# VT series

- Super low ESR, High ripplie current capability
- Rated voltage : 4~50V.
- Endurance : 1,000hours at 125℃
- Applications : Motherboard, DC/DC Converter, Adapter, SPS, VCR, Camcorder, DSC, PDA, HD Drive, MO Drive, etc.
- RoHS compliant
- Halogen Free compliant

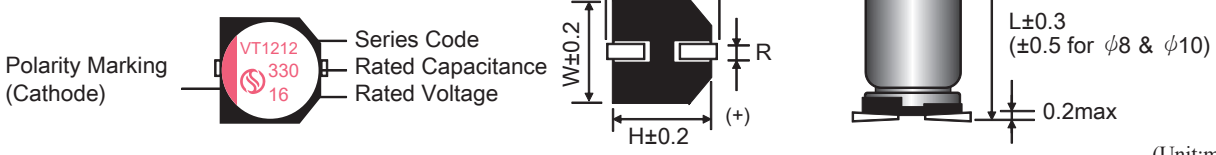



## SPECIFICATIONS

| Items | Conditions | Characteristics | |
|---|---|---|---|
| Category Temperature Range | — | -55 to +125℃ | |
| Rated Voltage Range | — | 4 ~ 50V | |
| Capacitance Tolerance | at 20℃,120Hz | ±20%(M) | |
| Surge Voltage | at 105℃ | Rated voltage ×1.15V | |
| Leakage Current | at 20℃ after 2 minutes | I ≦ 0.2CV or 300(μA) Whichever is greater measured,after 2 minutes application of rated working voltage at +20℃. Please see the attached characteristics list | |
| Dissipation Factor ( tan δ) | at 20℃,120Hz | Please see the attached characteristics list | |
| Characteristics of Impedance at low, high temperature | at -55℃,100kHz | Z( -55℃)/Z(+20℃) | ≦ 1.25 |
| | at -25℃,100kHz | Z( -25℃)/Z(+20℃) | ≦ 1.15 |
| Endurance | The following specifications shall be satisfied when the capacitors are restored to 20℃ after the rated voltage is applied for 1,000 hours at 125℃. | Appearance | NO significant damage. |
| | | Capacitance change | ≦ ±20% of the initial value. |
| | | DF ( tan δ) | ≦ 150% of the initial specified value. |
| | | ESR | ≦ 150% of the initial specified value. |
| | | Leakage current | ≦ The initial specified value. |
| Damp Heag (Steady State) | The following specifications shall be satisfied when the capacitors are restored to 20℃ after subjecting them to store 60℃, 90 to 95% RH for 1,000 hours, without DC applied. | Appearance | NO significant damage. |
| | | Capacitance change | ≦ ±20% of the initial value. |
| | | DF ( tan δ) | ≦ 150% of the initial specified value. |
| | | ESR | ≦ 150% of the initial specified value. |
| | | Leakage current | ≦ The initial specified value. |
| Surge Voltage | The capacitors shall be subjected to 1,000 cycles each consisting of charge with the surge voltages specified at 105℃ for 30 seconds through aprotective resistor (R = 1 kΩ) and discharge for 5 minutes 30 seconds. | Appearance | NO significant damage. |
| | | Capacitance change | ≦ ±20% of the initial value. |
| | | DF ( tan δ) | ≦ 150% of the initial specified value. |
| | | ESR | ≦ 150% of the initial specified value. |
| | | Leakage current | ≦ The initial specified value. |

※ Note : If any doubt arises, measure the leakage current after following voltage treatment.
Voltage treatmen : DC rated voltage are applied to the capacitors for 120 minutes at 125℃.

## MARKING AND DIMENSIONS




(Unit:mm)

| φ DxL | φ D | L | W | H | C | R | P |
|---|---|---|---|---|---|---|---|
| 6.3×6 | 6.3 | 6.0 | 6.6 | 6.6 | 7.3 | 0.5~0.8 | 2.1 |
| 6.3x7 | 6.3 | 7.0 | 6.6 | 6.6 | 7.3 | 0.5~0.8 | 2.1 |
| 6.3x9.5 | 6.3 | 9.5 | 6.6 | 6.6 | 7.3 | 0.5~0.8 | 2.1 |
| 8×7 | 8.0 | 7.0 | 8.3 | 8.3 | 9.3 | 0.5~0.8 | 3.2 |
| 8x9.5 | 8.0 | 9.5 | 8.3 | 8.3 | 9.3 | 0.8~1.1 | 3.2 |
| 8x12 | 8.0 | 12.0 | 8.3 | 8.3 | 9.0 | 0.8~1.1 | 3.2 |
| 10×10 | 10.0 | 10.0 | 10.3 | 10.3 | 11.0 | 0.8~1.1 | 4.6 |
| 10×12.5 | 10.0 | 12.5 | 10.3 | 10.3 | 11.0 | 0.8~1.1 | 4.6 |

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## VT SERIES STANRD CHARACTERISITICS LIST

| Rated Voltage (S.V.) | Cap (μF) | Size DxL | Leakage current (μA) max. ※2 | ESR (mΩ) max. 100k to 300kHz / 20℃ | Rated Ripple Current (mA rms) | | D.F. (tanδ) max. 120Hz / 20℃ |
|---|---|---|---|---|---|---|---|
| | | | | | 105℃ 100kHz | 125℃ 100kHz | |
| 4 (4.6) | 150 | 6.3x6 | 300 | 35 | 2,450 | 700 | 0.12 |
| | 220 | 6.3x6 | 300 | 20 | 2,800 | 800 | 0.12 |
| | 560 | 6.3x9.5 | 448 | 20 | 3,000 | 857 | 0.12 |
| | 560 | 8x7 | 448 | 20 | 3,000 | 857 | 0.12 |
| | 820 | 8x9.5 | 656 | 15 | 3,500 | 1,000 | 0.12 |
| | 1,200 | 8x12 | 960 | 15 | 3,800 | 1,086 | 0.12 |
| | 1,500 | 10x10 | 1,200 | 12 | 4,500 | 1,286 | 0.12 |
| | 2,200 | 10x12.5 | 1,760 | 12 | 5,500 | 1,571 | 0.12 |
| 6.3 (7.3) | 100 | 6.3x6 | 300 | 40 | 2,400 | 686 | 0.12 |
| | 150 | 6.3x6 | 300 | 40 | 2,400 | 686 | 0.12 |
| | 330 | 6.3x7 | 415 | 30 | 2,800 | 800 | 0.12 |
| | 470 | 6.3x9.5 | 592 | 25 | 2,800 | 800 | 0.12 |
| | 680 | 8x9.5 | 856 | 25 | 2,800 | 800 | 0.12 |
| | 820 | 8x12 | 1,033 | 20 | 3,000 | 857 | 0.12 |
| | 1,000 | 8x12 | 1,260 | 20 | 3,000 | 857 | 0.12 |
| | 1,200 | 10x10 | 1,512 | 20 | 3,000 | 857 | 0.12 |
| | 1,800 | 10x12.5 | 2,268 | 18 | 3,000 | 857 | 0.12 |
| 10 (11.5) | 100 | 6.3x6 | 300 | 35 | 2,800 | 800 | 0.12 |
| | 330 | 6.3x9.5 | 660 | 25 | 2,800 | 800 | 0.12 |
| | 470 | 8x9.5 | 940 | 25 | 3,000 | 857 | 0.12 |
| | 560 | 8x9.5 | 1,120 | 25 | 3,000 | 857 | 0.12 |
| | 680 | 8x12 | 1,360 | 20 | 3,500 | 1,000 | 0.12 |
| | 820 | 10x10 | 1,640 | 20 | 3,500 | 1,000 | 0.12 |
| | 1,000 | 10x10 | 2,000 | 20 | 3,500 | 1,000 | 0.12 |
| | 1,200 | 10x12.5 | 2,400 | 12 | 5,200 | 1,486 | 0.12 |
| 16 (18.4) | 100 | 6.3x6 | 320 | 35 | 2,050 | 586 | 0.12 |
| | 220 | 6.3x9.5 | 704 | 25 | 2,050 | 586 | 0.12 |
| | 330 | 8x9.5 | 1,056 | 25 | 2,700 | 771 | 0.12 |
| | 470 | 8x12 | 1,504 | 20 | 3,930 | 1,123 | 0.12 |
| | 680 | 10x10 | 2,176 | 18 | 4,520 | 1,291 | 0.12 |
| | 820 | 10x12.5 | 2,624 | 18 | 4,900 | 1,400 | 0.12 |
| 25 (28.8) | 47 | 6.3x6 | 300 | 60 | 1,650 | 471 | 0.12 |
| | 100 | 6.3x9.5 | 500 | 30 | 1,650 | 471 | 0.12 |
| | 220 | 8x12 | 1,100 | 28 | 3,310 | 946 | 0.12 |
| | 330 | 10x10 | 1,650 | 30 | 4,320 | 1,234 | 0.12 |
| | 470 | 10x12.5 | 2,350 | 28 | 4,500 | 1,286 | 0.12 |
| 35 (40.3) | 22 | 6.3x6 | 300 | 70 | 1,450 | 414 | 0.12 |
| | 68 | 6.3x9.5 | 476 | 40 | 1,450 | 414 | 0.12 |
| | 120 | 8x9.5 | 840 | 40 | 1,800 | 514 | 0.12 |
| | 150 | 8x12 | 1,050 | 30 | 2,000 | 571 | 0.12 |
| | 220 | 10x10 | 1,540 | 30 | 2,200 | 629 | 0.12 |
| | 270 | 10x12.5 | 1,890 | 30 | 2,500 | 714 | 0.12 |

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|---|---|---|---|---|---|---|---|
| | | | | | 105℃ 100kHz | 125℃ 100kHz | |
| 50 (57.5) | 10 | 6.3x6 | 300 | 60 | 1,400 | 400 | 0.12 |
| | 33 | 6.3x9.5 | 330 | 40 | 1,500 | 429 | 0.12 |
| | 47 | 8x9.5 | 470 | 40 | 2,000 | 571 | 0.12 |
| | 68 | 8x12 | 680 | 35 | 2,300 | 657 | 0.12 |
| | 100 | 10x10 | 1,000 | 35 | 2,200 | 629 | 0.12 |
| | 100 | 10x12.5 | 1,000 | 35 | 2,500 | 714 | 0.12 |

※ 1. Capacitance tolerance : ±20% (M)

※ 2. After 2 minutes

## FREQUENCY COEFFICIENT FOR RIPPLE CURRENT

| Frequency | 120Hz ≦ f < 1kHz | 1kHz ≦ f < 10kHz | 10kHz ≦ f < 100kHz | 100kHz ≦ f < 500kHz |
|---|---|---|---|---|
| Coefficient | 0.05 | 0.3 | 0.7 | 1 |