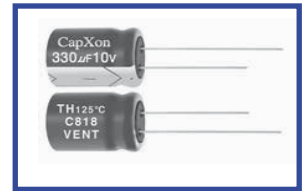


## TH series High Temperature

### Features

- ◆ The series has guaranteed operating life of 1000~3000 hours at 125°C widest operating temperature range, -40 to +125°C
- ◆ Applications : High reliability equipment, filtering circuit of switching power supply, and industrial control equipment.
- ◆ RoHS Compliant



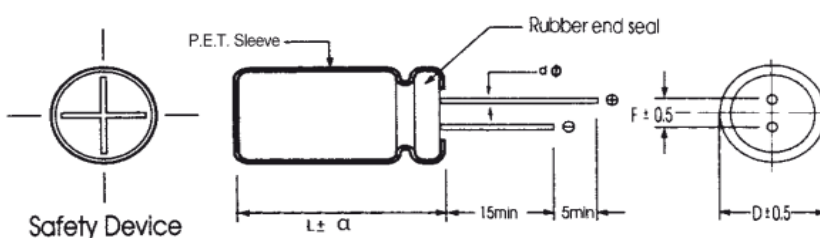
### Specifications

Item	Performance Characteristics																																														
Operating Temperature Range	-40 to +125°C	-25 to +125°C																																													
Rated Voltage Range	10 to 400 VDC	450 VDC																																													
Capacitance Range	0.47 to 8200 µF	1 to 47 µF																																													
Capacitance Tolerance	±20% (120Hz, +20°C)																																														
Leakage Current (+20°C, max.)	10~100V	160~450V																																													
	$I \leq 0.01CV$ or 3uA	$CV \leq 1000$   $I \leq 0.1CV+40(uA)$																																													
	After 2 minute whichever is greater measured with rated working voltage applied	$CV > 1000$   $I \leq 0.04CV+100(uA)$ After 1 minute withrated working voltage applied.																																													
Dissipation Factor (tanδ, at 20°C, 120Hz)	<table border="1"> <thead> <tr> <th>Working Voltage(VDC)</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>80</th> <th>100</th> <th>160</th> <th>200</th> <th>250</th> <th>350</th> <th>400</th> <th>450</th> </tr> </thead> <tbody> <tr> <td>D.F. (%).max.</td> <td>18</td> <td>15</td> <td>13</td> <td>12</td> <td>10</td> <td>8</td> <td>8</td> <td>7</td> <td>12</td> <td>12</td> <td>12</td> <td>15</td> <td>15</td> <td>20</td> </tr> </tbody> </table>												Working Voltage(VDC)	10	16	25	35	50	63	80	100	160	200	250	350	400	450	D.F. (%).max.	18	15	13	12	10	8	8	7	12	12	12	15	15	20					
	Working Voltage(VDC)	10	16	25	35	50	63	80	100	160	200	250	350	400	450																																
D.F. (%).max.	18	15	13	12	10	8	8	7	12	12	12	15	15	20																																	
for capacitance>1000uF,add 2% per another 1000uF																																															
Low Temperature Characteristics (at 120Hz)	Impedance ratio max																																														
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	Working Voltage(VDC)	10	16	25	35	50	63	100	160~250	350~400	450																																				
Z-25°C / Z+20°C	3	2	2	2	2	2	2	3	6	6																																					
Z-40°C / Z+20°C	4	4	4	4	4	4	4	6	12																																						
Endurance	Test conditions Duration time :As right Ambient temperature : +125°C Applied voltage : Rated DC working voltage After test requirement at +20°C Capacitance change : $\leq \pm 20\%$ of the initial measured value Dissipation factor : $\leq 300\%$ of the initial specified value Leakage current : $\leq$ The initial specified value											<table border="1"> <thead> <tr> <th>Dφ</th> <th>Life hours</th> </tr> </thead> <tbody> <tr> <td>&lt;8φ</td> <td>1000</td> </tr> <tr> <td>8φ 10φ</td> <td>2000</td> </tr> <tr> <td>≥13φ</td> <td>3000</td> </tr> </tbody> </table>		Dφ	Life hours	<8φ	1000	8φ 10φ	2000	≥13φ	3000																										
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Shelf Life	Test conditions Duration time :1000Hrs Ambient temperature :+125°C Applied voltage :None After test requirement at +20°C:Same limits as Endurance. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes.																																														

### Multiplier for Ripple Current vs. Frequency

CAP(µF)\Frequency(Hz)	50(60)	120	400	1K	10K	50K~100K
CAP ≤ 10	0.8	1	1.30	1.45	1.65	1.70
10 < CAP ≤ 100	0.8	1	1.23	1.36	1.48	1.53
100 < CAP ≤ 1000	0.8	1	1.16	1.25	1.35	1.38
1000 < CAP	0.8	1	1.11	1.17	1.25	1.28

### Diagram of Dimensions:(unit:mm)



Dφ	5	6.3	8	10	13	16	18
F	2.0	2.5	3.5	5.0	5.0	7.5	7.5
dφ	0.5		0.6		0.8		

α	D < 16	D=16		D=18		D > 18
		L: 25-35.5	L < 25 and L ≥ 40	L: 25-31.5	L < 25 and L ≥ 35.5	
1.5	1.5	2.0	1.5	2.0	2.0	

## Case Size

WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (mArms/125°C /120Hz)	WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (mArms/125°C /120Hz)
10	47	5x11	92	25	330	10x12.5	520
10	56	5x11	100	25	330	10x16	570
10	100	5x11	130	25	330	10x20	631
10	100	6.3x11	145	25	390	10x16	650
10	120	6.3x11	160	25	470	8x20	620
10	330	8x11.5	350	25	470	10x16	640
10	330	10x12.5	410	25	470	10x20	700
10	470	8x11.5	430	25	470	10x25	770
10	470	8x16	500	25	470	13x20	810
10	470	10x12.5	505	25	560	10x20	680
10	470	10x16	525	25	560	10x25	750
10	560	10x12.5	530	25	680	10x20	740
10	680	8x20	640	25	1000	13x20	880
10	680	10x16	660	25	1000	13x25	970
10	1000	10x16	870	25	1000	16x25	1100
10	1000	10x20	960	25	1200	10x20	1010
10	1200	10x20	1000	25	1500	10x25	1220
10	1500	10x20	1120	25	1800	13x20	1350
16	22	5x11	66	25	2700	13x25	1710
16	33	6.3x11	91	25	3300	13x30	2070
16	47	5x11	97	25	5600	18x25	2730
16	47	6.3x11	110	25	6800	16x35.5	3300
16	100	6.3x11	175	25	8200	16x40	3750
16	100	8x11.5	206	35	22	5x11	72
16	220	8x11.5	340	35	22	6.3x11	82
16	220	10x12.5	400	35	33	8x11.5	108
16	330	8x11.5	400	35	47	6.3x11	110
16	330	8x16	460	35	47	8x11.5	130
16	330	10x12.5	470	35	47	10x12.5	158
16	330	10x16	525	35	56	6.3x11	130
16	470	8x11.5	500	35	100	8x11.5	200
16	470	8x20	640	35	100	10x12.5	230
16	470	10x12.5	590	35	100	10x16	262
16	470	10x16	650	35	120	8x11.5	300
16	470	10x20	720	35	120	8x16	350
16	680	10x20	760	35	150	10x12.5	360
16	820	10x16	740	35	180	8x20	410
16	820	10x25	900	35	180	10x12.5	380
16	1000	10x20	860	35	220	10x12.5	440
16	1000	10x25	950	35	220	10x16	490
16	1000	13x20	1000	35	220	10x20	540
25	22	6.3x11	70	35	270	10x16	500
25	33	5x11	88	35	270	10x20	550
25	33	6.3x11	100	35	330	10x16	560
25	47	5x11	97	35	330	10x25	680
25	47	6.3x11	110	35	330	13x20	718
25	47	8x11.5	130	35	390	10x20	590
25	56	6.3x11	120	35	470	10x20	700
25	100	8x11.5	210	35	470	13x20	810
25	100	10x12.5	250	35	470	13x25	900
25	120	8x11.5	220	35	560	10x20	580
25	150	8x11.5	260	35	560	13x16	610
25	180	8x11.5	290	35	680	10x20	800
25	220	8x11.5	360	35	820	10x25	980
25	220	8x16	415	35	1000	13x25	1140
25	220	10x12.5	420	35	1000	16x25	1280
25	220	10x16	470	35	1200	10x30	1290
25	270	8x20	470	35	1500	13x25	1368
25	270	10x12.5	435	35	2200	13x30	1660
25	330	8x16	510	35	2700	13x40	2350

## Case Size

WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (mAmps/125°C /120Hz)	WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (mAmps/125°C /120Hz)
35	3300	16x31.5	2480	63	820	18x21	1360
35	3300	18x25	2400	63	1200	18x25	1620
35	4700	16x40	3000	63	1500	18x31.5	1980
50	2.2	8x11.5	25	63	1800	16x40	2260
50	3.3	8x11.5	30	63	2200	18x40	2680
50	4.7	5x11	32	80	22	8x11.5	120
50	4.7	8x11.5	43	80	33	10x12.5	170
50	10	5x11	42	80	47	10x12.5	200
50	10	6.3x11	48	80	100	10x20	370
50	10	8x11.5	56	80	330	13x25	870
50	22	5x11	66	80	390	16x20	900
50	22	6.3x11	75	80	560	13x35	1100
50	22	8x11.5	86	80	560	16x25	1060
50	33	8x11.5	118	80	560	18x21	1050
50	47	6.3x11	120	80	680	16x31.5	1300
50	47	8x11.5	140	100	0.47	6.3x11	14
50	47	10x12.5	164	100	1	6.3x11	24
50	56	8x11.5	150	100	2.2	6.3x11	31
50	68	8x11.5	160	100	3.3	6.3x11	36
50	82	8x11.5	170	100	4.7	6.3x11	38
50	100	10x12.5	230	100	4.7	8x11.5	48
50	100	10x16	250	100	10	8x11.5	60
50	100	10x20	277	100	10	10x12.5	70
50	120	10x16	290	100	22	8x11.5	76
50	180	10x20	400	100	22	10x12.5	90
50	220	10x20	510	100	22	10x16	100
50	220	10x25	560	100	33	10x12.5	130
50	220	13x20	587	100	33	10x16	140
50	270	10x20	610	100	33	10x20	158
50	330	10x20	700	100	47	10x16	150
50	330	13x20	810	100	47	10x25	175
50	330	13x25	900	100	47	13x20	185
50	470	13x25	900	100	100	13x25	320
50	470	16x25	1000	100	100	16x25	350
50	560	10x30	950	100	330	13x35	890
50	680	13x25	1050	100	330	16x25	860
50	1000	13x30	1390	100	330	18x21	850
50	1200	13x35	1510	100	390	13x40	1050
50	1200	18x20	1450	100	390	16x31.5	1050
50	1500	13x40	1960	100	560	18x31.5	1290
50	1800	18x25	1960	100	680	18x35.5	1480
50	2200	18x31.5	2500	100	820	18x40	1850
50	2700	18x35.5	2750	160	1	6.3x11	23
50	3300	18x40	2950	160	2.2	6.3x11	35
63	4.7	6.3x11	38	160	3.3	6.3x11	37
63	10	8x11.5	58	160	3.3	8x11.5	41
63	22	8x11.5	93	160	4.7	8x11.5	52
63	33	8x11.5	115	160	6.8	10x12.5	70
63	33	10x12.5	132	160	10	8x11.5	70
63	47	10x12.5	155	160	10	10x12.5	82
63	47	10x16	172	160	22	10x16	115
63	100	10x16	260	160	22	10x20	128
63	180	10x20	400	160	33	13x20	200
63	220	10x25	520	160	47	13x20	240
63	220	13x25	595	160	47	13x25	260
63	330	13x25	880	160	82	10x30	340
63	330	16x25	1000	160	100	10x35	380
63	390	13x20	800	160	100	13x25	390
63	680	13x30	1290	160	100	16x25	430
63	820	13x35	1420	160	120	10x40	450

## Case Size

WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (mArms/125°C /120Hz)	WV (Vdc)	Cap (uF)	Size mm	Rated Ripple current (mArms/125°C /120Hz)
160	150	13x30	500	350	4.7	10x16	68
160	180	13x35	600	350	4.7	10x20	75
160	180	18x20	550	350	5.6	10x20	78
160	220	16x31.5	690	350	6.8	13x20	85
160	330	18x35.5	900	350	10	10x25	105
200	1	6.3x11	23	350	10	13x20	110
200	2.2	6.3x11	35	350	22	13x25	180
200	3.3	8x11.5	48	350	22	16x25	200
200	4.7	8x11.5	50	350	27	10x30	180
200	4.7	10x12.5	60	350	33	10x35	220
200	6.8	10x12.5	70	350	33	16x25	230
200	10	10x12.5	80	350	33	16x31.5	260
200	22	10x20	140	350	47	13x30	280
200	22	10x25	150	350	47	16x31.5	320
200	22	13x20	160	350	47	16x35.5	340
200	33	13x20	200	350	56	13x35	330
200	33	13x25	220	350	56	16x25	320
200	47	13x20	245	350	56	18x20	310
200	47	13x25	270	350	68	13x40	390
200	47	16x25	300	400	1	10x12.5	30
200	56	13x20	260	400	2.2	10x16	50
200	82	13x25	360	400	3.3	10x16	60
200	100	13x30	430	400	4.7	10x16	70
200	100	16x20	400	400	4.7	10x20	80
200	100	16x25	440	400	5.6	10x20	85
200	100	16x31.5	490	400	6.8	13x20	90
200	150	13x40	600	400	10	13x20	110
200	150	16x25	530	400	22	13x25	180
200	180	18x25	650	400	27	13x25	190
200	220	18x31.5	850	400	33	16x20	220
200	330	18x35.5	1100	400	33	16x25	240
250	1	6.3x11	23	400	47	16x25	290
250	2.2	6.3x11	35	400	47	16x31.5	320
250	2.2	8x11.5	40	450	1	10x12.5	30
250	3.3	8x11.5	50	450	2.2	10x16	50
250	3.3	10x12.5	53	450	3.3	10x16	60
250	4.7	10x12.5	60	450	4.7	10x20	75
250	4.7	10x16	68	450	5.6	13x20	85
250	6.8	10x16	75	450	6.8	13x20	94
250	10	10x16	83	450	10	13x25	130
250	22	13x20	160	450	22	16x25	210
250	22	13x25	170	450	33	16x31.5	290
250	33	13x25	220	450	47	18x31.5	370
250	33	16x25	240				
250	39	10x30	230				
250	47	10x35	280				
250	47	16x25	300				
250	47	16x31.5	330				
250	56	10x40	300				
250	68	13x30	330				
250	82	13x35	380				
250	82	18x20	350				
250	100	13x40	490				
250	120	18x25	460				
250	220	18x35.5	850				
350	1	8x11.5	26				
350	2.2	8x11.5	40				
350	2.2	10x12.5	47				
350	3.3	10x12.5	55				
350	3.3	10x16	60				