

DV Series Chip type

Features

- ◆ Chip type ,Low impedance
- ◆ Chip type with load life of 2000 hours at +105°C
- ◆ Designed for surface mounting on high density PC board
- ◆ Applicable to automatic mounting machine using carrier tape
- ◆ Complied to the RoHS directive
- ◆ For detail specifications, please refer to Engineering Bulletin NO. E173

ZV **Low Impedance** → DV



SMD

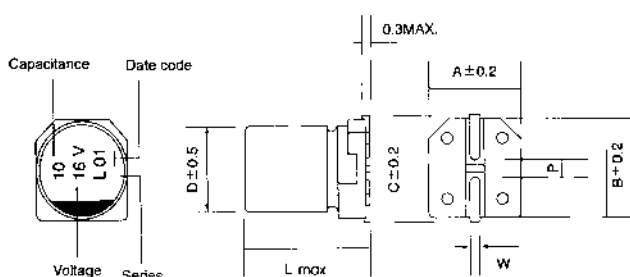
Specifications

| Item | Performance Characteristics |
|--|--|
| Operating Temperature Range | -55~ +105°C |
| Rated Voltage Range | 6.3~50 VDC |
| Capacitance Range | 1 to 1500 μF |
| Capacitance Tolerance | ±20%(120Hz,+20°C) |
| Leakage Current (+20°C,max.) | $I \leq 0.01 CV$ or $3 (\mu A)$ After 2 minutes whichever is greater measured with rated working voltage applied. |
| Dissipation Factor ($\tan \delta$, at 20°C , 120Hz) | Working voltage(VDC) 6.3 10 16 25 35 50 |
| | D.F. (%) max. 24 19 16 14 14 12 |
| Low Temperature Characteristics (at 120Hz) | Impedance ratio max |
| | Working voltage(VDC) 6.3 10 16 25 35 50 |
| | Z-25°C / Z+20°C 2 2 2 2 2 2 |
| Z-55°C / Z+20°C 8 6 4 4 3 3 | |
| Load Life | Test conditions Duration time :2000 Hrs Ambient temperature :+105°C Applied voltage :Rated DC working voltage |
| | After test requirement at +20°C : Capacitance change :Within ±30% of initial value Dissipation factor :Less than 300% of specified value Leakage current :Less than specified value |
| Shelf Life | Test conditions Duration time :1000 Hrs Ambient temperature :+105°C Applied voltage :None |
| | After test requirement at +20°C : Same limits as Load life. Pre-treatment for measurements shall be conducted after application of DC working voltage for 30 minutes. |
| Resistance to soldering heat | The following specifications shall be satisfied when the capacitors are restored to 20°C after exposing them at 250°C for 30 seconds. |
| | Leakage current Less than specified value |
| | Capacitance change Within ±10% of initial value |
| | $\tan \delta$ Less than specified value |

Multiplier for Ripple Current vs. Frequency

| CAP(μF)\Frequency(Hz) | 60(50) | 120 | 400 | 1K | 10K | 50K-100K |
|-----------------------|--------|------|------|------|------|----------|
| CAP ≤ 10 | 0.47 | 0.59 | 0.76 | 0.85 | 0.97 | 1.0 |
| 10 < CAP ≤ 100 | 0.52 | 0.65 | 0.80 | 0.89 | 0.97 | 1.0 |

Diagram of Dimensions:(unit:mm)



| φD | L | A | B | C | W | P |
|-----|------|------|------|------|---------|-----|
| 4 | 5.5 | 4.3 | 4.3 | 4.9 | 0.5~0.8 | 1.0 |
| 5 | 5.5 | 5.3 | 5.3 | 5.9 | 0.5~0.8 | 1.4 |
| 6.3 | 5.5 | 6.6 | 6.6 | 7.2 | 0.5~0.8 | 2.2 |
| 6.3 | 7.7 | 6.6 | 6.6 | 7.2 | 0.5~0.8 | 2.2 |
| 8 | 6.5 | 8.3 | 8.3 | 9.0 | 0.5~0.8 | 2.3 |
| 8 | 10.5 | 8.3 | 8.3 | 9.0 | 0.7~1.1 | 3.1 |
| 10 | 10.5 | 10.3 | 10.3 | 11.0 | 0.7~1.1 | 4.5 |

Case Size

φ DxL(mm)

| WV (SV) Cap (μF) | 6.3 (8) | | | 10 (13) | | | 16 (20) | | | 25 (32) | | | 35 (44) | | | 50 (63) | | |
|---------------------------|------------|--------|-----------|------------|--------|-----------|------------|--------|-----------|------------|--------|-----------|------------|--------|-----------|------------|--------|-----------|
| | Size | Ripple | Impedance | Size | Ripple | Impedance | Size | Ripple | Impedance | Size | Ripple | Impedance | Size | Ripple | Impedance | Size | Ripple | Impedance |
| 1.0 | | | | | | | | | | | | | | | | 4X5.5 | 55 | 4.5 |
| 2.2 | | | | | | | | | | | | | | | | 4X5.5 | 55 | 4.5 |
| 3.3 | | | | | | | | | | | | | 4X5.5 | 80 | 2.8 | 4X5.5 | 55 | 4.5 |
| 4.7 | | | | | | | | | | | | | 4X5.5 | 85 | 2.3 | 4X5.5 | 55 | 4.5 |
| 6.8 | | | | | | | | | | 4X5.5 | 70 | 2.8 | 4X5.5 | 88 | 2.2 | 5X5.5 | 75 | 3.8 |
| 10 | | | | | | | 4X5.5 | 80 | 2.2 | 4X5.5 | 85 | 2.1 | 4X5.5 | 90 | 2.0 | 5X5.5 | 95 | 2.8 |
| 15 | | | | | | | 4X5.5 | 85 | 2.0 | 5X5.5 | 125 | 1.9 | 5X5.5 | 140 | 1.2 | 6.3X5.5 | 140 | 1.6 |
| 22 | 4X5.5 | 75 | 2.2 | 4X5.5 | 80 | 2.2 | 4X5.5 | 90 | 1.98 | 5X5.5 | 145 | 1.2 | 5X5.5 | 155 | 1.1 | 6.3X5.5 | 150 | 1.3 |
| 27 | 4X5.5 | 79 | 1.98 | 5X5.5 | 125 | 1.9 | 5X5.5 | 170 | 0.74 | 6.3X5.5 | 200 | 0.62 | 6.3X5.5 | 210 | 0.6 | 6.3X7.7 | 180 | 1.2 |
| 33 | 4X5.5 | 82 | 1.9 | 4X5.5 | 90 | 1.85 | 6.3X5.5 | 185 | 0.6 | 5X5.5 | 160 | 1.05 | 6.3X5.5 | 230 | 0.54 | 6.3X7.7 | 190 | 0.71 |
| | 5X5.5 | 130 | 1.3 | 5X5.5 | 150 | 1.2 | 6.3X5.5 | 220 | 0.58 | 8X6.5 | 260 | 0.51 | 8X6.5 | 200 | 0.7 | 8X6.5 | 200 | 0.7 |
| 47 | 4X5.5 | 86 | 1.88 | 5X5.5 | 165 | 1.1 | 5X5.5 | 195 | 1.05 | 6.3X5.5 | 220 | 0.56 | 6.3X5.5 | 240 | 0.53 | 6.3X7.7 | 230 | 0.7 |
| | 5X5.5 | 150 | 1.1 | 6.3X5.5 | 180 | 0.59 | 6.3X5.5 | 210 | 0.58 | 6.3X7.7 | 230 | 0.54 | 8X6.5 | 250 | 0.49 | 8X6.5 | 240 | 0.69 |
| 56 | 5X5.5 | 150 | 1.10 | 6.3X5.5 | 210 | 0.57 | 6.3X5.5 | 220 | 0.56 | 6.3X5.5 | 230 | 0.54 | 6.3X7.7 | 250 | 0.49 | 8X10.5 | 300 | 0.52 |
| 68 | 5X5.5 | 160 | 0.9 | 6.3X5.5 | 220 | 0.55 | 6.3X5.5 | 230 | 0.54 | 6.3X5.5 | 240 | 0.48 | 6.3X7.7 | 265 | 0.4 | 8X10.5 | 320 | 0.5 |
| | 6.3X5.5 | 220 | 0.55 | 8X6.5 | 240 | 0.50 | 8X6.5 | 260 | 0.45 | 8X6.5 | 260 | 0.45 | 8X10.5 | 300 | 0.38 | 8X10.5 | 350 | 0.46 |
| 100 | 5X5.5 | 170 | 0.8 | 6.3X5.5 | 240 | 0.53 | 6.3X5.5 | 255 | 0.52 | 6.3X7.7 | 290 | 0.38 | 6.3X7.7 | 300 | 0.38 | 8X10.5 | 350 | 0.46 |
| | 6.3X5.5 | 230 | 0.53 | 8X6.5 | 260 | 0.47 | 8X6.5 | 270 | 0.44 | 8X10.5 | 480 | 0.25 | 8X10.5 | 510 | 0.24 | 10X10.5 | 600 | 0.25 |
| 150 | 6.3X5.5 | 235 | 0.51 | 6.3X5.5 | 250 | 0.49 | 6.3X7.7 | 265 | 0.45 | 8X10.5 | 480 | 0.25 | 8X10.5 | 510 | 0.24 | 10X10.5 | 600 | 0.25 |
| | 8X6.5 | 250 | 0.48 | 8X6.5 | 260 | 0.47 | 8X6.5 | 270 | 0.44 | 8X10.5 | 530 | 0.22 | 8X10.5 | 570 | 0.21 | 10X10.5 | 650 | 0.23 |
| 220 | 6.3X5.5 | 240 | 0.48 | 6.3X7.7 | 270 | 0.44 | 6.3X7.7 | 275 | 0.43 | 8X10.5 | 530 | 0.22 | 8X10.5 | 570 | 0.21 | 10X10.5 | 650 | 0.23 |
| | 6.3X7.7 | 260 | 0.45 | 8X6.5 | 285 | 0.40 | 8X6.5 | 285 | 0.41 | 8X10.5 | 570 | 0.2 | 10X10.5 | 650 | 0.15 | | | |
| 330 | 6.3X7.7 | 275 | 0.36 | 8X10.5 | 500 | 0.25 | 8X10.5 | 550 | 0.25 | 8X10.5 | 570 | 0.2 | 10X10.5 | 650 | 0.15 | | | |
| | 8X6.5 | 290 | 0.34 | 8X10.5 | 550 | 0.25 | 8X10.5 | 590 | 0.22 | 10X10.5 | 650 | 0.15 | | | | | | |
| 470 | 8X10.5 | 450 | 0.28 | 8X10.5 | 550 | 0.25 | 8X10.5 | 590 | 0.22 | 10X10.5 | 650 | 0.15 | | | | | | |
| 680 | 8X10.5 | 500 | 0.25 | 10X10.5 | 680 | 0.2 | 10X10.5 | 720 | 0.16 | | | | | | | | | |
| 1000 | 8X10.5 | 530 | 0.20 | 10X10.5 | 740 | 0.15 | | | | | | | | | | | | |
| | 10X10.5 | 570 | 0.17 | | | | | | | | | | | | | | | |
| 1200 | 10X10.5 | 600 | 0.16 | | | | | | | | | | | | | | | |
| 1500 | 10X10.5 | 650 | 0.13 | | | | | | | | | | | | | | | |

Ripple Current (mA, rms) at 105°C 100KHz

Max Impedance (Ω) at 20°C 100 KHz