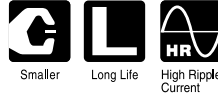


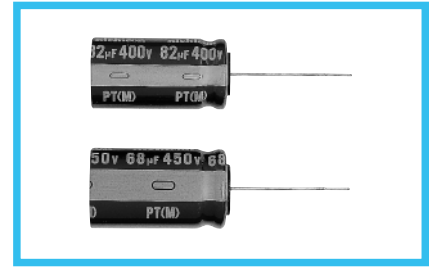
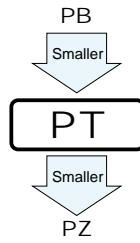
ALUMINUM ELECTROLYTIC CAPACITORS



PT series Miniature Sized, High Ripple Current, Long Life



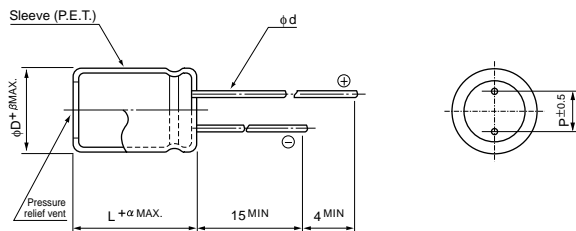
- High ripple current.
- Suited for ballast application.
- Compliant to the RoHS directive (2002/95/EC).



Specifications

Item	Performance Characteristics														
Category Temperature Range	-25 to +105°C														
Rated Voltage Range	200 to 450V														
Rated Capacitance Range	15 to 820µF														
Capacitance Tolerance	±20% at 120Hz, 20°C														
Leakage Current	After 2 minutes' application of rated voltage, leakage current is not more than 0.06CV+10 (µA)														
Tangent of loss angle (tan δ)	Measurement frequency : 120Hz at 20°C														
	<table border="1"> <tr> <td>Rated voltage (V)</td> <td>200</td> <td>220</td> <td>250</td> <td>400</td> <td>420</td> <td>450</td> </tr> <tr> <td>tan δ (MAX.)</td> <td>0.12</td> <td>0.12</td> <td>0.12</td> <td>0.15</td> <td>0.20</td> <td>0.20</td> </tr> </table>	Rated voltage (V)	200	220	250	400	420	450	tan δ (MAX.)	0.12	0.12	0.12	0.15	0.20	0.20
Rated voltage (V)	200	220	250	400	420	450									
tan δ (MAX.)	0.12	0.12	0.12	0.15	0.20	0.20									
Stability at Low Temperature	Measurement frequency : 120Hz														
	<table border="1"> <tr> <td>Rated voltage (V)</td> <td>200</td> <td>220</td> <td>250</td> <td>400</td> <td>420</td> <td>450</td> </tr> <tr> <td>Impedance ratio ZT / Z20 (MAX.)</td> <td>Z-25°C / Z+20°C</td> <td>3</td> <td>3</td> <td>3</td> <td>8</td> <td>8</td> <td>8</td> </tr> </table>	Rated voltage (V)	200	220	250	400	420	450	Impedance ratio ZT / Z20 (MAX.)	Z-25°C / Z+20°C	3	3	3	8	8
Rated voltage (V)	200	220	250	400	420	450									
Impedance ratio ZT / Z20 (MAX.)	Z-25°C / Z+20°C	3	3	3	8	8	8								
Endurance	<p>The specifications listed at right shall be met when the capacitors are restored to 20°C after D.C. bias plus rated ripple current is applied for 5000 hours at 105°C, the peak voltage shall not exceed the rated voltage.</p> <table border="1"> <tr> <td>Capacitance change</td> <td>Within ±20% of the initial capacitance value</td> </tr> <tr> <td>tan δ</td> <td>200% or less than the initial specified value</td> </tr> <tr> <td>Leakage current</td> <td>Less than or equal to the initial specified value</td> </tr> </table>	Capacitance change	Within ±20% of the initial capacitance value	tan δ	200% or less than the initial specified value	Leakage current	Less than or equal to the initial specified value								
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Leakage current	Less than or equal to the initial specified value														
Shelf Life	After storing the capacitors under no load at 105°C for 1000 hours and then performing voltage treatment based on JIS C 5101-4 clause 4.1 at 20°C, they shall meet the specified values for the endurance characteristics listed above.														
Marking	Printed with white color letter on dark brown sleeve.														

Radial Lead Type



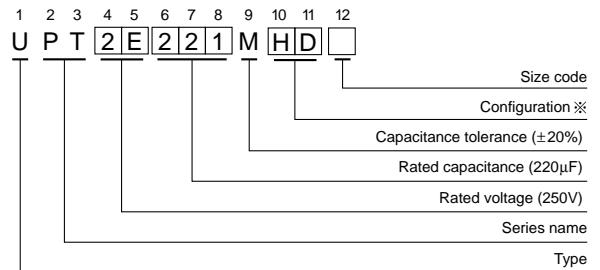
	(mm)						
φD	10	12.5	16	18	20	22	25
P	5.0	5.0	7.5	7.5	10.0	10.0	12.5
φd	0.6	0.6 [Ⓝ]	0.8	0.8	1.0	1.0	1.0
β	0.5	0.5	0.5	0.5	0.5	1.0	1.0

※ In case L > 25 for the φ12.5 dia. unit, lead dia. φ d = 0.8mm.

α	(φD < 20): 1.5
	(φD ≥ 20): 2.0

• Please refer to page 20 about the end seal configuration.

Type numbering system (Example : 250V 220µF)



※ Configuration

φ D	Pb-free leadwire Pb-free PET sleeve
10	PD
12.5 to 18	HD
20 to 25	RD

Please refer to page 20, 21, 22 about the formed or taped product spec.
Please refer to page 4 for the minimum order quantity.

- Dimension table in next page.

■ Dimensions

Cap	V Code	200		220		250		400		420		450	
		2D		2P		2E		2G		W6		2W	
15	150											10 × 31.5	0.15
18	180									10 × 31.5	0.17	12.5 × 25	0.18
22	220							10 × 31.5	0.21	12.5 × 25	0.20	12.5 × 31.5	0.22
27	270							12.5 × 25	0.24	12.5 × 31.5	0.24	12.5 × 31.5	0.25
33	330							12.5 × 31.5	0.29	12.5 × 31.5	0.27	12.5 × 35.5	0.28
39	390							12.5 × 31.5	0.32	12.5 × 35.5	0.31	12.5 × 40	0.32
47	470					10 × 31.5	0.27	12.5 × 35.5	0.37	12.5 × 40	0.36	16 × 31.5	0.38
56	560			10 × 31.5	0.29	12.5 × 25	0.31	12.5 × 40	0.42	16 × 31.5	0.43	16 × 35.5	0.44
68	680	10 × 31.5	0.35	12.5 × 25	0.34	12.5 × 31.5	0.36	16 × 31.5	0.46	16 × 35.5	0.51	16 × 40	0.49
										▲ 18 × 31.5	0.51	▲ 18 × 31.5	0.48
82	820	12.5 × 25	0.41	12.5 × 31.5	0.39	12.5 × 31.5	0.40	16 × 31.5	0.50	16 × 40	0.57	18 × 35.5	0.55
										▲ 18 × 31.5	0.57		
100	101	12.5 × 31.5	0.48	12.5 × 31.5	0.43	12.5 × 35.5	0.46	16 × 35.5	0.58	18 × 35.5	0.61	18 × 40	0.65
								▲ 18 × 31.5	0.58				
120	121	12.5 × 31.5	0.53	12.5 × 35.5	0.49	12.5 × 40	0.53	16 × 40	0.66	18 × 40	0.66	22 × 40	0.77
								▲ 18 × 35.5	0.67				
150	151	12.5 × 35.5	0.62	12.5 × 40	0.58	16 × 31.5	0.62	18 × 40	0.77	22 × 40	0.80	22 × 50	0.92
												▲ 25 × 40	0.92
180	181	12.5 × 40	0.70	16 × 31.5	0.67	16 × 35.5	0.72	22 × 40	0.85	22 × 50	0.95	25 × 50	1.10
						▲ 18 × 31.5	0.72			▲ 25 × 40	0.95		
220	221	16 × 31.5	0.76	16 × 35.5	0.77	16 × 40	0.83						
		▲ 18 × 31.5	0.81	▲ 18 × 31.5	0.77	▲ 18 × 35.5	0.83						
270	271	16 × 35.5	0.88	16 × 40	0.88	18 × 40	0.95	22 × 50	1.30	25 × 50	1.20		
		▲ 18 × 31.5	0.87	▲ 18 × 35.5	0.88	▲ 25 × 40	1.30						
330	331	18 × 35.5	1.01	18 × 40	1.01	22 × 40	1.05	25 × 50	1.40				
390	391	18 × 40	1.13	22 × 40	1.15								
470	471	22 × 40	1.20			22 × 50	1.45						
						▲ 25 × 40	1.45						
560	561			22 × 50	1.50	25 × 50	1.55						
				▲ 25 × 40	1.50								
680	681	22 × 50	1.50	25 × 50	1.60								
		▲ 25 × 40	1.50										
820	821	25 × 50	1.60									Case size φ D × L (mm)	※

※: Rated ripple current (Arms) at 105°C 120Hz

▲: In this case, 6 will be put at 12th digit of type numbering system.

• Frequency coefficient of rated ripple current

Frequency	50Hz	120Hz	300Hz	1kHz	10kHz or more
Coefficient	0.80	1.00	1.25	1.40	1.60