RD series

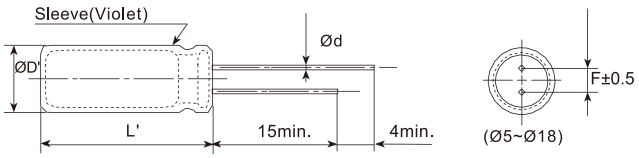
- Endurance +105°C 2,000~5,000 hours
- High frequency and low impedance; moisture content: under 40%
- **RoHS Compliant**

SPECIFICATIONS

Items	Characteristics								
Category Temperature Range	-40~+105°C(6.3~100 Vdc)								
Rated Voltage Range	6.3~100 Vdc								
Capacitance Tolerance	±20%(M) (at 20°C,120Hz)								
Leakage Current	I 0.01CV 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)	6.3	10	16	25	35	50	63	100
	tanδ (max.)	0.22	0.19	0.16	0.14	0.12	0.10	0.09	0.08
	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)	6.3	10	16	25	35	50	63	100
	Z(-25°C)/Z(+20°C)	4	3	2	2	2			
	Z(-40°C)/Z(+20°C)	8	6	4	3	3			(at 120Hz)
Endurance	The following specifications shall be satisfied when the capacitors are restored to 20°C after DC voltage plus the rated ripple current is applied for a specified period of time at 105 °C.								
	Capacitance Change	≤±25% 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 exposing them for 1,000 hours at 105°C without voltage applied.								
	Capacitance Change	≤±25% of the initial value							
	D.F. (tanδ)	≤200% of the initial specified value							
	Leakage Current	≤200% of the initial specified value							

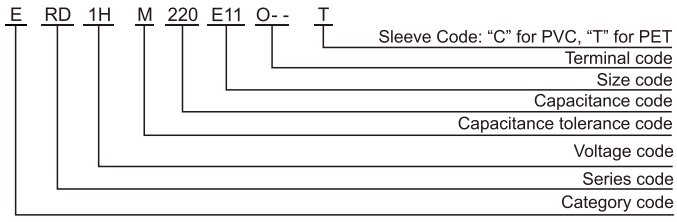
Dia.(mm)	Load life (hours)
ØD 6.3	2,000
ØD=8	3,000
ØD 10	5,000

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

Freq.(Hz) / Cap.(μF)	120	1k	10k	100k
Cap.<220	0.40	0.75	0.90	1.00
220 Cap.<680	0.50	0.85	0.94	1.00
680 Cap.<2200	0.60	0.87	0.95	1.00
2200 Cap.<4700	0.75	0.90	0.95	1.00
Cap. 4700	0.85	0.95	0.98	1.00

The endurance of capacitors is shortened with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

RD series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tanδ	Impedance (Ωmax/20°C, 100kHz)	Rated ripple current (mArms/105°C, 100kHz)	Part Number
6.3(0J)	100	5×11	0.22	1.00	170	ERD0JM101D11OT
	120	5×11	0.22	0.92	175	ERD0JM121D11OT
	150	6.3×11	0.22	0.81	220	ERD0JM151E11OT
	180	6.3×11	0.22	0.76	210	ERD0JM181E11OT
	220	6.3×11	0.22	0.65	310	ERD0JM221E11OT
	270	6.3×11	0.22	0.54	320	ERD0JM271E11OT
	330	8×11	0.22	0.42	390	ERD0JM331F11OT
	470	8×11	0.22	0.25	450	ERD0JM471F11OT
	560	8×11	0.22	0.23	490	ERD0JM561F11OT
	680	8×11	0.22	0.21	520	ERD0JM681F11OT
	820	8×16	0.22	0.20	620	ERD0JM821F16OT
	1000	10×12.5	0.22	0.17	750	ERD0JM102G1BOT
	1200	10×16	0.22	0.16	860	ERD0JM122G16OT
	1500	10×16	0.22	0.14	1100	ERD0JM152G16OT
	1800	10×20	0.22	0.11	1250	ERD0JM182G20OT
	2200	10×25	0.24	0.095	1470	ERD0JM222G25OT
	2700	12.5×20	0.24	0.075	1500	ERD0JM272W20OT
	3300	12.5×20	0.26	0.036	1650	ERD0JM332W20OT
	4700	12.5×30	0.28	0.036	2100	ERD0JM472W30OT
	5600	12.5×30	0.30	0.034	2340	ERD0JM562W30OT
	6800	16×25	0.32	0.032	2450	ERD0JM682L25OT
	8200	16×30	0.36	0.027	2650	ERD0JM822L30OT
	10000	16×35	0.40	0.024	2700	ERD0JM103L35OT
	15000	18×35	0.50	0.023	2950	ERD0JM153M35OT
10(1A)	22	5×11	0.19	2.70	98	ERD1AM220D11OT
	33	5×11	0.19	2.60	100	ERD1AM330D11OT
	47	5×11	0.19	1.34	150	ERD1AM470D11OT
	56	5×11	0.19	1.23	160	ERD1AM560D11OT
	68	5×11	0.19	1.05	170	ERD1AM680D11OT
	100	5×11	0.19	0.80	210	ERD1AM101D11OT
	120	6.3×11	0.19	0.75	250	ERD1AM121E11OT
	150	6.3×11	0.19	0.61	290	ERD1AM151E11OT
	180	6.3×11	0.19	0,46	320	ERD1AM181E11OT
	220	6.3×11	0.19	0.35	340	ERD1AM221E11OT
	270	8×11	0.19	0.30	400	ERD1AM271F11OT
	330	8×11	0.19	0.27	460	ERD1AM331F11OT
	470	8×11	0.19	0.25	580	ERD1AM471F11OT
	560	10×12.5	0.19	0.16	635	ERD1AM561G1BOT
	680	10×12.5	0.19	0.11	765	ERD1AM681G1BOT
	820	10×16	0.19	0.10	890	ERD1AM821G16OT
	1000	10×16	0.19	0.076	1040	ERD1AM102G16OT
	1200	10×16	0.19	0.067	1200	ERD1AM122G16OT
	1500	10×20	0.19	0.062	1400	ERD1AM152G20OT
	1800	10×25	0.19	0.058	1550	ERD1AM182G25OT
	2200	12.5×20	0.21	0.041	1750	ERD1AM222W20OT
	2700	12.5×20	0.21	0.035	1900	ERD1AM272W20OT
	3300	12.5×25	0.23	0.031	2000	ERD1AM332W25OT
	4700	16×25	0.25	0.030	2100	ERD1AM472L25OT
	5600	16×25	0.27	0.028	2290	ERD1AM562L25OT
	6800	16×30	0.29	0.026	2650	ERD1AM682L30OT
	8200	16×35	0.33	0.026	2770	ERD1AM822L35OT
	10000	18×35	0.37	0.024	2580	ERD1AM103M35OT
16(1C)	10	5×11	0.16	4.7	74	ERD1CM100D11OT
	22	5×11	0.16	2.6	100	ERD1CM220D11OT
	33	5×11	0.16	2.0	114	ERD1CM330D11OT
	47	5×11	0.16	1.1	155	ERD1CM470D11OT

WV (Vdc)	Cap (μF)	Size DxL(mm)	tanδ	Impedance (Ωmax/20°C, 100kHz)	Rated ripple current (mArms/105°C, 100kHz)	Part Number
16(1C)	56	5×11	0.16	0.82	180	ERD1CM560D11OT
	68	5×11	0.16	0.69	195	ERD1CM680D11OT
	100	6.3×11	0.16	0.50	265	ERD1CM101E11OT
	120	6.3×11	0.16	0.47	270	ERD1CM121E11OT
	150	6.3×11	0.16	0.41	290	ERD1CM151E11OT
	180	8×11	0.16	0.34	370	ERD1CM181F11OT
	220	8×11	0.16	0.25	480	ERD1CM221F11OT
	270	8×11	0.16	0.21	520	ERD1CM271F11OT
	330	8×12	0.16	0.156	290	ERD1CM331F12OT
	470	10×12.5	0.16	0.124	750	ERD1CM471G1BOT
	560	10×12.5	0.16	0.105	785	ERD1CM561G1BOT
	680	10×16	0.16	0.092	1100	ERD1CM681G16OT
	820	10×16	0.16	0.078	1140	ERD1CM821G16OT
	1000	10×20	0.16	0.065	1350	ERD1CM102G20OT
	1200	10×25	0.16	0.061	1500	ERD1CM122G25OT
	1500	12.5×20	0.16	0.060	1380	ERD1CM152W20OT
	1800	12.5×20	0.16	0.047	1800	ERD1CM182W20OT
	2200	12.5×25	0.18	0.038	2000	ERD1CM222W25OT
	2700	12.5×25	0.18	0.033	2450	ERD1CM272W25OT
	3300	16×25	0.20	0.030	2790	ERD1CM332L25OT
	4700	16×30	0.22	0.026	2880	ERD1CM472L30OT
	5600	16×35	0.24	0.025	2990	ERD1CM562L35OT
	6800	18×35	0.26	0.024	3200	ERD1CM682M35OT
	8200	18×35	0.30	0.024	3320	ERD1CM822M35OT
	10000	18×40	0.34	0.024	3550	ERD1CM103M40OT
25(1E)	4.7	5×11	0.14	3.95	68	ERD1EM4R7D11OT
	5.6	5×11	0.14	3.25	75	ERD1EM5R6D11OT
	6.8	5×11	0.14	2.98	80	ERD1EM6R8D11OT
	10	5×11	0.14	2.56	85	ERD1EM100D11OT
	22	5×11	0.14	1.95	125	ERD1EM220D11OT
	33	5×11	0.14	1.42	155	ERD1EM330D11OT
	47	6.3×11	0.14	1.00	220	ERD1EM470E11OT
	56	6.3×11	0.14	0.79	250	ERD1EM560E11OT
	68	6.3×11	0.14	0.65	280	ERD1EM680E11OT
	100	6.3×11	0.14	0.35	370	ERD1EM101E11OT
	120	6.3×11	0.14	0.33	380	ERD1EM121E11OT
	150	8×11	0.14	0.31	410	ERD1EM151F11OT
	180	8×11	0.14	0.25	455	ERD1EM181F11OT
	220	8×11	0.14	0.15	550	ERD1EM221F11OT
	270	10×12.5	0.14	0.125	720	ERD1EM271G1BOT
	330	10×12.5	0.14	0.114	820	ERD1EM331G1BOT
	470	10×16	0.14	0.076	1200	ERD1EM471G16OT
	560	10×16	0.14	0.072	1250	ERD1EM561G16OT
	680	10×20	0.14	0.065	1320	ERD1EM681G20OT
	820	10×25	0.14	0.052	1530	ERD1EM821G25OT
	1000	12.5×20	0.14	0.045	1650	ERD1EM102W20OT
	1200	12.5×25	0.14	0.041	1980	ERD1EM122W25OT
	1500	12.5×25	0.14	0.038	2210	ERD1EM152W25OT
	1800	16×25	0.14	0.032	2510	ERD1EM182L25OT
	2200	16×25	0.16	0.036	2650	ERD1EM222L25OT
	2700	16×25	0.16	0.031	2820	ERD1EM272L25OT
	3300	16×30	0.18	0.026	3240	ERD1EM332L30OT
	4700	16×35	0.20	0.024	3650	ERD1EM472L35OT
	5600	18×35	0.22	0.024	3720	ERD1EM562M35OT
	6800	18×40	0.24	0.024	3850	ERD1EM682M40OT

RD series

STANDARD RATINGS

WV (Vdc)	Cap (μF)	Size DxL(mm)	tanδ	Impedance (Ωmax/20°C, 100kHz)	Rated ripple current (mArms/105°C, 100kHz)	Part Number
35(1V)	4.7	5×11	0.12	3.65	85	ERD1VM4R7D11OT
	5.6	5×11	0.12	3.09	92	ERD1VM5R6D11OT
	6.8	5×11	0.12	2.82	97	ERD1VM6R8D11OT
	10	5×11	0.12	2.37	105	ERD1VM100D11OT
	22	5×11	0.12	1.50	150	ERD1VM220D11OT
	33	5×11	0.12	1.21	180	ERD1VM330D11OT
	47	6.3×11	0.12	0.80	280	ERD1VM470E11OT
	56	6.3×11	0.12	0.64	310	ERD1VM560E11OT
	68	8×11	0.12	0.52	350	ERD1VM680F11OT
	100	8×11	0.12	0.25	450	ERD1VM101F11OT
	120	8×11	0.12	0.22	510	ERD1VM121F11OT
	150	8×12	0.12	0.191	540	ERD1VM151F12OT
	180	10×12.5	0.12	0.172	650	ERD1VM181G1BOT
	220	10×12.5	0.12	0.114	750	ERD1VM221G1BOT
	270	10×16	0.12	0.095	910	ERD1VM271G16OT
	330	10×16	0.12	0.079	1050	ERD1VM331G16OT
	470	10×20	0.12	0.065	1200	ERD1VM471G20OT
	560	10×25	0.12	0.061	1500	ERD1VM561G25OT
	680	12.5×20	0.12	0.056	1570	ERD1VM681W20OT
	820	12.5×20	0.12	0.048	1700	ERD1VM821W20OT
	1000	12.5×25	0.12	0.042	1900	ERD1VM102W25OT
	1200	12.5×30	0.12	0.039	2130	ERD1VM122W30OT
	1500	16×25	0.12	0.036	2270	ERD1VM152L25OT
	1800	16×30	0.12	0.035	2700	ERD1VM182L30OT
	2200	16×30	0.14	0.034	2780	ERD1VM222L30OT
	2700	16×35	0.14	0.029	2850	ERD1VM272L35OT
	3300	18×35	0.16	0.026	3100	ERD1VM332M35OT
	4700	18×40	0.18	0.024	3500	ERD1VM472M40OT
50(1H)	0.47	5×11	0.10	5.40	25	ERD1HMR47D11OT
	1	5×11	0.10	4.00	40	ERD1HM010D11OT
	2.2	5×11	0.10	2.80	55	ERD1HM2R2D11OT
	3.3	5×11	0.10	2.20	60	ERD1HM3R3D11OT
	4.7	5×11	0.10	2.00	90	ERD1HM4R7D11OT
	5.6	5×11	0.10	1.93	105	ERD1HM5R6D11OT
	6.8	5×11	0.10	1.89	110	ERD1HM6R8D11OT
	10	5×11	0.10	1.82	120	ERD1HM100D11OT
	22	6.3×11	0.10	1.25	150	ERD1HM220E11OT
	33	6.3×11	0.10	0.80	250	ERD1HM330E11OT
	47	6.3×11	0.10	0.65	290	ERD1HM470E11OT
	56	8×11	0.10	0.49	310	ERD1HM560F11OT
	68	8×11	0.10	0.33	375	ERD1HM680F11OT
	100	10×12.5	0.10	0.17	480	ERD1HM101G1BOT
	120	10×12.5	0.10	0.156	530	ERD1HM121G1BOT
	150	10×12.5	0.10	0.132	590	ERD1HM151G1BOT
	180	10×16	0.10	0.114	860	ERD1HM181G16OT
	220	10×16	0.10	0.096	830	ERD1HM221G16OT
	270	10×20	0.10	0.078	960	ERD1HM271G20OT
	330	10×25	0.10	0.065	1150	ERD1HM331G25OT
	470	12.5×20	0.10	0.055	1590	ERD1HM471W20OT
	560	12.5×20	0.10	0.050	1660	ERD1HM561W20OT
	680	12.5×25	0.10	0.044	1930	ERD1HM681W25OT
	820	12.5×30	0.10	0.039	2100	ERD1HM821W30OT
	1000	16×25	0.10	0.036	2300	ERD1HM102L25OT
	1200	16×30	0.10	0.036	2650	ERD1HM122L30OT
	1500	16×35	0.10	0.034	2750	ERD1HM152L35OT
	1800	16×35	0.10	0.034	2850	ERD1HM182L35OT
	2200	18×35	0.12	0.032	3040	ERD1HM222M35OT
	2700	18×40	0.14	0.027	3070	ERD1HM272M40OT
	3300	18×40	0.16	0.025	3100	ERD1HM332M40OT

WV (Vdc)	Cap (μF)	Size DxL(mm)	tanδ	Impedance (Ωmax/20°C, 100kHz)	Rated ripple current (mArms/105°C, 100kHz)	Part Number
63(1J)	0.47	5×11	0.09	5.4	25	ERD1JMR47D11OT
	1	5×11	0.09	4.0	33	ERD1JM010D11OT
	2.2	5×11	0.09	2.8	45	ERD1JM2R2D11OT
	3.3	5×11	0.09	2.2	58	ERD1JM3R3D11OT
	4.7	5×11	0.09	2.0	65	ERD1JM4R7D11OT
	5.6	5×11	0.09	1.9	95	ERD1JM5R6D11OT
	6.8	5×11	0.09	1.82	100	ERD1JM6R8D11OT
	10	5×11	0.09	1.75	110	ERD1JM100D11OT
	22	6.3×11	0.09	0.80	240	ERD1JM220E11OT
	33	8×11	0.09	0.61	270	ERD1JM330F11OT
	47	8×12	0.09	0.56	300	ERD1JM470F12OT
	56	8×12	0.09	0.38	330	ERD1JM560F12OT
	68	10×12.5	0.09	0.21	480	ERD1JM680G1BOT
	100	10×16	0.09	0.14	610	ERD1JM101G16OT
	120	10×16	0.09	0.13	620	ERD1JM121G16OT
	150	10×16	0.09	0.11	700	ERD1JM151G16OT
	180	10×20	0.09	0.10	800	ERD1JM181G20OT
	220	10×20	0.09	0.08	1100	ERD1JM221G20OT
	270	12.5×20	0.09	0.065	1150	ERD1JM271W20OT
	330	12.5×20	0.09	0.055	1250	ERD1JM331W20OT
	470	12.5×25	0.09	0.053	1620	ERD1JM471W25OT
	560	12.5×25	0.09	0.049	1630	ERD1JM561W25OT
	680	12.5×30	0.09	0.043	1950	ERD1JM681W30OT
	820	16×25	0.09	0.038	2150	ERD1JM821L25OT
	1000	16×30	0.09	0.034	2350	ERD1JM102L30OT
	1200	16×35	0.09	0.032	2550	ERD1JM122L35OT
	1500	18×35	0.09	0.031	2710	ERD1JM152M35OT
	1800	18×40	0.09	0.027	3000	ERD1JM182M40OT
100(1K)	0.47	5×11	0.08	5.9	20	ERD1KMR47D11OT
	1	5×11	0.08	4.4	30	ERD1KM010D11OT
	2.2	5×11	0.08	3.3	42	ERD1KM2R2D11OT
	3.3	5×11	0.08	2.8	55	ERD1KM3R3D11OT
	4.7	5×11	0.08	2.6	72	ERD1KM4R7D11OT
	5.6	5×11	0.08	2.33	100	ERD1KM5R6D11OT
	6.8	6.3×11	0.08	1.95	115	ERD1KM6R8E11OT
	10	6.3×11	0.08	1.77	130	ERD1KM100E11OT
	22	8×12	0.08	0.85	220	ERD1KM220F12OT
	33	10×12.5	0.08	0.69	320	ERD1KM330G1BOT
	47	10×12.5	0.08	0.58	370	ERD1KM470G1BOT
	56	10×16	0.08	0.42	440	ERD1KM560G16OT
	68	10×16	0.08	0.35	470	ERD1KM680G16OT
	100	10×25	0.08	0.30	560	ERD1KM101G25OT
	120	10×25	0.08	0.22	660	ERD1KM121G25OT
	150	12.5×20	0.08	0.174	780	ERD1KM151W20OT
	180	12.5×20	0.08	0.142	820	ERD1KM181W20OT
	220	12.5×25	0.08	0.130	880	ERD1KM221W25OT
	270	12.5×30	0.08	0.110	1120	ERD1KM271W30OT
	330	16×25	0.08	0.100	1440	ERD1KM331L25OT
	470	16×30	0.08	0.090	1650	ERD1KM471L30OT
	560	16×35	0.08	0.085	1720	ERD1KM561L35OT
	680	18×35	0.08	0.080	1790	ERD1KM681M35OT
	820	18×35	0.08	0.071	1840	ERD1KM821M35OT
	1000	18×40	0.08	0.066	1930	ERD1KM102M40OT