

RN series

Miniaturization

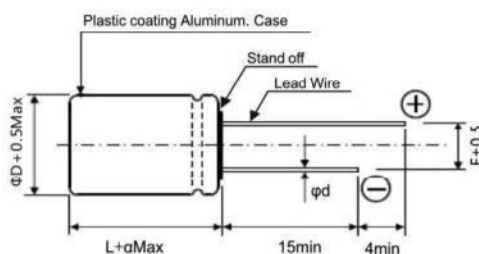
- Downsizing
- Low ESR, High ripple current
- Load life of 2000 hours at 105°C
- Compliant to the RoHS directive (2011/65/EU)
- Suitable for Miniaturization of Electronics Device

小尺寸产品，产品满足RoHS指令(2011/65/EU)，适合小型化电子设备。

Specifications

Items	Characteristics	
Operating Temp. Range	-55°C ~ +105°C	
Capacitance Range	10 ~ 820 uF	
Capacitance Tolerance	M: ±20%	
Rated Voltage Range	6.3V ~ 63V DC	
Dissipation Factor	Not to exceed the value specified	
(at 120Hz, 20°C)	Not to exceed the value specified (after 2 minutes)	
Leakage Current	Not to exceed the value specified	
ESR (100K~300KHz)	Capacitance Change	Within ±20% of the value before test
Endurance 105°C, 2000h, at rated voltage	Leakage current	Not to exceed the value specified
	ESR	Not to exceed 150% of the value specified
	Dissipation Factor	Not to exceed 150% of the value specified
	Capacitance Change	Within ±20% of the value before test
Moisture Resistance Stored at 60°C, Rh90 ~ 95%, 1000h	Leakage Current	Not to exceed the value specified
	ESR	Not to exceed 150% of the value specified
	Dissipation Factor	Not to exceed 150% of the value specified
	Capacitance Change	Within ±20% of the value before test

Dimensions



Unit: mm

$\phi D \times L$	$\phi D + 0.5 \text{ max.}$	α	$F \pm 0.5$	$\phi d \pm 0.05$
4 × 8	4.0	1.0	2.2	0.5
4 × 9	4.0	1.0	2.2	0.5
4 × 10	4.0	1.0	1.5	0.45
5 × 6	5.0	1.0	2.0	0.5
5 × 7	5.0	1.0	2.0	0.5
5 × 8	5.0	1.0	2.0	0.5
5.5 × 8	5.0	1.0	2.5	0.5
5 × 9	5.0	1.0	2.0	0.5

$\phi D \times L$	$\phi D + 0.5 \text{ max.}$	α	$F \pm 0.5$	$\phi d \pm 0.05$
5.5 × 9	5.0	1.0	2.5	0.5
5.5 × 11	5.0	1.0	2.5	0.5
5.5 × 12	5.0	1.0	2.5	0.5
6.3 × 5	6.3	1.0	2.5	0.5
6.3 × 7	6.3	1.0	2.5	0.5
8 × 5	8.0	1.0	3.5	0.6

» Capacitance List

WV (SV)	6.3 (7.2)	7.5 (8.6)	10 (11.5)	12 (13.8)	16 (18.4)	25 (28.7)	35 (41)	50 (57.5)	63 (72)
SIZE									
4 × 8					82~120 uF	56~82 uF			
4 × 9	180~330 uF	180~270 uF	150~220 uF	120~180 uF	100~180 uF	68~100 uF			
4 × 10					100~220 uF	82~120 uF			
5 × 6	180~330 uF	180~270 uF	120~220 uF	100~180 uF	82~180 uF	68~100 uF			
5 × 7	220~330 uF	220~330 uF	150~270 uF	120~220 uF	100~220 uF	82~120 uF			
5 × 8	220~330 uF	220~330 uF	150~270 uF	120~220 uF	100~220 uF	82~120 uF	22~68 uF		
5.5 × 8	270~560 uF	270~470 uF	180~330 uF	150~270 uF	120~270 uF	100~150 uF	47~82 uF	10~27 uF	10~22 uF
5 × 9	270~560 uF	270~470 uF	220~390 uF	180~330 uF	120~270 uF	100~150 uF	47~82 uF	12~33 uF	12~27 uF
5.5 × 9	330~680 uF	270~560 uF	220~470 uF	180~390 uF	150~330 uF	120~180 uF	56~100 uF	15~27 uF	12~22 uF
5.5 × 11	390~820 uF	330~680 uF	270~470 uF	220~470 uF	180~390 uF	150~220 uF	68~120 uF	18~39 uF	15~33 uF
5.5 × 12	470~820 uF	390~820 uF	330~560 uF	270~560 uF	220~470 uF	150~270 uF	82~150 uF	22~47 uF	15~39 uF
6.3 × 5	220~390 uF	220~330 uF	180~270 uF	150~220 uF	120~220 uF	82~120 uF	47~68 uF	27~56 uF	22~47 uF
6.3 × 7	330~560 uF	330~560 uF	270~390 uF	220~330 uF	180~330 uF	120~180 uF	68~100 uF	15~27 uF	12~22 uF
8 × 5	330~560 uF	330~560 uF	220~390 uF	180~330 uF	150~270 uF	120~180 uF	56~100 uF	22~39 uF	15~33 uF

» Characteristics List

W.V. (V)	Capacitance (uF)	L.C. (uA, 2min)	tg δ (120Hz, 20°C)	ESR (mΩ, 100kHz)	Rated Ripple Current (mA, r. m. s)	Size Φ D × L (mm)	Part Number
6.3	220	300	0.08	20	2690	4 × 9	RN221M6R3B090□□
	220	300	0.08	15	2800	5 × 6	RN221M6R3C060□□
	270	340.2	0.08	12	3600	5 × 7	RN271M6R3C070□□
	330	415.8	0.08	10	3700	5 × 8	RN331M6R3C080□□
	470	592.2	0.08	10	3700	5.5 × 8	RN471M6R3C080□□
	470	592.2	0.08	10	3800	5 × 9	RN471M6R3C090□□
	560	705.6	0.08	10	3800	5.5 × 9	RN561M6R3C090□□
	680	856.8	0.08	9	4100	5.5 × 11	RN681M6R3C110□□
	820	1033.2	0.08	9	4100	5.5 × 12	RN821M6R3C120□□
	330	415.8	0.08	15	2800	6.3 × 5	RN331M6R3E050□□
	470	592.2	0.08	12	3700	6.3 × 7	RN471M6R3E070□□
	470	592.2	0.08	12	3300	8 × 5	RN471M6R3F050□□
7.5	220	330	0.08	20	2690	4 × 9	RN221M7R5B090□□
	220	330	0.08	15	2800	5 × 6	RN221M7R5C060□□
	270	405	0.08	12	3600	5 × 7	RN271M7R5C070□□
	330	495	0.08	10	3700	5 × 8	RN331M7R5C080□□
	470	705	0.08	10	3700	5.5 × 8	RN471M7R5C080□□
	470	705	0.08	10	3800	5 × 9	RN471M7R5C090□□
	560	840	0.08	10	3800	5.5 × 9	RN561M7R5C090□□
	680	1020	0.08	9	4100	5.5 × 11	RN681M7R5C110□□
	820	1230	0.08	9	4100	5.5 × 12	RN821M7R5C120□□
	330	495	0.08	15	2800	6.3 × 5	RN331M7R5E050□□
	470	705	0.08	12	3700	6.3 × 7	RN471M7R5E070□□

W.V. (V)	Capacitance (μ F)	L.C. (μ A, 2min)	tg δ (120Hz, 20°C)	ESR (m Ω , 100kHz)	Rated Ripple Current (mA, r. m. s)	Size Φ D $\times$ L (mm)	Part Number
7.5	470	705	0.08	12	3300	8 $\times$ 5	RN471M7R5F050□□
10	180	360	0.08	20	2690	4 $\times$ 9	RN181M010B090□□
	220	440	0.08	15	2800	5 $\times$ 6	RN221M010C060□□
	270	540	0.08	12	3600	5 $\times$ 7	RN271M010C070□□
	270	540	0.08	10	3700	5 $\times$ 8	RN271M010C080□□
	270	540	0.08	10	3700	5.5 $\times$ 8	RN271M010C080□□
	330	660	0.08	10	3800	5 $\times$ 9	RN331M010C090□□
	330	660	0.08	10	3800	5.5 $\times$ 9	RN331M010C090□□
	390	780	0.08	9	4100	5.5 $\times$ 11	RN391M010C110□□
	470	940	0.08	9	4100	5.5 $\times$ 12	RN471M010C120□□
	220	440	0.08	15	2800	6.3 $\times$ 5	RN221M010E050□□
	330	660	0.08	12	3700	6.3 $\times$ 7	RN331M010E070□□
	330	660	0.08	12	3300	8 $\times$ 5	RN331M010F050□□
	180	432	0.08	22	2200	4 $\times$ 9	RN181M012B090□□
	180	432	0.08	18	2690	5 $\times$ 6	RN181M012C060□□
12	220	528	0.08	13	3100	5 $\times$ 7	RN221M012C070□□
	220	528	0.08	12	3300	5 $\times$ 8	RN221M012C080□□
	270	648	0.08	12	3300	5.5 $\times$ 8	RN271M012C080□□
	330	792	0.08	12	3500	5 $\times$ 9	RN331M012C090□□
	390	936	0.08	12	3500	5.5 $\times$ 9	RN391M012C090□□
	470	1128	0.08	11	3700	5.5 $\times$ 11	RN471M012C110□□
	560	1344	0.08	11	3700	5.5 $\times$ 12	RN561M012C120□□
	220	528	0.08	18	2690	6.3 $\times$ 5	RN221M012E050□□
	270	648	0.08	12	3500	6.3 $\times$ 7	RN271M012E070□□
	270	648	0.08	15	3100	8 $\times$ 5	RN271M012F050□□
	100	320	0.10	30	1600	4 $\times$ 8	RN101M016B080□□
	180	576	0.10	28	1900	4 $\times$ 9	RN181M016B090□□
	220	704	0.10	25	2100	4 $\times$ 10	RN221M016B100□□
	180	576	0.10	28	1900	5 $\times$ 6	RN181M016C060□□
16	220	704	0.10	25	2100	5 $\times$ 7	RN221M016C070□□
	220	704	0.10	23	2200	5 $\times$ 8	RN221M016C080□□
	220	704	0.10	18	2690	5.5 $\times$ 8	RN221M016C080□□
	270	864	0.10	18	2690	5 $\times$ 9	RN271M016C090□□
	330	1056	0.10	15	3100	5.5 $\times$ 9	RN331M016C090□□
	390	1248	0.10	14	3300	5.5 $\times$ 11	RN391M016C110□□
	470	1504	0.10	14	3300	5.5 $\times$ 12	RN471M016C120□□
	220	704	0.10	25	2500	6.3 $\times$ 5	RN221M016E050□□
	270	864	0.10	15	3100	6.3 $\times$ 7	RN271M016E070□□
	270	864	0.10	20	2690	8 $\times$ 5	RN271M016F050□□
	68	340	0.10	33	1700	4 $\times$ 8	RN680M025B080□□
	100	500	0.10	30	1800	4 $\times$ 9	RN101M025B090□□
	100	500	0.10	28	1900	4 $\times$ 10	RN101M025B100□□
	100	500	0.10	28	1900	4 $\times$ 10	RN101M025B100□□

W.V. (V)	Capacitance (uF)	L.C. (uA, 2min)	tg δ (120Hz, 20°C)	ESR (mΩ, 100kHz)	Rated Ripple Current (mA, r. m. s)	Size Φ D × L (mm)	Part Number
25	100	500	0.10	30	1800	5 × 6	RN101M025C060□□
	100	500	0.10	28	1900	5 × 7	RN101M025C070□□
	100	500	0.10	25	2000	5 × 8	RN101M025C080□□
	150	750	0.10	20	2400	5.5 × 8	RN151M025C080□□
	150	750	0.10	20	2400	5 × 9	RN151M025C090□□
	180	900	0.10	18	2900	5.5 × 9	RN181M025C090□□
	220	1100	0.10	15	3100	5.5 × 11	RN221M025C110□□
	270	1350	0.10	15	3100	5.5 × 12	RN271M025C120□□
	100	500	0.10	28	2100	6.3 × 5	RN101M025E050□□
	150	750	0.10	18	2900	6.3 × 7	RN151M025E070□□
	150	750	0.10	25	2400	8 × 5	RN151M025F050□□
35	22	300	0.12	40	1800	5 × 8	RN220M035C080□□
	68	476	0.12	40	1800	5.5 × 8	RN680M035C080□□
	82	574	0.12	30	2100	5 × 9	RN820M035C090□□
	100	700	0.12	30	2100	5.5 × 9	RN101M035C090□□
	120	840	0.12	20	2700	5.5 × 11	RN121M035C110□□
	120	840	0.12	20	2700	5.5 × 12	RN121M035C120□□
	56	392	0.12	40	1900	6.3 × 5	RN560M035E050□□
	100	700	0.12	25	2400	6.3 × 7	RN101M035E070□□
	100	700	0.12	30	2100	8 × 5	RN101M035F050□□
	22	300	0.12	50	1600	5 × 8	RN220M050C080□□
50	27	300	0.12	50	1600	5.5 × 8	RN270M050C080□□
	27	300	0.12	45	1900	5 × 9	RN270M050C090□□
	39	390	0.12	45	1900	5.5 × 9	RN390M050C090□□
	47	470	0.12	30	2400	5.5 × 11	RN470M050C110□□
	56	560	0.12	30	2400	5.5 × 12	RN560M050C120□□
	22	300	0.12	50	1600	6.3 × 5	RN220M050E050□□
	33	330	0.12	35	2200	6.3 × 7	RN330M050E070□□
	10	300	0.12	50	1600	5 × 8	RN100M063C080□□
	22	300	0.12	50	1600	5.5 × 8	RN220M063C080□□
63	22	300	0.12	45	1900	5 × 9	RN220M063C090□□
	33	415.8	0.12	45	1900	5.5 × 9	RN330M063C090□□
	39	491.4	0.12	30	2400	5.5 × 11	RN390M063C110□□
	47	592.2	0.12	30	2400	5.5 × 12	RN470M063C120□□
	22	300	0.12	50	1600	6.3 × 5	RN220M063E050□□
	33	415.8	0.12	35	2200	6.3 × 7	RN330M063E070□□

» Frequency Coefficient for Ripple Current

Frequency	120Hz ≤ freq. < 1KHz	1KHz ≤ freq. < 10KHz	10KHz ≤ freq. < 100KHz	100KHz ≤ freq. < 300KHz
Coefficient	0.05	0.3	0.7	1