

JBL: 品牌缩写

The diagram illustrates the decoding of a capacitor code. The code is broken down into segments, each corresponding to a specific parameter. The segments and their possible values are as follows:

- Series (E):** E1, E2, E4, E5, H2, H4, H5, M1, M2, M4, M5, H6, H7
- Code (R):** R47, R50, R52, R54, R55, R56, R57, R58, R59, R60, R61, R62, R63, R64, R65, R66, R67, R68, R69, R70, R71, R72, R73, R74, R75, R76, R77, R78, R79, R80, R81, R82, R83, R84, R85, R86, R87, R88, R89, R90, R91, R92, R93, R94, R95, R96, R97, R98, R99
- Nominal Capacitance (µF):** 0.47, 1, 4.7, 10, 15, 22, 33, 47, 56, 68, 82, 100, 150, 220, 330, 470, 560, 680, 820, 1000, 1500, 2200, 3300, 4700
- Tolerance:** J (±5%), K (±10%), V (-10~+20%), M (±20%), Q (-10~+30%), T (-10~+50%), Z (-20~+80%), A (Special)
- Voltage (V):** 2.5, 4, 6.3, 6.8, 7.5, 10, 12, 16, 20, 25, 35, 50, 63, 80, 100, 160
- Diameter (mm):** A (5), B (5.5), C (6.3), D (8), E (10), F (12.5), G (13)
- Length (mm):** 5, 5.8, 7, 7.7, 8, 9, 9.8, 12, 12.6
- Color:** B (Blue), R (Red), G (Grey)
- Lead Forming Type:** L (Bagged), T (SMD), C (Lead cut), P (Taping)
- Analysis:** M (Solid capacitor)

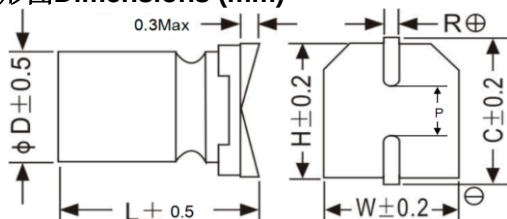
M2

- 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 Temperture Range	-55 ~ +105℃			
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℃,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℃) Less than or equal to the specified value. After 2 minutes application of rated Voltage at 20℃		2.5~25V ≤0.2CV 或500μA(取大值)	35~100V ≤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	(at 20℃,120Hz)
	tanδ (Max.)	0.08	0.12	
温度特性 Low Temperture Characteristics (Max.Impedance Ratio)	Z(-25℃)/Z(+20℃)	≤1.25	(100KHz)	
	Z(-55℃)/Z(+20℃)	≤1.25		
耐久性 Endurance	105℃施加额定工作电压2000小时, 恢复到20℃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℃ after application of rated voltage for 2000 hours at 105℃.			
	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℃ 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℃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℃after application of rated voltage for 1000 hours at 60℃,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℃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℃ 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, 应满足于以下要求 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

M2

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

频率Frequency(Hz)	$120\text{Hz} \leq f < 1\text{kHz}$	$1\text{kHz} \leq f < 10\text{kHz}$	$10\text{kHz} \leq f < 100\text{kHz}$	$100\text{kHz} \leq f < 500\text{kHz}$
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 (uF)	Case size $\Phi D \times L(\text{mm})$	ESR(m Ω) at 20°C,100 KHz	Leakage Current (μA)	Rated ripple current (mA _{rms} /105°C/100kHz)
2.5	470	6.3*9	30	500	4100
	470	6.3*9	30	500	4100
	560	6.3*9	30	500	4100
	560	6.3*9	30	500	4100
	680	6.3*9	30	500	4100
	820	6.3*9	30	500	4100
4	560	6.3*9	30	500	4100
	680	6.3*9	30	544	4100
	820	6.3*9	30	656	4100
	1000	6.3*9	30	800	4100
	1200	6.3*9	30	960	4100
6.3	220	5*7.5	45	500	2500
	220	6.3*5.8	35	500	3200
	220	6.3*7	35	500	3500
	330	6.3*5.8	35	500	3200
	330	6.3*7	35	500	3500
	330	6.3*7.7	35	500	3500
	470	6.3*7.7	35	592	3500
	560	6.3*7.7	35	706	3500
	680	6.3*9	30	857	3800
	820	6.3*9	30	1033	3800
	1000	8*9.8	25	1260	4100
	1500	10*12.6	20	1890	4800
10	220	6.3*7	35	500	2650
	330	6.3*7	35	660	2650
	470	6.3*7.7	35	940	2700
	560	6.3*9	35	1120	2900
	680	8*9.8	25	1360	3500
	820	10*10.2	25	1640	4100
	820	8*12.6	25	1640	4100
	1000	8*12.6	25	2000	4100
	1500	10*12.6	25	2000	4500
16	47	6.3*7	50	500	2100
	68	6.3*7	40	500	2100
	100	6.3*5.8	40	500	1900

M2

◆ 尺寸与个技术参数一览表Standard Ratings

Rated voltage (V)	Rated capacitance (uF)	Case size ΦD×L(mm)	ESR(mΩ) at 20℃,100 KHz	Leakage Current (μA)	Rated ripple current (mArms/105℃/100kHz)
16	100	6.3*7	40	500	2100
	220	6.3*7	40	704	2100
	220	6.3*7.7	40	704	2260
	220	8*9.8	35	704	2690
	330	6.3*7.7	40	1056	2260
	330	8*9.8	40	1056	2900
	330	8*12.6	30	1056	3500
	470	8*9.8	40	1504	2900
	470	8*12.6	30	1504	3500
	680	8*12.6	30	2176	3500
	820	8*12.6	30	2624	3500
	1000	8*12.6	30	3200	3500
	1500	10*12.6	30	4800	4100
25	47	6.3*5.8	60	500	1870
	47	6.3*7	60	500	1950
	100	5*7.5	70	500	1650
	100	6.3*5.8	50	500	1870
	100	6.3*7	50	500	1950
	100	6.3*9	50	500	2100
	220	6.3*9	50	1100	2100
	220	8*9.8	50	1100	2690
	270	6.3*10	50	1350	2400
	330	8*9.8	50	1650	2690
	470	8*12.6	45	2350	3100
	470	10*10.2	45	2350	3100
	680	8*12.6	40	3400	3100
	680	10*12.6	35	3400	3800
	820	10*12.6	35	4100	3800
	1000	10*12.6	35	5000	3800
35	47	6.3*7	80	299	1410
	100	6.3*7	80	350	1516
	100	6.3*7.7	80	350	1870
	100	6.3*9	80	350	1950
	100	8*9.8	50	350	2450
	150	6.3*10	70	525	2100
	220	8*9.8	50	770	2450
	220	8*12.6	50	770	2910
	330	8*12.6	50	1155	2910
	330	10*12.6	40	1155	3640
	470	10*12.6	40	1155	3640

M2

◆ 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($m\Omega$) at 20°C,100 KHz	Leakage Current (μ A)	Rated ripple current (mA _{rms} /105°C/100kHz)
50	10	5*9	100	299	550
	22	6.3*9	100	299	850
	33	6.3*9	100	299	850
	47	6.3*9	80	299	920
	47	8*9.8	60	299	1200
	47	8*12.6	60	299	1500
	100	8*9.8	60	500	1320
	100	8*12.6	60	500	1550
	100	10*12.6	55	500	2100
	150	8*12.6	60	750	1550
	220	10*12.6	55	1100	2100
63	10	6.3*9	110	299	750
	22	6.3*9	110	299	750
	33	6.3*9	100	299	820
	33	8*9.8	60	299	1100
	47	8*9.8	60	299	1100
	47	8*12.6	60	299	1300
	82	8*12.6	60	517	1550
	100	8*12.6	60	630	1550
	100	10*12.6	55	630	1800
	150	10*12.6	55	945	1800
80	10	6.3*9	120	299	550
	22	6.3*9	120	299	600
	22	8*9.8	70	299	950
	33	8*9.8	70	299	950
	33	8*12.6	70	299	1300
	47	8*12.6	70	376	1300
	56	8*12.6	70	448	1400
	68	10*12.6	50	544	1750
	100	10*12.6	50	800	1750
100	10	6.3*9	120	299	550
	22	8*9.8	80	299	950
	22	8*12.6	70	299	1300
	33	8*12.6	70	330	1300
	47	10*12.6	50	470	1700
	68	10*12.6	50	680	1750