

SMM Series

- Longer life from SMQ series
- Endurance with ripple current : 3,000 hours at 85°C
- Non solvent resistant type
- RoHS2 Compliant



SPECIFICATIONS

| Items | Characteristics | | |
|--------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|------------|
| Category | -25 to +85°C | | |
| Temperature Range | -25 to +85°C | | |
| Rated Voltage Range | 160 to 450V _{dc} | | |
| Capacitance Tolerance | ±20% (M) (at 20°C, 120Hz) | | |
| Leakage Current | I ≤ 3/CV Where, I : Max. leakage current (µA), C : Nominal capacitance (µF), V : Rated voltage (V) (at 20°C after 5 minutes) | | |
| Dissipation Factor (tan δ) | Rated voltage (V _{dc}) | 160 to 400V | 420 & 450V |
| | tan δ (Max.) | 0.15 | 0.20 |
| Low Temperature Characteristics (Max. Impedance Ratio) | Rated voltage (V _{dc}) | 160 to 400V | 420 & 450V |
| | Z(-25°C)/Z(+20°C) | 4 | 8 |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20°C after subjected to DC voltage with the rated ripple current is applied (the peak voltage shall not exceed the rated voltage) for 3,000 hours at 85°C. | | |
| | Capacitance change | ≤ ±20% of the initial value | |
| | D.F. (tan δ) | ≤ 200% of the initial specified value | |
| | Leakage current | ≤ The initial specified value | |
| Shelf Life | The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them for 1,000 hours at 85°C without voltage applied. Before the measurement, the capacitor shall be preconditioned by applying voltage according to Item 4.1 of JIS C 5101-4. | | |
| | Capacitance change | ≤ ±15% of the initial value | |
| | D.F. (tan δ) | ≤ 150% of the initial specified value | |
| | Leakage current | ≤ The initial specified value | |

DIMENSIONS [mm]

● Terminal Code : VS (φ22 to φ35) : Standard

● Terminal Code : LI (φ35)



* φD=35mm : 3.5 ± 0.5mm

The standard design has no plastic disc.

PART NUMBERING SYSTEM



Please refer to "Product code guide (snap-in type)"

RATED RIPPLE CURRENT MULTIPLIERS

● Frequency Multipliers

| Frequency(Hz) | 50 | 120 | 300 | 1k | 10k | 50k |
|---------------------------|------|------|------|------|------|------|
| 160 to 250V _{dc} | 0.81 | 1.00 | 1.17 | 1.32 | 1.45 | 1.50 |
| 315 to 450V _{dc} | 0.77 | 1.00 | 1.16 | 1.30 | 1.41 | 1.43 |

The endurance of capacitors is reduced with internal heating produced by ripple current at the rate of halving the lifetime with every 5°C rise. When long life performance is required in actual use, the rms ripple current has to be reduced.

SMM Series

◆STANDARD RATINGS

| WV (V _{dc}) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (Arms/85°C, 120Hz) | Part No. | WV (V _{dc}) | Cap (μF) | Case size φD×L(mm) | tan δ | Rated ripple current (Arms/85°C, 120Hz) | Part No. |
|-----------------------|----------|--------------------|-------|-----------------------------------------|--------------------|-----------------------|----------|--------------------|--------------------|-----------------------------------------|--------------------|
| 420 | 120 | 22 × 30 | 0.20 | 1.07 | ESMM421VSN121MP30S | 450 | 82 | 25.4 × 20 | 0.20 | 0.74 | ESMM451VSN820MQ20S |
| | 120 | 25.4 × 25 | 0.20 | 1.08 | ESMM421VSN121MQ25S | | 82 | 30 × 20 | 0.20 | 0.79 | ESMM451VSN820MR20S |
| | 120 | 30 × 20 | 0.20 | 0.95 | ESMM421VSN121MR20S | | 100 | 22 × 30 | 0.20 | 0.95 | ESMM451VSN101MP30S |
| | 150 | 22 × 35 | 0.20 | 1.21 | ESMM421VSN151MP35S | | 100 | 25.4 × 25 | 0.20 | 0.97 | ESMM451VSN101MQ25S |
| | 150 | 25.4 × 30 | 0.20 | 1.26 | ESMM421VSN151MQ30S | | 100 | 30 × 20 | 0.20 | 0.87 | ESMM451VSN101MR20S |
| | 150 | 30 × 25 | 0.20 | 1.30 | ESMM421VSN151MR25S | | 120 | 22 × 35 | 0.20 | 1.07 | ESMM451VSN121MP35S |
| | 150 | 35 × 20 | 0.20 | 1.11 | ESMM421VSN151MA20S | | 120 | 25.4 × 30 | 0.20 | 1.09 | ESMM451VSN121MQ30S |
| | 180 | 22 × 40 | 0.20 | 1.33 | ESMM421VSN181MP40S | | 120 | 30 × 25 | 0.20 | 1.12 | ESMM451VSN121MR25S |
| | 180 | 25.4 × 35 | 0.20 | 1.42 | ESMM421VSN181MQ35S | | 120 | 35 × 20 | 0.20 | 0.99 | ESMM451VSN121MA20S |
| | 180 | 30 × 25 | 0.20 | 1.48 | ESMM421VSN181MR25S | | 150 | 22 × 40 | 0.20 | 1.18 | ESMM451VSN151MP40S |
| | 180 | 35 × 20 | 0.20 | 1.16 | ESMM421VSN181MA20S | | 150 | 25.4 × 30 | 0.20 | 1.25 | ESMM451VSN151MQ30S |
| | 220 | 22 × 45 | 0.20 | 1.55 | ESMM421VSN221MP45S | | 150 | 30 × 25 | 0.20 | 1.29 | ESMM451VSN151MR25S |
| | 220 | 25.4 × 35 | 0.20 | 1.58 | ESMM421VSN221MQ35S | | 150 | 35 × 20 | 0.20 | 1.06 | ESMM451VSN151MA20S |
| | 220 | 30 × 30 | 0.20 | 1.65 | ESMM421VSN221MR30S | | 180 | 22 × 45 | 0.20 | 1.32 | ESMM451VSN181MP45S |
| | 220 | 35 × 25 | 0.20 | 1.47 | ESMM421VSN221MA25S | | 180 | 25.4 × 35 | 0.20 | 1.40 | ESMM451VSN181MQ35S |
| | 270 | 25.4 × 40 | 0.20 | 1.74 | ESMM421VSN271MQ40S | | 180 | 30 × 30 | 0.20 | 1.45 | ESMM451VSN181MR30S |
| | 270 | 30 × 35 | 0.20 | 1.90 | ESMM421VSN271MR35S | | 180 | 35 × 25 | 0.20 | 1.33 | ESMM451VSN181MA25S |
| | 270 | 35 × 30 | 0.20 | 1.94 | ESMM421VSN271MA30S | | 220 | 22 × 50 | 0.20 | 1.48 | ESMM451VSN221MP50S |
| | 330 | 25.4 × 50 | 0.20 | 2.20 | ESMM421VSN331MQ50S | | 220 | 25.4 × 40 | 0.20 | 1.59 | ESMM451VSN221MQ40S |
| | 330 | 30 × 35 | 0.20 | 1.98 | ESMM421VSN331MR35S | | 220 | 30 × 30 | 0.20 | 1.64 | ESMM451VSN221MR30S |
| 330 | 35 × 35 | 0.20 | 2.17 | ESMM421VSN331MA35S | 220 | 35 × 25 | 0.20 | 1.66 | ESMM451VSN221MA25S | | |
| 390 | 30 × 40 | 0.20 | 2.22 | ESMM421VSN391MR40S | 270 | 25.4 × 45 | 0.20 | 1.73 | ESMM451VSN271MQ45S | | |
| 390 | 35 × 35 | 0.20 | 2.27 | ESMM421VSN391MA35S | 270 | 30 × 35 | 0.20 | 1.89 | ESMM451VSN271MR35S | | |
| 470 | 30 × 45 | 0.20 | 2.50 | ESMM421VSN471MR45S | 270 | 35 × 30 | 0.20 | 1.90 | ESMM451VSN271MA30S | | |
| 470 | 35 × 40 | 0.20 | 2.61 | ESMM421VSN471MA40S | 330 | 25.4 × 50 | 0.20 | 2.12 | ESMM451VSN331MQ50S | | |
| 560 | 35 × 45 | 0.20 | 2.95 | ESMM421VSN561MA45S | 330 | 30 × 40 | 0.20 | 2.12 | ESMM451VSN331MR40S | | |
| 680 | 35 × 50 | 0.20 | 3.15 | ESMM421VSN681MA50S | 330 | 35 × 35 | 0.20 | 2.15 | ESMM451VSN331MA35S | | |
| 450 | 47 | 22 × 20 | 0.20 | 0.54 | ESMM451VSN470MP20S | 390 | 30 × 45 | 0.20 | 2.35 | ESMM451VSN391MR45S | |
| | 56 | 22 × 20 | 0.20 | 0.59 | ESMM451VSN560MP20S | 390 | 35 × 40 | 0.20 | 2.38 | ESMM451VSN391MA40S | |
| | 68 | 22 × 25 | 0.20 | 0.71 | ESMM451VSN680MP25S | 470 | 30 × 50 | 0.20 | 2.65 | ESMM451VSN471MR50S | |
| | 68 | 25.4 × 20 | 0.20 | 0.68 | ESMM451VSN680MQ20S | 470 | 35 × 45 | 0.20 | 2.68 | ESMM451VSN471MA45S | |
| | 82 | 22 × 25 | 0.20 | 0.86 | ESMM451VSN820MP25S | 560 | 35 × 50 | 0.20 | 2.88 | ESMM451VSN561MA50S | |

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