

M4 Series

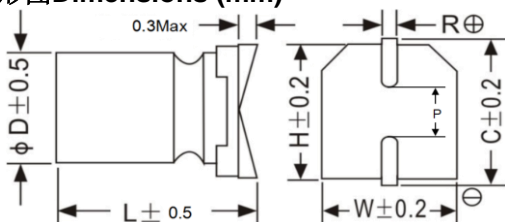
- Low ESR, High ripple, miniaturized, high temperature
- SMD type: lead free reflow soldering condition at 260°C peak correspondence
- RoHS Compliant



规格表 Specifications

项目 Items	特性参数 Characteristics		
使用温度范围 Category Temperature Range	-55 ~ +125°C		
额定工作电压范围 Rated Voltage Range	2.5 ~ 100V		
静电容量允许偏差 Capacitance tolerance	±20%(M) (at 20°C,120Hz)		
漏电流 Leakage Current	施加额定工作电压2分钟后读数, 小于或等于规格值 (at 20°C) Less than or equal to the specified value. After 2 minutes application of rated Voltage at 20°C		2.5~25V I≤0.2CV 或 500µA(取大值)
			35~100V I≤0.1CV 或 299µA(取大值)
损耗角正切值tanδ Dissipation Factor	Rated voltage (V)	2.5~6.3	10~100
	tanδ (Max.)	0.08	0.12
温度特性 Low Temperature Characteristics (Max.Impedance Ratio)	Z(-25°C)/Z(+20°C)	≤1.25	
	Z(-55°C)/Z(+20°C)	≤1.25	
耐久性 Endurance	125°C施加额定工作电压2000小时, 恢复到20°C后, 产品性能应满足以下要求 The specifications listed below shall be satisfied when the capacitors are restored to 20°C after application of rated voltage for 2000 hours at 125°C.		
	Appearance	No significant damage	
	Capacitance change	≤±20% of the initial value	
	D.F.(tanδ)	≤150% of the specified value	
	ESR	≤150% of the specified value	
	Leakage current	≤The specified value	
耐湿负荷特性 Damp Heat (Steady State)	在60°C 温度, 湿度90%~95%RH的环境中, 施加额定电压1000小时后, 恢复到20°C后, 产品性能应满足以下要求 The specifications listed below shall be satisfied when the capacitors are restored to 20°C after application of rated voltage for 1000 hours at 60°C,90%~ 95% RH.		
	Appearance	No significant damage	
	Capacitance change	≤±20% of the initial value	
	D.F.(tanδ)	≤150% of the specified value	
	ESR	≤150% of the specified value	
	Leakage current	≤The specified value	
浪涌电压特性 (Surge Voltage)	浪涌电压=额定电压× 1.15(V) Surge Voltage=Rated voltage × 1.15(V) 在125°C环境中, 按充电30秒; 放电5分30秒, 连续施加浪涌电压1000次(Rc=1kΩ), 待恢复测试, 应满足以下要求 The capacitors shall be subjected to 1000 cycles each consisting of charge with the surge voltages specified at 125°C for 30 seconds through a protective resistor (Rc=1kΩ) and discharge for 5 minutes 30 seconds.		
	Appearance	No significant damage	
	Capacitance change	≤±20% of the initial value	
	D.F.(tanδ)	≤150% of the specified value	
	ESR	≤150% of the specified value	
	Leakage current	≤The specified value	
焊接耐热性 Resistance to soldering heat	按回流焊试验后, 应满足以下要求 Measurement for solder temperature profile shall be made at the capacitor top and the terminal.		
	Capacitance change	≤±10% of the initial value	
	D.F.(tanδ)	≤130% of the specified value	
	ESR	≤130% of the specified value	
	Leakage current	≤The specified value	

外形图 Dimensions (mm)



ΦD	W	H	C	R	P
5	5.3	5.3	5.9	0.5~0.8	1.4
6.3	6.5	6.5	7.2	0.5~0.8	2.2
8	8.3	8.3	9.0	0.7~1.1	3.1
10	10.3	10.3	11.0	0.7~1.1	4.5

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◆ 纹波电流修正系数 Rated Ripple Current Coefficient

频率Frequency(Hz)	120Hz \leq f < 1kHz	1kHz \leq f < 10kHz	10kHz \leq f < 100kHz	100kHz \leq f < 500kHz
系数 Coefficient	0.05	0.30	0.70	1.00

◆ 尺寸与个技术参数一览表 Standard Ratings

Rated voltage (V)	Rated capacitance (μ F)	Case size Φ D×L(mm)	ESR(m Ω) at 20°C, 100 KHz	Leakage Current (μ A)	Rated ripple current (mA _{rms} /125°C/100kHz)
2.5	470	6.3*9	30	500	2369
	470	6.3*9	30	500	2369
	560	6.3*9	30	500	2369
	560	6.3*9	30	500	2369
	680	6.3*9	30	500	2369
	820	6.3*9	30	500	2369
4	560	6.3*9	30	500	2369
	680	6.3*9	30	544	2369
	820	6.3*9	30	656	2369
	1000	6.3*9	30	800	2369
	1200	6.3*9	30	960	2369
6.3	220	6.3*7	35	500	2025
	330	6.3*7	35	500	2025
	470	6.3*9	35	500	2200
	560	6.3*9	35	706	2200
	680	6.3*9	35	857	2200
	820	8*9.8	25	1033	2369
	1000	8*9.8	25	1260	2369
	1500	10*12.6	25	1890	2770
10	220	6.3*7	35	500	1530
	330	6.3*7	35	660	1530
	470	6.3*7.7	35	940	1570
	560	6.3*9	35	1120	1680
	680	8*9.8	25	1360	2030
	820	10*10.2	25	1640	2369
	820	8*12.6	25	1640	2369
	1000	8*12.6	25	2000	2369
	1500	10*12.6	25	2000	2600
16	47	6.3*7	50	500	1220
	68	6.3*7	40	500	1220
	100	6.3*7	40	500	1220
	220	6.3*7	40	704	1220
	220	6.3*7.7	40	704	1300

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◆ 尺寸与技术参数一览表 Standard Ratings

Rated voltage (V)	Rated capacitance (uF)	Case size ΦD×L(mm)	ESR(mΩ) at 20°C, 100 KHz	Leakage Current (μA)	Rated ripple current (mA rms/105°C/100kHz)
16	220	8*9.8	35	704	1550
	330	6.3*7.7	40	1056	1300
	330	8*9.8	40	1056	1680
	330	8*12.6	30	1056	2030
	470	8*9.8	40	1504	1680
	470	8*12.6	30	1504	2030
	680	8*12.6	30	2176	2030
	820	8*12.6	30	2624	2030
	1000	8*12.6	30	3200	2030
	1500	10*12.6	30	4800	2369
25	47	6.3*7	60	500	1128
	100	6.3*7	50	500	1128
	100	6.3*9	50	500	1215
	220	6.3*9	50	1100	1215
	220	8*9.8	50	1100	1555
	270	8*9.8	50	1350	1555
	330	8*9.8	50	1650	1555
	470	8*12.6	45	2350	1800
	470	10*10.2	45	2350	1800
	680	10*12.6	35	3400	2200
	820	10*12.6	35	4100	2200
35	47	6.3*7	80	299	850
	100	6.3*10	80	350	1220
	100	8*9.8	50	350	1450
	220	8*12.6	50	770	1690
	330	10*12.6	40	1155	2100
50	10	5*9	100	299	450
	22	6.3*9	100	299	650
	33	6.3*9	100	299	650
	47	6.3*9	80	299	700
	47	8*9.8	60	299	750
	47	8*12.6	60	299	850
	100	8*9.8	60	500	750
	100	8*12.6	60	500	850
	100	10*12.6	55	500	1220
	150	8*12.6	60	750	900
	220	10*12.6	55	1100	1220

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◆ 尺寸与技术参数一览表 Standard Ratings

Rated voltage (V)	Rated capacitance (μF)	Case size ΦD×L(mm)	ESR(mΩ) at 20°C, 100 KHz	Leakage Current (μA)	Rated ripple current (mA _{rms} /105°C/100kHz)
63	10	6.3*9	110	299	630
	22	6.3*9	110	299	630
	33	6.3*9	100	299	630
	33	8*9.8	60	299	710
	47	8*9.8	60	299	710
	47	8*12.6	60	299	790
	82	8*12.6	60	517	890
	100	8*12.6	60	630	890
	100	10*12.6	55	630	1050
	150	10*12.6	55	945	1050
80	10	6.3*9	120	299	450
	22	8*9.8	70	299	550
	33	8*12.6	70	299	750
	47	8*12.6	70	376	750
	68	10*12.6	50	544	950
100	10	8*9.8	120	299	550
	22	8*12.6	70	299	750
	33	10*12.6	70	330	950

Packaging Quantity 包裝數量

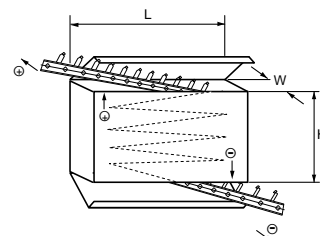
- For Chip Type Conductive Polymer Aluminum Solid Electrolytic Capacitors & Chip Type Conductive Polymer Hybrid Aluminum Electrolytic Capacitors
適用於貼片式導電性高分子固態鋁電解電容器及貼片式導電性高分子混合型鋁電解電容器

Case Size ∅D × L (mm) 尺寸	Quantity/Reel (pcs) 數量/卷 (個)	Reels/Box 卷盤/箱	Quantity/Carton (pcs) 數量/外箱 (個)
4 × 5.5	2,000*	12	24,000
5 × 5.5~8	1,000*	12	12,000
5 × 9	750*	12	9,000
6.3 × 5.5~8	1,000*	10	10,000
6.3 × 9~9.5	750*	10	7,500
8 × 6.7~7.7	1,000*	7	7,000
8 × 8~12	500*	7	3,500
10 × 8~13	450*	8	3,600

■ Taping Type (Ammo pack) 編帶品 (折疊式包裝)

- For Conductive Polymer Aluminum Solid Electrolytic Capacitors & Conductive Polymer Hybrid Aluminum Electrolytic Capacitors
適用於導電性高分子固態鋁電解電容器及導電性高分子混合型鋁電解電容器

Type 類型	Diameter (mm) 直徑	In-box Size 內盒尺寸			Carton Box Size 外箱尺寸			Quantity/In-box (pcs) 數量/內盒 (個)	Quantity/Carton (pcs) 數量/外箱 (個)
		L (mm)	H (mm)	W (mm)	L (mm)	H (mm)	W (mm)		
Type 類型	∅5	337	234	50	490	350	280	2,000*	20,000
	∅6.3	340	300	53	360	325	300	2,000*	10,000
	∅8	320	240	45	520	340	225	1,000*	10,000
	∅10	325	195	45	410	340	255	500*	4,000



■ Bulk Type 散裝品

- For Conductive Polymer Aluminum Solid Electrolytic Capacitors & Conductive Polymer Hybrid Aluminum Electrolytic Capacitors
適用於導電性高分子固態鋁電解電容器及導電性高分子混合型鋁電解電容器

Type 類型	Case Size ∅D × L (mm) 尺寸	Vinyl Bag Quantity 膠袋數量		Small Box Quantity 內箱數量				Carton Box Quantity 外箱數量			Small Box Size 內箱尺寸			Carton Box Size 外箱尺寸			
		pcs/Bag 個/膠袋		Vinyl Bag/Small Box 膠袋/內箱		pcs/Small Box 個/內箱		Small Box/ Carton Box 內箱/外箱		pcs/Carton Box 個/外箱		L (mm)	H (mm)	W (mm)	L (mm)	H (mm)	W (mm)
		Long Lead 長腳	Lead Cutting/Forming 剪腳/成型	Long Lead 長腳	Lead Cutting/Forming 剪腳/成型	Long Lead 長腳	Lead Cutting/Forming 剪腳/成型	Long Lead 長腳	Lead Cutting/Forming 剪腳/成型	Long Lead 長腳	Lead Cutting/Forming 剪腳/成型						
Radial Lead Type 直插式	5 × 7~12	1,000*	1,000*	8	16	8,000	16,000	4	32,000	64,000	310	140	200	420	220	295	
	6.3 × 6~9	1,000*	1,000*	8	8	8,000	8,000		32,000	32,000							
	6.3 × 10.5~12	500*	1,000*	8	8	4,000	8,000		16,000	32,000							
	8 × 7~9	500*	1,000*	8	8	4,000	8,000		16,000	32,000							
	8 × 11~16	500*	500*	8	8	4,000	4,000		16,000	16,000							
	10 × 8~13	250*	500*	8	8	2,000	4,000		8,000	16,000							
	10 × 16~21	200*	400*	8	8	1,600	3,200		6,400	12,800							

* Minimum package quantity *最小包裝數量

- There are some differences between actual package quantity and above list. Please confirm before you order.
- Please order by minimum package quantity.
- 以上包裝標準可能會與實際的包裝數量有所不同，請在訂購前確認。
- 請以最小包裝數量訂購。

Note: All design and specifications are for reference only and is subject to change without prior notice. If any doubt about safety for your application, please contact us immediately for technical assistance before purchase.

注: 以上所提供的設計及特性參數僅供參考，任何修改不作預先通知。如果在使用上有疑問，請在採購前與我們聯繫，以便提供技術上的協助。