current</b>	Less than 0.01CV(μA) or 3μA whichever is greater (after 2 minutes)						
<b>Dissipation factor (at 120Hz, 20°C )</b>	WV	6.3	10	16	25	35	50
	Tanδ	0.30	0.24	0.20	0.18	0.16	0.14
<b>Temperature characteristics (Impedance ratio at 120Hz)</b>	WV	6.3	10	16	25	35	50
	Z-25°C /Z+20°C	4	3	2	2	2	2
	Z-40°C /Z+20°C	10	8	6	4	3	3
<b>Load life</b>	After applying rated voltage for 2000 hours at +125°C and then resumed 16 hours, the capacitor shall meet the following limits.						
	Capacitance change	≤ ±30% of initial measured value					
	Leakage	≤ Initial specified value					
	Dissipation factor	≤ 300% of initial specified value					
<b>Shelf life</b>	After storage for 1000 hours at +125°C and then resumed 16 hours ,the capacitor shall meet the following limits.						
	Capacitance change	≤ ±30% of initial measured value					
	Leakage	≤ 500% of initial specified value					
	Dissipation factor	≤ 300% of initial specified value					
<b>Resistance to soldering heat</b>	The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, then meet the following requirement.						
	Capacitance change	≤ ±10% of initial measured value					
	Leakage	≤ Initial specified value					
	Dissipation factor	≤ Initial specified value					

# RVH Series

DIMENSIONS & MARKING



$\Phi D$	A	B	C	P	L	H	mm
6.3	6.6	6.6	7.2	2.1	7.7	0.5~0.8	
8.0	8.3	8.3	9.1	3.1	10.2	0.8~1.1	
10.0	10.3	10.3	11.1	4.5	10.2	0.8~1.1	

● DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

$\mu F$ \ WV	6.3		10		16		25		35		50	
	10											6.3×7.7
22											6.3×7.7	50
33									6.3×7.7	53	8×10.2	74
47							6.3×7.7	56	8×10.2	79	10×10.2	94
100	6.3×7.7	60	6.3×7.7	62	8×10.2	89	8×10.2	84	10×10.2	101		
220	8×10.2	90	8×10.2	93	10×10.2	118	10×10.2	124				
330	8×10.2	110	10×10.2	118								
470	10×10.2	130										

↑ Rated ripple current (mA) at 125°C, 120Hz  
 ← Case size  $\Phi D \times L$  (mm)

● FREQUENCY COEFFICIENT OF RATED RIPPLE CURRENT

Frequency	50Hz	120Hz	300Hz	1kHz	$\geq 10\text{kHz}$
Coefficient	0.72	1.00	1.17	1.36	1.50

**RVN** Series

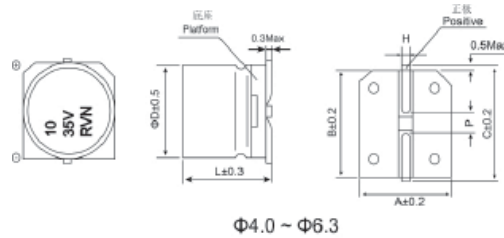
- Bi-polarized
- Reflow soldering is available
- Available for high density surface mounting
- High stability and reliability
- Lifetime:105°C ,2000 hours
- Adapted to the ROHS.REACH directive

Items	Performance characteristics						
<b>Operating temperature range</b>	-55 ~ +105°C						
<b>Rated voltage range</b>	6.3V~50V						
<b>Nominal capacitance range</b>	1~220μF						
<b>Nominal capacitance tolerance</b>	±20% at 120 Hz, 20°C						
<b>Leakage current</b>	Less than 0.02CV(μA) or 6μA whichever is greater (after 2 minutes)						
<b>Dissipation factor (at 120Hz, 20°C )</b>	WV	6.3	10	16	25	35	50
	Tanδ	0.35	0.26	0.24	0.22	0.20	0.20
<b>Temperature characteristics (Impedance ratio at 120Hz)</b>	WV	6.3	10	16	25	35	50
	Z-25°C /Z+20°C	4	3	2	2	2	2
	Z-55°C /Z+20°C	10	8	6	4	3	3
<b>Load life</b>	After applying rated voltage for 2000 hours at +105°C ,(Change direction one time at 250 hours each) and then resumed 16 hours, the capacitor shall meet the following limits.						
	Capacitance change	≤ ±30% of initial measured value					
	Leakage	≤ Initial specified value					
	Dissipation factor	≤ 300% of initial specified value					
<b>Shelf life</b>	After storage for 1000 hours at +105°C and then resumed 16 hours ,the capacitor shall meet the following limits.						
	Capacitance change	≤ ±30% of initial measured value					
	Leakage	≤ 200% of initial specified value					
	Dissipation factor	≤ 300% of initial specified value					
<b>Resistance to soldering heat</b>	The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, then meet the following requirement.						
	Capacitance change	≤ ±10% of initial measured value					
	Leakage	≤ Initial specified value					
	Dissipation factor	≤ Initial specified value					



**RVN** Series

DIMENSIONS & MARKING



$\Phi D$	A	B	C	P	L	H	mm
4	4.3	4.3	5.0	1.0	5.4	0.5~0.8	
5	5.3	5.3	6.0	1.5	5.4	0.5~0.8	
6.3	6.6	6.6	7.2	2.1	5.4	0.5~0.8	
6.3	6.6	6.6	7.2	2.1	7.7	0.5~0.8	

• DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

$\mu F$ \ WV	6.3		10		16		25		35		50	
	1.0											4×5.4
2.2									4×5.4	8	5×5.4	13
3.3							5×5.4	12	5×5.4	16	5×5.4	17
4.7					4×5.4	12	5×5.4	16	5×5.4	18	6.3×5.4	20
10			4×5.4	17	5×5.4	23	6.3×5.4	27	6.3×5.4	29	6.3×7.7	36
22	5×5.4	28	6.3×5.4	33	6.3×5.4	37	6.3×7.7	50	6.3×7.7	54		
33	6.3×5.4	37	6.3×5.4	41	6.3×5.4	49	6.3×7.7	61				
47	6.3×5.4	45	6.3×7.7	61	6.3×7.7	75						
100	6.3×7.7	82	6.3×7.7	85								
220	6.3×7.7	105										

↑ Rated ripple current (mA) at 105°C, 120Hz  
 ↑ Case size  $\Phi D \times L$  (mm)

• FREQUENCY COEFFICIENT OF RATED RIPPLE CURRENT

Frequency	50Hz	120Hz	300Hz	1kHz	$\geq 10$ kHz
Coefficient	0.80	1.00	1.17	1.30	1.50

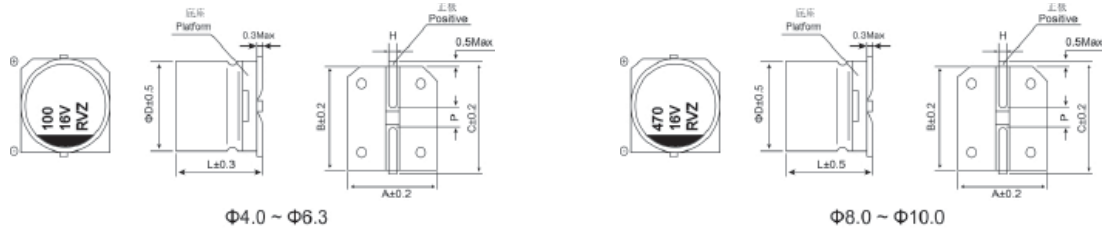
**RVZ** Series

- Reflow soldering available for reflow soldering
- Available for high density surface soldering
- Extre lower impedance
- Lifetime:105°C ,2000~3000 hours long life product
- Adapted to the ROHS.REACH directive

Items	Performance characteristics						
<b>Operating temperature range</b>	-55 ~ +105°C						
<b>Rated voltage range</b>	6.3V~50V						
<b>Nominal capacitance range</b>	1~1500μF						
<b>Nominal capacitance tolerance</b>	±20% at 120 Hz, 20°C						
<b>Leakage current</b>	Less than 0.01CV(μA) or 3μA whichever is greater (after 2 minutes)						
<b>Dissipation factor (at 120Hz, 20°C )</b>	WV	6.3	10	16	25	35	50
	Tanδ	0.26	0.20	0.16	0.14	0.12	0.10
<b>Temperature characteristics (Impedance ratio at 120Hz)</b>	WV	6.3	10	16	25	35	50
	Z-25°C /Z+20°C	4	3	2	2	2	2
	Z-55°C /Z+20°C	12	8	6	4	3	3
<b>Load life</b>	After applying rated voltage for 2000 hours(Φ8 for 3000 hours) at +105°C and then resumed 16 hours, the capacitor shall meet the following limits.						
	Capacitance change	≤ ±30% of initial measured value					
	Leakage	≤ Initial specified value					
	Dissipation factor	≤ 300% of initial specified value					
<b>Shelf life</b>	After storage for 1000 hours at +105°C and then resumed 16 hours ,the capacitor shall meet the following limits.						
	Capacitance change	≤ ±30% of initial measured value					
	Leakage	≤ 200% of initial specified value					
	Dissipation factor	≤ 300% of initial specified value					
<b>Resistance to soldering heat</b>	The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, then meet the following requirement.						
	Capacitance change	≤ ±10% of initial measured value					
	Leakage	≤ Initial specified value					
	Dissipation factor	≤ Initial specified value					

# RVZ Series

DIMENSIONS & MARKING



$\Phi D$	A	B	C	P	L	H
4	4.3	4.3	5.0	1.0	5.4	0.5~0.8
5	5.3	5.3	6.0	1.5	5.4	0.5~0.8
6.3	6.6	6.6	7.2	2.1	5.4	0.5~0.8
6.3	6.6	6.6	7.2	2.1	7.7	0.5~0.8
8	8.3	8.3	9.1	3.1	10.2	0.8~1.1
10	10.3	10.3	11.1	4.5	10.2	0.8~1.1

• DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV μF	6.3			10			16			25			35			50		
	1.0																4×5.4	3.5
2.2																4×5.4	3.5	60
3.3																4×5.4	3.5	60
4.7										4×5.4	2.0	80	4×5.4	2.0	80	5×5.4	2.0	85
10							4×5.4	2.0	80	4×5.4	2.0	80	5×5.4	1.0	150	6.3×5.4	1.2	165
22	4×5.4	2.0	80	4×5.4	2.0	80	5×5.4	1.0	150	5×5.4	1.0	150	6.3×5.4	0.50	230	6.3×7.7	0.80	185
33	5×5.4	1.0	150	5×5.4	1.0	150	6.3×5.4	0.50	230	6.3×5.4	0.50	230	6.3×7.7	0.36	280	6.3×7.7	0.80	185
47	5×5.4	1.0	150	6.3×5.4	0.50	230	6.3×5.4	0.50	230	6.3×5.4	0.50	230	6.3×7.7	0.36	280	6.3×7.7	0.80	185
100	6.3×5.4	0.50	230	6.3×5.4	0.50	230	6.3×5.4	0.50	230	6.3×5.4	0.50	230	6.3×7.7	0.36	280	8×10.2	0.36	350
150	6.3×5.4	0.50	230	6.3×5.4	0.50	230	6.3×7.7	0.36	280	8×10.2	0.17	450	8×10.2	0.17	450	10×10.2	0.20	550
220	6.3×7.7	0.36	280	6.3×7.7	0.36	280	6.3×7.7	0.36	280	8×10.2	0.17	450	10×10.2	0.10	670	10×10.2	0.20	550
330	6.3×7.7	0.36	280	8×10.2	0.17	450	8×10.2	0.17	450	8×10.2	0.17	450	10×10.2	0.10	670			
470	8×10.2	0.17	450	8×10.2	0.17	450	8×10.2	0.17	450	10×10.2	0.10	670	10×10.2	0.10	670			
680	8×10.2	0.17	450	10×10.2	0.10	670	10×10.2	0.10	670									
1000	8×10.2	0.17	450	10×10.2	0.10	670												
1500	10×10.2	0.10	670															

— Rated ripple current (mA) at 105°C, 100kHz  
 — Impedance(Ω) max, at 20°C, 100kHz  
 — Case size  $\Phi D \times L$ (mm)

• FREQUENCY COEFFICIENT OF RATED RIPPLE CURRENT

Frequency	50Hz	120Hz	300Hz	1kHz	$\geq 10$ kHz
Coefficient	0.60	0.70	0.75	0.85	1.00

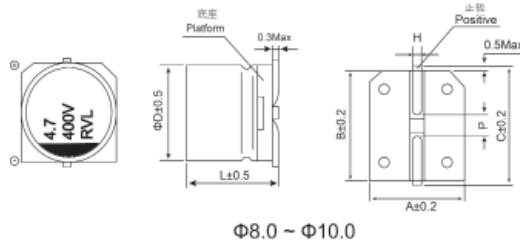
**RVL** Series

- Reflow soldering available for reflow soldering
- Available for high density surface soldering
- Lifetime:105°C ,5000 hours long life product
- Adapted to the ROHS.REACH directive

Items	Performance characteristics							
<b>Operating temperature range</b>	-40 ~ +105°C							
<b>Rated voltage range</b>	6.3V~400V							
<b>Nominal capacitance range</b>	2.2~1000μF							
<b>Nominal capacitance tolerance</b>	±20% at 120 Hz, 20°C							
<b>Leakage current</b>	6.3V~50V	Less than 0.01CV(μA) or 3μA whichever is greater (after 2 minutes)						
	400V	Less than 0.04CV(μA)+100(μA) (after 2 minutes)						
<b>Dissipation factor (at 120Hz, 20°C )</b>	WV	6.3	10	16	25	35	50	400
	Tanδ	0.30	0.24	0.20	0.16	0.14	0.14	0.20
<b>Temperature characteristics (Impedance ratio at 120Hz)</b>	WV	6.3	10	16	25	35	50	400
	Z-25°C /Z+20°C	4	3	2	2	2	2	6
	Z-40°C /Z+20°C	10	8	6	4	3	3	10
<b>Load life</b>	After applying rated voltage for 5000 hours at +105°C and then resumed 16 hours, the capacitor shall meet the following limits.							
	Capacitance change	≤ ±35% of initial measured value						
	Leakage	≤ Initial specified value						
	Dissipation factor	≤ 300% of initial specified value						
<b>Shelf life</b>	After storage for 1000 hours at +105°C and then resumed 16 hours ,the capacitor shall meet the following limits.							
	Capacitance change	≤ ±30% of initial measured value						
	Leakage	≤ 200% of initial specified value						
	Dissipation factor	≤ 300% of initial specified value						
<b>Resistance to soldering heat</b>	The capacitors shall be kept on the hot plate maintained at 250°C for 30 seconds. After removing from the hot plate and restored at room temperature, then meet the following requirement.							
	Capacitance change	≤ ±10% of initial measured value						
	Leakage	≤ Initial specified value						
	Dissipation factor	≤ Initial specified value						

**RVL** Series

DIMENSIONS & MARKING



$\phi 8.0 \sim \phi 10.0$

$\phi D$	A	B	C	P	L	H	mm	
8	8.3	8.3	9.1	3.1	10.2	0.8~1.1		
8	8.3	8.3	9.1	3.1	12.0	0.8~1.1		
10	10.3	10.3	11.1	4.5	10.2	0.8~1.1		
10	10.3	10.3	11.1	4.5	12.0	0.8~1.1		

• DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT

WV $\mu F$	6.3		10		16		25		35		50		400	
	2.2													8×12
3.3													8×12	40
4.7													8×12	48
6.8													10×12	55
8.2													10×12	58
10													10×12	65
33											8×10.2	70		
47									8×10.2	92	8×10.2	92		
100							8×10.2	116	10×10.2	151	10×10.2	151		
220			8×10.2	140	10×10.2	190	10×10.2	210	10×10.2	300				
330	8×10.2	290	10×10.2	290	10×10.2	290	10×10.2	320						
470	8×10.2	290	10×10.2	320	10×10.2	320								
1000	10×10.2	320												

↑ ↑ Rated ripple current (mA) at 105°C, 120Hz  
 Case size  $\phi D \times L$ (mm)

• FREQUENCY COEFFICIENT OF RATED RIPPLE CURRENT

WV	Frequency	50Hz	120Hz	300Hz	1kHz	$\geq 10$ kHz
	6.3~50		0.70	1.00	1.20	1.30
400		0.80	1.00	1.25	1.40	1.60