

# HT Wide Temperature 宽温品

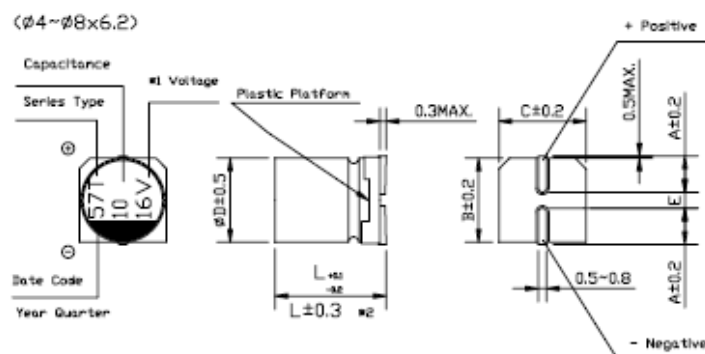
- Temperature up to +105°C with load life of 1000~2000 hours.
- Lead-free reflow soldering is available subject to customers' request.

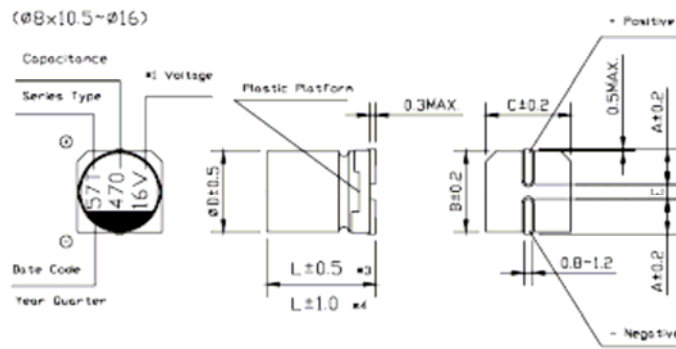


## ◆ Specifications 特性

Items 项目	Performance Characteristics 主要特性																																																				
Operating Temperature Range 使用温度范围	-40~+105°C																																																				
Voltage Range 额定工作电压范围	4~100V																																																				
Capacitance Range 静电容量范围	0.1~10000 μF																																																				
Capacitance Tolerance 静电容量允许范围	±20% at 120 Hz, 20°C																																																				
Leakage Current 漏电流	For φ4~φ10, after 2 minutes' application of rated voltage, leakage current is not more than 0.01CV or 3(μA), whichever is greater. For φ12.5~φ16, after 1 minute's application of rated voltage, leakage current is not more than 0.03CV or 4(μA), whichever is greater. φ4~φ10: 施加额定工作电压 2 分钟, LC≤0.01CV 或 3(μA), 取较大值; φ12.5~φ16: 施加额定工作电压 1 分钟, LC≤0.03CV 或 4(μA), 取较大值。																																																				
Tan δ 损耗角正切	Measurement frequency 测试频率: 120Hz, Temperature 温度: 20°C <table border="1"> <thead> <tr> <th>Rated voltage (V.DC) 额定工作电压</th> <th>4</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> </tr> </thead> <tbody> <tr> <td>Tan δ</td> <td>φ4~φ10</td> <td>0.35</td> <td>0.26</td> <td>0.20</td> <td>0.16</td> <td>0.14</td> <td>0.12</td> <td>0.12</td> <td>0.12</td> </tr> <tr> <td>损耗角正切(max)</td> <td>φ12.5~φ16</td> <td>0.42</td> <td>0.36</td> <td>0.34</td> <td>0.30</td> <td>0.26</td> <td>0.22</td> <td>0.18</td> <td>0.14</td> </tr> </tbody> </table>	Rated voltage (V.DC) 额定工作电压	4	6.3	10	16	25	35	50	63	100	Tan δ	φ4~φ10	0.35	0.26	0.20	0.16	0.14	0.12	0.12	0.12	损耗角正切(max)	φ12.5~φ16	0.42	0.36	0.34	0.30	0.26	0.22	0.18	0.14																						
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Stability at Low Temperature 低温特性	Measurement frequency 测试频率: 120Hz <table border="1"> <thead> <tr> <th colspan="2">Rated voltage (V.DC) 额定工作电压</th> <th>4</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50</th> <th>63</th> <th>100</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Impedance ratio 阻抗比</td> <td>φ4~φ10</td> <td>Z(-25°C)/Z(20°C)</td> <td>7</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> <td>3</td> </tr> <tr> <td></td> <td>Z(-40°C)/Z(20°C)</td> <td>15</td> <td>6</td> <td>6</td> <td>4</td> <td>4</td> <td>3</td> <td>3</td> <td>4</td> </tr> <tr> <td rowspan="2">ZT/Z20 (max)</td> <td rowspan="2">φ12.5~φ16</td> <td>Z(-25°C)/Z(20°C)</td> <td>7</td> <td>5</td> <td>4</td> <td>3</td> <td>2</td> <td>2</td> <td>2</td> <td>2</td> </tr> <tr> <td>Z(-40°C)/Z(20°C)</td> <td>17</td> <td>12</td> <td>10</td> <td>8</td> <td>5</td> <td>4</td> <td>3</td> <td>3</td> </tr> </tbody> </table>	Rated voltage (V.DC) 额定工作电压		4	6.3	10	16	25	35	50	63	100	Impedance ratio 阻抗比	φ4~φ10	Z(-25°C)/Z(20°C)	7	4	3	2	2	2	2	3		Z(-40°C)/Z(20°C)	15	6	6	4	4	3	3	4	ZT/Z20 (max)	φ12.5~φ16	Z(-25°C)/Z(20°C)	7	5	4	3	2	2	2	2	Z(-40°C)/Z(20°C)	17	12	10	8	5	4	3	3
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Load Life 高温负载特性	After 2000 hours' (1000 hours' for φ4~φ6.3x5.4) application of rated voltage at 105°C, capacitors meet the characteristics requirements listed at right. 在 105°C 环境中施加额定工作电压 2000 小时 (φ4~φ6.3x5.4 为 1000 小时) 后, 电容器的特性符合右表的要求。 <table border="1"> <tr> <td>Capacitance Change 静电容量变化率</td> <td>Within ±20% of the initial value for capacitors of 10V or more (Within ±30% of the initial value for capacitors of 4V&amp;6.3V.) ≥10V 的产品为初始值的±20%以内, 4V 和 6.3V 为±30%以内</td> </tr> <tr> <td>Tan δ 损耗角正切</td> <td>200% or less of the initial specified value 不大于规范值的 200%</td> </tr> <tr> <td>Leakage Current 漏电流</td> <td>Initial specified value or less 不大于规范值</td> </tr> </table>	Capacitance Change 静电容量变化率	Within ±20% of the initial value for capacitors of 10V or more (Within ±30% of the initial value for capacitors of 4V&6.3V.) ≥10V 的产品为初始值的±20%以内, 4V 和 6.3V 为±30%以内	Tan δ 损耗角正切	200% or less of the initial specified value 不大于规范值的 200%	Leakage Current 漏电流	Initial specified value or less 不大于规范值																																														
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Shelf Life 高温储存特性	After leaving capacitors under no load at 105°C for 1000 hours, they meet the specified value for load life characteristics listed above. 在 105°C 环境中无负载放置 1000 小时后, 电容器的特性符合高温负载特性中所列的规定。																																																				
Resistance to Soldering Heat 耐焊接热特性	After reflow soldering and restored at room temperature, they meet the characteristics requirements listed at right. 经过回流焊并冷却至室温后, 电容器的特性符合右表的要求。 <table border="1"> <tr> <td>Capacitance Change 静电容量变化率</td> <td>Within ±10% of the initial value 初始值的±10%以内</td> </tr> <tr> <td>Tan δ 损耗角正切</td> <td>Initial specified value or less 不大于规范值</td> </tr> <tr> <td>Leakage Current 漏电流</td> <td>Initial specified value or less 不大于规范值</td> </tr> </table>	Capacitance Change 静电容量变化率	Within ±10% of the initial value 初始值的±10%以内	Tan δ 损耗角正切	Initial specified value or less 不大于规范值	Leakage Current 漏电流	Initial specified value or less 不大于规范值																																														
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Applicable Standards 适用标准	JIS C-5141 and JIS C-5102																																																				

## ◆ Dimensions & Marking 尺寸及印字





\*1 Voltage mark [6V] represents 6.3V for  $\phi 4 \sim \phi 10$ ; \*2 [ $L \pm 0.3$ ] is applicable to  $\phi 6.3 \times 7.7$  and  $\phi 8 \times 6.2$ ;  
 \*3 [ $L \pm 0.5$ ] is applicable to  $\phi 8 \times 10.5 \sim \phi 10$ ; \*4 [ $L \pm 1.0$ ] is applicable to  $\phi 12.5 \sim \phi 16$ .  
 Re: Date code and series type — 1<sup>st</sup> digit for Year; 2<sup>nd</sup> digit for Quarter, 4 quarter codes in one year are 1, 4, 7, 0; 3<sup>rd</sup> character for Series; HT Series = T.

		(mm)										
DxL	$\phi 4 \times 5.4$	$\phi 5 \times 5.4$	$\phi 6.3 \times 5.4$	$\phi 6.3 \times 7.7$	$\phi 8 \times 6.2$	$\phi 8 \times 10.5$	$\phi 10 \times 10.5$	$\phi 10 \times 13.5$	$\phi 12.5 \times 13.5$	$\phi 12.5 \times 16$	$\phi 16 \times 16.5$	$\phi 16 \times 21.5$
A	1.8	2.1	2.4	2.4	3.3	2.9	3.2	3.2	4.7	4.7	5.5	5.5
B	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	13.0	13.0	17.0	17.0
C	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	13.0	13.0	17.0	17.0
E $\pm 0.2$	1.0	1.3	2.2	2.2	2.2	3.1	4.4	4.4	4.4	4.4	6.7	6.7
L	5.4	5.4	5.4	7.7	6.2	10.5	10.5	13.5	13.5	16.0	16.5	21.5

◆ Standard size & Maximum permissible ripple current 规格壳号及最大允许纹波电流

WV 电压		4		6.3		10		16		25	
容量 Cap. ( $\mu F$ )		0G		0J		1A		1C		1E	
4.7	4R7									4x5.4	13
10	100							4x5.4	18	5x5.4 (4x5.4)	20 (14)
22	220			4x5.4	22	5x5.4 (4x5.4)	25 (20)	5x5.4 (4x5.4)	27 (20)	6.3x5.4 (5x5.4)	36 (25)
33	330	5x5.4 (4x5.4)	30 (18)	5x5.4 (4x5.4)	27 (22)	5x5.4 (4x5.4)	30 (22)	6.3x5.4 (5x5.4)	40 (28)	6.3x5.4 (5x5.4)	44 (29)
47	470	5x5.4 (4x5.4)	36 (24)	5x5.4 (4x5.4)	33 (25)	6.3x5.4 (5x5.4)	41 (30)	6.3x5.4 (5x5.4)	48 (31)	6.3x5.4 (8x6.2)	48 (91)
100	101	6.3x5.4 (5x5.4)	60 (43)	6.3x5.4 (5x5.4)	50 (39)	6.3x5.4 (8x6.2)	53 (110)	6.3x5.4	60	6.3x7.7	91
150	151	6.3x5.4	52	6.3x5.4	55	6.3x5.4	62	6.3x7.7	95	8x10.5 (6.3x7.7)	140 (100)
220	221	6.3x5.4	57	6.3x7.7 (6.3x5.4)	105 (67)	6.3x7.7	105	8x10.5 (6.3x7.7)	150 (105)	8x10.5	175
330	331	6.3x7.7	100	6.3x7.7	105	8x10.5	196	8x10.5	195	10x10.5 (8x10.5)	240 (220)
470	471	6.3x7.7	105	8x10.5 (6.3x7.7)	210 (120)	10x10.5 (8x10.5)	260 (210)	10x10.5 (8x10.5)	295 (230)	10x10.5	280
680	681	8x10.5	210	8x10.5	210	10x10.5	270	10x10.5	315	10x13.5	400
1000	102	8x10.5	230	10x10.5 (8x10.5)	300 (230)	10x10.5	315	12.5x13.5 10x13.5 (10x10.5)	500 390 (340)	12.5x13.5	580
1500	152	10x10.5	315	10x13.5 (10x10.5)	450 (315)	10x13.5	460	12.5x13.5	550	12.5x16	860
2200	222	10x13.5 (10x10.5)	440 (340)	12.5x13.5 (10x13.5)	620 (500)	12.5x13.5	680	16x16.5 (12.5x16)	950 (750)	16x21.5 (16x16.5)	1250 (1050)
3300	332	10x13.5	490	12.5x16 (12.5x13.5)	700 (600)	16x16.5	1000	16x21.5 (16x16.5)	1200 (1000)	16x21.5	1400
4700	472	12.5x13.5	600	16x21.5 (16x16.5)	1200 (1000)	16x21.5	1300	16x21.5	1350		
6800	682	16x16.5 (12.5x16)	950 (650)	16x21.5	1250					Case Size	Ripple Current
10000	103	16x21.5	1250								

Ripple Current (mA rms) at 105°C 120Hz