

## Series RSE 105°C, High-Reliability, Long-Life Capacitors

### ■ MARATHON CAP

- Long life, highly reliable; high frequency, low impedance.
- Guaranteed for 5000 hours at 105°C (3000 hours for case dia. 8 mm or less).

**Anti-Solvent !!**

### Specifications

No.	Item	Performance														
1	Temperature range (°C)	-55 ~ +105														
2	Rated voltage (V)	10 ~ 63														
3	Capacitance tolerance (%)	±20														
4	Leakage current (μA)	Less than 0.01 CV (after two minutes) C : Capacitance (μF), V : Voltage (V)														
5	Tangent of loss angle (tan δ)	<table border="1"> <tr> <th>Rated voltage (V)</th> <td>10</td> <td>16</td> <td>25</td> <td>35</td> <td>50</td> <td>63</td> </tr> <tr> <th>tan δ</th> <td>0.15</td> <td>0.12</td> <td>0.10</td> <td>0.10</td> <td>0.08</td> <td>0.08</td> </tr> </table> <p>0.02 is added to every 1000μF increase over 1000μF (120Hz)</p>	Rated voltage (V)	10	16	25	35	50	63	tan δ	0.15	0.12	0.10	0.10	0.08	0.08
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6	Stability at low temperature	This product shall satisfy the following items at -55°C <table border="1"> <tr> <th>Capacitance</th> <td>Within ±20% of the value at 20°C</td> </tr> <tr> <th>Impedance ratio</th> <td>Z-55°C/Z+20°C : Less than 2 (Less than 3 for 10WV)</td> </tr> </table> (120Hz)	Capacitance	Within ±20% of the value at 20°C	Impedance ratio	Z-55°C/Z+20°C : Less than 2 (Less than 3 for 10WV)										
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7	Ripple current	Ripple current is allowable ripple current at 105°C, 100kHz.														
8	Endurance (105°C) (Applied ripple current)	<table border="1"> <tr> <th>Test time</th> <td>5000h (φ8 is 3000h)</td> </tr> <tr> <th>Leakage current</th> <td>Less than or equal to the value in No.4</td> </tr> <tr> <th>Change in capacitance</th> <td>Within ±25% of initial value</td> </tr> <tr> <th>tan δ</th> <td>250% or less of the value in No.5</td> </tr> </table>	Test time	5000h (φ8 is 3000h)	Leakage current	Less than or equal to the value in No.4	Change in capacitance	Within ±25% of initial value	tan δ	250% or less of the value in No.5						
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9	Hot storage (105°C)	<table border="1"> <tr> <th>Test time</th> <td>1000h</td> </tr> <tr> <th>Leakage current</th> <td>Less than or equal to the value in No.4</td> </tr> <tr> <th>Change in capacitance</th> <td>Within ±15% of initial value</td> </tr> <tr> <th>tan δ</th> <td>150% or less of the value in No.5</td> </tr> </table>	Test time	1000h	Leakage current	Less than or equal to the value in No.4	Change in capacitance	Within ±15% of initial value	tan δ	150% or less of the value in No.5						
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10	Others	Pretreatment performed (section 4.4, JIS C 5102). Conforms to JIS C5141.														

### Standard Ratings

Capacitance (μF)	Case φD×L(mm)	10			16		
		tanδ 120Hz	Impedance Ω/100kHz	Ripple current Arms	tanδ 120Hz	Impedance Ω/100kHz	Ripple current Arms
33	—	—	—	—	—	—	—
47	8×11.5	0.15	0.70	0.17	8×11.5	0.12	0.56
100	8×11.5	0.15	0.38	0.25	10×20	0.12	0.24
220	10×20	0.15	0.18	0.46	10×20	0.12	0.18
330	10×20	0.15	0.15	0.60	10×20	0.12	0.13
470	12.5×20	0.15	0.12	0.79	12.5×20	0.12	0.11
1000	12.5×25	0.15	0.08	1.17	16×25	0.12	0.06
2200	16×31.5	0.17	0.04	1.98	18×35.5	0.14	0.03

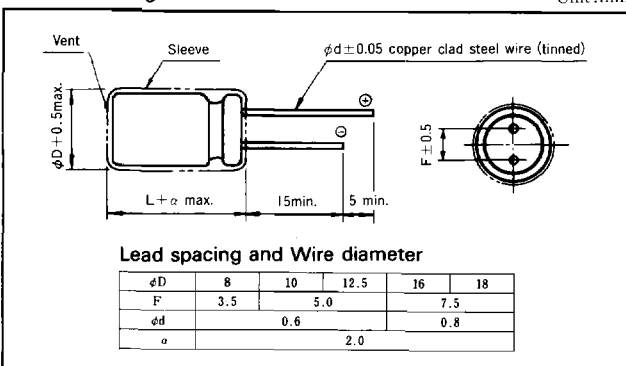
Capacitance (μF)	Case φD×L(mm)	25			35		
		tanδ 120Hz	Impedance Ω/100kHz	Ripple current Arms	tanδ 120Hz	Impedance Ω/100kHz	Ripple current Arms
22	8×11.5	0.10	0.42	0.18	8×11.5	0.10	0.34
33	8×11.5	0.10	0.42	0.23	8×11.5	0.10	0.34
47	8×11.5	0.10	0.42	0.26	8×11.5	0.10	0.34
100	10×20	0.10	0.18	0.40	10×20	0.10	0.14
220	12.5×20	0.10	0.12	0.70	12.5×25	0.10	0.08
330	12.5×25	0.10	0.08	0.91	16×25	0.10	0.06
470	16×25	0.10	0.06	1.25	16×25	0.10	0.06
1000	16×31.5	0.10	0.04	1.72	—	—	—

Capacitance (μF)	Case φD×L(mm)	50			63		
		tanδ 120Hz	Impedance Ω/100kHz	Ripple current Arms	tanδ 120Hz	Impedance Ω/100kHz	Ripple current Arms
2.2	8×11.5	0.08	1.90	0.06	—	—	—
3.3	8×11.5	0.08	1.90	0.07	—	—	—
4.7	8×11.5	0.08	1.80	0.09	—	—	—
10	8×11.5	0.08	0.64	0.16	8×11.5	0.08	1.80
22	10×20	0.08	0.24	0.26	8×11.5	0.08	0.64
33	10×20	0.08	0.18	0.29	10×20	0.08	0.22
47	10×20	0.08	0.18	0.34	10×20	0.08	0.18
100	12.5×20	0.08	0.10	0.59	10×20	0.08	0.18
220	16×25	0.08	0.06	1.07	12.5×25	0.08	0.10
330	16×31.5	0.08	0.05	1.34	16×31.5	0.08	0.08
470	16×35.5	0.08	0.04	1.76	16×35.5	0.08	0.06

Note : Allowable ripple current : 105°C, 100kHz. Impedance : at 20°C.

### Outline Drawing



### Coefficients of Frequency for Ripple Current

Capacitance (μF)	Voltage (V)	Frequency (Hz)			
		120	1k	10k	100k
47 ~ 2200	10 ~ 35	0.40	0.70	0.95	1
	50 ~ 63	0.37	0.67	0.95	1
22 ~ 33	—	0.26	0.56	0.90	1
2.2 ~ 10	—	0.20	0.50	0.84	1

### Coefficients of Temperature for Ripple Current

Temperature (°C)	+70	+85	+105
Coefficients	2.70	2.10	1

### Example of Code Number (Series RSE, 10V 100μF)

<b>RSE</b>	<b>-</b>	<b>10</b>	<b>V</b>	<b>102</b>	<b>M</b>	<b>X</b>
Series code		Rated voltage		Capacitance	Tolerance	Suffix