

产品承认书
APPROVAL SHEET

客户料号:

Part Number

客 户:

CUSTOMERS

品 名:

DESCRIPTION

V-Chip Type E-CAP

规 格:

SERIES

VT220UF10V 6.3X5.4

供应商料号

Supplier PN:

220UF10V6.3x5.4VT

日 期:

DATE

2025/4/24

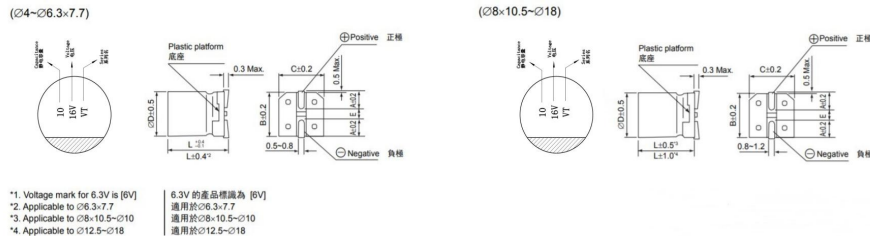
发行单位 ISSUE DEPARTMENT	
	
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批准 APPROVED	胡俊波 HU JUNBO

客户承认栏 APPROVED COLUMN	
合格 ☐	
不合格 ☐	
审核 CHECKED	
批准 APPROVED	

贵司确认后, 敬请回签一份 (After your confirmation, please sign back)

1. 外形尺寸图 (Dimensions): 单位: mm

DIMENSIONS (Unit: mm) 尺寸表



ØD x L	4 x 5.4	5 x 5.4	6.3 x 5.4	6.3 x 7.7	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	18 x 16.5	18 x 18.5
A	2.0	2.2	2.6	2.6	3.0	3.3	3.3	4.9	4.9	5.8	6.2	6.2
B	4.3	5.3	6.6	6.6	8.4	10.4	10.4	13.0	13.0	17.0	19.0	19.0
C	4.3	5.3	6.6	6.6	8.4	10.4	10.4	13.0	13.0	17.0	19.0	19.0
E±0.2	1.0	1.4	1.9	1.9	3.1	4.7	4.7	4.7	4.7	6.4	6.4	6.4
L	5.4	5.4	5.4	7.7	10.5	10.5	13.5	13.5	16.0	16.5	16.5	18.5

2.1 部品规格特性表 (电容测试条件: 20±5℃ 湿度65%±5%, 容量\损失测试频率120HZ)

NO	客户料号	系列	标准容量	额定电压	尺寸	容差	损失角	漏电流	阻抗	寿命	纹波电流	浪涌电压	加工形式	工作温度	备注
	Part Number	Series	CAP. (uF)	WV (V)	SIZE	Tolerance/120HZ	D. F/120HZ	LC (uA) 60s	100KHz (Ω)	life (Hrs)	R. C. mA120Hz Z105℃	surge voltage	圆盘	working temperature (℃)	remark
1		VT	220	10	6.3 X 5.4	- 20 % ~ 20 %	24	22	N/A	2000	95	13		-40~+105	

2.2 纹波电流系数 (Multiplier for ripple current):

Freq	50Hz	120Hz	300Hz	1KHz	10KHz
Ø4-Ø10	0.1-68μF	0.70	1.00	1.17	1.50
	100-3300μF	0.85	1.00	1.08	1.30
Ø12.5-Ø18	~68μF	0.75	1.00	1.35	1.57
	100-680μF	0.80	1.00	1.23	1.34
	1000-6800μF	0.85	1.00	1.10	1.13

2.3 温度系数 (Temprature Coefficents):

项目	40℃	55℃	70℃	85℃	105℃
系数	2.7	2.5	2.0	1.7	1.0

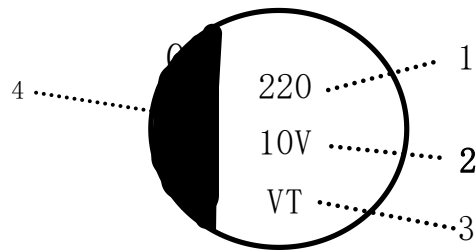
2.4 最大阻抗比 (120HZ)

Ratea Voltage	4	6.3	10	16	25	35	50-63	100	160-250	350-450
Ø4-Ø10	Z(-25℃)/Z(20℃)	7.0	4.0	3.0	2.0	2.0	2.0	3.0	2.0	3.0
	Z(-40℃)/Z(20℃)	15.0	8.0	6.0	4.0	4.0	3.0	4.0	3.0	6.0
Ø12.5-Ø18	Z(-25℃)/Z(20℃)	7.0	5.0	4.0	3.0	2.0	2.0	2.0	2.0	4.0
	Z(-40℃)/Z(20℃)	17.0	12.0	10.0	8.0	5.0	4.0	3.0	6.0	10.0

当静电容大于1000UF时, 每增加1000UF, 阻抗比在 Z(-25℃)/Z(20℃) 基础上增加0.5

阻抗比在 Z(-40℃)/Z(40℃) 基础上增加1.0

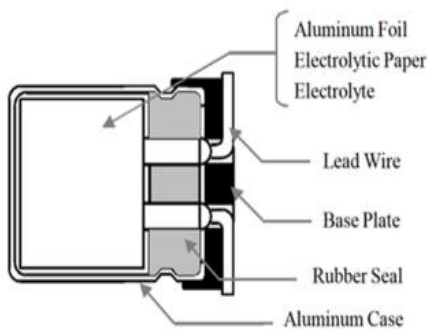
3. 电容标识示意图 (Marking):



NO. 代表内容 Item

1. 电容容量 Rated Capacitance
2. 电容电压 Rated Voltage
3. 产品系列 Series
4. 负极指示线 Negative Polarity

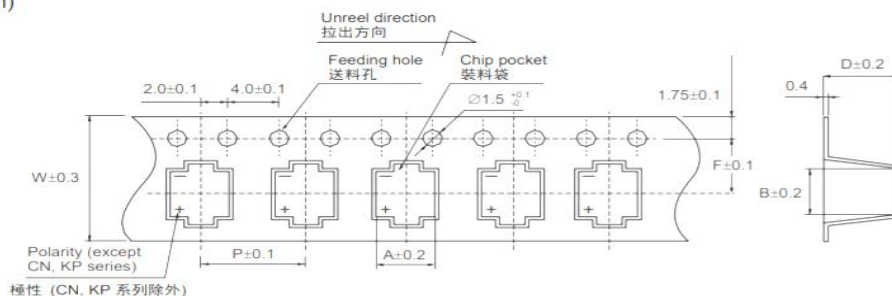
4. 材料表 (Material table)



Parts Name 部件名称		Materials 材质
1	Aluminum Foil 铝箔	Aluminum 铝
2	Electrolytic Paper 电解纸	Manila Hemp 马尼拉麻/西班牙草纸浆
3	Electrolyte 电解液	Ethylene Glycol, Gamma-Butyrolactone γ-丁内酯
4	Aluminum Case 镀膜铝壳	Aluminum、PET 铝及 PET
5	Rubber Seal 封口橡胶	Synthetic Rubber (IIR) 树脂橡胶
6	Lead Wire 引线	Tinned Copper-Clad Steel Wire 镀锡铜包钢线
7	Base Plate 底座	Thermo-plastic Resin 热塑性树脂

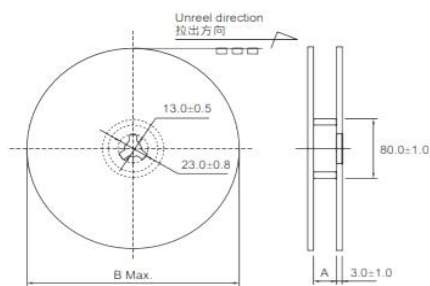
5.2 编带尺寸:

● $\varnothing 4 \sim \varnothing 10$ (mm)



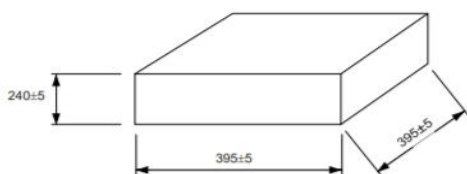
Dimension 尺寸表	(Unit: mm)									
$\varnothing D \times L$	4×5.4/5.8	5×5.5/4/8/9	6.3×5.4/6.5	6.3×7.7/9	6.3×10.5/11.5	8×6/6.7/7	8×7.7/8/9	8×10.5/12/12.5	10×8/10/10.5	10×12.7/13.5
W	12.0	12.0	16.0	16.0	16.0	24.0	24.0	24.0	24.0	24.0
P	8.0	12.0	12.0	12.0	12.0	12.0	12.0	11.5	16.0	16.0
F	5.5	5.5	7.5	7.5	7.5	11.5	11.5	11.5	11.5	11.5
A	5.0	6.0	7.0	7.0	7.0	8.7	8.7	8.7	10.7	10.7
B	5.0	6.0	7.0	7.0	7.0	8.7	8.7	8.7	10.7	10.7
D	5.9/5.9	5.9/5.9/8.1/9.2	5.9/6.9	8.2/9.9	11.0/12.5	6.8/6.8/7.5	8.2/8.2/9.9	11.0/12.5/13.0	8.4/11.0/11.0	13.0/13.0

5.3 卷盘尺寸:



$\varnothing D$	$\varnothing 4, \varnothing 5$	$\varnothing 6.3$	$\varnothing 8, \varnothing 10$	$\varnothing 12.5$	$\varnothing 16, \varnothing 18$
A±1.0	14	17	25.5	34.5	44
B (Max.)	382	382	382	382	382

5.4 包装箱尺寸:



5.5 包装数量:

Case Size $\varnothing D \times L$ (mm) 尺寸	Quantity/Reel (pcs) 数量/卷 (个)	Reels/Box 卷盘/箱	Quantity/Carton (pcs) 数量/外箱 (个)
4 × 5.4, 5.8	2,000*	12	24,000
5 × 5.4, 5.8	1,000*	12	12,000
6.3 × 5.4, 5.8, 7.7	1,000*	10	10,000
6.3 × 10.5	750*	10	7,500
6.3 × 11.5	500*	10	5,000
8 × 6.2	1,000*	10	10,000
8 × 10.5, 12.5	500*	7	3,500
10 × 10.5, 13.5	500*	7	3,500
12.5 × 13.5	250*	6	1,500
12.5 × 16	200*	6	1,200
16 × 16.5	125*	4	500
18 × 16.5, 18.5	100*	4	400

6.1 试验项目 Test item

NO	项 目 Items	条 件 Conditions	规 格 Specifications														
1	Maximum permissible ripple current	Temperature:105±2℃ Voltage :DC.Voltage+peak ripple voltage≤ Rated voltage. Ripple frequency: 120Hz	Refer to table														
2	Surge	Temperature:105±2℃ Applied voltage: see specification "ON" position : 30 seconds "OFF" position :5 minutes 30 seconds. Duration : 1000 cycles	1.No electrical or mechanical damage. 2.Capacitance change within ±15%. 3.D.F.smaller than specification volue. 4.Leakage current smaller than specification volue.														
3	Temperature Cycle	<table><tr><td rowspan="5">One Cycle</td><td>Temperature(℃)</td><td>Time (minutes)</td></tr><tr><td>Rated low category temperature ±3</td><td>30±3</td></tr><tr><td>25℃</td><td>3MAX</td></tr><tr><td>Rated low category temperature ±3</td><td>30±3</td></tr><tr><td>25℃</td><td>3MAX</td></tr><tr><td colspan="3">Total number of cycles: 5</td></tr></table>	One Cycle	Temperature(℃)	Time (minutes)	Rated low category temperature ±3	30±3	25℃	3MAX	Rated low category temperature ±3	30±3	25℃	3MAX	Total number of cycles: 5			1.No appearance defect. 2.Capacitance change within ±5% 3.D.F.smaller than specification value. 4.Leakage current smaller than specification value.
One Cycle	Temperature(℃)	Time (minutes)															
	Rated low category temperature ±3	30±3															
	25℃	3MAX															
	Rated low category temperature ±3	30±3															
	25℃	3MAX															
Total number of cycles: 5																	
4	Resistance to Soldering Heat	Warm up time :120±2 seconds to reach 120±2℃ Solder bath temperature: 260±5℃. Solder bath composition: Sn-96.5%. Ag-3.0% Cu-0.5% Immersion depth: 1.5 to 2.0mm Immersion duration: 10±1 seconds	1.No appearance defect. 2.Capacitance change within ±5% 3.D.F.smaller than specification value. 4.Leakage current smaller than specification														
5	Solder Ability	Solder bath temperature: 235±5℃. Solder bath composition: Sn-96.5%. Ag-3.0% Cu-0.5% Immersion depth: 1.5 to 2.0mm Immersion duration: 10±1 seconds	A minimum of 95% the immersed surface is to be coated with the new solder														

6. 2试验项目 Test item

NO	项 目 Items	条 件 Conditions					规 格 Specifications														
6	Low Temperature Charcteriestics (Max.Impedance Ratio)	Ratea Voltage		4	6.3	10	16	25	35	50-63	100	160-250	350-450								
		04-010	Z(-25℃)/Z(20℃)	7.0	4.0	3.0	2.0	2.0	2.0	2.0	3.0	2.0	3.0								
			Z(-40℃)/Z(20℃)	15.0	8.0	6.0	4.0	4.0	3.0	3.0	4.0	3.0	6.0								
		012, 5-018	Z(-25℃)/Z(20℃)	7.0	5.0	4.0	3.0	2.0	2.0	2.0	2.0	2.0	4.0								
			Z(-40℃)/Z(20℃)	17.0	12.0	10.0	8.0	5.0	4.0	3.0	3.0	6.0	10.0								
7	High Humidity storage	Temperature:40±2℃ Relative humidity :90 to 95% Duration : 240±8 hours					1.No electrical or mechanical damage. 2.Capacitance change within ±15%. 3.D.F.smaller than specification volue. 4.Leakage current smaller than specification volue.														
8	Vent	Conduct under normal lighting for lab work <table><tr><td>Capacitor diameter</td><td>Applied current(A)</td><td>Minutes</td></tr><tr><td>Less than 22.4mm</td><td>1</td><td rowspan="2">within 30</td></tr><tr><td>More than 22.5mm</td><td>10</td></tr></table>					Capacitor diameter	Applied current(A)	Minutes	Less than 22.4mm	1	within 30	More than 22.5mm	10	There shall be no explosion,flash,flame,spark or fire from the capacitor during or after the test,nor shall there be expulsion of any metal from the casing						
Capacitor diameter	Applied current(A)	Minutes																			
Less than 22.4mm	1	within 30																			
More than 22.5mm	10																				
9	Vibration	Frequency range : 10 Hz to 55 Hz Amplitude :1.5 mm Cycle definition:10Hz to 55 Hz and baCK to 10Hz Cycle duration :1 minute. Duration :2 hours per direction (3directions)					1.No electrical or mechanical damage 2.No appearance damage														
10	Endurance	Capacitors are placed in an oven and applied voltage for 2000 hours at 105℃.After being restored to 25℃, capacitors shall meet the specifications.					1.Capacitance change within ±20% of the initial value. 2.D.F.change within ±200% of the specified value. 3.Leakage current smaller than specification value.														
11	Shelf Life	Capacitors are placed in an oven for 1000 hours at 105 ℃without applying rated working voltage.After being restored to 25℃,capacitors shall meet the specifications					1.Capacitance change within ±20% of the initial value. 2.D.F.change within ±200% of the specified value. 3.Leakage current within ±200% of the specification value.														