

M1 Series

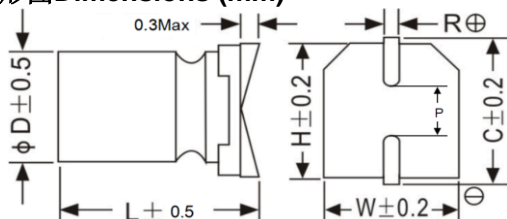
- Super low ESR, High ripple, miniaturized
- SMD type: lead free reflow soldering condition at 260°C peak correspondence
- RoHS Compliant



规格表 Specifications

项目 Items	特性参数 Characteristics		
使用温度范围 Category Temperature Range	-55 ~ +105°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 35~100V
			≤0.2CV 或500μA(取大值) ≤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 Temperture Characteristics (Max.Impedance Ratio)	Z(-25°C)/Z(+20°C)	≤ 1.25	
	Z(-55°C)/Z(+20°C)	≤ 1.25	
耐久性 Endurance	105°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 105°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105°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 105°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} /105°C/100kHz)
2.5	470	6.3*9	15	500	4500
	470	8*9.8	15	500	4800
	560	6.3*9	15	500	4500
	560	8*9.8	15	500	4800
	680	8*12.6	12	500	5100
	820	8*12.6	12	500	5100
4	560	8*9.8	15	500	4500
	680	8*12.6	12	544	4700
	820	10*12.6	12	656	5500
	1000	10*12.6	10	800	5500
	1200	10*12.6	10	960	5500
6.3	220	6.3*9	18	500	3900
	270	6.3*9	18	500	4100
	330	6.3*9	18	500	4100
	470	8*9.8	15	592	4500
	560	8*9.8	15	592	4500
	680	8*12.6	12	857	4700
	820	10*12.6	10	1033	5500
	1000	10*12.6	10	1260	5500
	1500	10*12.6	10	1890	5500
10	220	6.3*9	22	500	3500
	270	6.3*9	22	540	3500
	330	8*9.8	18	660	4100
	470	8*9.8	18	940	4230
	560	8*9.8	18	1120	4230
	680	8*12.6	15	1360	4500
	820	10*12.6	12	1640	5300
	1000	10*12.6	12	2000	5300
16	47	6.3*9	25	500	2690
	68	6.3*9	25	500	2690
	82	6.3*9	25	500	2690
	100	6.3*9	25	500	2690
	220	6.3*9	25	704	2690

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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	20	704	3200
	220	8*12.6	16	704	4100
	270	8*9.8	20	864	3200
	330	6.3*9	22	1056	2690
	330	8*9.8	20	1056	3200
	330	8*12.6	16	1056	4100
	470	8*12.6	16	1504	4100
	470	10*12.6	14	1504	5100
	560	8*12.6	16	1792	4100
	680	10*12.6	14	2176	5100
	820	10*12.6	14	2624	5100
	1000	10*12.6	14	3200	5100
25	22	6.3*9	30	500	2100
	33	6.3*9	30	500	2100
	47	6.3*9	30	500	2100
	47	8*9.8	25	500	2690
	68	6.3*9	30	500	2100
	82	6.3*9	30	500	2100
	100	6.3*9	30	500	2100
	100	8*9.8	25	500	2690
	150	8*9.8	25	750	2690
	220	8*12.6	25	1100	2900
	220	10*12.6	20	1100	3500
	270	8*12.6	25	1350	2900
	330	10*12.6	20	1650	3500
	470	10*12.6	20	2350	3500
35	10	6.3*9	90	299	1350
	22	6.3*9	90	299	1410
	33	6.3*9	90	299	1410
	47	6.3*9	60	299	1410
	82	8*9.8	35	299	1900
	100	8*9.8	30	350	1900
	100	8*12.6	25	350	2690
	220	10*12.6	20	770	3100

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◆ 尺寸与技术参数一览表 Standard Ratings

Rated voltage (V)	Rated capacitance (uF)	Case size $\Phi D \times L$ (mm)	ESR (m Ω) at 20°C, 100 KHz	Leakage Current (μA)	Rated ripple current (mA rms/105°C/100kHz)
50	10	6.3*9	90	299	800
	22	6.3*9	90	299	850
	33	8*9.8	30	299	1300
	47	8*12.6	25	299	1500
	68	8*12.6	25	340	1500
	100	8*12.6	25	500	1500
	120	10*12.6	20	600	2100
	220	10*12.6	20	1100	2100
63	10	6.3*9	90	299	750
	22	8*9.8	35	299	1100
	33	8*9.8	35	299	1100
	33	8*12.6	30	299	1300
	47	8*12.6	30	299	1300
	68	8*12.6	30	428	1300
	82	10*12.6	25	517	1800
	100	10*12.6	25	630	1800
80	10	6.3*9	100	299	550
	22	8*9.8	50	299	1100
	22	8*12.6	40	299	1300
	33	8*12.6	40	299	1300
	47	10*12.6	35	376	1800
100	10	8*9.8	55	299	850
	15	8*12.6	45	299	1190
	22	10*12.6	40	299	1550
	33	10*12.6	40	330	1550

Packaging Quantity 包裝數量

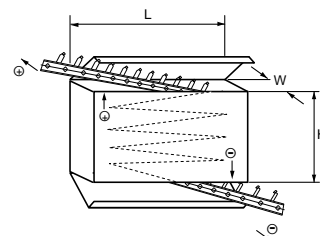
- For Chip Type Conductive Polymer Aluminum Solid Electrolytic Capacitors & Chip Type Conductive Polymer Hybrid Aluminum Electrolytic Capacitors
適用於貼片式導電性高分子固態鋁電解電容器及貼片式導電性高分子混合型鋁電解電容器

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。