

### KL Series

#### 5000 HOURS LOAD LIFE 5000小时长寿命品

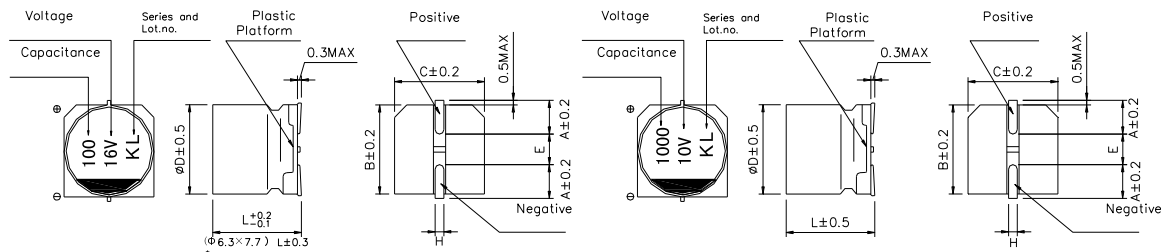
- Operating with wide temperature range -55 ~ +105 °C  
低阻抗和适用于-55~+105°C的温度范围
- Load life of 3000~5000 hours  
负荷寿命3000~5000小时
- Comply with the RoHS directive  
符合 RoHS 指令



#### 主要技术性能 Specification

项目 Item	特性 Performance Characteristics																																							
使用温度范围 Operating temperature range	-55 ~ +105°C																																							
额定电压范围 Rated voltage range	6.3 ~ 100V																																							
标称容量范围 Nominal capacitance range	0.1 ~ 1500μF																																							
标称容量允许偏差 Capacitance tolerance	± 20% (120Hz, +20°C)																																							
漏电流 Leakage current	$I \leq 0.01CV$ 或 $3(\mu A)$ 2分钟 取较大者 ( at 20°C, after 2 minutes ) (whichever is greater)	$I \leq 0.02CV + 15(\mu A)$ 1分钟 ( 1 minute )																																						
损耗角正切值 ( tg δ ) Dissipation factor (+20°C, 120Hz)	<table border="1"> <thead> <tr> <th colspan="2">U<sub>R</sub> (V)</th> <th>6.3</th> <th>10</th> <th>16</th> <th>25</th> <th>35</th> <th>50-100</th> </tr> </thead> <tbody> <tr> <td rowspan="2">tg δ</td> <td>∅4~∅10</td> <td>0.28</td> <td>0.24</td> <td>0.20</td> <td>0.16</td> <td>0.13</td> <td>0.12</td> </tr> <tr> <td>∅12.5~∅16</td> <td>0.38</td> <td>0.34</td> <td>0.30</td> <td>0.26</td> <td>0.22</td> <td>0.18</td> </tr> </tbody> </table>		U <sub>R</sub> (V)		6.3	10	16	25	35	50-100	tg δ	∅4~∅10	0.28	0.24	0.20	0.16	0.13	0.12	∅12.5~∅16	0.38	0.34	0.30	0.26	0.22	0.18															
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耐久性 Load life	After 2000 hrs. (5000 hrs. for ∅4~∅6.3x5.4) application of the rated voltage at 105°C, they meet the characteristics listed below. 在105°C环境中施加额定工作电压5000小时 (∅4~∅6.3x5.4 为3000小时)后, 电容器的特性符合下表的要求。 电容量变化率 Capacitance change : ±20%初始测量值以内 ±20% of the initial measured value 漏电流 Leakage current : ≤初始规定值 ≤the initial specified value 损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤2times of the initial specified value																																							
高温贮存 Shelf life	+105°C, 1000小时贮存后, 恢复16小时后: After storage for 1000 hours at +105°C and then resumed for 16 hours: 电容量变化率 Capacitance change : ±10%初始测量值以内 10% of the initial measured value 漏电流 Leakage current : ≤2倍初始规定值 ≤2times of the initial specified value 损耗角正切值 Dissipation factor : ≤2倍初始规定值 ≤2times of the initial specified value																																							

#### 外形图及尺寸图 Case size table



\*1. Voltage mark for 6.3V is [6V]      6.3V的产品标识为 [6V]  
 \*2. Applicable to ∅6.3x7.7      适用于∅6.3x7.7  
 \*3. Applicable to ∅8x10.5~∅10      适用于∅8x10.5~∅10  
 \*4. Applicable to ∅12.5~∅16      适用于∅12.5~∅16

### KL Series

∅D x L	4 x 5.8	5 x 5.8	6.3 x 5.8	6.3 x 7.7	8 x 6.2	8 x 10.5	10 x 10.5	10 x 13.5	12.5 x 13.5	12.5 x 16	16 x 16.5
A	1.8	2.1	2.4	2.4	3.3	2.9	3.2	3.2	4.7	4.7	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
C	4.3	5.3	6.6	6.6	8.3	8.3	10.3	10.3	13.0	13.0	17.0
E ± 0.2	1.0	1.3	2.2	2.2	2.2	3.1	4.4	4.4	4.4	4.4	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

### 尺寸 Dimensions

μF	WV Code 代码	6.3		10		16		25	
		0J		1A		1C		1E	
10	100					4 x 5.8	18	5 x 5.8	27
22	220	4 x 5.8	22	5 x 5.8	30	5 x 5.8	30	6.3 x 5.8	44
33	330	5 x 5.8	35	5 x 5.8	36	6.3 x 5.8	48	6.3 x 5.8	50
47	470	5 x 5.8	38	6.3 x 5.8	50	6.3 x 5.8	50	6.3 x 7.7 (8 x 6.2)	63 (63)
100	101	6.3 x 5.8	69	6.3 x 7.7 (8 x 6.2)	81 (81)	6.3 x 7.7 (8 x 6.2)	81 (81)	8 x 10.5	116
150	151	6.3 x 7.7 (8 x 6.2)	85 (85)	8 x 10.5	125	8 x 10.5	125	10 x 10.5	320
220	221	6.3 x 7.7 (8 x 6.2)	120 (120)	8 x 10.5	141	10 x 10.5	216	10 x 10.5	320
330	331	8 x 10.5	290	10 x 10.5	290	10 x 10.5	290	10 x 10.5	320
470	471	10 x 10.5	320	10 x 10.5	320	10 x 10.5	320	12.5 x 13.5 (10 x 13.5)	400 (350)
680	681	10 x 10.5	320	10 x 10.5	320	10 x 13.5	420	12.5 x 13.5	415
1000	102	10 x 10.5	410	10 x 13.5	390	12.5 x 13.5	550	12.5 x 13.5	460
1500	152	10 x 13.5	450	12.5 x 13.5	480	12.5 x 13.5	650	12.5 x 16	700
2200	222	12.5 x 13.5	680	12.5 x 16 (12.5 x 13.5)	750 (510)	16 x 16.5	800		
3300	332	12.5 x 16 (12.5 x 13.5)	850 (800)	16 x 16.5	800			Case size 尺寸	Ripple current 纹波电流

μF	WV Code 代码	35		50		63		100	
		1V		1H		1J		2A	
0.1	0R1			4 x 5.8	1.0				
0.22	R22			4 x 5.8	2.6				
0.33	R33			4 x 5.8	3.2				
0.47	R47			4 x 5.8	5				
1	010			4 x 5.8	8				
2.2	2R2			4 x 5.8	12				
3.3	3R3			4 x 5.8	17			6.3 x 7.7 (8 x 6.2)	30 (30)
4.7	4R7	4 x 5.8	16	5 x 5.8	22			8 x 10.5	50
10	100	5 x 5.8	27	6.3 x 5.8	32	6.3 x 7.7 (8 x 6.2)	45 (45)	8 x 10.5	55
22	220	6.3 x 5.8	44	6.3 x 7.7 (8 x 6.2)	58 (58)	8 x 10.5	65	10 x 10.5	70
33	330	6.3 x 7.7 (8 x 6.2)	57 (57)	8 x 10.5	140	10 x 10.5	80	10 x 10.5	80
47	470	8 x 10.5	92	10 x 10.5	310	10 x 10.5	90	12.5 x 13.5 (10 x 13.5)	250 (150)
100	101	10 x 10.5	151	10 x 10.5	310	10 x 13.5	150	12.5 x 13.5	300
150	151	10 x 10.5	290	10 x 10.5	310			16 x 16.5 (12.5 x 16) (12.5 x 13.5)	600 (420) (380)
220	221	10 x 10.5	375	12.5 x 13.5 (10 x 13.5)	340 (320)	12.5 x 13.5	470		
330	331	12.5 x 13.5 (10 x 13.5)	380 (375)	12.5 x 16 (12.5 x 13.5)	600 (500)	16 x 16.5 (12.5 x 16)	650 (550)		
470	471	12.5 x 13.5	520	16 x 16.5	700				
680	681	12.5 x 13.5	550						
1000	102	16 x 16.5 (12.5 x 16)	750 (600)					Case size 尺寸	Ripple current 纹波电流

•Case size ∅D×L(mm), ripple current (mA rms) at 105°C 120Hz •尺寸∅D×L(mm) 纹波电流 (mA rms) 于 105°C 120Hz

V-Chip

## KL Series

### ■ 纹波电流的相关参数 Multiplier For Ripple Current

Frequency 频率		50Hz	120Hz	300Hz	1KHz	10KHz-	
Coefficient 系数	$\Phi 4-\Phi 10$	0.70	1.00	1.17	1.36	1.50	
	$\Phi 12.5-\Phi 16$	-68 $\mu$ F	0.75	1.00	1.35	1.57	2.00
		100-470 $\mu$ F	0.80	1.00	1.23	1.34	1.50
		680-3300 $\mu$ F	0.85	1.00	1.10	1.13	1.15