

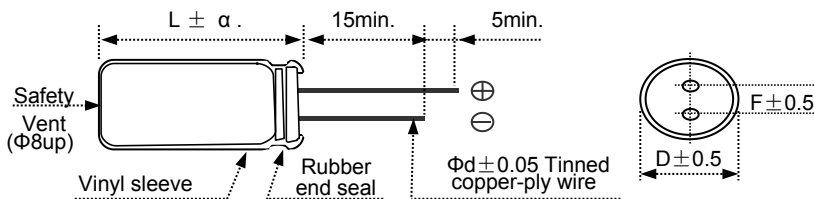
HD Series

- High ripple current ,long life,down sized
- Endurance : 8000 to 10,000 hours at 105°C
- RoHS2.0 Compliant

规格表 Specifications

| 项目 Items | 特性参数 Characteristics | | | |
|--|--|---------------|--------------------------------------|------------------|
| 使用温度范围 Category Temperature Range | - 40 ~ +105°C (160~ 400V.DC) - 25 ~ +105°C (450~ 500V.DC) | | | |
| 额定工作电压范围 Rated Voltage | 160 ~ 500V.DC | | | |
| 静电容量允许偏差 Capacitance Tolerance | ±20%(M) (at 20°C,120Hz) | | | |
| 漏电流 Leakage Current | I≤0.02CV+10(μA) (施加额定工作电压2分钟后) (After 2 minute application of rated voltage) Note: I=Max.leakage current (μA), C=Nominal capacitance(μF), V=Rated voltage(V) (at 20°C) | | | |
| 损耗角正切值tanδ Dissipation Factor | Rated voltage(V) | 160 ~ 250 | 350 ~ 500 | (at 20°C, 120Hz) |
| | tanδ (Max.) | 0.20 | 0.24 | |
| 低温特性 Low Temperature Characteristics (Max.Impedance Ratio) | 阻抗比值不得超过下表所列出的值 The impedance ratio shall not exceed the values listed in the below table. | | | |
| | Rated voltage(V) | 160 ~ 250 | 350 ~ 400 | 450 ~ 500 |
| | Z(-25°C)/Z(+20°C) | 3 | 5 | 6 |
| | Z(-40°C)/Z(+20°C) | 6 | 6 | - |
| 耐久性 Endurance | 在105°C环境中，不超过额定电压的范围内叠加最大允许纹波电流，连续加载右表时间，经恢复到20°C后，电容器满足以下各项要求。 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 for the specified period of time at 105°C | | | |
| | Capacitance change | | ≤±20% of the initial value | |
| | D.F.(tanδ) | | ≤200% of the initial specified value | |
| | Leakage current | | ≤The initial specified value | |
| | | | Load life | |
| | | 160 ~ 450V.dc | 500V.dc | |
| | | ≤20L : 8,000 | ≤Φ10 : 8,000 | |
| | | ≥25L : 10,000 | ≥Φ13 : 10,000 | |
| 高温储存特性 Shelf Life | 在105°C环境中，不施加电压条件下储存1000小时，经恢复到20°C后，电容器满足以下各项要求。 The following specifications shall be satisfied when the capacitors are restored at 20°C after exposing them for 1000 hours at 105°C without voltage applied. | | | |
| | Capacitance change | | ≤±20% of the initial value | |
| | D.F.(tanδ) | | ≤200% of the initial specified value | |
| | Leakage current | | ≤500% of the initial specified value | |

尺寸图 (单位: mm) DIMENSIONS (Unit:mm)



| | | | | | |
|----|-----|-----|-----|-----|-----|
| ΦD | 10 | 13 | 16 | 18 | 20 |
| F | 5.0 | 5.0 | 7.5 | 7.5 | 10 |
| Φd | 0.6 | 0.6 | 0.8 | 0.8 | 0.8 |

| | |
|---|-----------|
| α | (L<20)1.5 |
| | (L≥20)2.0 |

纹波电流修正系数 Rated Ripple Current Coefficient

● 频率系数 Frequency Coefficient

(160 ~ 450V.dc)

| | | | | |
|-----------------|------|------|------|------|
| Frequency(Hz) | 120 | 1k | 10k | 100k |
| Capacitance(μF) | | | | |
| 3.3 ~ 82 | 1.00 | 1.75 | 2.25 | 2.50 |
| 100 ~ 680 | 1.00 | 1.67 | 2.05 | 2.25 |

(500V.dc)

| | | | | |
|-----------------|------|------|------|------|
| Frequency(Hz) | 120 | 1k | 10k | 100k |
| Capacitance(μF) | | | | |
| 3.3 ~ 22 | 1.00 | 1.78 | 2.30 | 2.59 |
| 27 ~ 39 | 1.00 | 1.75 | 2.25 | 2.50 |



HD Series

◆ 标准品一览表 Standard Ratings

| WV (V _{dc}) | Cap. (μF) | Case Size ΦD×L (mm) | Rated ripple current (mA _{rms}) 105°C/120Hz | WV (V _{dc}) | Cap. (μF) | Case Size ΦD×L (mm) | Rated ripple current (mA _{rms}) 105°C/120Hz | WV (V _{dc}) | Cap. (μF) | Case Size ΦD×L (mm) | Rated ripple current (mA _{rms}) 105°C/120Hz | WV (V _{dc}) | Cap. (μF) | Case Size ΦD×L (mm) | Rated ripple current (mA _{rms}) 105°C/120Hz | | | | | | |
|-----------------------|-----------|---------------------|---|-----------------------|-----------|---------------------|---|-----------------------|-----------|---------------------|---|-----------------------|-----------|---------------------|---|---------|---------|---------|---------|-------|-------|
| 160 | 33 | 10×16 | 205 | 200 | 120 | 16×20 | 703 | 250 | 180 | 16×32 | 1,000 | 400 | 350 | 220 | 18×50 | 1,225 | | | | | |
| | 39 | 10×16 | 248 | | 150 | 10×50 | 728 | | 220 | 18×25 | 955 | | 270 | 14.5×45 | 1,168 | 39 | 6.8 | 10×16 | 95 | | |
| | 56 | 10×20 | 317 | | | | 13×35 | | | | 868 | | | 14.5×50 | 1,200 | | 10×16 | 130 | 16×36 | 1,135 | 10×20 |
| | 82 | 10×25 | 419 | | | 14.5×32 | | | | 962 | 18×32 | | | | 1,145 | | | 10×25 | | 218 | |
| | | 10×30 | 448 | | | | 16×25 | | | 933 | | | | 16×40 | 1,090 | | 13×20 | | 304 | 33 | 10×35 |
| | 100 | 13×20 | 580 | | | 18×20 | | | | 905 | 16×45 | | | | 1,315 | | | 10×40 | 345 | | 47 |
| | 120 | 10×35 | 275 | | | | 13×40 | | | 1,090 | | | | 18×36 | 1,310 | | 330 | | 10×45 | 360 | |
| | | 14.5×20 | 680 | | 13×45 | 1,125 | | | 18×45 | 1,493 | 10×40 | | 345 | | 10×45 | 360 | | | | | |
| | 150 | 10×40 | 668 | | | 14.5×36 | 1,115 | | | 18×50 | | | 1,635 | 13×25 | | 400 | | 14.5×20 | 390 | | |
| | | 10×45 | 700 | | 13×50 | | 1,273 | | 12 | | 10×16 | | 139 | | 13×30 | 500 | 13×40 | | 610 | | |
| | 180 | 13×30 | 888 | | | 14.5×40 | 1,265 | | | 22 | 10×20 | | 205 | 16×20 | | 488 | | 13×45 | 585 | 13×40 | 610 |
| | | 14.5×25 | 895 | | 16×32 | | 1,225 | | 27 | | 10×25 | | 245 | | 13×35 | 590 | 14.5×36 | | 678 | | 16×32 |
| | | 16×20 | 861 | | | 16×36 | 1,259 | | | 33 | 13×20 | | 335 | 10×50 | | 498 | | 18×25 | 645 | 18×25 | |
| | 220 | 13×35 | 1,051 | | 14.5×50 | | 1,455 | | 39 | | 10×30 | | 260 | | 68 | 13×35 | 590 | | 14.5×40 | | 765 |
| | | 16×25 | 1,030 | | | 16×40 | 1,429 | | | 47 | 10×40 | | 380 | 14.5×25 | | 560 | 18×20 | 565 | | 16×36 | 770 |
| | 270 | 18×20 | 995 | | 18×32 | | 1,398 | | 56 | | 10×35 | | 335 | | 18×20 | 565 | | 82 | 13×40 | | 672 |
| | | 330 | 13×40 | | | 1,200 | 16×45 | | | 1,582 | 68 | | 10×40 | 380 | | 14.5×32 | 655 | | 100 | 13×45 | 758 |
| | 390 | | 13×45 | | 1,243 | 18×36 | | | 1,573 | 82 | | | 13×25 | 430 | 16×25 | | 632 | 120 | | 13×50 | 776 |
| | | 470 | 14.5×32 | | 1,178 | | 16×50 | 1,765 | 100 | | 14.5×20 | | 430 | 13×40 | | 672 | 150 | | 14.5×36 | 745 | 18×36 |
| | 560 | | 14.5×36 | | 1,217 | 18×45 | | 1,775 | | 120 | 10×45 | | 430 | | 16×32 | 745 | | 180 | 16×50 | 1,000 | |
| | | 680 | 13×50 | | 1,414 | | 18×25 | 1,297 | 150 | | 18×45 | | 1,493 | 18×25 | | 488 | 220 | | 18×45 | 1,100 | 220 |
| | 789 | | 14.5×40 | | 1,395 | 22 | | 10×16 | | 188 | 16×20 | | 488 | | 68 | 10×50 | | 498 | 14.5×40 | 840 | |
| | | 888 | 16×32 | | 1,358 | | 33 | 10×20 | 245 | 13×35 | | | 590 | 82 | | 13×35 | 590 | 14.5×45 | | 866 | 4.7 |
| | 895 | | 18×25 | | 1,297 | 47 | | 10×25 | 319 | | 14.5×25 | | 560 | | 100 | 14.5×40 | 840 | | 16×36 | 835 | |
| | | 1,051 | 14.5×45 | | 1,555 | | 10×30 | 345 | 18×20 | 565 | | | 82 | 14.5×32 | | 655 | 120 | 14.5×45 | | 866 | 12 |
| | 1,030 | | 16×36 | | 1,510 | 10×30 | | 345 | | 13×40 | 672 | | | 100 | 13×45 | 758 | | 150 | 16×40 | 965 | |
| | | 1,200 | 16×40 | | 1,429 | | 13×20 | 435 | 10×35 | | 435 | | 120 | | 13×50 | 776 | 180 | | 16×45 | 980 | 18 |
| | 1,243 | | 18×20 | | 995 | 10×35 | | 435 | | 14.5×20 | 509 | | | 150 | 16×25 | 632 | | 180 | 18×32 | 945 | |
| | | 1,297 | 18×32 | | 1,675 | | 10×40 | 502 | 10×40 | | 502 | | 120 | | 13×45 | 758 | 220 | | 18×36 | 880 | 27 |
| | 1,395 | | 18×36 | | 1,730 | 10×45 | | 522 | | 10×45 | 522 | | | 150 | 13×50 | 776 | | 450 | 16×50 | 1,000 | |
| 1,358 | | 18×40 | 1,910 | 13×25 | 570 | | 10×50 | 590 | 100 | | 14.5×36 | 745 | 180 | | 18×40 | 995 | | | | | |
| | 1,297 | 18×45 | 2,132 | | 10×50 | 590 | | 13×30 | | 665 | 120 | 16×32 | | 745 | 220 | 18×45 | 1,100 | | | | |
| 1,555 | | 18×50 | 2,150 | 13×30 | | 665 | 14.5×25 | | 671 | 150 | | 18×25 | 715 | 450 | | 18×45 | 1,100 | | | | |
| | 1,510 | 270 | 13×40 | | 1,200 | 330 | | 18×50 | 1,950 | | 22 | 10×16 | 188 | | 33 | 10×20 | 245 | 47 | 10×25 | 319 | |
| 1,745 | | | | 470 | | | 16×40 | | | 1,713 | | | | 470 | | | | | | | 18×40 |
| | 1,713 | 560 | 16×45 | | 1,740 | 560 | | 18×45 | 1,775 | | 82 | 10×45 | 522 | | 82 | 10×45 | 522 | 100 | 10×50 | 590 | |
| 1,740 | | | | 680 | | | 18×32 | | | 1,675 | | | | 680 | | | | | | | 13×25 |
| | 1,730 | 789 | 18×36 | | 1,730 | 789 | | 14.5×20 | 509 | | 120 | 13×35 | 778 | | 120 | 16×25 | 763 | 150 | 13×40 | 895 | |
| 1,930 | | | | 888 | | | 18×40 | | | 1,910 | | | | 888 | | | | | | | 10×40 |
| | 1,910 | 895 | 18×45 | | 2,132 | 895 | | 10×45 | 522 | | 180 | 14.5×32 | 875 | | 180 | 14.5×40 | 1,030 | 180 | 16×20 | 737 | |
| 2,132 | | | | 995 | | | 18×50 | | | 2,150 | | | | 995 | | | | | | | 10×50 |
| | 2,150 | 1,000 | 18×50 | | 1,235 | 1,000 | | 10×50 | 590 | | 220 | 18×45 | 1,493 | | 450 | 18×45 | 1,100 | 180 | 14.5×36 | 998 | |
| 2,150 | | | | 1,030 | | | 18×50 | | | 1,235 | | | | 1,030 | | | | | | | 10×50 |
| | 2,150 | 1,030 | 18×50 | | 1,235 | 1,030 | | 10×50 | 590 | | 450 | 18×45 | 1,493 | | 450 | 18×45 | 1,100 | 180 | 14.5×40 | 1,030 | |
| 2,150 | | | | 1,030 | | | 18×50 | | | 1,235 | | | | 1,030 | | | | | | | 10×50 |
| | 2,150 | 1,030 | 18×50 | | 1,235 | 1,030 | | 10×50 | 590 | | 450 | 18×45 | 1,493 | | 450 | 18×45 | 1,100 | 180 | 14.5×40 | 1,030 | |
| 2,150 | | | | 1,030 | | | 18×50 | | | 1,235 | | | | 1,030 | | | | | | | 10×50 |
| | 2,150 | 1,030 | 18×50 | | 1,235 | 1,030 | | 10×50 | 590 | | 450 | 18×45 | 1,493 | | 450 | 18×45 | 1,100 | 180 | 14.5×40 | 1,030 | |
| 2,150 | | | | 1,030 | | | 18×50 | | | 1,235 | | | | 1,030 | | | | | | | 10×50 |
| | 2,150 | 1,030 | 18×50 | | 1,235 | 1,030 | | 10×50 | 590 | | 450 | 18×45 | 1,493 | | 450 | 18×45 | 1,100 | 180 | 14.5×40 | 1,030 | |
| 2,150 | | | | 1,030 | | | 18×50 | | | 1,235 | | | | 1,030 | | | | | | | 10×50 |
| | 2,150 | 1,030 | 18×50 | | 1,235 | 1,030 | | 10×50 | 590 | | 450 | 18×45 | 1,493 | | 450 | 18×45 | 1,100 | 180 | 14.5×40 | 1,030 | |
| 2,150 | | | | 1,030 | | | 18×50 | | | 1,235 | | | | 1,030 | | | | | | | 10×50 |
| | 2,150 | 1,030 | 18×50 | | 1,235 | 1,030 | | 10×50 | 590 | | 450 | 18×45 | 1,493 | | 450 | 18×45 | 1,100 | 180 | 14.5×40 | 1,030 | |
| 2,150 | | | | 1,030 | | | 18×50 | | | 1,235 | | | | 1,030 | | | | | | | 10×50 |
| | 2,150 | 1,030 | 18×50 | | 1,235 | 1,030 | | 10×50 | 590 | | 450 | 18×45 | 1,493 | | 450 | 18×45 | 1,100 | 180 | 14.5×40 | 1,030 | |
| 2,150 | | | | 1,030 | | | 18×50 | | | 1,235 | | | | 1,030 | | | | | | | 10×50 |
| | 2,150 | 1,030 | 18×50 | | 1,235 | 1,030 | | 10×50 | 590 | | 450 | 18×45 | 1,493 | | 450 | 18×45 | 1,100 | 180 | 14.5×40 | 1,030 | |
| 2,150 | | | | 1,030 | | | 18×50 | | | 1,235 | | | | 1,030 | | | | | | | 10×50 |
| | 2,150 | 1,030 | 18×50 | | 1,235 | 1,030 | | 10×50 | 590 | | 450 | 18×45 | 1,493 | | 450 | 18×45 | 1,100 | 180 | 14.5×40 | 1,030 | |
| 2,150 | | | | 1,030 | | | 18×50 | | | 1,235 | | | | 1,030 | | | | | | | 10×50 |
| | 2,150 | 1,030 | 18×50 | | 1,235 | 1,030 | | 10×50 | 590 | | 450 | 18×45 | 1,493 | | 450 | | | | | | |

HD Series

◆ 标准品一览表 Standard Ratings

| WV (V _{dc}) | Cap. (F) | Case Size ΦD×L (mm) | Rated ripple current (mA _{rms}) 105°C/120Hz |
|--------------------------|-------------|------------------------|---|
| 450 | 22 | 13×25 | 399 |
| | 27 | 13×25 | 345 |
| | | 14.5×20 | 340 |
| | 33 | 13×30 | 410 |
| | | 14.5×25 | 410 |
| | | 16×20 | 395 |
| | 39 | 10×50 | 385 |
| | | 13×35 | 468 |
| | | 18×20 | 449 |
| | 47 | 13×40 | 435 |
| | | 14.5×32 | 425 |
| | | 16×25 | 505 |
| | 56 | 13×45 | 598 |
| | | 14.5×36 | 588 |
| | | 16×32 | 595 |
| | | 18×25 | 560 |
| | 68 | 13×50 | 670 |
| | | 14.5×40 | 663 |
| | | 14.5×45 | 685 |
| | | 16×36 | 665 |
| | 82 | 14.5×50 | 773 |
| | | 16×40 | 758 |
| | | 16×45 | 769 |
| | | 18×32 | 736 |
| | 100 | 16×50 | 862 |
| | | 18×36 | 842 |
| | 120 | 18×40 | 940 |
| | | 18×45 | 955 |
| | 150 | 18×50 | 1,070 |

| WV (V _{dc}) | Cap. (μF) | Case Size ΦD×L (mm) | Rated ripple current (mA _{rms}) 105°C/120Hz |
|--------------------------|--------------|------------------------|---|
| 500 | 4.7 | 10×16 | 73 |
| | 6.8 | 10×20 | 93 |
| | 8.2 | 10×25 | 113 |
| | 10 | 10×30 | 135 |
| | 12 | 13×20 | 140 |
| | 15 | 10×35 | 175 |
| | | 10×40 | 180 |
| | | 13×25 | 170 |
| | 18 | 10×45 | 196 |
| | | 13×30 | 196 |
| | 22 | 10×50 | 235 |
| | | 13×35 | 226 |
| | 27 | 13×40 | 265 |
| | 33 | 13×45 | 290 |
| | 39 | 13×50 | 338 |

※铝电解电容器由于在纹波电流叠加时自我发热、温度上升而老化，中心温度每升温5°C寿命减少一半。要想保持长寿命请在使用过程中降低纹波电流。
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.

