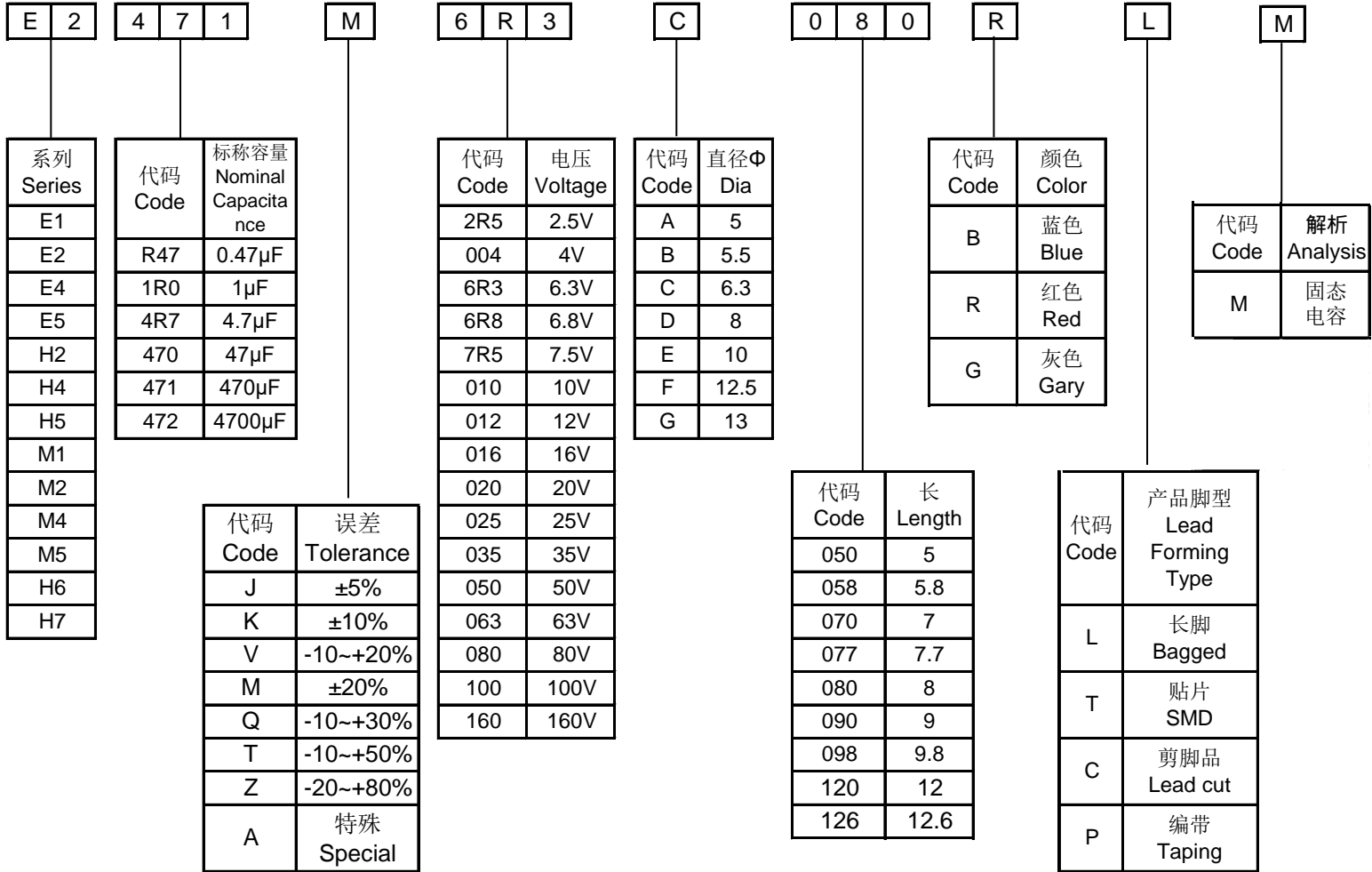


◆料号说明 Explanation of parts numbers

JBL: 品牌缩写



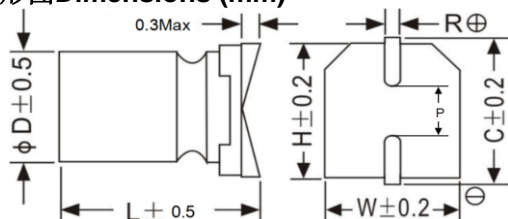
## M2

- 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<br>Category<br>Temperature Range                             | -55 ~ +105°C  |                               |                                |
| 额定工作电压范围<br>Rated Voltage Range                                     | 2.5 ~ 100V  |                               |                                |
| 静电容量允许偏差<br>Capacitance tolerance                                   | ±20%(M) (at 20°C,120Hz)   |                               |                                |
| 漏电流<br>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)<br>Less than or equal to the specified value. After 2 minutes<br>application of rated Voltage at 20°C  |                               | 2.5~25V<br>≤0.2CV 或 500μA(取大值) |
|   |   |                               | 35~100V<br>≤0.1CV 或 299μA(取大值) |
| 损耗角正切值tanδ<br>Dissipation Factor                                    | Rated voltage (V)   | 2.5~6.3                       | 10~100                         |
|   | tanδ (Max.)   | 0.08                          | 0.12                           |
| 温度特性<br>Low Temperature<br>Characteristics<br>(Max.Impedance Ratio) | Z(-25°C)/Z(+20°C)   | ≤ 1.25                        |                                |
|   | Z(-55°C)/Z(+20°C)   | ≤ 1.25                        |                                |
| 耐久性<br>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<br>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<br>Damp Heat<br>(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<br>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<br>(Surge Voltage)   | 浪涌电压=额定电压× 1.15(V)<br>Surge Voltage=Rated voltage × 1.15(V)<br>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<br>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<br>Resistance to<br>soldering heat                            | 按回流焊试验后, 应满足于以下要求<br>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 $\Phi D \times L$ (mm) | ESR(m $\Omega$ ) at 20 $^{\circ}$ C, 100 KHz | Leakage Current ( $\mu$ A) | Rated ripple current (mArms/105 $^{\circ}$ 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 $\Phi D \times L$ (mm) | ESR(m $\Omega$ )<br>at 20°C, 100 KHz | Leakage Current ( $\mu$ A) | Rated ripple current (mArms/105°C/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 (uF) | Case size ΦD×L(mm) | ESR(mΩ) at 20°C, 100 KHz | Leakage Current (μA) | Rated ripple current (mArms/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                                      |