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HCAK55H型,双85THB,高可靠性系列

有失效率等级的片式高分子固体电解质钽电容器

HCAK55H High Reliability, Ultra Low ESR,

Polymer Electrolytic Tantalum Capacitors (THB Series)

特征与用途

- 树脂模压封装、密封性好、片式、体积小、重量轻、有极性;
- 电性能优良稳定、可靠性高、贮存稳定性好;
- 导电高分子聚合物电解质、超低ESR(等效串联电阻)、高频容量保持、 耐大纹波电流;
- 高击穿电压;
- 良性失效模式;
- 适用于飞行器、车辆、船舶、雷达、电子、通讯等领域有可靠性要 求的电子设备表面 贴装直流或脉动电路;
- 新增可选双85产品: 采用新技术,产品在保持原有性能基础上,具有在高温高湿下长时间(85°C、85%RH、1000h)贮存和工作的能力。
- 执行标准:GJB2283-95、QJ/PWV502-2012
- ●注: 选购双85产品时,请在订货合同备注中注明"双85"字样

Features and Applications

- Resin molded package, excellent sealing, chip-type, compact size, lightweight, polarized;
- Superior and stable electrical performance, high reliability, excellent storage stability;
- Conductive polymer electrolyte, ultra-low ESR (Equivalent Series Resistance), High frequency capacitance retention, high ripple current;
- High breakdown voltage;
- 100% accelerated steady state aging;
- 100% surge current tested;
- Suitable for high reliability circuit in aircraft, vehicles, ships, radar, electronics, communications, and other military fields;
- THB requirement available on request; Utilizing new technology, improve long-term storage time and operation under high temPerature and humidity (85°C, 85% RH, 1000 hours)
- Compliance military standards: GJB2283-95, QJ/PW/502-2012;
- Up screened options includes surge current testing of 10 cycles at +25°C and 10 cycles at -55°C/+85°C

How to order

HCAK55H ↓	<u>∨</u> ↓	<u>476</u> ↓	<u>M</u> ↓	<u>010</u> ↓	<u>R</u> ↓	<u>0050</u> ↓	<u></u>
Type	Case Size	Capacitance code	<u>Tolerance</u>	Rated DC Voltage	<u>Package</u>	ESR in $m\Omega$	THB Series
HCAK55H	See size table	pF Code: 1st two digits represent significant figures 3rd digit represents mulitplier (number of zeros to follow) 106 = 10uF 476 = 47uF	K: +/-10% M: +/-20%	Code 035: 35VDC 006 = 6.3VDC 010 = 10VDC 025 = 25VDC 035 = 35VDC 050 = 50VDC	R: Tape and Reel	$ \begin{aligned} & \text{Code } 0050\text{: }50\text{m}\Omega \\ & 0050 = 50\text{m}\Omega \\ & 0100 = 100\text{m}\Omega \\ & 1000 = 1000\text{m}\Omega \end{aligned} $	T: THB Series

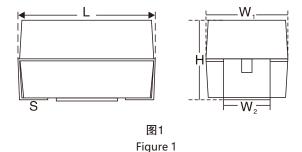


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主要技术性能

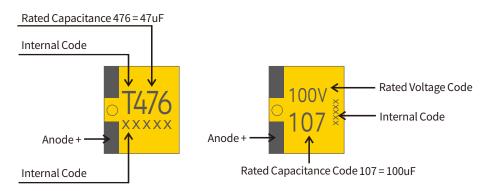
- 使用温度范围: -55~125℃; 降额设计见应用指导3.1;
- 额定电压、降额电压、标称电容量: 见表2;
- 电容量允许偏差: K级: ±10%; M级: ±20%;
- 室温直流漏电流、室温损耗角正切: 不超过表2规定;
- 等效串联电阻ESR (25℃、100KHz): 不超过表2规定;
- 标注 "*"表示为默认发货ESR,未标注 "*"的ESR值为
- •特殊定制,订货需在订单中备注;
- ●外形尺寸及外壳代号:见图1和表1。



Key Technical Specifications

- Operating temperature range: -55~125°C; Derating design refers to Application Guide 3.1;
- Rated voltage, derated voltage, nominal capacitance: See Table 2;
- Capacitance tolerance: K grade: ±10%; M grade: ±20%.
- Room temperature DC leakage current, room temperature dissipation factor: Not exceeding Table 2 specifications;
- Equivalent Series Resistance ESR (25°C, 100kHz): Not exceeding Table 2 specifications;
- Dimensions and case codes: See Figure 1 and Table 1.

◆ Marking on Chip Tantalum Capacitor Body



Body marking and capacitor colors may vary per batch and per order.

表1 电容器的外形尺寸 (mm)

Table 1 Product Dimensions (mm)

外売 Case	L	W ₁	Н	S	$W_{\scriptscriptstyle 2}$
Α	3.2 ± 0.3	1.6 ± 0.3	1.6 ± 0.3	0.8 ± 0.2	1.2 ± 0.2
В	3.5 ± 0.3	2.8 ± 0.3	1.9 ± 0.3	0.8 ± 0.2	2.2 ± 0.2
С	6.0 ± 0.3	3.2 ± 0.3	2.5 ± 0.3	1.3 ± 0.2	2.2 ± 0.2
Н	7.3 ± 0.3	4.3 ± 0.3	2.1 ± 0.3	1.7 ± 0.2	2.4 ± 0.2
D	7.3 ± 0.3	4.3 ± 0.3	2.8 ± 0.3	1.5 ± 0.2	2.4 ± 0.2
Ε	7.3 ± 0.3	4.3 ± 0.3	4.1 ± 0.3	1.5 ± 0.2	2.4 ± 0.2
F	7.3 ± 0.3	6.1 ± 0.3	2.5 ± 0.3	1.35 ± 0.2	3.0 ± 0.2
V	7.3 ± 0.3	6.1 ± 0.3	3.6 ± 0.3	1.5 ± 0.2	3.0 ± 0.2
W	7.3 ± 0.3	6.1 ± 0.3	4.1 ± 0.3	1.5 ± 0.2	3.0 ± 0.2
X	7.3 ± 0.3	6.0 ± 0.3	6.0 ± 0.3	1.5 ± 0.2	4.0 ± 0.2
Z	7.3 ± 0.3	6.0 ± 0.3	8.0 ± 0.3	1.5 ± 0.2	4.0 ± 0.2
G	8.5 ± 0.3	7.5 ± 0.3	4.5 ± 0.3	1.8 ± 0.2	4.5 ± 0.2
S	11.0 ± 0.3	9.0 ± 0.3	4.5 ± 0.3	1.5 ± 0.2	10.5 ± 0.4
Т	11.0 ± 0.3	12.5 ± 0.3	5.5 ± 0.3	2.1 ± 0.2	10.5 ± 0.4
Υ	8.0 ± 0.3	12.0 ± 0.3	8.0 ± 0.3	1.4 ± 0.2	8.0 ± 0.4

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表2 电容器的额定电压、纹波电流、标称电容量、等效串联电阻(ESR)、外壳代号及高低温特性

1- 14 th		FOD	主体体 体	· 波 漏电流max (μA)			电容量变化范围(%)			10 tr /	z – Lu	(0()
标称电 容量	壳	ESR max	交流纹波 电流max	漏 生	l流max (μ Α)	电答	重变化范围	圆(%)		有正切ma	ax (%)
合里 C _R	号	100KHz	100KHz	Leakage (Current Ma	ax (μ Α)	Capacitano	ce Variation R	ange (%)	Dissipat	ion Factor I	max (%)
(μF)		(Ω)	(A) Ripple Current									
Nominal Capacitance			max 100KHz	0.500	0.500	4.0.500	5.500	0.500	10500	-55℃	0.500	40500
Capacitance C _R (μF)	Case	+25°C	(A) +85°C	+25°C	+85℃	+125°C	–55°C	+85°C	+125℃	+25°C	+85°C	+125℃
(μ1)		+200		施宁中口	: / I I \ 4.	6\/	137 . 11	(11.)16	\	1200		
1	Α	0.500	0.28	初足电压 5.0	40.0	50.0		(U_R) 16 -10~+30		10	12	15
1	В	0.300	0.54	5.0	40.0	50.0		-10~+30		10	12	15
1.5	A	0.500	0.28	5.0	40.0	50.0		-10~+30		10	12	15
1.5	В	0.300	0.54	5.0	40.0	50.0		-10~+30		10	12	15
2.2	A	0.500	0.28	5.0	40.0	50.0		-10~+30		10	12	15
2.2	В	0.300	0.54	5.0	40.0	50.0		-10~+30		10	12	15
3.3	Α	0.500	0.28	5.3	42.2	52.8		-10~+30		10	12	15
3.3	В	0.300	0.54	5.3	42.2	52.8	-10~+10	-10~+30	-10~+50	10	12	15
4.7	Α	0.500	0.28	7.5	60.2	75.2	-10~+10	-10~+30	-10~+50	10	12	15
4.7	В	0.300	0.54	7.5	60.2	75.2	-10~+10	-10~+30	-10~+50	10	12	15
4.7	С	0.100	1.07	7.5	60.2	75.2	-10~+10	-10~+30	-10~+50	10	12	15
6.8	Α	0.500	0.28	10.9	87.0	108.8	-10~+10	-10~+30	-10~+50	10	12	15
6.8	В	0.300	0.54	10.9	87.0	108.8	-10~+10	-10~+30	-10~+50	10	12	15
6.8	С	0.100	1.07	10.9	87.0	108.8	-10~+10	-10~+30	-10~+50	10	12	15
10	Α	0.500	0.28	16.0	128.0	160.0	-10~+10	-10~+30	- 10~+50	10	12	15
10	В	0.300	0.54	16.0	128.0	160.0	-10~+10	-10~+30	- 10~+50	10	12	15
10	С	0.100	1.07	16.0	128.0	160.0		-10~+30		10	12	15
15	В	0.300	0.54	24.0	192.0	240.0		-10~+30		10	12	15
15	С	0.100	1.07	24.0	192.0	240.0		-10~+30		10	12	15
15	D	0.060	1.62	24.0	192.0	240.0		-10~+30		10	12	15
18	С	0.100	1.07	28.8	230.4	288.0		-10~+30		10	12	15
18 18	D E	0.060	1.62 1.69	28.8 28.8	230.4	288.0 288.0		-10~+30		10 10	12 12	15 15
22	В	0.060	0.54	35.2	281.6	352.0		-10~+30 -10~+30		10	12	15
22	С	0.150	0.87	35.2	281.6	352.0		-10~+30		10	12	15
22	D	0.060	1.62	35.2	281.6	352.0		-10~+30		10	12	15
22	E	0.060	1.69	35.2	281.6	352.0		-10~+30		10	12	15
33	В	0.300	0.54	52.8	422.4	528.0		-10~+30		10	12	15
33	С	0.150	1.07	52.8	422.4	528.0	-10~+10	-10~+30	-10~+50	10	12	15
33	D	0.060	1.62	52.8	422.4	528.0	-10~+10	-10~+30	-10~+50	10	12	15
33	Е	0.060	1.69	52.8	422.4	528.0	-10~+10	-10~+30	-10~+50	10	12	15
47	С	0.150	1.07	75.2	601.6	752.0	-10~+10	-10~+30	-10~+50	10	12	15
47	D	0.060	1.62	75.2	601.6	752.0	-10~+10	-10~+30	-10~+50	10	12	15
47	Е	0.060	1,69	75.2	601.6	752.0	-10~+10	-10~+30	-10~+50	10	12	15
68	С	0.100	1.07	108.8	870.4	1088.0	-10~+10	-10~+30	-10~+50	10	12	15
68	D	0.060	1.62	108.8	870.4	1088.0	-10~+10	-10~+30	-10~+50	10	12	15
68	Е	0.060	1.69	108.8	870.4			-10~+30		10	12	15
75	С	0.100	1.07	120.0	960.0			-10~+30			12	15
75	D	0.080	1.4	120.0	960.0	1200.0	-10~+10	-10~+30	-10~+50	10	12	15

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表2 电容器的额定电压、纹波电流、标称电容量、等效串联电阻(ESR)、外壳代号及高低温特性

Part	标称电		ESR	交流纹波	演电流max (μA)			由交	豊本 化 恭 [割(%)		ΑŒ tŪma	ov (%)
100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 10		売			//时 七	E MILITIAN (μ Α)	七 台	里又化池口	면(<i>/</i> 0 <i>)</i>	100个七月	H TT Allic	17 (/0)
(F) 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 100 10			100KHz	100KHz	Leakage	Current Ma	ıx (μ Α)	Capacitano	e Variation R	ange (%)	Dissipat	ion Factor	max (%)
			(Ω)										
Page 1				max							-55°C		
接定性底(U,)16V / Rated Voltage(U,)16V / Rated Voltage	C _R	Case			+25℃	+85℃	+125℃	–55℃	+85℃	+125℃	0.500	+85°C	+125℃
75 E 0.080 1.47 120.0 960.0 1200.0 -10-+10 -10-+30 -10-+50 10 12 15 15 15 15 15 15 15	(μF)		+25℃	+85℃							+25°C		
85 C 0,100 1,07 136,0 1088,0 1360,0 -10~+10 -10~+30 -10~+50 10 12 15 85 D 0,080 1,40 136,0 1088,0 1360,0 -10~+10 -10~+30 -10~+50 10 12 15 15 100 C 0,100 1.07 160,0 1280,0 1600,0 -10~+10 -10~+30 -10~+50 10 12 15 15 100 C 0,100 1.07 160,0 1280,0 1600,0 -10~+10 -10~+30 -10~+50 10 12 15 15 100 C 0,080 1,40 160,0 1280,0 1600,0 -10~+10 -10~+30 -10~+50 10 12 15 15 100 E 0,080 1,47 160,0 1280,0 1600,0 -10~+10 -10~+30 -10~+50 10 12 15 15 100 E 0,080 1,47 160,0 1280,0 1600,0 -10~+10 -10~+30 -10~+50 10 12 15 15 100 S 0,080 2,32 160,0 1280,0 1600,0 -10~+10 -10~+30 -10~+50 10 12 15 15 15 0 D 0,080 1.40 240,0 1920,0 2400,0 -10~+10 -10~+30 -10~+50 10 12 15 15 15 0 D 0,080 1.47 240,0 1920,0 2400,0 -10~+10 -10~+30 -10~+50 10 12 15 15 15 0 W 0,060 1.87 240,0 1920,0 2400,0 -10~+10 -10~+30 -10~+50 10 12 15 15 15 0 W 0,060 1.87 240,0 1920,0 2400,0 -10~+10 -10~+30 -10~+50 10 12 15 15 15 0 W 0,060 1.87 240,0 1920,0 2400,0 -10~+10 -10~+30 -10~+50 10 12 15 15 15 0 W 0,060 1.88 240,0 1920,0 2400,0 -10~+10 -10~+30 -10~+50 10 12 15 15 12 15 15 15 0 W 0,060 1.88 352,0 2816,0 3520,0 -10~+10 -10~+30 -10~+50 10 12 15 15 15 15 0 W 0,060 1.87 352,0 2816,0 3520,0 -10~+10 -10~+30 -10~+50 10 12 15 15 15 15 0 W 0,060 1.88 352,0 2816,0 3520,0 -10~+10 -10~+30 -10~+50 10 12 15 15 15 15 0 W 0,060 1.88 352,0 2816,0 3520,0 -10~+10 -10~+30 -10~+50 10 12 15 15 15 15 15 0 W 0,060 1.88 352,0 2816,0 3520,0 -10~+10 -10~+30 -10~+50 10 12 15 15 15 15 15 15 15 15 15 15 15 15 15					额定电压	(U _R) 16	√ / Rate	d Voltage	(U _R) 16V				
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1000 T 0.080 2.31 1600.0 12800.0 16000.0 -10~+10 -10~+30 -10~+50 10 12 15 1500 T 0.080 2.31 2400.0 19200.0 24000.0 -10~+10 -10~+30 -10~+50 13 15 18 2200 T 0.080 2.31 3520.0 28160.0 35200.0 -10~+10 -10~+30 -10~+50 13 15 18 额定电压(UR)20V / Rated Voltage(UR)20V 1 A 0.500 0.28 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 18 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 1.5 A 0.500 0.28 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 1.5 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 15 18 2.2 A 0.500 0.28 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 2.2 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 3.3 A 0.500 0.28 6.6 52.8 66.0 -10~+10 -10~+30 -10~+50 13 15 18													
1500 T 0.080 2.31 2400.0 19200.0 24000.0 -10~+10 -10~+30 -10~+50 13 15 18 2200 T 0.080 2.31 3520.0 28160.0 35200.0 -10~+10 -10~+30 -10~+50 13 15 18 额定电压 (UR) 20V / Rated Voltage (UR) 20V 1 A 0.500 0.28 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 18 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 15 15 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 1.5 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 1.5 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 2.2 A 0.500 0.28 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 2.2 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 3.3 A 0.500 0.28 6.6 52.8 66.0 -10~+10 -10~+30 -10~+50 13 15 18													
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额定电压(U_R)20V / Rated Voltage(U_R)20V													
1 A 0.500 0.28 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 1 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 1.5 A 0.500 0.28 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 1.5 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+50 13 15 18 2.2 A 0.500 0.28 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 2.2 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 3.3 A 0.500 0.28 6.6 52.8 66.0 -10~+10 -10~+30 -10~+50 10 12 15	2200	'	0,000	2,01						10 100	10	10	10
1 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 1.5 A 0.500 0.28 5.0 40.0 50.0 -10~+10 -10~+50 13 15 18 1.5 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+50 13 15 18 2.2 A 0.500 0.28 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 2.2 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 3.3 A 0.500 0.28 6.6 52.8 66.0 -10~+10 -10~+30 -10~+50 10 12 15	1	А	0.500	0.28						-10~+50	10	12	15
1.5 A 0.500 0.28 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 1.5 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+50 13 15 18 2.2 A 0.500 0.28 5.0 40.0 50.0 -10~+10 -10~+50 13 15 18 2.2 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 3.3 A 0.500 0.28 6.6 52.8 66.0 -10~+10 -10~+30 -10~+50 10 12 15													
1.5 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 2.2 A 0.500 0.28 5.0 40.0 50.0 -10~+10 -10~+50 13 15 18 2.2 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 3.3 A 0.500 0.28 6.6 52.8 66.0 -10~+10 -10~+30 -10~+50 10 12 15													
2.2 A 0.500 0.28 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 2.2 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 3.3 A 0.500 0.28 6.6 52.8 66.0 -10~+10 -10~+30 -10~+50 10 12 15													
2.2 B 0.300 0.54 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 13 15 18 3.3 A 0.500 0.28 6.6 52.8 66.0 -10~+10 -10~+30 -10~+50 10 12 15													
3.3 A 0.500 0.28 6.6 52.8 66.0 -10~+10 -10~+30 -10~+50 10 12 15													
3.3 B 0.300 0.54 6.6 52.8 66.0 -10~+10 -10~+30 -10~+50 10 12 15	3.3	В	0.300	0.54	6.6	52.8	66.0				10	12	15
3.3 C 0.100 1.07 6.6 52.8 66.0 -10~+10 -10~+30 -10~+50 10 12 15		С									10		

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表2 电容器的额定电压、纹波电流、标称电容量、等效串联电阻(ESR)、外壳代号及高低温特性

1- 14 H		EOD	主体体	· 波 漏电流max (μ A)			电容量变化范围(%)			10 tr /	z 	(0/)
标称电 容量	壳	ESR max	交流纹波 电流max	源 电	总流max (μ Α)	电谷	重变化泡筒	刬(%)	扨耗月 	角正切ma	ax (%)
C _R		100KHz (Ω)	100KHz	Leakage	Current Ma	ах (µ А)	Capacitano	ce Variation R	ange (%)	Dissipat	ion Factor I	max (%)
(μF)		(\$2)	(A) Ripple Current									
Nominal Capacitance			max 100KHz (A)	+25°C	+85°C	+125°C	–55°C	+85°C	+125℃	-55℃	+85℃	+125℃
C _θ (μ F)	Case	+25℃	+85°C	1200	1000	11200	000	1000	11200	+25℃	1000	11200
				额定电压	E (U _r)2	OV / Rate	ed Voltage	(U _R) 20V				
4.7	В	0.300	0.54	9.4	75.2	94.0	-10~+10	-10~+30	-10~+50	10	12	15
4.7	С	0.100	1.07	9.4	75.2	94.0	-10~+10	-10~+30	-10~+50	10	12	15
4.7	D	0.075	1.45	9.4	75.2	94.0	-10~+10	-10~+30	-10~+50	10	12	15
6.8	В	0.300	0.54	13.6	108.8	136.0	-10~+10	-10~+30	-10~+50	10	12	15
6.8	С	0.100	1.07	13.6	108.8	136.0	-10~+10	-10~+30	-10~+50	10	12	15
6.8	D	0.075	1.45	13.6	108.8	136.0		-10~+30		10	12	15
10	В	0.300	0.54	20.0	160.0	200.0		-10~+30		10	12	15
10	С	0.150	0.87	20.0	160.0	200.0		-10~+30		10	12	15
10	D	0.075	1.45	20.0	160.0	200.0		-10~+30		10	12	15
15	С	0.150	0.87	30.0	240.0	300.0		-10~+30		10	12	15
15 18	D C	0.060	1.62 1.07	30.0 36.0	240.0 288.0	300.0		-10~+30 -10~+30		10	12	15 15
18	D	0.060	1.62	36.0	288.0	360.0 360.0		-10~+30 -10~+30		10 10	12 12	15
18	E	0.080	1.47	36.0	288.0	360.0		-10~+30 -10~+30		10	12	15
22	С	0.100	1.07	44.0	352.0	440.0		-10~+30		10	12	15
22	D	0.060	1.62	44.0	352.0	440.0		-10~+30		10	12	15
22	Е	0.080	1.47	44.0	352.0	440.0		-10~+30		10	12	15
33	С	0.100	1.07	66.0	528.0	660.0		-10~+30		10	12	15
33	D	0.060	1.62	66.0	528.0	660.0	-10~+10	-10~+30	-10~+50	10	12	15
33	Е	0.080	1.47	66.0	528.0	660.0	-10~+10	-10~+30	-10~+50	10	12	15
47	С	0.100	1.07	94.0	752.0	940.0	-10~+10	-10~+30	-10~+50	10	12	15
47	D	0.080	1.40	94.0	752.0	940.0	-10~+10	-10~+30	-10~+50	10	12	15
47	Е	0.080	1.47	94.0	752.0	940.0	-10~+10	-10~+30	-10~+50	10	12	15
68	D	0.080	1.40	136.0	1088.0	1360.0	-10~+10	-10~+30	-10~+50	10	12	15
68	Е	0.080	1.47	136.0	1088.0			-10~+30		10	12	15
68	V	0.080	1.62	136.0	1088.0			-10~+30		10	12	15
75	D	0.080	1.40	150.0	1200.0			-10~+30		10	12	15
75 75	E	0.080	1.47	150.0	1200.0			-10~+30		10	12	15
75 85	V	0.080	1.62 1.40	150.0 170.0	1200.0			-10~+30		10	12	15
85	D E	0.080	1.47		1360.0			-10~+30		10	12	15
85	V	0.080	1.62	170.0 170.0	1360.0 1360.0			-10~+30 -10~+30		10	12 12	15 15
100	D	0.080	1.41	200.0	1600.0			-10~+30 -10~+30		10	12	15
100	E	0.080	1.47	200.0	1600.0			-10~+30		10	12	15
100	V	0.080	1.62	200.0	1600.0			-10~+30		10	12	15
100	W	0.080	1.63	200.0	1600.0			-10~+30			12	15
150	Е	0.080	1.47	300.0	2400.0			-10~+30		10	12	15
150	V	0.080	1.62	300.0	2400.0	3000.0	-10~+10	-10~+30	-10~+50	10	12	15
150	W	0.080	1.63	300.0	2400.0	3000.0	-10~+10	-10~+30	-10~+50	10	12	15

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表2 电容器的额定电压、纹波电流、标称电容量、等效串联电阻(ESR)、外壳代号及高低温特性

标称电	壳	ESR max	交流纹波 电流max	漏电	l流max (μ А)	电容:	量变化范围	围(%)	损耗角	自正切ma	ax (%)
容量 C _R		100KHz (Ω)	100KHz (A)	Leakage	Current Ma	х (µ А)	Capacitanc	e Variation Ra	ange (%)	Dissipat	ion Factor	max (%)
(μF)			Ripple Current max 100KHz							-55°C		
Capacitance C _R (μ F)	Case	+25°C	(A) +85°C	+25°C	+85°C	+125℃	–55℃	+85°C	+125℃	+25℃	+85°C	+125℃
				も压(U _r) 20V	/ Rated	Voltage (J _a) 20V				
220	Е	0.080	1.47	440.0	3520.0		-10~+10		-10~+50	10	12	15
220	V	0.080	1.62	440.0	3520.0		-10~+10			10	12	15
220	W	0.080	1.63	440.0	3520.0	4400.0	-10~+10	-10~+30	-10~+50	10	12	15
220	Χ	0.080	1.97	440.0	3520.0	4400.0	-10~+10	-10~+30	-10~+50	10	12	15
330	V	0.080	1.62	660.0	5280.0	6600.0	-10~+10	-10~+30	-10~+50	10	12	15
330	W	0.060	1.89	660.0	5280.0	6600.0	-10~+10	-10~+30	-10~+50	10	12	15
330	Χ	0.080	1.97	660.0	5280.0	6600.0	-10~+10	-10~+30	-10~+50	10	12	15
470	Χ	0.080	1.97	940.0	7520.0	9400.0	-10~+10	-10~+30	-10~+50	10	12	15
470	Т	0.040	3,28	940.0	7520.0	9400.0	-10~+10	-10~+30	-10~+50	10	12	15
680	Τ	0.080	2.31	1360.0	10880.0	13600.0	-10~+10	-10~+30	-10~+50	10	12	15
1000	Т	0.080	2.31	2000.0	16000.0	20000.0	-10~+10	- 10~+30	- 10~+50	10	12	15
1000	Τ	0.040	3.28	2000.0	16000.0	20000.0	-10~+10	-10~+30	-10~+50	10	12	15
			额定	电压(U _F) 25V	/ Rated V	oltage (U	,) 25V				
0.68	Α	0.500	0.28	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
0.68	В	0.300	0.54	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
1	Α	0.500	0.28	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
1	В	0.300	0.54	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
1	С	0.150	0.87	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
1.5	В	0.300	0.54	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
1.5	С	0.150	0.87	5.0	40.0	50.0	-10~+10	- 10~+30	- 10~+50	10	12	15
2.2	В	0.300	0.54	5.5	44.0	55.0	-10~+10	- 10~+30	-10~+50	10	12	15
2.2	С	0.150	0.87	5.5	44.0	55.0		-10~+30		10	12	15
2.2	D	0.120	1.15	5.5	44.0	55.0	-10~+10	-10~+30	-10~+50	10	12	15
3.3	В	0.300	0.54	8.3	66.0	82.5		-10~+30		10	12	15
3.3	С	0.150	0.87	8.3	66.0	82.5		-10~+30		10	12	15
3.3	D	0.100	1.26	8.3	66.0	82.5		-10~+30		10	12	15
4.7	В	0.300	0.54	11.8	94.0	117.5	-10~+10			10	12	15
4.7	С	0.150	0.87	11.8	94.0	117.5		-10~+30		10	12	15
4.7	D	0.075	1.45	11.8	94.0	117.5		-10~+30			12	15
4.7	Е	0.120	1.21	11.8	94.0		-10~+10			10	12	15
6.8	В	0.300	0.54	17.0	136.0	170.0	-10~+10			10	12	15
6.8	С	0.150	0.87	17.0	136.0	170.0		-10~+30		10	12	15
6.8	D	0.075	1.45	17.0	136.0		-10~+10			10	12	15
6.8	E	0.120	1,21	17.0	136.0	170.0		-10~+30		10	12	15
10	В	0.300	0.54	25.0	200.0		-10~+10			10	12	15
10	С	0.150	0.87	25.0	200.0	250.0		-10~+30		10	12	15
10	D	0.075	1.45	25.0	200.0	250.0	-10~+10			10	12	15
10	E	0.075	1.52	25.0	200.0		-10~+10			10	12	15
15	С	0.100	1.07	37.5	300.0	375.0	-10~+10	-10~+30	-10~+50	10	12	15

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表2 电容器的额定电压、纹波电流、标称电容量、等效串联电阻(ESR)、外壳代号及高低温特性

				皮 漏电流max (μ A)			电容量变化范围(%)					
标称电	売	ESR max	交流纹波 电流max	漏电	l流max (μ Α)	电容 [·]	量变化范围	围(%)	损耗角	直正切ma	ax (%)
容量 C _R		100KHz	100KHz	Leakage	Current Ma	x (µ A)	Capacitano	ce Variation R	ange (%)	Dissipat	ion Factor I	max (%)
(μ F)		(Ω)	(A) Ripple Current						3 (70)			(70)
Nominal			max 100KHz							-55°C		
Capacitance C _R	Case	0.500	(A)	+25℃	+85℃	+125℃	-55°C	+85℃	+125℃	0500	+85°C	+125℃
(μF)		+25°C	+85°C							+25℃		
					(U _R) 25\		ed Voltage					
15	D	0.060	1.62	37.5	300.0	375.0		-10~+30		10	12	15
15	E	0.075	1.52	37.5	300.0	375.0		-10~+30		10	12	15
18	С	0.100	1.07	45.0	360.0	450.0		-10~+30		10	12	15
18	D	0.060	1.62	45.0	360.0	450.0		-10~+30		10	12	15
18	E C	0.060	1.69	45.0	360.0		-10~+10			10	12	15
22 22		0.100	1.07 1.40	55.0 55.0	440.0	550.0		-10~+30 -10~+30		10	12 12	15 15
22	D E	0.080	1.69	55.0	440.0	550.0 550.0		-10~+30 -10~+30		10 10	12	15
33	D	0.080	1.40	82.5	660.0	825.0		-10~+30 -10~+30		10	12	15
33	E	0.080	1.47	82.5	660.0		-10~+10 -10~+10			10	12	15
33	V	0.080	1.53	82.5	660.0		-10~+10 -10~+10			10	12	15
47	D	0.080	1.40	117.5	940.0		-10~+10			10	12	15
47	E	0.080	1.47	117.5	940.0		-10~+10			10	12	15
47	V	0.080	1.62	117.5	940.0		-10~+10			10	12	15
68	D	0.080	1.40	170.0	1360.0		-10~+10			10	12	15
68	E	0.080	1.47	170.0	1360.0		-10~+10			10	12	15
68	V	0.080	1.62	170.0	1360.0		-10~+10			10	12	15
68	W	0.080	1.63	170.0	1360.0	1700.0	-10~+10	-10~+30	-10~+50	10	12	15
75	Е	0.080	1.47	187.5	1500.0	1875.0	-10~+10	-10~+30	-10~+50	10	12	15
75	V	0.080	1.62	187.5	1500.0	1875.0	-10~+10	-10~+30	-10~+50	10	12	15
75	W	0.080	1.63	187.5	1500.0	1875.0	-10~+10	-10~+30	-10~+50	10	12	15
85	Е	0.080	1.47	212.5	1700.0	2125.0	-10~+10	-10~+30	-10~+50	10	12	15
85	V	0.080	1.62	212.5	1700.0	2125.0	-10~+10	-10~+30	-10~+50	10	12	15
85	W	0.080	1.63	212.5	1700.0	2125.0	-10~+10	-10~+30	-10~+50	10	12	15
100	D	0.080	1.40	250.0	2000.0	2500.0	-10~+10	-10~+30	-10~+50	10	12	15
100	Е	0.080	1.47	250.0	2000.0	2500.0	-10~+10	-10~+30	-10~+50	10	12	15
100	V	0.080	1.62	250.0	2000.0	2500.0	-10~+10	-10~+30	-10~+50	10	12	15
100	W	0.080	1.63	250.0	2000.0	2500.0	-10~+10	-10~+30	-10~+50	10	12	15
100	Т	0.080	2.31	250.0	2000.0		-10~+10			10	12	15
150	V	0.080	1.62	375.0	3000.0		-10~+10			10	12	15
150	W	0.080	1.63	375.0	3000.0		-10~+10			10	12	15
150	Т	0.060	2.67	375.0	3000.0		-10~+10			10	12	15
220	V	0.060	1.87	550.0	4400.0		-10~+10			10	12	15
220	W	0.080	1.63	550.0	4400.0		-10~+10			10	12	15
220	X	0.080	1.97	550.0	4400.0		-10~+10			10	12	15
220	T	0.060	2.67	550.0	4400.0		-10~+10			10	12	15
330	W	0.080	1.63	825.0	6600.0		-10~+10			10	12	15
330	X	0.080	1.97	825.0	6600.0		-10~+10			10	12	15
330	Т	0.060	2.67	825.0	6600.0	8250.0	-10~+10	-10~+30	-10~+50	10	12	15

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表2 电容器的额定电压、纹波电流、标称电容量、等效串联电阻(ESR)、外壳代号及高低温特性

标称电	売	ESR	交流纹波				电容	量变化范围	圓(%)	损耗角	自正切ma	ax (%)
容量 C _R		max 100KHz	电流max 100KHz	Leakage (Current Ma	ıx (µ A)	Capacitano	e Variation Ra	ange (%)	Dissipat	ion Factor	max (%)
(μ F)		(Ω)	(A) Ripple Current			, , ,			3 (/-)			(,-,
Nominal			max 100KHz (A)	0500	0.500	4.0500	5.500	0.500	10500	-55°C	0.500	4.0500
Capacitance C_R (μF)	Case	+25℃	+85°C	+25°C	+85°C	+125℃	–55°C	+85℃	+125℃	+25℃	+85°C	+125°C
			额定电压	(U _n) 25	5V /	Rated Volt	age (U _R)	25V				
470	Χ	0.080	1.97	1175.0				-10~+30	-10~+50	10	12	15
470	Т	0.080	2.31	1175.0	9400.0	11750.0	-10~+10	-10~+30	-10~+50	10	12	15
680	Т	0.080	2.31	1700.0	13600.0	17000.0	-10~+10	-10~+30	-10~+50	10	12	15
			额定电压	(U _R) 35	5V /	Rated Volt	age (U _R)	35V				
0.1	Α	0.600	0.26	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
0.1	В	0.600	0.40	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
0.15	Α	0.600	0.26	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
0.15	В	0.600	0.40	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
0.22	Α	0.600	0.26	5.0	40.0	50.0	- 10~+10	-10~+30	- 10~+50	10	12	15
0.22	В	0.600	0.40	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
0.33	Α	0.600	0.26	5.0	40.0	50.0		-10~+30		10	12	15
0.33	В	0.600	0.40	5.0	40.0	50.0		-10~+30		10	12	15
0.47	Α	0.500	0.28	5.0	40.0	50.0		-10~+30		10	12	15
0.47	В	0.350	0.50	5.0	40.0	50.0		-10~+30		10	12	15
0.68	Α	0.500	0.28	5.0	40.0	50.0		-10~+30		10	12	15
0.68	В	0.350	0.50	5.0	40.0	50.0		-10~+30		10	12	15
0.68	C	0.200	0.75	5.0	40.0	50.0		-10~+30		10	12	15
1	A	0.500	0.28	5.0	40.0	50.0		-10~+30		10	12	15
1	В	0.350	0.50	5.0	40.0	50.0		-10~+30		10	12	15
1	С	0.200	0.75	5.0	40.0	50.0		-10~+30		10	12	15
1.5	В	0.350	0.50	5.3	42.0	52.5		-10~+30 -10~+30		10	12 12	15 15
1.5 2.2	C B	0.200 0.350	0.75 0.50	5.3	42.0 61.6	52.5 77.0		-10~+30 -10~+30		10	12	15
2.2	С	0.330	0.75	7.7 7.7	61.6	77.0		-10~+30 -10~+30		10	12	15
2.2	D	0.200	1.15	7.7	61.6			-10~+30		10	12	15
3.3	В	0.350	0.50	11.6	92.4	115.5		-10~+30		10	12	15
3.3	С	0.200	0.75	11.6	92.4			-10~+30		10	12	15
3.3	D	0.100	1.26	11.6	92.4			-10~+30		10	12	15
4.7	В	0.350	0.50	16.5	131.6			-10~+30		10	12	15
4.7	С	0.200	0.75	16.5	131.6			-10~+30		10	12	15
4.7	D	0.120	1.15	16.5	131.6			-10~+30		10	12	15
4.7	E	0.120	1.20	16.5	131.6			-10~+30		10	12	15
6.8	С	0.200	0.75	23.8	190.4		-10~+10	-10~+30	-10~+50	10	12	15
6.8	D	0.075	1.44	23.8	190.4			-10~+30		10	12	15
6.8	Е	0.120	1.20	23.8	190.4			-10~+30		10	12	15
10	С	0.200	0.75	35.0	280.0	350.0	-10~+10	-10~+30	-10~+50	10	12	15
10	D	0.090	1.32	35.0	280.0	350.0	-10~+10	-10~+30	-10~+50	10	12	15
10	Е	0.075	1.51	35.0	280.0	350.0	-10~+10	-10~+30	-10~+50	10	12	15
10	V	0.120	1.33	35.0	280.0	350.0	-10~+10	-10~+30	-10~+50	10	12	15

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表2 电容器的额定电压、纹波电流、标称电容量、等效串联电阻(ESR)、外壳代号及高低温特性

1			S 13 13 31	b 据电流max (μ A)			电容量变化范围(%)			1 = 1 × 4		
标称电	壳	ESR max	交流纹波 电流max	漏馬	l流max (μ Α)	电容 [·]	量变化范围	围(%)	损耗角	i正切ma	ax (%)
容量 C _R		100KHz	100KHz	Leakage	Current Ma	ıx (μ Α)	Capacitano	ce Variation R	ange (%)	Dissipat	ion Factor I	max (%)
(μF)		(Ω)	(A) Ripple Current									
Nominal			max 100KHz	0-	0-			0		-55°C	0-	
Capacitance C _B (μ F)	Case	+25°C	(A) +85℃	+25°C	+85°C	+125℃	–55°C	+85°C	+125℃	+25℃	+85℃	+125℃
(μ1)		+200		500000	(/ / Dat	- d \ / - t	(11) 25)	/	1200		
15	D	0.090	1.32	52.5	(U _R) 35\ 420.0			$(U_R) 35$ -10~+30		10	12	15
15	E	0.075	1.51	52.5	420.0	525.0		-10~+30		10	12	15
15	V	0.100	1.46	52.5	420.0	525.0		-10~+30		10	12	15
18	D	0.075	1.44	63.0	504.0	630.0		-10~+30		10	12	15
18	Е	0.075	1.51	63.0	504.0	630.0	-10~+10	-10~+30	-10~+50	10	12	15
18	V	0.100	1.46	63.0	504.0	630.0	-10~+10	-10~+30	-10~+50	10	12	15
22	Н	0.090	1.14	77.0	616.0	770.0	-10~+10	-10~+30	-10~+50	10	12	15
22	D	0.090	1.32	77.0	616.0	770.0	-10~+10	-10~+30	-10~+50	10	12	15
22	Е	0.075	1.51	77.0	616.0	770.0	-10~+10	-10~+30	-10~+50	10	12	15
22	V	0.070	1.74	77.0	616.0	770.0	-10~+10	-10~+30	-10~+50	10	12	15
22	W	0.120	1.34	77.0	616.0	770.0	-10~+10	-10~+30	-10~+50	10	12	15
33	D	0.090	1.32	115.5	924.0	1155.0	-10~+10	-10~+30	-10~+50	10	12	15
33	E	0.090	1.38	115.5	924.0			-10~+30		10	12	15
33	E	0.075	1.51	115.5	924.0			-10~+30		10	12	15
33	V	0.075	1.67	115.5	924.0			-10~+30		10	12	15
33 47	W	0.080	1.64 1.32	115.5 164.5	924.0			-10~+30		10	12	15
47	E	0.090	1.38	164.5	1316.0 1316.0			-10~+30 -10~+30		10	12 12	15 15
47	V	0.090	1.53	164.5	1316.0			-10~+30 -10~+30		10	12	15
47	W	0.090	1.54	164.5	1316.0			-10~+30		10	12	15
68	E	0.090	1.38	238.0	1904.0			-10~+30		10	12	15
68	V	0.090	1.53	238.0	1904.0			-10~+30		10	12	15
68	W	0.090	1.54	238.0	1904.0			-10~+30		10	12	15
68	Χ	0.090	1.86	238.0	1904.0	2380.0	-10~+10	-10~+30	-10~+50	10	12	15
68	Т	0.100	2.07	238.0	1904.0	2380.0	-10~+10	-10~+30	-10~+50	10	12	15
75	W	0.090	1.54	262.5	2100.0	2625.0	-10~+10	-10~+30	-10~+50	10	12	15
75	Χ	0.090	1.86	262.5	2100.0	2625.0	-10~+10	-10~+30	-10~+50	10	12	15
85	W	0.090	1.54	297.5	2380.0	2975.0	-10~+10	-10~+30	-10~+50	10	12	15
85	Χ	0.090	1.86	297.5	2380.0	2975.0	-10~+10	-10~+30	-10~+50	10	12	15
100	F	0.090	1.28	350.0	2800.0			-10~+30		10	12	15
100	W	0.090	1.54	350.0	2800.0			-10~+30		10	12	15
100	X	0.090	1.86	350.0	2800.0			-10~+30		10	12	15
100	T	0.090	2.18	350.0	2800.0			-10~+30		10	12	15
150	W	0.090	1.54	525.0	4200.0			-10~+30		10	12	15
150 150	X T	0.090	1.86 2.18	525.0 525.0	4200.0 4200.0			-10~+30 -10~+30		10	12	15
220	X	0.090	2.18	770.0	6160.0			-10~+30 -10~+30		10 10	12 12	15 15
220	T	0.090	2.18	770.0				-10~+30 -10~+30			12	15
330	T	0.090	2.18	1155.0				-10~+30		10	12	15
					5 = 15.5		. 5 1 10	.5 100	. 5 100	. 5		.0

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表2 电容器的额定电压、纹波电流、标称电容量、等效串联电阻(ESR)、外壳代号及高低温特性

Table Part	标称电	売	ESR	交流纹波						围(%)	损耗角	角正切ma	ax (%)
(1)				电流max 100KHz			((01)			(01)
************************************				(A)	Leakage	Current Ma	ιx (μ A)	Capacitano	te Variation R	ange (%)	Dissipat	ion Factor	max (%)
## 2500				Ripple Current max 100KHz							-55℃		
## 現金电压(U,)35V / Rated Voltage(U,)35V / Rated Voltage(U,)35V / Rated Voltage(U,)40V / Rated Voltage(U,)40V / Rated Voltage(U,)50V / Ra	Capacitance	Case	0.500	(A)	+25℃	+85℃	+125℃	-55℃	+85℃	+125℃		+85℃	+125℃
470 T 0.090 2.18 1645.0 13160.0 16450.0 -10~+10 -10~+30 -10~+50 10 12 15 接種田氏 (U _H) 40V	(μF)		+25°C	+85℃							+25°C		
翻定电圧(U _n)40V / Rated Voltage(U _n)40V		_											
100 W 0,100 1,46 400,0 4000,0 5000,0 -10 -+10 -10 -+30 -10 -+50 10 12 15 数定規版 (U ₁) 50V / Rated Voltage	470	Т	0.090	2.18							10	12	15
 柳定电圧 (U_n) 50V / Rated Voltage (U_n) 50V 0.1 A 0.600 0.26 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 0.1 B 0.600 0.40 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 0.1 C 0.500 0.48 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 0.15 A 0.600 0.26 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 0.15 B 0.600 0.40 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 0.15 B 0.600 0.40 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 0.22 A 0.600 0.26 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 0.23 B 0.600 0.40 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 0.33 A 0.600 0.26 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 0.33 B 0.600 0.40 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 0.33 B 0.600 0.40 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 0.47 B 0.350 0.50 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 0.68 B 0.350 0.50 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 0.68 B 0.350 0.50 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 1 B 0.350 0.50 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 1 C 0.200 0.75 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 1 C 0.200 0.75 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 1 C 0.200 0.75 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 1 C 0.200 0.75 7.5 60.0 7.5 60.0 -10~+10 -10~+30 -10~+50 10 12 15 1 C 0.200 0.75 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 2 C 0.200 0.75 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 2 C 0 0.200 0.75 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 3 G 0.200 0.75 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 3 G 0.200 0.75 16.5 132.0 165.0 -10~+10 -10~+30 -10~+50 10 12 15 3 G 0.200 0.75 16.5 132.0 165.0 -10~+10 -10~+30 -10~+50 10 12 15 3 G 0.200 0.75 23.5 188.0 235.0 -10~+10	100	14/	0.100	1.46				Ū			10	10	4.5
0.1 A 0.600 0.26 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 0.1 B 0.600 0.40 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 0.1 C 0.500 0.48 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 0.15 A 0.600 0.26 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 0.15 B 0.600 0.40 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 0.22 A 0.600 0.26 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 0.22 B 0.600 0.40 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 0.33 A 0.600 0.26 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 0.33 B 0.600 0.40 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 0.33 B 0.600 0.40 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 0.47 B 0.350 0.50 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 0.68 B 0.350 0.50 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 0.68 B 0.350 0.50 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 0.68 B 0.350 0.50 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 0.68 C 0.200 0.75 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 1 B 0.350 0.50 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 1 B 0.350 0.50 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 1 B 0.350 0.50 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 1 B 0.350 0.50 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 1 D 0.120 1.15 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 1 5 C 0.200 0.75 5.0 40.0 50.0 -10-410 -10-430 -10-450 10 12 15 1 5 S 0 0.350 0.50 7.5 60.0 75.0 -10-410 -10-430 -10-450 10 12 15 1 5 S 0 0.350 0.50 11.0 88.0 110.0 -10-410 -10-430 -10-450 10 12 15 2 2 E 0.150 1.07 11.0 88.0 110.0 -10-410 -10-430 -10-450 10 12 15 3 3 C 0.200 0.75 16.5 132.0 165.0 -10-410 -10-430 -10-450 10 12 15 3 3 E 0.120 1.20 16.5 132.0 165.0 -10-410 -10-430 -10-450 10 12 15 3 3 E 0.120 1.22 16.5 132.0 165.0 -10-410 -10-430 -10-450 10 12 15 4 7 C 0.200 0.75 23.5 188.0 235.0 -10-410 -10-430 -10-450 10 12 15 4 7 C 0.200 0.75 34.0 272.0 340.0 -10-410 -10-430 -10-450 10 12 15 4 7 E 0.100 1.25 33.5 188.0 235.0 -10-410 -10-430 -10-450 10 12 15 4 7 E 0.100 1.25 33.5 188.0 235.0 -10	100	VV	0.100	1,40							10	12	15
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0.68 C 0.200 0.75 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 1 B 0.350 0.50 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 1 C 0.200 0.75 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 1 D 0.120 1.15 5.0 40.0 50.0 -10~+10 -10~+30 -10~+50 10 12 15 1.5 B 0.350 0.50 7.5 60.0 75.0 -10~+10 -10~+30 -10~+50 10 12 15 2.2 B 0.350 0.50 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 2.2 C 0.200 0.75 11.0 88.0 110.0 -10~+10 -10~+30	0.47	С	0.200	0.75	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
1 B 0.350 0.50 5.0 40.0 50.0 -10~+10 -10~+50 10 12 15 1 C 0.200 0.75 5.0 40.0 50.0 -10~+10 -10~+50 10 12 15 1 D 0.120 1.15 5.0 40.0 50.0 -10~+10 -10~+50 10 12 15 1.5 B 0.350 0.50 7.5 60.0 75.0 -10~+10 -10~+50 10 12 15 1.5 C 0.200 0.75 7.5 60.0 75.0 -10~+10 -10~+50 10 12 15 2.2 B 0.350 0.50 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 2.2 C 0.200 0.75 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 2.2 E	0.68	В	0.350	0.50	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
1 C 0.200 0.75 5.0 40.0 50.0 -10~+10 -10~+50 10 12 15 1 D 0.120 1.15 5.0 40.0 50.0 -10~+10 -10~+50 10 12 15 1.5 B 0.350 0.50 7.5 60.0 75.0 -10~+10 -10~+50 10 12 15 1.5 C 0.200 0.75 7.5 60.0 75.0 -10~+10 -10~+50 10 12 15 2.2 B 0.350 0.50 11.0 88.0 110.0 -10~+10 -10~+50 10 12 15 2.2 C 0.200 0.75 11.0 88.0 110.0 -10~+10 -10~+50 10 12 15 2.2 D 0.120 1.15 11.0 88.0 110.0 -10~+10 -10~+50 10 12 15 3.3 C 0.150 1.6.5	0.68	С	0.200	0.75	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
1 D 0.120 1.15 5.0 40.0 50.0 -10~+10 -10~+50 10 12 15 1.5 B 0.350 0.50 7.5 60.0 75.0 -10~+10 -10~+50 10 12 15 1.5 C 0.200 0.75 7.5 60.0 75.0 -10~+10 -10~+50 10 12 15 2.2 B 0.350 0.50 11.0 88.0 110.0 -10~+10 -10~+50 10 12 15 2.2 C 0.200 0.75 11.0 88.0 110.0 -10~+10 -10~+50 10 12 15 2.2 D 0.120 1.15 11.0 88.0 110.0 -10~+10 -10~+50 10 12 15 2.2 E 0.150 1.07 11.0 88.0 110.0 -10~+10 -10~+50 10 12 15 3.3 C 0.200 0	1	В	0.350	0.50	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
1.5 B 0.350 0.50 7.5 60.0 75.0 -10~+10 -10~+50 10 12 15 1.5 C 0.200 0.75 7.5 60.0 75.0 -10~+10 -10~+50 10 12 15 2.2 B 0.350 0.50 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 2.2 C 0.200 0.75 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 2.2 D 0.120 1.15 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 2.2 D 0.120 1.15 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 3.3 D 0.150 1.07 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10	1	С	0.200	0.75	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
1.5 C 0.200 0.75 7.5 60.0 75.0 -10~+10 -10~+50 10 12 15 2.2 B 0.350 0.50 11.0 88.0 110.0 -10~+10 -10~+50 10 12 15 2.2 C 0.200 0.75 11.0 88.0 110.0 -10~+10 -10~+50 10 12 15 2.2 D 0.120 1.15 11.0 88.0 110.0 -10~+10 -10~+50 10 12 15 2.2 E 0.150 1.07 11.0 88.0 110.0 -10~+10 -10~+50 10 12 15 3.3 C 0.100 1.07 11.0 88.0 110.0 -10~+10 -10~+50 10 12 15 3.3 C 0.200 0.75 16.5 132.0 165.0 -10~+10 -10~+30 -10~+50 10 12 15 3.3 E	1	D	0.120	1.15	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15
2.2 B 0.350 0.50 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 2.2 C 0.200 0.75 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 2.2 D 0.120 1.15 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 2.2 E 0.150 1.07 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 3.3 C 0.200 0.75 16.5 132.0 165.0 -10~+10 -10~+30 -10~+50 10 12 15 3.3 H 0.100 1.09 16.5 132.0 165.0 -10~+10 -10~+30 -10~+50 10 12 15 3.3 D 0.100 1.25 16.5 132.0 165.0 -10~+10 -10~+30 -10~+50 10 12 15 3.3 E 0.120 1.20 16.5 132.0 165.0 -10~+10 -10~+30 -10~+50 10 12 15 4.7 C 0.200 0.75 23.5 188.0 235.0 -10~+10 -10~+30 -10~+50 10 12 15 4.7 H 0.100 1.09 23.5 188.0 235.0 -10~+10 -10~+30 -10~+50 10 12 15 4.7 D 0.100 1.25 23.5 188.0 235.0 -10~+10 -10~+30 -10~+50 10 12 15 4.7 E 0.120 1.20 23.5 188.0 235.0 -10~+10 -10~+30 -10~+50 10 12 15 4.7 E 0.120 1.20 23.5 188.0 235.0 -10~+10 -10~+30 -10~+50 10 12 15 6.8 C 0.200 0.75 34.0 272.0 340.0 -10~+10 -10~+30 -10~+50 10 12 15 6.8 D 0.100 1.25 34.0 272.0 340.0 -10~+10 -10~+30 -10~+50 10 12 15 6.8 E 0.120 1.20 34.0 272.0 340.0 -10~+10 -10~+30 -10~+50 10 12 15 6.8 E 0.120 1.20 34.0 272.0 340.0 -10~+10 -10~+30 -10~+50 10 12 15 6.8 E 0.120 1.20 34.0 272.0 340.0 -10~+10 -10~+30 -10~+50 10 12 15	1.5	В		0.50	7.5	60.0	75.0	-10~+10	-10~+30	-10~+50	10	12	15
2.2 C 0.200 0.75 11.0 88.0 110.0 -10~+10 -10~+50 10 12 15 2.2 D 0.120 1.15 11.0 88.0 110.0 -10~+10 -10~+50 10 12 15 2.2 E 0.150 1.07 11.0 88.0 110.0 -10~+10 -10~+50 10 12 15 3.3 C 0.200 0.75 16.5 132.0 165.0 -10~+10 -10~+50 10 12 15 3.3 H 0.100 1.09 16.5 132.0 165.0 -10~+10 -10~+50 10 12 15 3.3 D 0.100 1.25 16.5 132.0 165.0 -10~+10 -10~+50 10 12 15 3.3 E 0.120 1.20 16.5 132.0 165.0 -10~+10 -10~+50 10 12 15 4.7 C 0.200		С				60.0	75.0	-10~+10	-10~+30	-10~+50	10	12	15
2.2 D 0.120 1.15 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 2.2 E 0.150 1.07 11.0 88.0 110.0 -10~+10 -10~+30 -10~+50 10 12 15 3.3 C 0.200 0.75 16.5 132.0 165.0 -10~+10 -10~+30 -10~+50 10 12 15 3.3 H 0.100 1.09 16.5 132.0 165.0 -10~+10 -10~+30 -10~+50 10 12 15 3.3 D 0.100 1.25 16.5 132.0 165.0 -10~+10 -10~+30 -10~+50 10 12 15 3.3 E 0.120 1.20 16.5 132.0 165.0 -10~+10 -10~+30 -10~+50 10 12 15 4.7 C 0.200 0.75 23.5 188.0 235.0 -10~+10 -10~+30 -10~+50 10 12 15 4.7 D 0.100							110.0	-10~+10	-10~+30	-10~+50	10		
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10 D 0.100 1.25 50.0 400.0 500.0 -10~+10 -10~+30 -10~+50 10 12 15													
	10	E	0.100	1.31	50.0	400.0	500.0				10	12	15
10 V 0.120 1.32 50.0 400.0 500.0 -10~+10 -10~+30 -10~+50 10 12 15													

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表2 电容器的额定电压、纹波电流、标称电容量、等效串联电阻(ESR)、外壳代号及高低温特性

标称电	売	ESR	交流纹波	漏电	l流max (μ А)	电容	量变化范围	围(%)	损耗角	正切ma	ax (%)
容量		max 100KHz	电流max 100KHz	Leakage	Current Ma	α ν (μ. Α)	Capacitano	e Variation R	ange (%)	Dissinati	on Factor	max (%)
C_R (μF)		(Ω)	(A) Ripple Current	Leakage	Current Tric		Capacitario		unge (/8)	Dissipati	Official	nax (78)
Nominal			max 100KHz							-55°C		
Capacitance C _R	Case	0.500	(A)	+25°C	+85°C	+125℃	–55°C	+85°C	+125℃	. 0.00	+85℃	+125℃
(μF)		+25°C	+85°C							+25°C		
				e电压(U			Voltage(
10	W	0.120	1.34	50.0	400.0	500.0		-10~+30		10	12	15
15	D	0.100	1.25	75.0	600.0	750.0		-10~+30		10	12	15
15	E	0.100	1.31	75.0	600.0	750.0		-10~+30		10	12	15
15	V	0.100	1.45	75.0	600.0	750.0		-10~+30		10	12	15
18	W	0.120	1.34	90.0	720.0	900.0		-10~+30		10	12	15
18	D	0.100	1.25	90.0	720.0	900.0		-10~+30		10	12	15
18	E	0.100	1.31	90.0	720.0	900.0		-10~+30		10	12	15
18	٧	0.080	1.62	90.0	720.0	900.0		-10~+30		10	12	15
22	D –	0.100	1.25	110.0	880.0		-10~+10			10	12	15
22	Е	0.100	1.31	110.0	880.0	1100.0		-10~+30		10	12	15
22	٧	0.100	1.45	110.0	880.0		-10~+10			10	12	15
22	W	0.100	1.46	110.0	880.0	1100.0		-10~+30		10	12	15
33	Е	0.100	1.31	165.0	1320.0		-10~+10			10	12	15
33	٧	0.100	1.45	165.0	1320.0		-10~+10			10	12	15
33	W	0.100	1.46	165.0	1320.0		-10~+10			10	12	15
47	Е	0.100	1.31	235.0	1880.0		-10~+10			10	12	15
47	V	0.100	1.45	235.0	1880.0		-10~+10			10	12	15
47	W	0.100	1.46	235.0	1880.0		-10~+10			10	12	15
47	Χ	0.100	1.76	235.0	1880.0		-10~+10			10	12	15
47	Т	0.100	2.07	235.0	1880.0		-10~+10			10	12	15
68	V	0.100	1.45	340.0	2720.0		-10~+10			10	12	15
68	W	0.100	1.46	340.0	2720.0		-10~+10			10	12	15
68	Χ	0.100	1.76	340.0	2720.0		-10~+10			10	12	15
68	Т	0.100	2.07	340.0	2720.0		-10~+10			10	12	15
75	W	0.100	1.46	375.0	3000.0		-10~+10			10	12	15
75	Χ	0.100	1.76	375.0	3000.0		-10~+10			10	12	15
85	W	0.100	1.46	425.0	3400.0		-10~+10			10	12	15
85	X	0.100	1.76	425.0	3400.0		-10~+10			10	12	15
100	W	0.100	1.46	500.0	4000.0		-10~+10			10	12	15
100	Χ	0.100	1.76	500.0	4000.0		-10~+10			10	12	15
100	Т	0.100	2.07	500.0	4000.0		-10~+10			10	12	15
100	S	0.100	1.96	500.0	4000.0		-10~+10			10	12	15
150	X	0.100	1.76	750.0	6000.0		-10~+10			10	12	15
150	Т	0.100	2.07	750.0	6000.0		-10~+10			10	12	15
150	Y	0.100	2.08	750.0	6000.0		-10~+10			10	12	15
220	X	0.100	1.76	1100.0			-10~+10			10	12	15
220	Т	0.100	2.07	1100.0			-10~+10			10	12	15
330	Т	0.100	2.07				-10~+10		-10~+50	10	12	15
							oltage (U					
0.1	Α	0.600	0.26	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15

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表2 电容器的额定电压、纹波电流、标称电容量、等效串联电阻(ESR)、外壳代号及高低温特性

标称电	壳	ESR	交流纹波				电容	量变化范围	围(%)	损耗角	角正切ma	ax (%)
容量		max 100KHz	电流max 100KHz	Leakage	Current Ma	іх (п. А)	Capacitano	e Variation R	ange (%)	Dissipat	ion Factor	max (%)
C _R (μF)		(Ω)	(A) Ripple Current	Leakage					9- (70)			(70)
Nominal			max 100KHz							-55℃		
Capacitance	Case	. 0.5°0	(A)	+25℃	+85℃	+125℃	–55℃	+85°C	+125℃	. 25°C	+85℃	+125℃
(μF)		+25°C	+85℃	- - - / .		, -		/		+25℃		
0.4	-	0.000		≧电压(し			d Voltage					
0.1	В	0.600	0.40	5.0	40.0	50.0		-10~+30		10	12	15
0.1	C	0.500	0.48	5.0	40.0	50.0		-10~+30		10	12	15
0.15	A B	0.600	0.26 0.40	5.0 5.0	40.0	50.0		-10~+30		10	12	15
0.13		0.600	0.40	5.0	40.0	50.0		-10~+30		10	12	15
0.22	A B	0.600	0.40	5.0	40.0	50.0		-10~+30 -10~+30		10 10	12 12	15 15
0.33	А	0.600	0.46	5.0	40.0	50.0		-10~+30 -10~+30		10	12	15
0.33	В	0.600	0.40	5.0	40.0	50.0		-10~+30 -10~+30		10	12	15
0.47	В	0.600	0.40	5.0	40.0	50.0		-10~+30 -10~+30		10	12	15
0.47	С	0.200	0.75	5.0	40.0	50.0		-10~+30 -10~+30		10	12	15
0.68	В	0.350	0.50	5.0	40.0	50.0		-10~+30		10	12	15
0.68	С	0.200	0.75	5.0	40.0	50.0		-10~+30		10	12	15
1	С	0.200	0.75	6.3	50.4	63.0		-10~+30		10	12	15
1	D	0.120	1.14	6.3	50.4	63.0		-10~+30		10	12	15
1.5	С	0.200	0.75	9.5	75.6	94.5		-10~+30		10	12	15
1.5	D	0.120	1.14	9.5	75.6	94.5		-10~+30		10	12	15
1.5	E	0.150	1.08	9.5	75.6	94.5		-10~+30		10	12	15
2.2	С	0.200	0.75	13.9	110.9	138.6		-10~+30		10	12	15
2.2	D	0.120	1.14	13.9	110.9	138.6		-10~+30		10	12	15
2.2	E	0.150	1.08	13.9	110.9	138.6		-10~+30		10	12	15
3.3	С	0.200	0.75	20.8	166.3	207.9		-10~+30		10	12	15
3.3	D	0.120	1.14	20.8	166.3	207.9		-10~+30		10	12	15
3.3	Е	0.120	1.20	20.8	166.3	207.9	-10~+10	-10~+30	-10~+50	10	12	15
4.7	D	0.120	1.14	29.6	236.9	296.1	-10~+10	-10~+30	-10~+50	10	12	15
4.7	Е	0.120	1.20	29,6	236.9	296.1	-10~+10	-10~+30	-10~+50	10	12	15
4.7	V	0.120	1,32	29.6	236.9	296.1	-10~+10	-10~+30	-10~+50	10	12	15
6.8	D	0.120	1.14	42.8	342.7	428.4	-10~+10	-10~+30	-10~+50	10	12	15
6.8	Е	0.120	1.20	42.8	342.7	428.4	-10~+10	-10~+30	-10~+50	10	12	15
6.8	V	0.120	1.32	42.8	342.7	428.4	-10~+10	-10~+30	-10~+50	10	12	15
10	D	0.120	1.14	63.0	504.0	630.0	-10~+10	-10~+30	-10~+50	10	12	15
10	Е	0.120	1.20	63.0	504.0	630.0	-10~+10	-10~+30	-10~+50	10	12	15
10	V	0.120	1.32	63.0	504.0	630.0	-10~+10	-10~+30	-10~+50	10	12	15
10	W	0.120	1.33	63.0	504.0	630.0	-10~+10	-10~+30	-10~+50	10	12	15
10	S	0.120	1.79	63.0	504.0	630.0	-10~+10	-10~+30	-10~+50	10	12	15
15	Е	0.120	1.20	94.5	756.0	945.0	-10~+10	-10~+30	-10~+50	10	12	15
15	V	0.120	1.32	94.5	756.0	945.0	-10~+10	-10~+30	-10~+50	10	12	15
15	W	0.120	1.33	94.5	756.0	945.0	-10~+10	-10~+30	-10~+50	10	12	15
18	Е	0.120	1.20	113.4	907.2	1134.0	-10~+10	-10~+30	-10~+50	10	12	15
18	V	0.120	1.32	113.4	907.2	1134.0	-10~+10	-10~+30	-10~+50	10	12	15

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表2 电容器的额定电压、纹波电流、标称电容量、等效串联电阻(ESR)、外壳代号及高低温特性

1			2 22 / 2 31	· 湯电流max (μ A)					49 tf			
标称电	売	ESR max	交流纹波 电流max	漏馬	已流max (μ Α)	电容	量变化范围	刬(%)	损耗角正切max (%)		
容量 C _R	号	100KHz	100KHz	Leakage	Current Ma	ax (μ Α)	Capacitano	ce Variation R	ange (%)	Dissipat	ion Factor I	max (%)
(μF)		(Ω)	(A) Ripple Current									
Nominal			max 100KHz							-55℃		
Capacitance C_R (μF)	Case	+25°C	(A) +85℃	+25°C	+85°C	+125°C	–55°C	+85°C	+125℃	+25℃	+85℃	+125℃
([2 1)		+200		由にしい	1 621/ /	Data d\/ali	ha-s-()	621/		1200		
18	W	0.120	1.33	电压(0 _f 113.4			tage (U_R)	-10~+30	10 50	10	12	15
22	V	0.120	1.32	138.6	1108.8			-10~+30		10	12	15
22	W	0.120	1.33	138.6	1108.8			-10~+30		10	12	15
22	Χ	0.120	1.62	138.6	1108.8			-10~+30		10	12	15
22	Т	0.120	1.89	138.6	1108.8	1386.0	-10~+10	-10~+30	-10~+50	10	12	15
33	W	0.120	1.33	207.9	1663.2	2079.0	-10~+10	-10~+30	-10~+50	10	12	15
33	Χ	0.120	1.62	207.9	1663.2	2079.0	-10~+10	-10~+30	-10~+50	10	12	15
33	Т	0.120	1.89	207.9	1663.2	2079.0	-10~+10	-10~+30	-10~+50	10	12	15
47	V	0.120	1.32	296.1	2368.8	2961.0	-10~+10	-10~+30	-10~+50	10	12	15
47	W	0.120	1.33	296.1	2368.8			-10~+30		10	12	15
47	Χ	0.120	1.62	296.1	2368.8	2961.0	-10~+10	-10~+30	-10~+50	10	12	15
47	G	0.120	1.64	296.1	2368.8			-10~+30		10	12	15
47	T	0.120	1.89	296.1	2368.8			-10~+30		10	12	15
68	W	0.120	1.33	428.4	3427.2			-10~+30		10	12	15
68	X	0.090	1.86	428.4	3427.2			-10~+30		10	12	15
68 75	T W	0.120	1.89 1.33	428.4 472.5	3427.2			-10~+30		10	12	15
85	X	0.120	1.76	535.5	3780.0 4284.0			-10~+30 -10~+30		10	12 12	15 15
100	X	0.100	1.76	630.0	5040.0			-10~+30 -10~+30		10	12	15
100	Т	0.120	1.89	630.0	5040.0			-10~+30		10	12	15
100	Y	0.120	1.90	630.0	5040.0			-10~+30		10	12	15
150	X	0.100	1.76	945.0	7560.0			-10~+30		10	12	15
150	Т	0.100	2.07	945.0	7560.0			-10~+30		10	12	15
150	Υ	0.100	2.08	945.0	7560.0	9450.0	-10~+10	-10~+30	-10~+50	10	12	15
220	X	0.100	1.76	1386.0	11088.0	13860.0	-10~+10	-10~+30	-10~+50	10	12	15
220	Z	0.100	1.88	1386.0	11088.0	13860.0	-10~+10	-10~+30	-10~+50	10	12	15
220	Υ	0.100	2.08	1386.0	11088.0	13860.0	-10~+10	-10~+30	-10~+50	10	12	15
			额定) 75V /	Rated Vol	tage(U _R)	75V				
0.1	В	0.700	0.37	5.0	40.0	50.0		-10~+30		10	12	15
0.1	C	0.600	0.44	5.0	40.0	50.0		-10~+30		10	12	15
0.15	В	0.700	0.37	5.0	40.0	50.0		-10~+30		10	12	15
0.15	С	0.600	0.44	5.0	40.0	50.0		-10~+30		10	12	15
0.22	В	0.700	0.37	5.0	40.0	50.0		-10~+30		10	12	15
0.22	СВ	0.600 0.700	0.44	5.0 5.0	40.0	50.0		-10~+30		10	12	15
0.33	С	0.700	0.37	5.0	40.0	50.0 50.0		-10~+30 -10~+30		10	12 12	15 15
0.33	В	0.600	0.40	5.0	40.0	50.0		-10~+30 -10~+30		10	12	15
0.47	С	0.300	0.62	5.0	40.0	50.0		-10~+30 -10~+30			12	15
0.68	В	0.600	0.40	5.1	40.8	51.0		-10~+30		10	12	15
					.0.0	3	.5 110	.5 100	. 5 100	.5		.0

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表2 电容器的额定电压、纹波电流、标称电容量、等效串联电阻(ESR)、外壳代号及高低温特性

标称电	売	ESR	交流纹波	漏电流max (µ A)			电容	量变化范围	圆(%)	损耗角正切max (%)			
容量	· 牙	max 100KHz	电流max 100KHz		Community made	ν (Δ)	Capacitan	ce Variation R	ango (0/)	Dissipat	ion Factor	may (0/)	
C _R (μF)		(Ω)	(A)	Leакаде ⁽	Current Ma	ιχ (μ Α)	Сараспапо	Le Vallation K	ange (%)	Dissipat	IOII Factor	11dx (%)	
Nominal			Ripple Current max 100KHz	0-	0-	0-	0-	0-	0-	-55℃	0-		
Capacitance C_R (μF)	Case	+25°C	(A) +85℃	+25°C	+85°C	+125℃	–55°C	+85°C	+125℃	+25℃	+85°C	+125°C	
				e 电压(U	_B) 75V	/ Rate	ed Voltage ((U _R) 75V					
0.68	С	0.300	0.62	5.1	40.8	51.0		-10~+30	-10~+50	10	12	15	
1	С	0.250	0.67	7.5	60.0	75.0	-10~+10	-10~+30	-10~+50	10	12	15	
1	D	0.120	1.14	7.5	60.0	75.0	-10~+10	-10~+30	-10~+50	10	12	15	
1	Ε	0.150	1.08	7.5	60.0	75.0	-10~+10	-10~+30	- 10~+50	10	12	15	
1.5	С	0.250	0.67	11.3	90.0	112.5	-10~+10	-10~+30	-10~+50	10	12	15	
1.5	D	0.120	1.14	11.3	90.0	112.5	-10~+10	-10~+30	-10~+50	10	12	15	
1.5	Е	0.150	1.08	11.3	90.0	112.5	-10~+10	-10~+30	-10~+50	10	12	15	
2.2	С	0.250	0.67	16.5	132.0	165.0	-10~+10	-10~+30	-10~+50	10	12	15	
2.2	D	0.120	1.14	16.5	132.0	165.0		-10~+30		10	12	15	
2.2	Е	0.150	1.08	16.5	132.0	165.0		-10~+30		10	12	15	
3.3	D	0.120	1.14	24.8	198.0	247.5		-10~+30		10	12	15	
3.3	E	0.120	1.20	24.8	198.0	247.5		-10~+30		10	12	15	
3.3	V	0.150	1.19	24.8	198.0	247.5		-10~+30		10	12	15	
3.3	W	0.150	1.19	24.8	198.0	247.5		-10~+30		10	12	15	
4.7	D	0.120	1.14	35.3	282.0	352.5		-10~+30		10	12	15	
4.7	E V	0.120	1.20	35.3	282.0	352.5		-10~+30		10	12	15	
4.7 4.7	W	0.120 0.150	1.32 1.19	35.3 35.3	282.0	352.5		-10~+30		10	12	15	
6.8	D	0.130	1.19	51.0	282.0 408.0	352.5 510.0		-10~+30 -10~+30		10 10	12 12	15 15	
6.8	E	0.120	1.20	51.0	408.0	510.0		-10~+30 -10~+30		10	12	15	
6.8	V	0.120	1.32	51.0	408.0	510.0		-10~+30		10	12	15	
6.8	W	0.150	1.19	51.0	408.0	510.0		-10~+30		10	12	15	
10	E	0.120	1.20	75.0	600.0	750.0		-10~+30		10	12	15	
10	V	0.120	1,32	75.0	600.0	750.0		-10~+30		10	12	15	
10	W	0.120	1,33	75.0	600.0			-10~+30		10	12	15	
10	S	0.150	1.60	75.0	600.0	750.0	-10~+10	-10~+30	-10~+50	10	12	15	
10	Т	0.120	1.89	75.0	600.0	750.0	-10~+10	-10~+30	-10~+50	10	12	15	
15	Е	0.120	1.20	112.5	900.0	1125.0	-10~+10	-10~+30	-10~+50	10	12	15	
15	V	0.120	1.32	112.5	900.0	1125.0	-10~+10	-10~+30	-10~+50	10	12	15	
15	W	0.120	1.33	112.5	900.0	1125.0	-10~+10	-10~+30	-10~+50	10	12	15	
15	Χ	0.120	1.61	112.5	900.0	1125.0	-10~+10	-10~+30	-10~+50	10	12	15	
15	Т	0.120	1.89	112.5	900.0	1125.0	-10~+10	-10~+30	-10~+50	10	12	15	
18	Е	0.120	1.20	135.0	1080.0	1350.0	-10~+10	-10~+30	-10~+50	10	12	15	
18	V	0.120	1.32	135.0	1080.0	1350.0	-10~+10	-10~+30	-10~+50	10	12	15	
18	W	0.120	1.33	135.0	1080.0	1350.0	-10~+10	-10~+30	-10~+50	10	12	15	
18	S	0.150	1.60	135.0	1080.0	1350.0	-10~+10	-10~+30	- 10~+50	10	12	15	
18	Т	0.120	1.89	135.0	1080.0			-10~+30		10	12	15	
22	V	0.200	1.02	165.0	1320.0			-10~+30		10	12	15	
22	W	0.120	1.33	165.0	1320.0	1650.0	-10~+10	-10~+30	-10~+50	10	12	15	

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表2 电容器的额定电压、纹波电流、标称电容量、等效串联电阻(ESR)、外壳代号及高低温特性

标称电		ESR	六 法统计	漏电流max (μA)			山 宓	見亦 小 世間	E I/0/\				
容量	売	max	交流纹波 电流max	/雨 任	B流max (μ Α)	巴 合	量变化范围	型(70)	MACHIL MINIAX (70)			
C _R		100KHz (Ω)	100KHz (A)	Leakage	Current Ma	ıx (μ Α)	Capacitano	ce Variation R	ange (%)	Dissipat	ion Factor	max (%)	
(μ F) Nominal Capacitance C _R	Case		Ripple Current max 100KHz (A)	+25°C	+85℃	+125°C	-55°C	+85°C	+125°C	-55°C	+85°C	+125℃	
(μF)	Cusc	+25℃	+85℃							+25℃			
				定电压(U _R) 75V	/ Rated	Voltage (U _R) 75V					
22	X	0.120	1.61	165.0	1320.0			-10~+30		10	12	15	
22	T	0.120	1.89	165.0	1320.0			-10~+30		10	12	15	
33 33	W X	0.120 0.120	1.33 1.61	247.5 247.5	1980.0 1980.0			-10~+30 -10~+30		10 10	12 12	15 15	
33	T	0.120	1.89	247.5	1980.0			-10~+30 -10~+30		10	12	15	
47	X	0.120	1.61	352.5	2820.0			-10~+30		10	12	15	
47	T	0.120	1.89	352.5	2820.0			-10~+30		10	12	15	
47	Υ	0.120	1.90	352.5	2820.0			-10~+30		10	12	15	
68	Т	0.120	1.89	510.0	4080.0	5100.0	-10~+10	-10~+30	-10~+50	10	12	15	
68	Υ	0.120	1.90	510.0	4080.0	5100.0	-10~+10	-10~+30	-10~+50	10	12	15	
75	Т	0.120	1.89	562.5	4500.0	5625.0	-10~+10	-10~+30	-10~+50	10	12	15	
85	Т	0.120	1.89	637.5	5100.0	6375.0	-10~+10	-10~+30	-10~+50	10	12	15	
100	T	0.120	1.89	750.0	6000.0	7500.0	-10~+10	-10~+30	-10~+50	10	12	15	
								U _R) 100V					
0.1	В	0.700	0.36	5.0	40.0	50.0		-10~+30		10	12	15	
0.1	С	0.600	0.44	5.0	40.0	50.0		-10~+30		10	12	15	
0.15	B C	0.700 0.600	0.37 0.44	5.0 5.0	40.0	50.0		-10~+30		10	12	15	
0.13	В	0.700	0.44	5.0	40.0	50.0 50.0		-10~+30 -10~+30		10	12 12	15 15	
0.22	С	0.600	0.44	5.0	40.0	50.0		-10~+30		10	12	15	
0.33	В	0.700	0.37	5.0	40.0	50.0		-10~+30		10	12	15	
0.33	С	0.600	0.44	5.0	40.0	50.0		-10~+30		10	12	15	
0.47	В	0.600	0.40	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15	
0.47	С	0.300	0.62	5.0	40.0	50.0	-10~+10	-10~+30	-10~+50	10	12	15	
0.68	С	0.300	0.62	6.8	54.4	68.0	-10~+10	-10~+30	-10~+50	10	12	15	
0.68	D	0.150	1.02	6.8	54.4	68.0		-10~+30		10	12	15	
1	С	0.300	0.62	10.0	80.0			-10~+30		10	12	15	
1	D	0.150	1.02	10.0	80.0	100.0		-10~+30		10	12	15	
1	E	0.150	1.07	10.0	80.0	100.0		-10~+30		10	12	15	
1.5 1.5	D E	0.150 0.150	1.02 1.07	15.0 15.0	120.0			-10~+30		10	12	15	
2.2	E	0.150	1.07	22.0	120.0 176.0	150.0 220.0		-10~+30 -10~+30		10 10	12 12	15 15	
2.2	V	0.150	1.18	22.0	176.0	220.0		-10~+30 -10~+30		10	12	15	
3.3	V	0.150	1.18	33.0	264.0	330.0		-10~+30		10	12	15	
3.3	W	0.150	1.19	33.0	264.0	330.0		-10~+30		10	12	15	
4.7	V	0.150	1.18	47.0	376.0	470.0		-10~+30		10	12	15	
4.7	W	0.150	1.19	47.0	376.0	470.0	-10~+10	-10~+30	-10~+50	10	12	15	
6.8	V	0.150	1.18	68.0	544.0	680.0	-10~+10	-10~+30	-10~+50	10	12	15	
6.8	W	0.150	1.19	68.0	544.0	680.0	-10~+10	-10~+30	-10~+50	10	12	15	

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表2 电容器的额定电压、纹波电流、标称电容量、等效串联电阻(ESR)、外壳代号及高低温特性

标称电		ESR	交流纹波	漏电流max (μA)		由突	量变化范围	剧(%)	损耗角正切max(%)					
容量	売 号	max	电流max		J METTAX (μ / //								
C _R		100KHz (Ω)	(A)	Leakage	Current Ma	ax (μ Α)	Capacitano	ce Variation R	ange (%)	Dissipat	ion Factor	max (%)		
(μF) Nominal Capacitance	Case		Ripple Current max 100KHz (A)	+25°C	+85°C	+125°C	-55°C	+85℃	+125°C	-55°C	+85°C	+125℃		
C _R (μF)	Case	+25℃	+85℃							+25℃				
			额定	电压(U _r) 100V	/ Rate	d Voltage	(U _R) 100	V					
6.8	S	0.150	1.60	68.0	544.0	680.0	-10~+10	-10~+30	-10~+50	10	12	15		
10	W	0.250	0.92	100.0	800.0	1000.0	-10~+10	-10~+30	- 10~+50	10	12	15		
10	S	0.250	1.24	100.0	800.0			-10~+30		10	12	15		
10	T	0.250	1.31	100.0	800.0			-10~+30		10	12	15		
15	X	0.150	1.44	150.0	1200.0			-10~+30		10	12	15		
15	S	0.150	1.60	150.0	1200.0			-10~+30		10	12	15		
15	T	0.150	1.69	150.0	1200.0			-10~+30		10	12	15		
18	T	0.150	1.69	180.0 220.0	1440.0			-10~+30		10	12	15		
22 22	X T	0.150 0.150	1.44 1.69	220.0	1760.0			-10~+30		10	12 12	15 15		
22	Y	0.150	1.70	220.0	1760.0 1760.0			-10~+30 -10~+30		10 10	12	15		
33	T	0.150	1.69	330.0	2640.0			-10~+30 -10~+30		10	12	15		
33	Y	0.150	1.70	330.0	2640.0			-10~+30		10	12	15		
47	T	0.150	1.69	470.0	3760.0			-10~+30		10	12	15		
47	Υ	0.150	1.70	470.0	3760.0			-10~+30		10	12	15		
68	Т	0.150	1.69	680.0	5440.0			-10~+30		10	12	15		
68	Υ	0.150	1.70	680.0	5440.0			-10~+30		10	12	15		
75	Т	0.150	1.69	750.0	6000.0	7500.0	-10~+10	-10~+30	-10~+50	10	12	15		
85	Т	0.150	1.69	850.0	6800.0	8500.0	-10~+10	-10~+30	-10~+50	10	12	15		
100	Τ	0.150	1.69	1000.0	8000.0	10000.0	-10~+10	-10~+30	-10~+50	10	12	15		
			额定电压	(U _R) 12	25V /	Rated V	oltage (U	_R) 125V						
3.3	D	0.150	1.02	41.3	330.0	412.5	-10~+10	-10~+30	-10~+50	10	12	15		
4.7	D	0.150	1.02	58.8	470.0	587.5	-10~+10	-10~+30	-10~+50	10	12	15		
4.7	Е	0.150	1.07	58.8	470.0	587.5	-10~+10	-10~+30	- 10~+50	10	12	15		
6.8	Е	0.150	1.07	85.0	680.0			-10~+30		10	12	15		
6.8	V	0.150	1,18	85.0	680.0			-10~+30		10	12	15		
6.8	W	0.150	1.19	85.0	680.0			-10~+30		10	12	15		
10	E	0.250	0.83	125.0	1000.0			-10~+30		10	12	15		
10	V W	0.250	0.92	125.0	1000.0			-10~+30		10	12	15		
15	W	0.250 0.250	0.93	125.0	1000.0			-10~+30		10	12	15		
15	X	0.250	1.12	187.5 187.5	1500.0 1500.0			-10~+30 -10~+30		10 10	12 12	15 15		
18	W	0.250	0.93	225.0				-10~+30 -10~+30		10	12	15		
18	X	0.250	1.12	225.0	1800.0			-10~+30 -10~+30		10	12	15		
22	W	0.300	0.85	275.0	2200.0			-10~+30		10	12	15		
22	X	0.250	1.12	275.0	2200.0			-10~+30		10	12	15		
22	Т	0.200	1.47	275.0	2200.0			-10~+30		10	12	15		
33	Т	0.200	1.47	412.5	3300.0			-10~+30		10	12	15		
33	Υ	0.200	1.48	412.5	3300.0			-10~+30		10	12	15		

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表2 电容器的额定电压、纹波电流、标称电容量、等效串联电阻(ESR)、外壳代号及高低温特性

标称电 容量 C _R (μF)	売 号	ESR max 100KHz (Ω)	交流纹波 电流max 100KHz (A)		漏电流max (μ Leakage Current max					损耗角正切max(i		
Nominal Capacitance			Ripple Current max 100KHz (A)	+25°C	+85°C	+125℃	-55°C	+85°C	+125°C	-55℃	+85°C	+125°C
C _R (μF)	Case	+25°C	+85°C		, 55 5					+25℃	, 55 5	, ,23 3
			额为	定电压(U	_R) 125V	/ Rate	d Voltage	(U _R) 125'	V			
47	Τ	0.300	1.20	587.5	4700.0	5875.0	-10~+10	-10~+30	-10~+50	10	12	15
47	Υ	0.300	1.21	587.5	4700.0	5875.0	-10~+10	-10~+30	-10~+50	10	12	15
68	Τ	0.200	1.47	850.0	6800.0	8500.0	- 10~+10	-10~+30	- 10~+50	10	12	15
68	Υ	0.200	1.48	850.0	6800.0	8500.0	- 10~+10	-10~+30	- 10~+50	10	12	15
75	Υ	0.200	1.48	937.5	7500.0	9375.0	-10~+10	-10~+30	-10~+50	10	12	15
85	Υ	0.200	1.48	1062.5	8500.0	10625.0	- 10~+10	- 10~+30	- 10~+50	10	12	15



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Derated Design guide line:

3.1. Derating Recommendations

3.1.1:

The failure rate of tantalum capacitors is for the DC rating (85°C, rated voltage), and varies with usage conditions (ambient temperature, applied voltage, circuit resistance, etc.). In actual circuits, there are often voltage or current peak impulses and ripple currents, or other unexpected electrical impulses, so derating design is necessary in actual use. Only in this way can the safety and reliability of the circuit be

3.1.2: Rated voltage and derated voltage

The rated voltage (UR) of tantalum capacitors refers to the maximum DC voltage allowed to be applied to the capacitor at a rated temperature of 85°C. If it is used beyond the rated voltage, the dielectric strength of the dielectric oxide film Ta.0. will be exceeded, which will lead to deterioration of the capacitor performance, and even dielectric breakdown and failure in severe cases.

The environment in which the actual circuit is used is very complex, so in the circuit design, derating design is generally adopted. According to the GJB/Z35 "Component Derating standard", the derating levels of tantalum capacitors are divided into I, II, and III., Class I derating is derated by 50% of the benchmark DC working voltage, class II derating is derated by 60% of the benchmark DC working voltage, and class III derating is derated by 70% of the benchmark DC working voltage.

When the ambient temperature is not more than 85°C, the derated reference DC working voltage is the rated voltage (Ur); when the ambient temperature is more than 85°C, the derated reference DC working voltage is the derated voltage specified in this manual for each model (UR). Uc). In the derating design, non-solid electrolyte tantalum capacitors and conductive polymer electrolyte tantalum capacitors should be derated at least according to level III. When these two types of tantalum capacitors are used in circuits or filter circuits with high reliability requirements, it is recommended that they should be at least level II Derating; solid electrolyte (manganese dioxide) tantalum capacitors are derated at a minimum of 65% of the reference DC working voltage. When this type of tantalum capacitors are used in circuits or filter circuits with high reliability requirements, it is recommended to derate at least according to class I.

Under the conditions allowed by the design, the derating range should be increased as much as possible. For tantalum capacitors, the larger the derating range, the higher the reliability.

3.2. Reverse voltage

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The dielectric oxide film of tantalum capacitors has unidirectional conductivity and rectifying characteristics. When a reverse voltage is applied, a relatively large current will flow through, which tends to cause potential quality hazards, and in severe cases, may even lead to reverse breakdown and failure of the capacitor. Therefore, the reverse voltage must be strictly controlled during use. The reverse voltage resistance of various types of capacitors is shown in Table 2 below:

3.2.2:

In principle, it's forbidden to use the resistance range of multimeter to perform non-polarity testing on circuits containing tantalum capacitors or the capacitors themselves (reverse voltage can be easily applied). It should be able to withstand reverse testing of the 1.5V power supply of the multimeter if the circuit uses tantalum capacitors with voltage of 35V or above (including 35V), but 9V power supply should be absolutely not allowed.

3.2.3:

In the process of measurement and use, if the tantalum capacitor is accidentally applied to the reverse voltage exceeding the specified value. Even if its electrical parameters are still qualified, the capacitor should be scrapped.

Because the quality hidden danger caused by the reverse voltage of the capacitor has a certain latency period, it may not be manifested at that time.

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Table 1 Recommended voltage for various types of products

Everytive Otendand	Duadwat Two	Coming	Recommend	ded voltage
Executive Standard	Product Type	Series	-55°C~85°C	85°C~125°C
GJB733	Non-Solid Electrolyte Tantalum Capacitors (Tantalum Case)	HCAK38,HCAK39, HCAK39H,HTHC1 etc.	65%U _R	42%U _R
	Non-solid Electrolyte Tantalum Capacitors (Silver Case)	HCAK35,HCAK86 etc.	65%U _R	42%U _R
GJB63	MnO. Solid Electrolyte Tantalum Capacitors (Metal Case)	HCAK,HCAK- 1 etc.	(50%-60%)U _R	40% U _R
G3B03	Polymer Solid Electrolyte Tantalum Capacitors (Metal Case)	HCAK66 etc.	(50%-60%)U _R	40% U _R
GJB2283	MnO. Chip Type Solid Electrolytic Tantalum Capacitor (Molded Plastic Package)	HCAK45,HCAK45L, HCAK45U,HCAK45M etc.	50%U _R	33%U _R
0002200	Chip Polymer Solid Electrolyte Tantalum Capacitor (Molded Plastic Package)	HCAK55,HCAK55H etc.	50%U _R	33% U _R
GJB5437	MnO. Solid Electrolyte Tantalum Capacitors (Molded Plastic)	HCAK44,HCAK41 etc.	50%U _R	33% U _R

3.3. Influence factors of failure rate

3.3.1:

The lower the voltage across the actually added tantalum capacitor is lower than the rated voltage, the lower the failure rate of the tantalum capacitor. The failure rate of tantalum capacitors is evaluated under the maximum allowable load conditions at the rated voltage of 85°C.

3.3.2:

Another factor that affects the failure is the series resistance connected to the outer circuit of the capacitor. The greater the resistance in series with the capacitor in the outer circuit circuit, the lower the failure rate.

Failure rate grade: 2.0%/1000h is expressed as L; 1.0%/1000h is expressed as M; 0.1%/1000h is expressed as P; 0.01%/1000h is expressed as R, 0.001%/1000h is expressed as S.



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Table 2 Reverse voltage resistance of various types of products

Executive Standard	Produ	uct Type	Series	Withstand reverse voltage
		All tantalum capacitors with tantalum case	HCAK38, HCAK39, HCAK38T etc.	Resistant to 3V reverse voltage
GJB733	Non-Solid Electrolyte Tantalum Capacitors	Hybrid Tantalum Capacitors	HTHC1, HTHC2, HTHC1W, HCAK36S1, HCAK36S1W etc.	Not resistant to reverse voltage
		Silver case	HCAK35, HCAK35X, HCAK86, HCAK81 etc.	Not resistant to reverse voltage
GJB63	Solid Electrolyte Tantalur	n Capacitors	HCAK, HCAK-1, HCAK-8, HGCA, HGCA411C etc.	Generally, reverse voltage is not allowed, let alone used in pure AC circuits. If it is unavoidable, it is allowed to apply a reverse voltage not greater than the following in a short period of time, and its value is: below 25°C: \leq 10%U $_R$ or 1V (whichever is smaller); below 85°C: \leq 5%U $_R$ or 0.5V (whichever is smaller); below 125°C: \leq 1% U $_R$ or 0.1V (whichever is smaller). Note: If the capacitor needs to work in a circuit with reverse voltage for a long time, please use a bipolar tantalum capacitor, but it can only be used in a DC or pulsating circuit with a low frequency of polarity change.
	Polymer Solid Electrolyte	Tantalum Capacitors	HCAK66 etc.	Not resistant to reverse voltage
GJB5437	Solid Electrolyte Tantalur	n Capacitors	HCAK44, HCAK41 etc.	Not resistant to reverse voltage
GJB2283	Chip Tantalum Solid Elec	trolyte Tantalum Capacitors	HCAK45, HCAK45L, HCAK45U, HCAK45M etc.	Not resistant to reverse voltage
	Chip Polymer Solid Elect	rolyte Tantalum Capacitors	HCAK55, HCAK55H etc.	Not resistant to reverse voltage

3.4 Ripple Current

- 3.4.1 The sum of the DC bias and the peak value of the AC partial voltage must not exceed the rated voltage of the capacitor.
- 3.4.2 The sum of the AC negative peak value and the DC bias must not exceed the allowable reverse voltage of the capacitor.
- 3.4.3 When ripple current passes through the tantalum capacitor, it produces active power loss, which in turn increases the probability of thermal breakdown failure caused by the capacitor's own temperature rise. Therefore, it is necessary to limit the ripple current through the capacitor or the allowable power loss of the capacitor. The relationship between the power loss (P_{st}) and the ripple current (I_{rms}) is expressed by the following formula: $P_{st} = V \times I_{st} + I_{rms}^2 \times R = I_{rms}^2 \times R$

Where: V : DC bias (V); l_{st} : Leakage current (uA); Rs: Equivalent series resistance (Ω); l_{rms} : Ripple current (mA).

It can be seen from the above formula that the power loss increases when Rs or Irms increases. Therefore, it is necessary to control the power loss of tantalum capacitors in high-frequency circuits.

3.4.3.1 The allowable power loss of various solid electrolyte tantalum capacitors according to the heat dissipation efficiency of the case size is shown in Table 3.

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Table 3 Allowable Power Loss and Temperature Class Coefficient of Solid Electrolyte Tantalum Capacitors

Allowable Power	Loss	Temper	ature Class Co	efficient	Allowable Power	Loss	Tempera	ture Class Coe	fficient
Product Structure	Case	Power loss (W)	Temperature (°C)	Class Coefficient	Product Structure	Case	Power loss (W)	Temperature (°C)	Class Coefficient
Hermetically Sealed Solid Tantalum Capacitors	A B C D 0 1 2 3 4 5 6	0.09 0.10 0.125 0.18 0.09 0.09 0.10 0.115 0.12 0.17 0.20	25 85 125	1.0 0.9 0.4	Molded Chip Solid Tantalum Capacitors	A B C L H D E F V W X G Z S T Y	0.080 0.098 0.114 0.118 0.130 0.157 0.172 0.147 0.212 0.215 0.314 0.321 0.355 0.383 0.429 0.433	25 85 125	1.0 0.6 0.4

Note:

3.4.3.2 The maximum effective value of ripple current allowed for various non-solid capacitors according to the case size (85°C, 40kHz, 0.66UR) is shown in Tables 4 and 5. The ripple current coefficient values under different operating voltages, frequencies and temperature conditions are shown in Table 4.

Table 4 Maximum Ripple Current (Effective Value) of HCAK31, HCAK81, HCAK38, HCAK39, HCAK39 Capacitors

Series	HCAK31, HCAK81	HCAK38	HCAK39	HCAK39
Case		${ m I}_{\sf rms}$	(mA)	
T1	50	50 415		1400
T2	200	755	1200	2200
T3	500	1130	1500	2700
T4	600	1800	1900	3400

Table 5 Maximum ripple current (Effective Value) of non-solid electrolytic capacitors

Case	0		2	3	4	5	6	7	8
I rms(mA)	40	50	105	280	380	500	600	750	850

Note: Specification is subject to change without further notice. For more details and updates, please visit our website.

¹⁾ The allowable power loss of the capacitor is specified under the condition that the whole machine can normally dissipate heat naturally. When the whole machine is sealed with components, appropriate adjustments should be made due to the reduced heat dissipation conditions.

²⁾ The allowable power loss of similar capacitors can be taken with reference to the case size corresponding to the same surface area.