# VM series

## Hybrid (16V~63V)

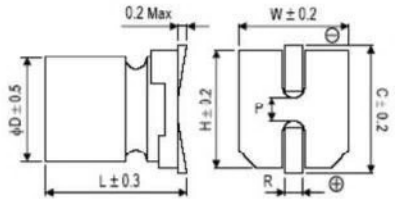
- SMD Type, Conductive Polymer Hybrid Aluminum Electrolytic Capacitor
- Load life of 2000 hours at 105℃
- Compliant to the RoHS directive (2011/65/EU)
- Suitable for Automotive Application.

SMD型混合铝电容器，产品满足RoHS指令(2011/65/EU)，适用于汽车应用。

## ≫ Specifications

| Items | Characteristics | |
|---|---|---|
| Operating Temp. Range | -55℃ ~ +105℃ | |
| Capacitance Range | 10 ~ 1200 uF | |
| Capacitance Tolerance | M: ±20% | |
| Rated Voltage Range | 16V ~ 63V DC | |
| Dissipation Factor | Not to exceed the value specified | |
| ( at 120Hz, 20℃ ) | Not to exceed the value specified (after 2 minutes) | |
| Leakage Current | Not to exceed the value specified | |
| ESR ( 100K~300KHz ) | Capacitance Change | Within ±20% of the value before test |
| Endurance 105℃, 2000h, at rated voltage | Leakage current | Not to exceed the value specified |
| | ESR | Not to exceed 150% of the value specified |
| | Dissipation Factor | Not to exceed 150% of the value specified |
| Moisture Resistance Stored at 60℃, Rh90 ~ 95%, 1000h | Capacitance Change | Within ±20% of the value before test |
| | Leakage Current | Not to exceed the value specified |
| | ESR | Not to exceed 150% of the value specified |
| | Dissipation Factor | Not to exceed 150% of the value specified |

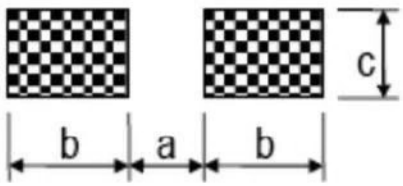
## ≫ Diagram of Dimensions




(unit: mm)

| φD×L | W | H | C | R | P |
|---|---|---|---|---|---|
| 6.3×5.8 | 6.6 | 6.6 | 7.2 | 0.5to0.8 | 2.1 |
| 6.3×7.7 | 6.6 | 6.6 | 7.2 | 0.5to0.8 | 2.1 |
| 6.3×9 | 6.6 | 6.6 | 7.2 | 0.5to0.8 | 2.1 |
| 6.3×10 | 6.6 | 6.6 | 7.2 | 0.5to0.8 | 2.1 |
| 8×9.2 | 8.3 | 8.3 | 9.0 | 0.8to1.1 | 3.2 |
| 8×12.2 | 8.3 | 8.3 | 9.0 | 0.8to1.1 | 3.2 |
| 10×10.5 | 10.3 | 10.3 | 11.0 | 0.8to1.1 | 4.6 |
| 10×12.7 | 10.3 | 10.3 | 11.0 | 0.8to1.1 | 4.6 |

## ≫ Recommended land pattern




(unit: mm)

| φD×L | a | b | c |
|---|---|---|---|
| 6.3×5.8 | 2.1 | 3.5 | 1.6 |
| 6.3×7.7 | 2.1 | 3.5 | 1.6 |
| 6.3×9 | 2.1 | 3.5 | 1.6 |
| 6.3×10 | 2.1 | 3.5 | 1.6 |
| 8×9.2 | 2.8 | 4.2 | 1.9 |
| 8×12.2 | 2.8 | 4.2 | 1.9 |
| 10×10.5 | 4.3 | 4.4 | 1.9 |
| 10×12.7 | 4.3 | 4.4 | 1.9 |

## ≫ Capacitance List

| W.V (S.V) / SIZE | 16 ( 18.4 ) | 20 ( 23 ) | 25 ( 28.7 ) | 35 ( 41 ) | 50 ( 57.5 ) | 63 ( 72 ) |
|---|---|---|---|---|---|---|
| 6.3 × 5.8 | | | | 47~68 uF | 18~27 uF | 10~22 uF |
| 6.3 × 7.7 | | | | 68~100 uF | 27~39 uF | 22~33 uF |
| 6.3 × 9 | | | | 82~120 uF | 33~47 uF | 27~39 uF |
| 6.3 × 10 | | | | 100~150 uF | 39~56 uF | 33~47 uF |
| 8 × 9.2 | | | | 120~220 uF | 47~82 uF | 39~68 uF |
| 8 × 12.2 | | | | 180~270 uF | 68~120 uF | 56~100 uF |
| 10 × 10.5 | | | | 180~330 uF | 82~150 uF | 68~120 uF |
| 10 × 12.7 | 680~1200 uF | 560~1000 uF | 470~820 uF | 270~470 uF | 100~180 uF | 82~150 uF |

## ≫ Characteristics List

| W.V. (V) | Capacitance (uF) | L.C. (uA, 2min) | tg δ (120Hz, 20℃) | ESR (mΩ, 100kHz) | Rated Ripple Current (mA, r. m. s) | Size ΦD × L (mm) | Part Number |
|---|---|---|---|---|---|---|---|
| 16 | 1000 | 300 | 0.12 | 12 | 3900 | 10 × 12.7 | VM102M016G127TR |
| 20 | 820 | 300 | 0.12 | 15 | 3700 | 10 × 12.7 | VM821M020G127TR |
| 25 | 680 | 300 | 0.12 | 20 | 3300 | 10 × 12.7 | VM681M025G127TR |
| 35 | 56 | 300 | 0.12 | 50 | 1900 | 6.3 × 5.8 | VM560M035E058TR |
| | 82 | 300 | 0.12 | 45 | 2000 | 6.3 × 7.7 | VM820M035E077TR |
| | 100 | 300 | 0.12 | 40 | 2100 | 6.3 × 9 | VM101M035E090TR |
| | 120 | 300 | 0.12 | 40 | 2200 | 6.3 × 10 | VM121M035E100TR |
| | 150 | 300 | 0.12 | 30 | 2500 | 8 × 9.2 | VM151M035F092TR |
| | 220 | 300 | 0.12 | 25 | 2900 | 8 × 12.2 | VM221M035F122TR |
| | 270 | 300 | 0.12 | 25 | 2700 | 10 × 10.5 | VM271M035G105TR |
| | 330 | 300 | 0.12 | 20 | 3100 | 10 × 12.7 | VM331M035G127TR |
| 50 | 22 | 300 | 0.12 | 50 | 1700 | 6.3 × 5.8 | VM220M050E058TR |
| | 33 | 300 | 0.12 | 45 | 1800 | 6.3 × 7.7 | VM330M050E077TR |
| | 39 | 300 | 0.12 | 40 | 1900 | 6.3 × 9 | VM390M050E090TR |
| | 47 | 300 | 0.12 | 40 | 2000 | 6.3 × 10 | VM470M050E100TR |
| | 56 | 300 | 0.12 | 30 | 2300 | 8 × 9.2 | VM560M050F092TR |
| | 100 | 300 | 0.12 | 25 | 2700 | 8 × 12.2 | VM101M050F122TR |
| | 120 | 300 | 0.12 | 25 | 2500 | 10 × 10.5 | VM121M050G105TR |
| | 150 | 300 | 0.12 | 20 | 2900 | 10 × 12.7 | VM151M050G127TR |
| 63 | 10 | 300 | 0.12 | 50 | 1400 | 6.3 × 5.8 | VM00M063E058TR |
| | 22 | 300 | 0.12 | 45 | 1500 | 6.3 × 7.7 | VM220M063E077TR |
| | 33 | 300 | 0.12 | 40 | 1700 | 6.3 × 9 | VM330M063E090TR |
| | 39 | 300 | 0.12 | 40 | 1800 | 6.3 × 10 | VM390M063E100TR |
| | 56 | 300 | 0.12 | 30 | 1900 | 8 × 9.2 | VM560M063F092TR |
| | 82 | 300 | 0.12 | 25 | 2500 | 8 × 12.2 | VM820M063F122TR |
| | 100 | 300 | 0.12 | 25 | 2200 | 10 × 10.5 | VM101M063G105TR |
| | 120 | 300 | 0.12 | 20 | 2600 | 10 × 12.7 | VM121M063G127TR |

## ≫ Frequency Coefficient for Ripple Current

| Frequency | 120Hz≤freq.<1KHz | 1KHz≤freq.<10KHz | 10KHz≤freq.<100KHz | 100KHz≤freq.<300KHz |
|---|---|---|---|---|
| Coefficient | 0.05 | 0.3 | 0.7 | 1 |