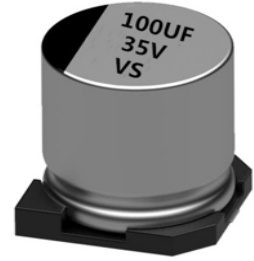


铝电解电容器（表面贴装型）

表面贴装型

系列：VS

高温无铅回流焊产品



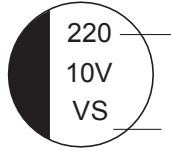
- 保证时间：85℃ 2000 小时
- 可满足耐振要求
- 已应对RoHS指令

项目 Items	特性 Characteristics								
工作温度范围 Operating Temperature Range	-40℃ ~ 85℃								
额定电压范围 Rated Voltage Range	4V ~ 50V								
标称容量范围 Nominal Capacitance Range	0.1 ~ 10000μF								
标称容量允许偏差 Nominal Capacitance Tolerance	±20% (20℃, 120Hz)								
漏电流 Leakage Current	$I \leq 0.01C_R V_R$ or 3(μA), 取较大者 (2分钟) C_R : 标称容量 (μF) U_R : 额定电压 (V) $I \leq 0.01C_R V_R$ or 3(μA) Whichever is greater (at 20℃, After 2 minutes) C_R : Nominal Capacitance (μF) U_R : Rated voltages (V)								
损耗角正切 (tgδ) Dissipation Factor (Max) 20℃, 120Hz	U_R (V)	4	6.3	10	16	25	35	50	
	tgδ	0.35	0.28	0.24	0.20	0.16	0.14	0.12	
容量大于1000uF者, 每增加1000uF, 其损耗角正切值增加0.02 When nominal capacitance exceeds 1000uF, add 0.02 to the value above for each 1000uF increase									
耐久性 Load Life	+85℃施加额定电压2000小时后, 电容器应满足以下要求: After 2000 hours' application of rated voltage at 85℃, the capacitor shall meet the following requirement:								
	电容量变化率 Capacitance Change	±20%初始值以内 Within ±20% of the initial value							
	损耗角正切 Dissipation Factor	≤ 200%初始规定值 Not more than 200% of the initial specified value							
	漏电流 Leakage Current	≤ 初始规定值 Not more than the initial specified value							
高温贮存 Shelf Life	+85℃贮存1000小时后, 电容器应满足以上耐久性要求 After storage for 1000 hours at +85℃, the capacitors shall meet the requirement of load life above								
低温特性 Low Temperature Stability 阻抗比 Impedance Ratio (120Hz)	U_R (V)		4	6.3	10	16	25	35	50
	$Z(-25℃)/Z(+20℃)$	< Φ8	7	4	3	2	2	2	2
		≥ Φ8	7	5	4	3	2	2	2
	$Z(-40℃)/Z(+20℃)$	< Φ8	15	8	8	4	4	3	3
≥ Φ8		15	10	8	6	4	3	3	
耐焊接热 Resistance to Soldering Heat	在250℃的条件下, 电容器在热板上保持30秒, 然后从热板上取出电容器, 让其在室温下恢复, 电容器应满足以下要求: The capacitors shall be kept on the hot plate maintained at 250℃ for 30 seconds. After removing from the hot plate and restored at room temperature, they meet the following requirement.								
	电容量变化率 Capacitance Change	±10%初始值以内 Within ±10% of the initial value							
	损耗角正切 Dissipation Factor	≤ 初始规定值 Not more than the initial specified value							
	漏电流 Leakage Current	≤ 初始规定值 Not more than the initial specified value							
AEC-Q200	符合AEC-Q200								

铝电解电容器（表面贴装型）

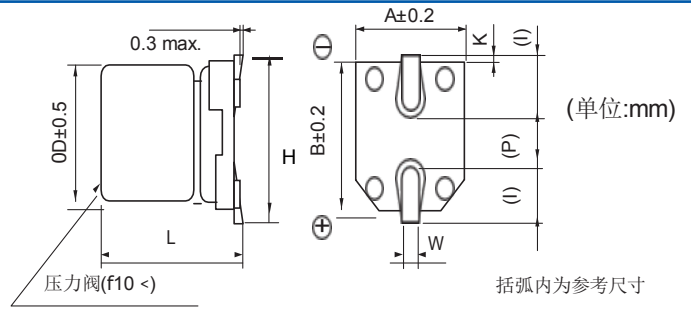
标示

例：10V.DC 220uF VS系列



标示颜色：黑色

外观尺寸



φD	L	A, B	H	I	W	P	K
4	5.4±0.3	4.3	5.5	1.8	0.5~0.8	1.0	0.35 ^{+0.15} -0.20
5	5.4±0.3	5.3	6.5	2.1	0.5~0.8	1.3	
6.3	5.4±0.3	6.6	7.8	2.4	0.5~0.8	2.2	
6.3	7.7±0.3	6.6	7.8	2.4	0.5~0.8	2.2	
8	6.2±0.3	8.3	9.5	3.4	0.5~0.8	2.2	0.70±0.20
8	10.5±0.5	8.3	10	3.4	0.8~1.1	3.1	
8	12.5±0.5	8.3	10	3.4	0.8~1.1	3.1	0.70±0.20
10	7.7±0.3	8.3	8.3	3.5	0.7~1.3	4.5	0.70±0.20
10	10.5±0.5	10.3	12	3.5	0.7~1.3	4.5	0.70±0.20
10	12.5±0.5	10.3	12	3.5	0.7~1.3	4.5	0.70±0.20
12.5	13.5±0.5	13.5	15	4.7	1.1~1.4	4.4	0.70±0.20
12.5	16.5±0.5	13.5	15	4.7	1.1~1.4	4.4	0.70±0.20
16	16.5±0.5	17	19	5.5	1.1~1.4	6.4	0.70±0.20
16	21.5±0.5	17	19	5.5	1.1~1.4	6.4	0.70±0.20
18	16.5±0.5	19	21	6.7	1.1~1.4	6.4	0.70±0.20
18	21.5±0.5	19	21	6.7	1.1~1.4	6.4	0.70±0.20

■特性一览表

额定电压 (V.DC)	静电容量 (±20%) (uF)	产品尺寸(mm)		电气特性		料号	最小包装 数量 (PCS)
		φD	L	额定纹波电流 (120HZ) (+105℃) (mA r.m.s)	tanδ (120HZ) (+20℃)		
4	33	4	5.4	32	0.35	VS0Q330MB054000LP0	2000
	47	4	5.4	32	0.35	VS0Q470MB054000LP0	2000
	100	5	5.4	60	0.35	VS0Q101MC054000LP0	1000
	150	6.3	5.4	100	0.35	VS0Q151ME054000LP0	1000
	220	6.3	5.4	120	0.35	VS0Q221ME054000LP0	1000
	330	6.3	7.7	200	0.35	VS0Q331ME077000LP0	1000
	470	6.3	7.7	240	0.35	VS0Q471ME077000LP0	1000
	680	8	10.5	400	0.35	VS0Q681MF105000LP0	500
	1000	8	10.5	450	0.35	VS0Q102MF105000LP0	500
6.3	1500	10	10.5	750	0.35	VS0Q152MG105000LP0	500
	22	4	5.4	31	0.28	VS0J220MB054000LP0	2000
	33	4	5.4	31	0.28	VS0J330MB054000LP0	2000
	47	4	5.4	40	0.28	VS0J470MB054000LP0	2000
	47	5	5.4	52	0.28	VS0J470MC054000LP0	1000
	100	5	5.4	55	0.28	VS0J101MC054000LP0	1000
	100	6.3	5.4	89	0.28	VS0J101ME054000LP0	1000

铝电解电容器（表面贴装型）

■特性一览表

额定电压 (V.DC)	静电容量 (±20%) (μ F)	产品尺寸(mm)		电气特性		料号	最小包装 数量 (PCS)
		ϕ D	L	额定纹波电流 (120HZ) (+105℃) (mA r.m.s)	$\tan\delta$ (120HZ) (+20℃)		
6.3	150	6.3	5.4	95	0.28	VS0J101ME054000LP0	1000
	220	6.3	5.4	100	0.28	VS0J221ME054000LP0	1000
	220	6.3	7.7	170	0.28	VS0J221ME077000LP0	1000
	330	6.3	7.7	188	0.28	VS0J331ME077000LP0	1000
	330	8	6.2	190	0.28	VS0J221MF062000LP0	1000
	470	6.3	7.7	210	0.28	VS0J471ME077000LP0	1000
	470	8	10.5	330	0.28	VS0J471MF105000LP0	500
	680	8	10.5	350	0.28	VS0J681MF105000LP0	500
	1000	8	10.5	370	0.28	VS0J102MF105000LP0	500
	1000	10	10.5	700	0.28	VS0J102MG105000LP0	500
	1500	10	10.5	750	0.28	VS0J152MG105000LP0	500
	2200	12.5	13.5	890	0.28	VS0J222MH135000LP0	200
	3300	12.5	16.5	1000	0.28	VS0J332MH165000LP0	200
	4700	16	16.5	1400	0.28	VS0J472MJ165000LP0	125
	6800	18	16.5	1700	0.28	VS0J682MK165000LP0	125
	10000	18	21.5	2000	0.28	VS0J103MK215000LP0	125
10	22	4	5.4	30	0.24	VS1A220MB054000LP0	2000
	22	5	5.4	39	0.24	VS1A220MC054000LP0	1000
	33	4	5.4	34	0.24	VS1A330MB054000LP0	2000
	33	5	5.4	48	0.24	VS1A330MC054000LP0	1000
	47	4	5.4	35	0.24	VS1A470MB054000LP0	2000
	47	5	5.4	48	0.24	VS1A470MC054000LP0	1000
	100	5	5.4	54	0.24	VS1A101MC054000LP0	1000
	100	6.3	5.4	90	0.24	VS1A101ME054000LP0	1000
	150	6.3	5.4	90	0.24	VS1A151ME054000LP0	1000
	220	6.3	5.4	95	0.24	VS1A221ME054000LP0	1000
	220	6.3	7.7	173	0.24	VS1A221ME077000LP0	1000
	220	8	6.2	175	0.24	VS1A221MF062000LP0	1000
	330	6.3	7.7	175	0.24	VS1A331ME077000LP0	1000
	470	6.3	7.7	190	0.24	VS1A471ME077000LP0	1000
	470	8	10.5	390	0.24	VS1A471MF105000LP0	500
	470	10	7.7	290	0.24	VS1A471MG077000LP0	500
	680	8	10.5	400	0.24	VS1A681MF105000LP0	500
	680	10	10.5	500	0.24	VS1A681MG105000LP0	500
	1000	10	10.5	580	0.24	VS1A102MG105000LP0	500
	1500	12.5	13.5	790	0.24	VS1A152MI135000LP0	200
	2200	12.5	13.5	890	0.24	VS1A222MI135000LP0	200
	3300	16	16.5	1300	0.24	VS1A332MJ165000LP0	125
4700	16	16.5	1400	0.24	VS1A472MJ165000LP0	125	
6800	18	16.5	1700	0.24	VS1A682MK165000LP0	125	
10000	18	21.5	2000	0.24	VS1A103MK215000LP0	125	
16	10	4	5.4	26	0.20	VS1C100MB054000LP0	2000
	22	4	5.4	30	0.20	VS1C220MB054000LP0	2000
	22	5	5.4	44	0.20	VS1C220MC054000LP0	1000

铝电解电容器（表面贴装型）

■特性一览表

额定电压 (V.DC)	静电容量 (±20%) (μF)	产品尺寸(mm)		电气特性		料号	最小包装 数量 (PCS)
		ϕ D	L	额定纹波电流 (120HZ) (+105℃) (mA r.m.s)	$\tan\delta$ (120HZ) (+20℃)		
16	33	4	5.4	44	0.20	VS1C330MC054000LP0	2000
	33	5	5.4	63	0.20	VS1C330MC054000LP0	1000
	47	5	5.4	52	0.20	VS1C470MC054000LP0	1000
	47	6.3	5.4	75	0.20	VS1C470ME054000LP0	1000
	100	6.3	5.4	103	0.20	VS1C101ME054000LP0	1000
	100	6.3	7.7	110	0.20	VS1C101ME077000LP0	1000
	100	8	6.2	125	0.20	VS1C101MF062000LP0	1000
	150	6.3	7.7	130	0.20	VS1C151ME077000LP0	1000
	220	6.3	7.7	162	0.20	VS1C221ME077000LP0	1000
	220	8	10.5	280	0.20	VS1C221MF105000LP0	500
	330	8	10.5	320	0.20	VS1C331MF105000LP0	500
	330	10	7.7	320	0.20	VS1C331MG077000LP0	500
	470	8	10.5	350	0.20	VS1C471MF105000LP0	500
	470	10	7.7	350	0.20	VS1C471M G077000LP0	500
	470	10	10.5	420	0.20	VS1C471MG105000LP0	500
	680	10	10.5	450	0.20	VS1C681MG105000LP0	500
	1000	10	10.5	500	0.20	VS1C102MG105000LP0	500
	1500	12.5	13.5	850	0.20	VS1C152MI135000LP0	200
	2200	16	16.5	1100	0.20	VS1C222MJ165000LP0	125
	3300	16	16.5	1300	0.20	VS1C332MJ165000LP0	125
4700	18	16.5	1600	0.20	VS1C472MK165000LP0	125	
6800	18	21.5	2000	0.20	VS1C682MK215000LP0	125	
25	3.3	4	5.4	18	0.16	VS1E3R3MB054000LP0	2000
	4.7	4	5.4	22	0.16	VS1E4R7MB054000LP0	2000
	10	4	5.4	24	0.16	VS1E100MB054000LP0	2000
	10	5	5.4	32	0.16	VS1E100MC054000LP0	1000
	22	5	5.4	38	0.16	VS1E220MC054000LP0	1000
	22	6.3	5.4	55	0.16	VS1E220ME054000LP0	1000
	33	5	5.4	46	0.16	VS1E330MC054000LP0	1000
	33	6.3	5.4	67	0.16	VS1E330ME054000LP0	1000
	47	6.3	5.4	70	0.16	VS1E470ME054000LP0	1000
	100	6.3	7.7	143	0.16	VS1E101ME077000LP0	1000
	100	8	6.2	145	0.16	VS1E101MF062000LP0	1000
	150	8	10.5	210	0.16	VS1E151MF105000LP0	500
	220	8	10.5	230	0.16	VS1E221MF105000LP0	500
	220	10	7.7	230	0.16	VS1E221MG077000LP0	500
	220	10	10.5	310	0.16	VS1E221MG105000LP0	500
	330	8	10.5	270	0.16	VS1E331MF105000LP0	500
	330	10	10.5	340	0.16	VS1E331MG105000LP0	500
	470	10	10.5	380	0.16	VS1E471MG105000LP0	500
	680	10	10.5	450	0.16	VS1E681MG105000LP0	500
	1000	12.5	13.5	750	0.16	VS1E102MI135000LP0	200
1500	16	16.5	1000	0.16	VS1E152MJ165000LP0	125	
2200	16	16.5	1100	0.16	VS1E222MJ165000LP0	125	
3300	18	16.5	1450	0.16	VS1E332MK165000LP0	125	
4700	18	21.5	1750	0.16	VS1E472MK215000LP0	125	

铝电解电容器（表面贴装型）

■特性一览表

额定电压 (V.DC)	静电容量 (±20%) (uF)	产品尺寸(mm)		电气特性		料号	最小包装 数量 (PCS)
		φ D	L	额定纹波电流 (120Hz) (+105℃) (mAr.m.s)	tanδ (120Hz) (+20℃)		
35	3.3	4	5.4	18	0.14	VS1V3R3MB054000LP0	2000
	4.7	4	5.4	20	0.14	VS1V4R7MB054000LP0	2000
	10	4	5.4	24	0.14	VS1V100MB054000LP0	2000
	10	5	5.4	34	0.14	VS1V100MC054000LP0	1000
	22	5	5.4	39	0.14	VS1V220MC054000LP0	1000
	22	6.3	5.4	59	0.14	VS1V220ME054000LP0	1000
	33	6.3	5.4	65	0.14	VS1V330ME054000LP0	1000
	47	6.3	5.4	70	0.14	VS1V470ME054000LP0	1000
	47	6.3	7.7	94	0.14	VS1V470ME077000LP0	1000
	47	8	6.2	105	0.14	VS1V470MF062000LP0	1000
	100	6.3	7.7	132	0.14	VS1V101ME077000LP0	1000
	100	8	10.5	175	0.14	VS1V101MF105000LP0	500
	150	8	10.5	190	0.14	VS1V151MF105000LP0	500
	150	10	7.7	190	0.14	VS1V151MG077000LP0	500
	220	8	10.5	200	0.14	VS1V221MF105000LP0	500
	220	10	10.5	310	0.14	VS1V221MG105000LP0	500
	330	10	10.5	360	0.14	VS1V331MG105000LP0	500
	470	10	10.5	420	0.14	VS1V471MG105000LP0	500
	680	12.5	13.5	680	0.14	VS1V681MI135000LP0	200
	1000	16	16.5	1100	0.14	VS1V102MJ165000LP0	125
1500	16	16.5	1200	0.14	VS1V152MJ165000LP0	125	
2200	18	16.5	1450	0.14	VS1V222MK165000LP0	125	
3300	18	21.5	1750	0.14	VS1V332MK215000LP0	125	
50	0.1	4	5.4	3.2	0.12	VS1H1R0MB054000LP0	2000
	0.22	4	5.4	4.7	0.12	VS1HR22MB054000LP0	2000
	0.33	4	5.4	5.7	0.12	VS1HR33MB054000LP0	2000
	0.47	4	5.4	6.8	0.12	VS1HR47MB054000LP0	2000
	1	4	5.4	10	0.12	VS1H1R0MB054000LP0	2000
	2.2	4	5.4	15	0.12	VS1H2R2MB054000LP0	2000
	3.3	4	5.4	18	0.12	VS1H3R3MB054000LP0	2000
	4.7	4	5.4	18	0.12	VS1H4R7MB054000LP0	2000
	4.7	5	5.4	25	0.12	VS1H4R7MC054000LP0	1000
	10	5	5.4	30	0.12	VS1H100MC054000LP0	1000
	10	6.3	5.4	40	0.12	VS1H100ME054000LP0	1000
	22	6.3	5.4	43	0.12	VS1H220ME054000LP0	1000
	33	6.3	7.7	94	0.12	VS1H330ME077000LP0	1000
	33	8	6.2	95	0.12	VS1H330MF062000LP0	1000
	47	6.3	7.7	105	0.12	VS1H470ME077000LP0	1000
	47	8	10.5	140	0.12	VS1H470MF105000LP0	500
	100	8	10.5	200	0.12	VS1H101MF105000LP0	500
	100	10	10.5	250	0.12	VS1H101MG105000LP0	500
	150	10	10.5	280	0.12	VS1H151MG105000LP0	500
	220	10	10.5	320	0.12	VS1H221MG105000LP0	500
330	10	10.5	400	0.12	VS1H331MG105000LP0	500	
470	12.5	13.5	600	0.12	VS1H471MI135000LP0	200	
680	16	16.5	1000	0.12	VS1H681MJ165000LP0	125	
1000	18	16.5	1350	0.12	VS1H102MK165000LP0	125	

■Frequency coefficient of ripple current

Frequency	50Hz	120Hz	300Hz	1KHz	10K~100Hz
Coefficient	0.70	1.00	1.17	1.36	1.50

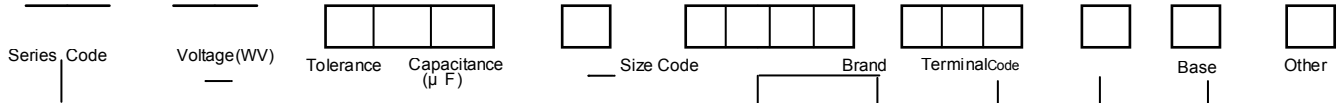
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铝电解电容器（表面贴装型）

铝电解电容器产品编码体系表

Product symbol system for Aluminum Electrolytic Capacitors

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
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Fill In Code Of Variety list

例:

Series	Code
VT	VT
JVD	JVD

Voltage	Code
4	OQ
6.3	OJ
10	1A
16	1C
25	1E
35	1V
50	1H
63	1J
80	1K
100	2A
125	2B
160	2C
180	2Z
200	2D
220	2P
250	2E
315	2F
330	2U
350	2V
400	2G
420	W6
450	2H

Cap (μ F)	Code
0.1	0R1
0.22	R22
0.33	R33
0.47	R47
1	010
2.2	2R2
3.3	3R3
4.7	4R7
10	100
22	220
33	330
47	470
100	101
220	221
270	271
330	331
390	391
470	471
560	561
680	681
1000	102
2200	222
3300	332
4700	472
10000	103
22000	223

Tolerance (%)	Code
+5	J
-5	J
+10	K
-10	K
+15	Y
-15	Y
+20	M
-20	M
+20	R
-0	R
+20	H
-5	H
+20	V
-10	V
+30	F
-0	F
+30	G
+10	G
+30	Q
-10	Q
+20	E
-15	E

Φ D	Code	L	Code
3	A	5	050
4	B	5.4	054
5	C	5.8	058
6	D	6.2	062
6.3	E	7.7	077
8	F	9	090
10	G	10.5	105
12	H	12.5	125
12.5	I	13.5	135
16	J	14	140
18	K	16.5	165
		21.5	215
		25	250
		30	300
		35	350
		40	400
		45	450
		50	500
		55	550
		60	600

Brand	Code
LH	L

Base	Code
PPA	P

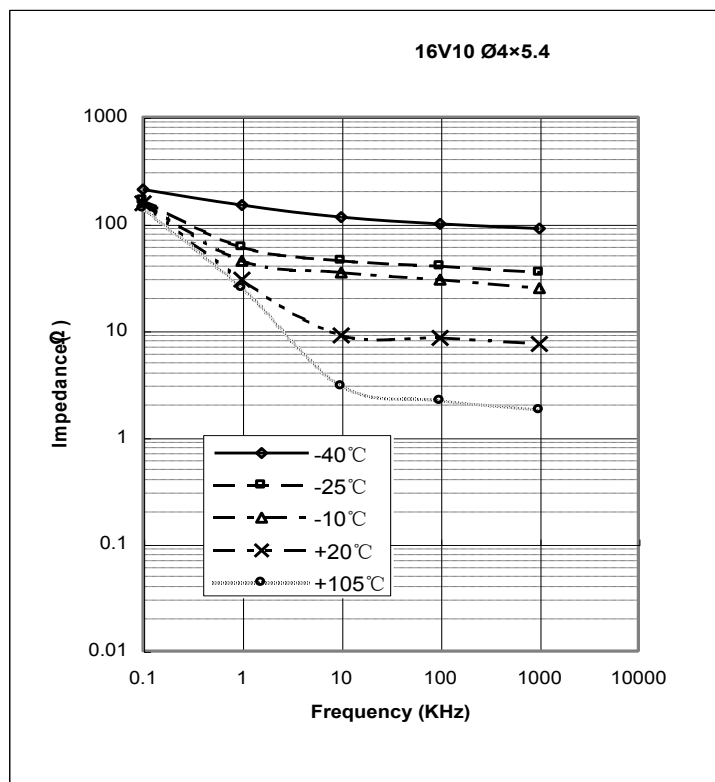
说明：系列别为二个英文字母时（如VT系列），此处(13-15码)代号为：000

例：VT 10V-220 6.3*5.4 其料号编码为：VT1A221ME054000LPO

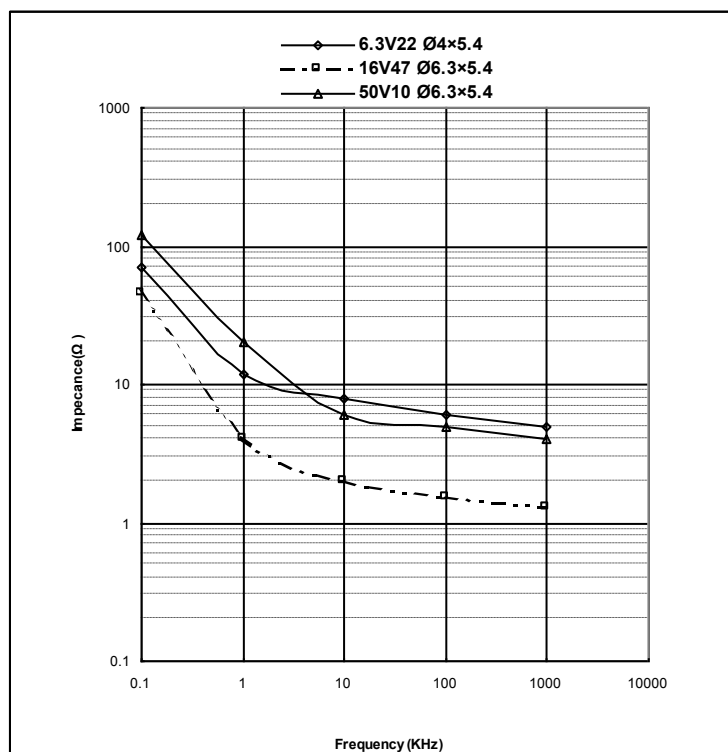
铝电解电容器（表面贴装型）

贴片型产品温度、特性曲线

温度特性曲线 Temperature Characteristics Data



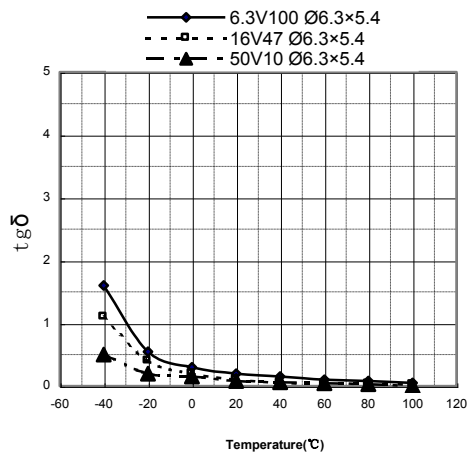
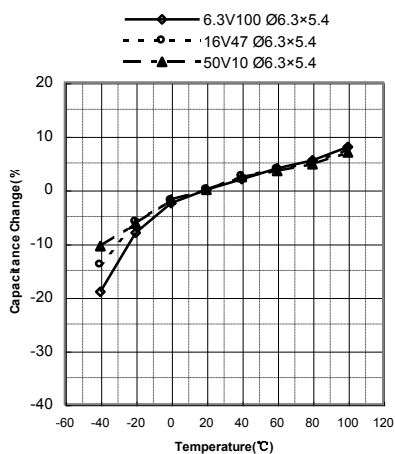
频率特性曲线 Frequency Characteristics Data



铝电解电容器（表面贴装型）

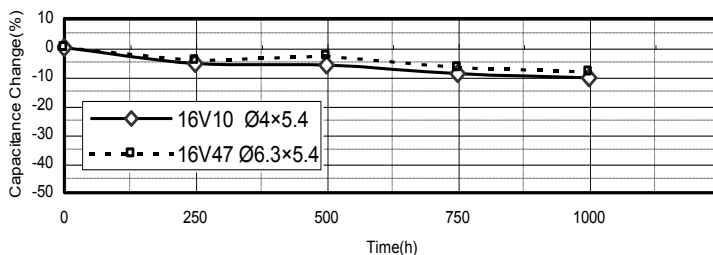
贴片型产品温度、特性曲线

温度特性曲线 Temperature Characteristics

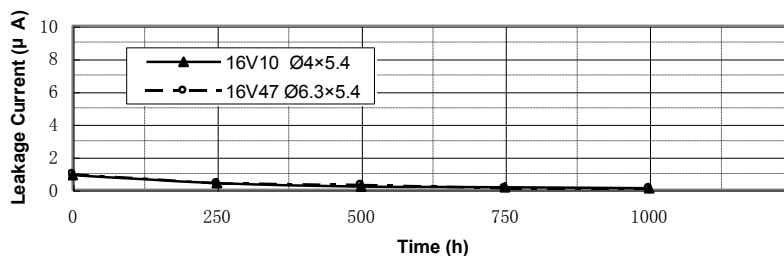
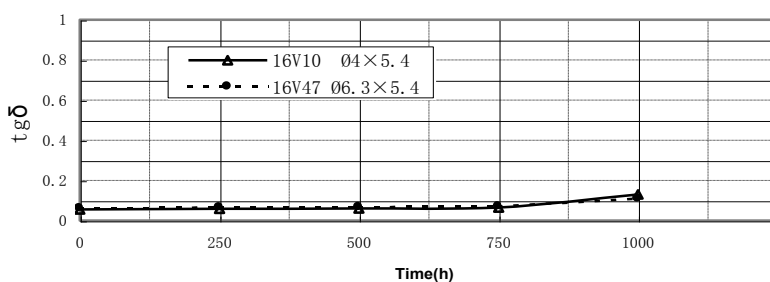


寿命曲线 Load Life Data

Post Test Requirement: $\pm 20\%$ (1000h)



Post Test Requirement: 0.32max.(1000h)



铝电解电容器（表面贴装型）

■ Package quantity 包装数量

Φ D×L	Quantity / Reel 数量 / 每盘	pcs/Boxes 数量/小包装箱	pcs/Large packing cases 数量/大包装箱
4×5.4、4×5.8	2000pcs	24000pcs	48000pcs
5×5.4、5.5.8	1000pcs	12000pcs	24000pcs
6.3×5.4、6.3×5.8、6.3×7.7、8×6.2	1000pcs	10000pcs	20000pcs
8×10.5、10×7.7、10×10.5	500pcs	3500pcs	7000pcs
6.3×10.5	800pcs	8000pcs	16000pcs
8×12.5	400pcs	2800pcs	5600pcs
10×12.5	400pcs	2800pcs	5600pcs
12.5×13.5	200pcs	1200pcs	2400pcs
12.5×16.5	200pcs	1200pcs	2400pcs
16×16.5	125pcs	750pcs	1500pcs
16×21.5	125pcs	750pcs	1500pcs
18×16.5	125pcs	750pcs	1500pcs
18×21.5	125pcs	750pcs	1500pcs