RN series

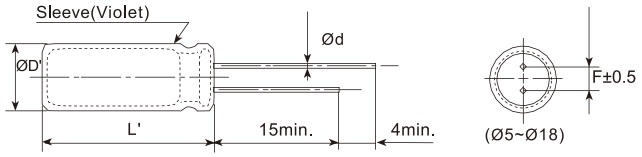
- Miniaturized,high performance, high reliability
- Low impedance, high ripple current, long life
- Endurance +105°C 5,000~10,000 hours
- **RoHS Compliant**

SPECIFICATIONS

Items	Characteristics
Category Temperature Range	-40~+105°C
Rated Voltage Range	25~120 Vdc
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)
Leakage Current	I 0.01 CV or 3μA, whichever is greater. Where, I:Max.leakage current (μA),C:Nominal capacitance (μF),V: Rated voltage (V) (at 20°C after 2 minutes)
Dissipation Factor (tanδ)	Rated Voltage(Vdc) 25 35 50 63 80 100 120 tanδ (max.) 0.14 0.12 0.10 0.09 0.08 0.08 0.12 When nominal capacitance exceeds 1,000μF, add 0.02 to the value above for each 1,000μF increase. (at 20°C,120Hz)
Low Temperature Characteristics (Max. Impedance Ratio)	Rated Voltage(Vdc) 25 35 50 63 80 100 120 Z(-25°C)/Z(+20°C) 2 3 Z(-40°C)/Z(+20°C) 4 6 (at 120Hz)
Endurance	The specifications listed below shall be met when the capacitors are restored to 20°C after DC voltage plus rated ripple current is applied for a specified period of time at 105 °C. Capacitance Change ≤±20% of the initial value D.F. (tanδ) ≤200% of the initial specified value Leakage Current ≤The initial specified value
Shelf Life	The following specifications shall be satisfied when the capacitors are restored to 20°C after leaving them under no load at 105°C for 1,000 hours. Capacitance Change ≤±20% of the initial value D.F. (tanδ) ≤200% of the initial specified value Leakage Current ≤200% of the initial specified value

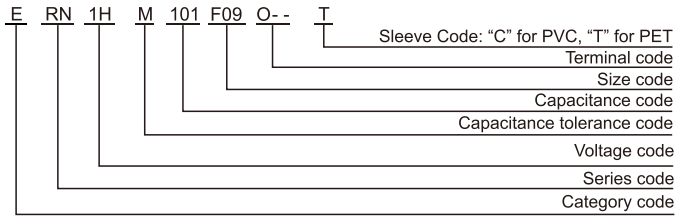
Dia.(mm)	Load life (hours)
ØD 6.3	5,000
ØD=8&10	7,000
ØD 12.5	10,000

DIMENSIONS[mm]



ØD	5	6.3	8	10	12.5	16	18
Ød	0.5	0.5	0.5 0.6	0.6	0.6	0.8	0.8
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
ØD'	ØD+0.5max.						
L'	L+2max.						

PART NUMBERING SYSTEM



RATED RIPPLE CURRENT MULTIPLIERS

Frequency correction factor for ripple current

Cap.(μF) \ Freq.(Hz)	120	1k	10k	100k≤
Cap.<47	0.40	0.75	0.90	1.00
47 Cap.<330	0.50	0.85	0.94	1.00
330 Cap.<820	0.75	0.90	0.95	1.00
Cap. 820	0.85	0.95	0.98	1.00

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WV (Vdc)	Cap (μF)	Size DxL(mm)	tanδ	Impedance (Ωmax/20°C, 100kHz)	Rated ripple current (mArms/105°C, 100kHz)	Part Number
25(1E)	10	5×9	0.14	3.5	80	ERN1EM100D09OT
	15	5×9	0.14	3.5	80	ERN1EM150D09OT
	22	5×9	0.14	3.5	80	ERN1EM220D09OT
	33	5×9	0.14	0.81	150	ERN1EM330D09OT
	47	5×9	0.14	0.65	180	ERN1EM470D09OT
	56	5×11	0.14	0.57	200	ERN1EM560D11OT
	68	5×11	0.14	0.57	200	ERN1EM680D11OT
		6.3×9	0.14	0.74	180	ERN1EM680E09OT
	100	5×11	0.14	0.57	200	ERN1EM101D11OT
	120	6.3×9	0.14	0.74	180	ERN1EM121E09OT
	180	6.3×11	0.14	0.21	350	ERN1EM181E11OT
		8×9	0.14	0.27	310	ERN1EM181F09OT
	220	6.3×11	0.14	0.21	350	ERN1EM221E11OT
		8×9	0.14	0.27	310	ERN1EM221F09OT
	330	8×12	0.14	0.13	660	ERN1EM331F12OT
		10×9	0.14	0.17	590	ERN1EM331G09OT
	390	8×14	0.14	0.15	885	ERN1EM391F14OT
	470	8×16	0.14	0.086	850	ERN1EM471F16OT
		10×12.5	0.14	0.08	870	ERN1EM471G1BOT
	560	8×20	0.14	0.069	1050	ERN1EM561F20OT
		10×12.5	0.14	0.08	870	ERN1EM561G1BOT
	680	8×20	0.14	0.069	1050	ERN1EM681F20OT
		10×16	0.14	0.06	1230	ERN1EM681G16OT
	820	10×16	0.14	0.06	1230	ERN1EM821G16OT
	1000	10×20	0.14	0.046	1400	ERN1EM102G20OT
	1200	10×25	0.14	0.042	1650	ERN1EM122G25OT
	1500	12.5×20	0.14	0.035	1910	ERN1EM152W20OT
35(1V)	10	5×9	0.12	3.5	80	ERN1VM100D09OT
	15	5×9	0.12	3.5	80	ERN1VM150D09OT
	22	5×9	0.12	3.5	80	ERN1VM220D09OT
	33	5×9	0.12	0.81	150	ERN1VM330D09OT
	47	5×11	0.12	0.57	200	ERN1VM470D11OT
	56	5×11	0.12	0.57	200	ERN1VM560D11OT
	68	6.3×9	0.12	0.74	180	ERN1VM680E09OT
	100	6.3×11	0.12	0.21	350	ERN1VM101E11OT
		8×9	0.12	0.27	310	ERN1VM101F09OT
	120	8×9	0.12	0.27	310	ERN1VM121F09OT
	180	8×12	0.12	0.13	660	ERN1VM181F12OT
		10×9	0.12	0.17	590	ERN1VM181G09OT
	220	8×12	0.12	0.13	660	ERN1VM221F12OT
		10×9	0.12	0.17	590	ERN1VM221G09OT
	330	8×16	0.12	0.086	850	ERN1VM331F16OT
		10×12.5	0.12	0.08	870	ERN1VM331G1BOT
	390	8×20	0.12	0.069	1050	ERN1VM391F20OT
		10×12.5	0.12	0.08	870	ERN1VM391G1BOT
	470	8×20	0.12	0.069	1050	ERN1VM471F20OT
		10×16	0.12	0.06	1230	ERN1VM471G16OT
	560	10×16	0.12	0.06	1230	ERN1VM561G16OT
	680	10×20	0.12	0.046	1400	ERN1VM681G20OT
		12.5×16	0.12	0.049	1450	ERN1VM681W16OT
	820	10×20	0.12	0.046	1400	ERN1VM821G20OT
		12.5×16	0.12	0.049	1450	ERN1VM821W16OT
	1000	12.5×20	0.12	0.035	1910	ERN1VM102W20OT
	1200	12.5×20	0.12	0.035	1910	ERN1VM122W20OT

WV (Vdc)	Cap (μF)	Size DxL(mm)	tanδ	Impedance (Ωmax/20°C, 100kHz)	Rated ripple current (mArms/105°C, 100kHz)	Part Number
50(1H)	10	5×9	0.10	2.8	100	ERN1HM100D09OT
	15	5×9	0.10	2.8	100	ERN1HM150D09OT
	22	5×9	0.10	2.8	100	ERN1HM220D09OT
	33	5×11	0.10	0.68	190	ERN1HM330D11OT
	47	6.3×9	0.10	0.89	170	ERN1HM470E09OT
	56	6.3×11	0.10	0.3	300	ERN1HM560E11OT
		8×9	0.10	0.39	270	ERN1HM560F09OT
	68	6.3×11	0.10	0.3	300	ERN1HM680E11OT
		8×9	0.10	0.39	270	ERN1HM680F09OT
	100	8×9	0.10	0.39	270	ERN1HM101F09OT
	120	8×12	0.10	0.17	560	ERN1HM121F12OT
		10×9	0.10	0.22	500	ERN1HM121G09OT
	150	8×12	0.10	0.17	560	ERN1HM151F12OT
		10×9	0.10	0.22	500	ERN1HM151G09OT
	180	8×16	0.10	0.12	740	ERN1HM181F16OT
		10×12.5	0.10	0.12	760	ERN1HM181G1BOT
	220	8×16	0.10	0.12	740	ERN1HM221F16OT
		10×12.5	0.10	0.12	760	ERN1HM221G1BOT
	330	10×16	0.10	0.084	1050	ERN1HM331G16OT
	470	10×20	0.10	0.058	1230	ERN1HM471G20OT
	560	12.5×16	0.10	0.061	1260	ERN1HM561W16OT
	680	12.5×20	0.10	0.045	1660	ERN1HM681W20OT
	820	12.5×25	0.10	0.034	1960	ERN1HM821W25OT
	1000	12.5×30	0.10	0.03	2310	ERN1HM102W30OT
		16×20	0.10	0.034	2210	ERN1HM102L20OT
63(1J)	10	5×9	0.09	3	100	ERN1JM100D09OT
	15	5×9	0.09	3	100	ERN1JM150D09OT
	18	5×9	0.09	3	100	ERN1JM180D09OT
	22	5×11	0.09	2.2	125	ERN1JM220D11OT
	39	6.3×9	0.09	2.8	110	ERN1JM390E09OT
	47	6.3×11	0.09	0.85	200	ERN1JM470E11OT
		8×9	0.09	1.1	175	ERN1JM470F09OT
	68	8×9	0.09	1.1	175	ERN1JM680F09OT
	82	8×12	0.09	0.56	300	ERN1JM820F12OT
	100	8×12	0.09	0.5	375	ERN1JM101F12OT
	150	8×16	0.09	0.32	500	ERN1JM151F16OT
	180	10×12.5	0.09	0.22	520	ERN1JM181G1BOT
	220	10×16	0.09	0.18	650	ERN1JM221G16OT
	270	10×16	0.09	0.16	720	ERN1JM271G16OT
		12.5×13	0.09	0.15	780	ERN1JM271W13OT
	330	10×20	0.09	0.12	860	ERN1JM331G20OT
	390	12.5×16	0.09	0.144	860	ERN1JM391W16OT
	470	12.5×20	0.09	0.082	1120	ERN1JM471W20OT
	560	12.5×25	0.09	0.062	1420	ERN1JM561W25OT
	680	12.5×30	0.09	0.056	1730	ERN1JM681W30OT
		16×20	0.09	0.064	1500	ERN1JM681L20OT
	820	12.5×30	0.09	0.056	1730	ERN1JM821W30OT
		16×20	0.09	0.064	1500	ERN1JM821L20OT

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WV (Vdc)	Cap (μF)	Size DxL(mm)	tanδ	Impedance (Ωmax/20°C, 100kHz)	Rated ripple current (mArms/105°C, 100kHz)	Part Number
80(1B)	27	6.3×11	0.08	0.9	180	ERN1BM270E11OT
		8×9	0.08	1.2	160	ERN1BM270F09OT
	33	6.3×11	0.08	0.9	180	ERN1BM330E11OT
		8×9	0.08	1.2	160	ERN1BM330F09OT
	39	8×9	0.08	1.2	160	ERN1BM390F09OT
	47	8×12	0.08	0.65	260	ERN1BM470F12OT
	56	8×12	0.08	0.65	260	ERN1BM560F12OT
		10×9	0.08	0.85	220	ERN1BM560G09OT
	68	8×12	0.08	0.65	260	ERN1BM680F12OT
		10×9	0.08	0.85	220	ERN1BM680G09OT
	82	8×16	0.08	0.48	350	ERN1BM820F16OT
		10×12.5	0.08	0.34	380	ERN1BM820G1BOT
	100	8×16	0.08	0.48	350	ERN1BM101F16OT
		10×12.5	0.08	0.34	380	ERN1BM101G1BOT
	150	10×14	0.08	0.34	380	ERN1BM151G14OT
	180	10×16	0.08	0.22	480	ERN1BM181G16OT
	220	10×20	0.08	0.18	640	ERN1BM221G20OT
		12.5×16	0.08	0.22	600	ERN1BM221W16OT
	330	12.5×20	0.08	0.13	880	ERN1BM331W20OT
	390	12.5×25	0.08	0.094	1000	ERN1BM391W25OT
	470	13×25	0.08	0.094	1000	ERN1BM471K25OT
		16×20	0.08	0.096	1080	ERN1BM471L20OT
	560	12.5×30	0.08	0.084	1200	ERN1BM561W30OT
		16×25	0.08	0.076	1360	ERN1BM561L25OT
	680	12.5×35	0.08	0.072	1320	ERN1BM681W35OT
		16×25	0.08	0.076	1360	ERN1BM681L25OT
100(1K)	2.7	5×9	0.08	4.5	80	ERN1KM2R7D09OT
	3.3	5×9	0.08	3	80	ERN1KM3R3D09OT
	4.7	5×9	0.08	3	80	ERN1KM4R7D09OT
	5.6	5×11	0.08	3	80	ERN1KM5R6D11OT
	6.8	5×11	0.08	3	80	ERN1KM6R8D11OT
	10	5×11	0.08	3	80	ERN1KM100D11OT
	15	6.3×9	0.08	2	70	ERN1KM150E09OT
	22	6.3×12	0.08	0.9	180	ERN1KM220E12OT
		8×9	0.08	1.2	160	ERN1KM220F09OT
	33	8×9	0.08	1.2	160	ERN1KM330F09OT
	47	8×12	0.08	0.65	260	ERN1KM470F12OT
		10×9	0.08	0.85	220	ERN1KM470G09OT
	56	8×16	0.08	0.48	350	ERN1KM560F16OT
		10×12.5	0.08	0.34	380	ERN1KM560G1BOT
	68	8×20	0.08	0.36	430	ERN1KM680F20OT
	82	8×20	0.08	0.36	430	ERN1KM820F20OT
		10×12.5	0.08	0.34	380	ERN1KM820G1BOT
	100	10×16	0.08	0.22	480	ERN1KM101G16OT
	120	10×16	0.08	0.22	480	ERN1KM121G16OT
	150	10×20	0.08	0.18	640	ERN1KM151G20OT
		12.5×16	0.08	0.22	600	ERN1KM151W16OT
	220	12.5×20	0.08	0.13	880	ERN1KM221W20OT
	270	12.5×25	0.08	0.094	1000	ERN1KM271W25OT
	330	12.5×30	0.08	0.084	1200	ERN1KM331W30OT
		16×20	0.08	0.096	1080	ERN1KM331L20OT
	390	12.5×35	0.08	0.072	1320	ERN1KM391W35OT
		16×25	0.08	0.076	1360	ERN1KM391L25OT
	470	16×25	0.08	0.076	1360	ERN1KM471L25OT

WV (Vdc)	Cap (μF)	Size DxL(mm)	tanδ	Impedance (Ωmax/20°C, 100kHz)	Rated ripple current (mArms/105°C, 100kHz)	Part Number
100(1K)	470	18×20	0.08	0.096	1080	ERN1KM471M20OT
	560	16×30	0.08	0.064	1480	ERN1KM561L30OT
		18×25	0.08	0.072	1400	ERN1KM561M25OT
120(2B)	10	6.3×11	0.12	5.5	94	ERN2BM100E11OT
	15	6.3×12	0.12	4.5	120	ERN2BM150E12OT
	18	8×9	0.12	4.0	140	ERN2BM180F09OT
	22	8×12	0.12	3.5	154	ERN2BM220F12OT
	33	8×16	0.12	3.0	266	ERN2BM330F16OT
		10×12.5	0.12	3.0	266	ERN2BM330G1BOT
	47	8×20	0.12	2.5	320	ERN2BM470F20OT
		10×16	0.12	2.5	338	ERN2BM470G16OT
	56	10×16	0.12	2.2	338	ERN2BM560G16OT
	68	10×16	0.12	2.0	338	ERN2BM680G16OT
	82	10×20	0.12	1.8	360	ERN2BM820G20OT
	100	10×25	0.12	1.5	450	ERN2BM101G25OT
	120	12.5×20	0.12	1.3	620	ERN2BM121W20OT
	150	12.5×25	0.12	1.0	675	ERN2BM151W25OT
	220	13×30	0.12	0.75	825	ERN2BM221K30OT
		16×20	0.12	0.75	825	ERN2BM221L20OT
	270	16×25	0.12	0.55	938	ERN2BM271L25OT
		18×20	0.12	0.55	938	ERN2BM271M20OT
	330	16×30	0.12	0.42	1013	ERN2BM331L30OT
		18×25	0.12	0.42	1013	ERN2BM331M25OT
	470	16×40	0.12	0.30	1125	ERN2BM471L40OT
		18×30	0.12	0.30	1125	ERN2BM471M30OT