# HW Series Snap-in Type 105℃ 15mm Height


## Features

- Endurance 2000 hours 105℃ with hight 15mm
- ROHS compliant

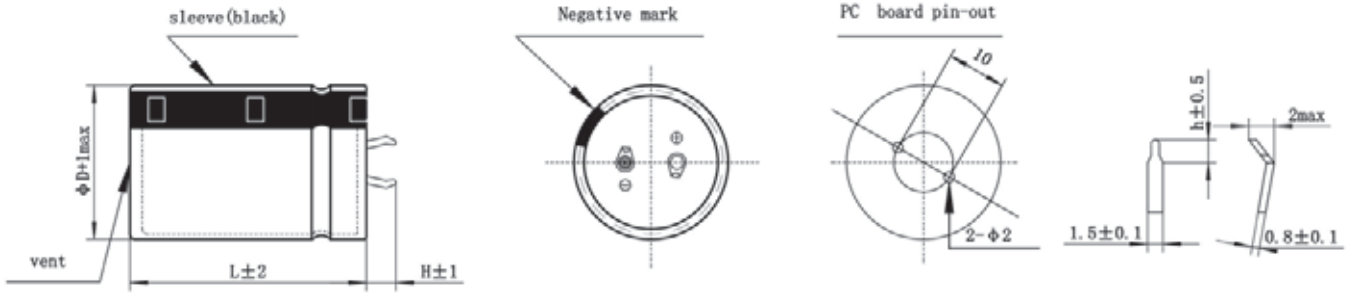
## Specifications

| Item | Performance Characteristics | |
|---|---|---|
| Operating Temperature Range | -25 to +105℃ | |
| Rated voltage $V_R$ | 160 to 400 V DC | |
| Surge voltage $V_S$ | $V_R$<=315V 1.15 $V_R$ $V_R$ > 315V 1.10 $V_R$ | |
| Rated capacitance $C_R$ | 39 to 390 μF | |
| Capacitance tolerance | ±20%(120Hz,+20℃) | |
| Leakage Current $I_{leak}$ (+20℃.max.) | I≦3 $\sqrt{CV}$ (μA)After 5minutes with rated working voltage applied | |
| Dissipation Factor (tan δ ,at 20℃,120Hz) | Less than the value under table(%)<br>$V_R$(dc) 160-250 315-450<br>D.F. 20% 20% | |
| Self-inductance ESL | approx. 20 nH | |
| Useful life 105℃; $V_R$,$I_{AC,R}$ | VR≤100V: >5000 h | Requirements:<br>△C/C ≤±30% of initial value<br>tan δ ≤3 times initial specified limit<br>$I_{leak}$ ≤ initial specified limit |
| Voltage Endurance test 105℃; $V_R$ | 2000 h | Post test requirements:<br>△C/C ≤±20% of initial value<br>tan δ ≤2 times initial specified limit<br>$I_{leak}$ ≤ initial specified limit |
| Shelf Life 105℃ | 1000 h | Post test requirements:<br>△C/C ≤±20% of initial value<br>tan δ ≤2 times initial specified limit<br>$I_{leak}$ ≤ initial specified limit |
| Vibration Resistance test | To IEC 60068-2-6, test Fc:<br>Displacement amplitude 0.75 mm, frequency range 10 ... 55 Hz, acceleration max. 10 g, duration 3x2 h. Capacitor mounted by its body which is rigidly clamped to the work surface. | |
| Characteristics at low temperature | Max. impedance ratio at 120 Hz<br>$V_R$(V) 160-250 315-450<br>$Z_{-25℃}$ / $Z_{20℃}$ 4 8 | |
| Sectional specification | IEC 60384-4 and JIS-C-5101 | |

## Multiplier for Ripple Current vs. Frequency

| $V_R$(V)/Frequency(Hz) | 50(60) | 120 | 300 | 1K | 10K | 50K-100K |
|---|---|---|---|---|---|---|
| 160≤VR≤250 | 0.81 | 1 | 1.17 | 1.32 | 1.45 | 1.5 |
| 315≤VR≤450 | 0.77 | 1 | 1.16 | 1.30 | 1.41 | 1.43 |

## Dimensional drawings




Standard snap-in terminals:length(6.0±1)mm
Also available with length of(4.0±1)mm

| H | h |
|---|---|
| 6 | 2.5 |
| 4 | 1.5 |

## Packing

| Capacitor diameter D(mm) | Length L(mm) | Terminal length H(mm) | Each carton packing Qty units(pcs.) | Box/carton units(pcs.) | Each box packing Qty units(pcs.) |
|---|---|---|---|---|---|
| 20 | all | / | 720 | 6 | 120 |
| 22 | ＜55 | / | 600 | 6 | 100 |
| 22 | ≧55 | / | 400 | 4 | 100 |
| 25 | ＜65 | / | 500 | 5 | 100 |
| 25 | ≧65 | / | 400 | 4 | 100 |
| 30 | ≤36 | ＜6(L=35、36) | 400 | 8 | 50 |
| 30 | 35≤L≤65 | ≧6(L=35、36) | 300 | 6 | 50 |
| 30 | ＞65 | / | 200 | 4 | 50 |
| 35 | ≤25 | / | 400 | 8 | 50 |
| 35 | 25＜L＜45 | / | 300 | 6 | 50 |
| 35 | 45≤L≤85 | / | 200 | 4 | 50 |
| 35 | ＞85 | / | 100 | 2 | 50 |
| 40 | 35 | ＜6 | 200 | 5 | 40 |
| 40 | 35 | ≧6 | 160 | 4 | 40 |
| 40 | 40≤L≤45 | / | 160 | 4 | 40 |
| 40 | 45＜L≤75 | / | 120 | 3 | 40 |
| 40 | ＞75 | / | 80 | 2 | 40 |
| 45 | 40≤L≤65 | / | 140 | 4 | 35 |
| 45 | 65＜L≤100 | / | 70 | 2 | 35 |

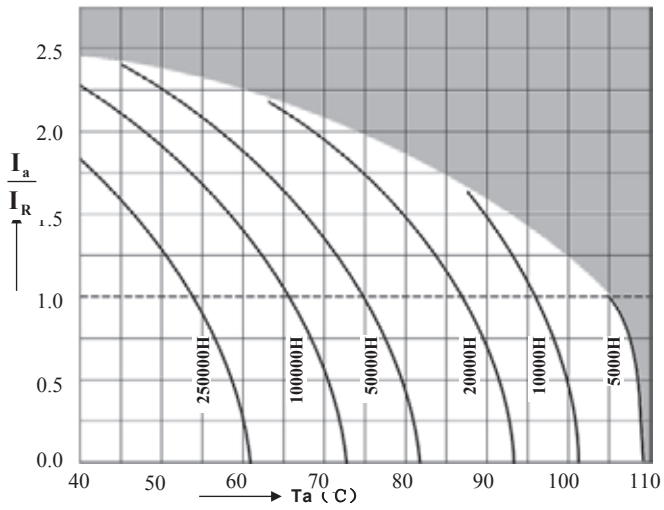
## Packing of snap-in

## Case Size

| WV (Vdc) | Cap (uF) | Size (mm) | Rated Ripple current (Arms/105℃ /120Hz) | Typ. ESR 20℃ 120Hz (mΩ) | MAX ESR 20℃ 120Hz (mΩ) |
|---|---|---|---|---|---|
| 160 | 150 | 20x15 | 0.55 | 980 | 1770 |
| 160 | 180 | 22x15 | 0.65 | 820 | 1470 |
| 160 | 220 | 25x15 | 0.80 | 670 | 1210 |
| 160 | 270 | 30x15 | 0.95 | 540 | 980 |
| 160 | 330 | 30x15 | 1.00 | 440 | 800 |
| 160 | 390 | 35x15 | 1.20 | 380 | 680 |
| 180 | 120 | 20x15 | 0.50 | 1230 | 2210 |
| 180 | 150 | 22x15 | 0.60 | 980 | 1770 |
| 180 | 180 | 25x15 | 0.75 | 820 | 1470 |
| 180 | 220 | 30x15 | 0.85 | 670 | 1210 |
| 180 | 270 | 30x15 | 1.00 | 540 | 980 |
| 180 | 330 | 35x15 | 1.10 | 440 | 800 |
| 180 | 390 | 35x15 | 1.20 | 380 | 680 |
| 200 | 100 | 20x15 | 0.45 | 1470 | 2650 |
| 200 | 120 | 22x15 | 0.55 | 1230 | 2210 |
| 200 | 150 | 25x15 | 0.65 | 980 | 1770 |
| 200 | 180 | 25x15 | 0.75 | 820 | 1470 |
| 200 | 180 | 30x15 | 0.80 | 820 | 1470 |
| 200 | 220 | 30x15 | 0.90 | 670 | 1210 |
| 200 | 270 | 30x15 | 1.00 | 540 | 980 |

| WV (Vdc) | Cap (uF) | Size (mm) | Rated Ripple current (Arms/105℃ /120Hz) | Typ. ESR 20℃ 120Hz (mΩ) | MAX ESR 20℃ 120Hz (mΩ) |
|---|---|---|---|---|---|
| 200 | 330 | 35x15 | 1.10 | 440 | 800 |
| 250 | 100 | 22x15 | 0.50 | 1470 | 2650 |
| 250 | 120 | 25x15 | 0.60 | 1230 | 2210 |
| 250 | 150 | 30x15 | 0.70 | 980 | 1770 |
| 250 | 180 | 30x15 | 0.75 | 820 | 1470 |
| 250 | 220 | 35x15 | 0.90 | 670 | 1210 |
| 250 | 270 | 35x15 | 1.00 | 540 | 980 |
| 315 | 56 | 22x15 | 0.35 | 2630 | 4740 |
| 315 | 68 | 25x15 | 0.40 | 2170 | 3900 |
| 315 | 82 | 30x15 | 0.45 | 1790 | 3230 |
| 315 | 100 | 30x15 | 0.50 | 1470 | 2650 |
| 315 | 120 | 35x15 | 0.55 | 1230 | 2210 |
| 315 | 150 | 35x15 | 0.60 | 980 | 1770 |
| 400 | 39 | 22x15 | 0.30 | 3780 | 6800 |
| 400 | 47 | 25x15 | 0.35 | 3130 | 5640 |
| 400 | 56 | 30x15 | 0.40 | 2630 | 4740 |
| 400 | 68 | 30x15 | 0.45 | 2170 | 3900 |
| 400 | 82 | 35x15 | 0.50 | 1790 | 3230 |
| 400 | 100 | 35x15 | 0.55 | 1470 | 2650 |

## Useful life




depending on ambient temperature Ta versus under ripple current operating conditions