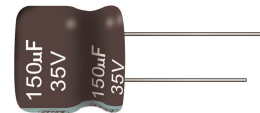




ER Series

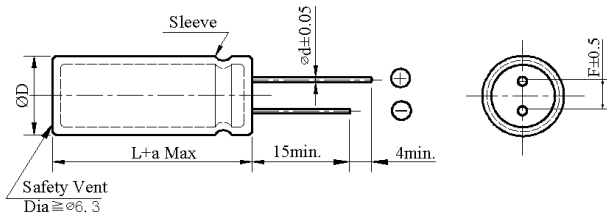
- Low impedance, high ripple current and miniature size with 7 to 9 mm height



SPECIFICATIONS

Item	Performance Characteristics												
Category Temperature Range	-40 ~ +105°C												
Working Voltage Range	6.3 ~ 35Vdc												
Capacitance Range	33 ~ 470 µF												
Capacitance Tolerance	±20% (at 25°C and 120Hz)												
Dissipation Factor (tanδ) (at 25°C, 120Hz)	<table border="1"> <tr> <td>Rated Voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> </tr> <tr> <td>tanδ(Max)</td> <td>0.24</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.14</td> </tr> </table>	Rated Voltage (V)	6.3	10	16	25	35	tanδ(Max)	0.24	0.20	0.16	0.14	0.14
Rated Voltage (V)	6.3	10	16	25	35								
tanδ(Max)	0.24	0.20	0.16	0.14	0.14								
Leakage Current	I=0.01CV or 3 µA, whichever is greater I : Leakage current (µA) C : Rated capacitance (µF) V : Rated voltage (V) Impress the rated voltage for 2 minutes												
Low Temperature Characteristics Impedance Ratio(MAX)	<table border="1"> <tr> <td>Rated voltage (V)</td> <td>6.3</td> <td>10</td> <td>16</td> <td>25</td> <td>35</td> </tr> <tr> <td>Z(-40°C)/Z(+20°C)</td> <td>8</td> <td>6</td> <td>6</td> <td>5</td> <td>4</td> </tr> </table> (at 120Hz)	Rated voltage (V)	6.3	10	16	25	35	Z(-40°C)/Z(+20°C)	8	6	6	5	4
Rated voltage (V)	6.3	10	16	25	35								
Z(-40°C)/Z(+20°C)	8	6	6	5	4								
Endurance	The following requirements shall be satisfied when the capacitor are restored to 25°C after the rated voltage applied for 3,000 hours at 105°C. <table border="1"> <tr> <td>Capacitance change</td> <td>≒ ±25% of the initial value(6.3V、10V: ≒±30%)</td> </tr> <tr> <td>Dissipation factor(tanδ)</td> <td>≒ 200% of the specified value</td> </tr> <tr> <td>Leakage current</td> <td>≒ specified value</td> </tr> </table>	Capacitance change	≒ ±25% of the initial value(6.3V、10V: ≒±30%)	Dissipation factor(tanδ)	≒ 200% of the specified value	Leakage current	≒ specified value						
Capacitance change	≒ ±25% of the initial value(6.3V、10V: ≒±30%)												
Dissipation factor(tanδ)	≒ 200% of the specified value												
Leakage current	≒ specified value												
Shelf Life	The following requirements shall be satisfied when the capacitor are restored to 25°C after the rated voltage applied for 500 hours at 105°C without voltage applied. <table border="1"> <tr> <td>Capacitance change</td> <td>≒ ±25% of the initial value(6.3V、10V: ≒±30%)</td> </tr> <tr> <td>Dissipation factor(tanδ)</td> <td>≒ 200% of the specified value</td> </tr> <tr> <td>Leakage current</td> <td>≒ 200% of the specified value</td> </tr> </table>	Capacitance change	≒ ±25% of the initial value(6.3V、10V: ≒±30%)	Dissipation factor(tanδ)	≒ 200% of the specified value	Leakage current	≒ 200% of the specified value						
Capacitance change	≒ ±25% of the initial value(6.3V、10V: ≒±30%)												
Dissipation factor(tanδ)	≒ 200% of the specified value												
Leakage current	≒ 200% of the specified value												
Others	Conforms to JIS-C-5101-4 (1998), characteristic W												

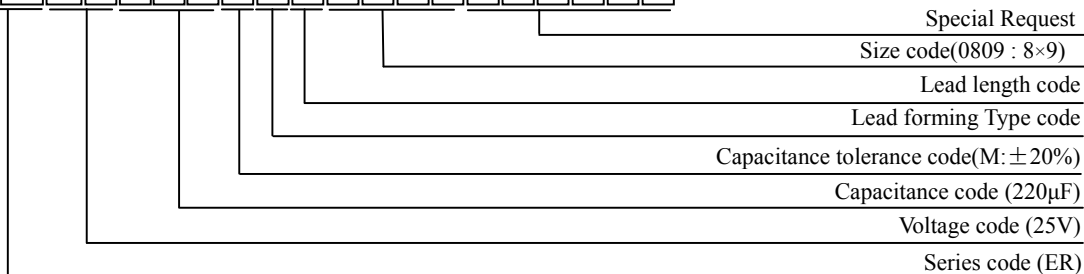
DIMENSIONS (mm)



ΦD	8×7	8×9
ΦD	ΦD + 0.5 Max	
dΦ	0.45	0.50
F	3.5	
a	L+ 1.0 Max	

PART NUMBER SYSTEM(Example : 25V 220µF)

E R I E 2 2 1 M N N 0 8 0 9





ER Series

◆ **Case size & Permissible rated ripple current**

Nominal Capacitance (uF)	6.3V			10V			16V		
	Case size $\Phi D \times L$ (mm)	Impedance @20°C ($\Omega_{max}/100kHz$)	Max. Rated ripple current @105°C 100kHz (mA rms)	Case size $\Phi D \times L$ (mm)	Impedance @20°C ($\Omega_{max}/100kHz$)	Max. Rated ripple current @105°C 100kHz (mA rms)	Case size $\Phi D \times L$ (mm)	Impedance @20°C ($\Omega_{max}/100kHz$)	Max. Rated ripple current @105°C 100kHz (mA rms)
100							8×7	0.240	330
150	8×7	0.230	305	8×7	0.210	315	8×7	0.150	385
220	8×7	0.150	380	8×7	0.140	390	8×7	0.130	405
330	8×7	0.140	405	8×9	0.130	465	8×9	0.120	505
470	8×9	0.130	465	8×9	0.120	480	8×9	0.110	535

Nominal Capacitance (uF)	25V			30V			35V		
	Case size $\Phi D \times L$ (mm)	Impedance @20°C ($\Omega_{max}/100kHz$)	Max. Rated ripple current @105°C 100kHz (mA rms)	Case size $\Phi D \times L$ (mm)	Impedance @20°C ($\Omega_{max}/100kHz$)	Max. Rated ripple current @105°C 100kHz (mA rms)	Case size $\Phi D \times L$ (mm)	Impedance @20°C ($\Omega_{max}/100kHz$)	Max. Rated ripple current @105°C 100kHz (mA rms)
33	8×7	0.360	215				8×7	0.300	250
47	8×7	0.280	250				8×7	0.230	310
56	8×7	0.230	310				8×7	0.160	380
68	8×7	0.190	330				8×7	0.150	400
100	8×7	0.150	380				8×7	0.140	420
150	8×7	0.140	465	8×7	0.130	680	8×9	0.120	700
180	8×9	0.120	760	8×9	0.110	765			
220	8×9	0.100	800						

◆ **RIPPLE CURRENT MULTIPLIERS**

Frequency Multipliers

Vdc	Cap(uF)	Frequency (Hz)			
		120	1K	10K	100K ≤ 200K
6.3 ~ 35	33 ~ 82	0.50	0.80	0.98	1.00
	100 ~ 470	0.55	0.85	0.95	1.00