# 承 認 書

# SPECIFICATION FOR APPROVAL

客戶名稱：
CUSTOMERS:

品名規格：
SPECIFICATION: SMD 220UF/16V 6.3*7.7mm VT 105°2000H

產品料號：
SUPPLIER P/N: WVT1C221M0607

客戶料號：
CUSTOMER P/N:

承认日期：
APPROVAL date: 2026/05/01

| BUYER`S STAMP | Approval by ( Please return one copy after approved ; 承认后请寄回一份给我司 ) | | | |
|---|---|---|---|---|
| | | | | |

| WHC STAMP | Submitted by | | | |
|---|---|---|---|---|
| | Approval | Check | Affirm | Design |
| 湖南建順电子有限公司 | 工程部 2026.04.01 张成伟 | 工程部 2026.04.01 张 旗 | 工程部 2026.04.01 王代琴 | 工程部 2026.04.01 晏情情 |

WHC
World、High quality、Capacitor

electrolytic capacitors

Halogen Free RoHS COMPLIANT Environmental-Benefit Products

制造商：湖南建順電子有限公司

Manufacturer：HunanJianShunElectronicsCo.LTD

服务商：东莞市奥炳科技有限公司

Vendor：DongguanAobingTechnologyCo.,Ltd.

**DIMENSIONS(mm)**

| **Customer :** | **SMD Electrolytic Capacitors**<br>**VT Series** |
|---|---|

Electric Characteristics:

| P/N | WHC P/N | Cap. 120Hz (uF) | Cap. Tol. (%) | Rate Volt. (V-DC) | Surge Volt. (V-DC) | Oper. Temp. (℃) | Nominal Case Size D*L(mm) | Leakage Current Max(uA) | D.F. Max () | RC 120HZ (mArms) | ESR 120HZ (Ω) | Normal service life (Hours) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | WVT1C221M0607 | 220 | ±20 | 16 | 18 | -40 ~ +105 | 6.3*7.7 | 35.2 | 0.2 | 105 | \ | 2000 |

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# VT Series

## WIDE TEMPERATURE

## 寬溫品




- Operating with wide temperature range -40 ~ +105°C
  適用於 -40 ~ +105°C 的寬溫範圍
- Load life of 2000 hours
  負荷壽命 2000 小時
- Comply with the RoHS directive
  符合 RoHS 指令

### ☐ SPECIFICATIONS 特性表

| Items 項目 | Characteristics 主要特性 |
|---|---|
| **Operation Temperature Range** 使用温度範圍 | -40 ~ +105°C |
| **Voltage Range** 額定工作電壓範圍 | 4 ~ 100V |
| **Capacitance Range** 靜電容量範圍 | 0.1 ~ 6800μF |
| **Capacitance Tolerance** 靜電容量允許偏差 | ±20% at 120Hz, 20°C |
| **Leakage Current**<br>漏電流 | Leakage current (∅4~∅10) ≦0.01CV or 3μA, whichever is greater (after 2 minutes application of rated voltage)<br>Leakage current (∅12.5~∅16) ≦0.03CV or 4μA, whichever is greater (after 1 minute application of rated voltage)<br>漏電流 (∅4~∅10) ≦0.01CV 或 3μA，取較大值（施加額定工作電壓 2 分鐘後）<br>漏電流 (∅12.5~∅16) ≦0.03CV 或 4μA，取較大值（施加額定工作電壓 1 分鐘後） |
| **Dissipation Factor (tan δ)**<br>損耗角正切 | Measurement frequency 測試頻率: 120Hz, Temperature 温度: 20°C |

| Rated Voltage (V) 額定工作電壓 | | 4 | 6.3 | 10 | 16 | 25 | 35 | 50 | 63 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|
| tan δ (max.)<br>最大損耗角正切 | ∅4~∅10 | 0.35 | 0.30 | 0.24 | 0.20 | 0.16 | 0.14 | 0.14 | 0.12 | 0.12 |
| | ∅12.5~∅16 | 0.42 | 0.38 | 0.34 | 0.30 | 0.26 | 0.22 | 0.18 | 0.14 | 0.12 |

**Stability at Low Temperature**
低温特性

Measurement frequency 測試頻率: 120Hz

| Rated Voltage (V) 額定工作電壓 | | | 4 | 6.3 | 10 | 16 | 25 | 35 | 50~63 | 100 |
|---|---|---|---|---|---|---|---|---|---|---|
| Impedance Ratio<br>阻抗比<br>ZT/Z20 (max.) | ∅4~∅10 | Z(-25°C) / Z(20°C) | 7 | 4 | 3 | 2 | 2 | 2 | 2 | 3 |
| | | Z(-40°C) / Z(20°C) | 15 | 8 | 6 | 4 | 4 | 3 | 3 | 4 |
| | ∅12.5~∅16 | Z(-25°C) / Z(20°C) | 7 | 5 | 4 | 3 | 2 | 2 | 2 | 2 |
| | | Z(-40°C) / Z(20°C) | 17 | 12 | 10 | 8 | 5 | 4 | 3 | 3 |

**Load Life**
高溫負荷特性

After 2000 hrs. (1000 hrs. for ∅4~∅6.3×5.4) application of the rated voltage at 105°C, they meet th e characteristics listed below. 在 105°C 環境中施加額定工作電壓 2000 小時（∅4~∅6.3×5.4 為 1000 小時）後，電容器的特性符合下表的要求。

| | |
|---|---|
| Capacitance Change 靜電容量變化率 | Within ±20% of initial value for capacitors of 10V or more (Within ±30% of initial value for capacitors of 4V or less)<br>≥10V 為初始值的±20%以內（≤4V 為初始值的±30%以內） |
| Dissipation Factor 損耗角正切 | 200% or less of initial specified value 不大於規範值的 200% |
| Leakage Current 漏電流 | initial specified value or less 不大於規範值 |

**Shelf Life**
高溫貯存特性

After leaving capacitors under no load at 105°C for 1000 hours, they meet the specified value for load life characteristics listed above. 在 105°C 環境中無負荷放置 1000 小時後，電容器的特性符合高溫負荷特性中所列的規定值。

**Resistance to Soldering Heat**
耐焊接熱特性

After reflow soldering and restored at room temperature, they meet the characteristics listed below.
經過回流焊並冷卻至室溫後，電容器的特性符合下表的要求。

| | |
|---|---|
| Capacitance Change 靜電容量變化率 | Within ±10% of initial value 初始值的±10%以內 |
| Dissipation Factor 損耗角正切 | initial specified value or less 不大於規範值 |
| Leakage Current 漏電流 | initial specified value or less 不大於規範值 |

**Humidity Life**
恒濕特性

After leaving capacitors under no load at 85°C and 85% RH for 500 hours, they meet the specified value for **resistance to soldering heat** characteristics listed above. 在85°C 與85%RH 環境中無負荷放置 500 小時後，電容器的特性符合耐焊接熱特性中所列的規定值

**Storage**
儲存

Storage conditions should be: Temperature：+5℃~+35℃；Humidity：lower than 75%；Place：indoor。
儲存環境應為：溫度：+5℃~+35℃；相對濕度＜75%；儲存場所：室內。

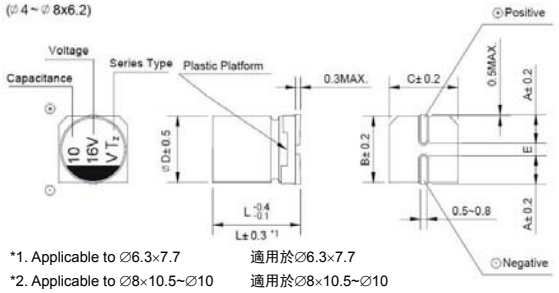
**Working conditions**
工作條件

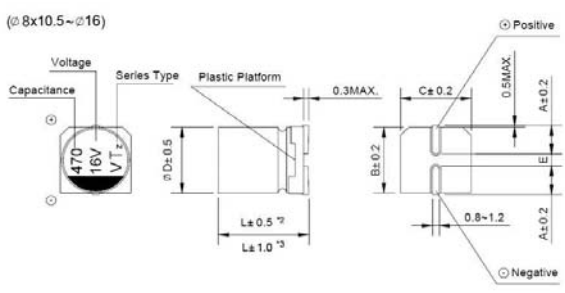
Make sure that no higher than the rated voltage and temperature is applied the capacitor。
確認无超過額定電壓和額定溫度

**Marking** 標示

Black print on the case top. 鋁殼頂部黑字印刷。

### ☐ DRAWING (Unit: mm) 外形圖




*1. Applicable to ∅6.3×7.7 適用於∅6.3×7.7
*2. Applicable to ∅8×10.5~∅10 適用於∅8×10.5~∅10
*3. Applicable to ∅12.5~∅16 適用於∅12.5~∅16

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# VT Series

## ☐ DIMENSIONS (Unit: mm) 尺寸表

| ØD x L | 4 x 5.4 | 5 x 5.4 | 6.3 x 5.4 | 6.3 x 7.7 | 8 x 6.2 | 8 x 10.5 | 10 x 10.5 | 10 x 12.5 | 12.5 x 13.5 | 12.5 x 16 | 16 x 16.5 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1.9 | 2.2 | 2.6 | 2.6 | 3.3 | 3.2 | 3.2 | 3.2 | 4.7 | 4.7 | 5.5 |
| B | 4.3 | 5.3 | 6.6 | 6.6 | 8.3 | 8.3 | 10.3 | 10.3 | 13.0 | 13.0 | 17.0 |
| C | 4.3 | 5.3 | 6.6 | 6.6 | 8.3 | 8.3 | 10.3 | 10.3 | 13.0 | 13.0 | 17.0 |
| E ± 0.2 | 1.0 | 1.3 | 2.2 | 2.2 | 2.2 | 3.1 | 4.4 | 4.4 | 4.4 | 4.4 | 6.7 |
| L | 5.4 | 5.4 | 5.4 | 7.7 | 6.2 | 10.5 | 10.5 | 13.5 | 13.5 | 16.0 | 16.5 |

## ☐ DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT 規格尺寸及最大允許紋波電流

| WV / Code 代碼 / μF | | 4 | | 6.3 | | 10 | | 16 | | 25 | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 0G | | 0J | | 1A | | 1C | | 1E | |
| 4.7 | 4R7 | | | | | 4 × 5.4 | 13 | 4 × 5.4 | 13 | 4 × 5.4 | 13 |
| 0.33 | R33 | | | | | | | 4 × 5.4 | 13 | | |
| 10 | 100 | | | | | 4 × 5.4 | 18 | 4 × 5.4 | 18 | 5 × 5.4<br>(4 × 5.4) | 20<br>(14) |
| 22 | 220 | | | 4 × 5.4 | 22 | 5 × 5.4<br>(4 × 5.4) | 25<br>(20) | 5 × 5.4<br>(4 × 5.4) | 27<br>(20) | 6.3 × 5.4<br>(5 × 5.4) | 36<br>(25) |
| 33 | 330 | 5 × 5.4<br>(4 × 5.4) | 30<br>(18) | 5 × 5.4<br>(4 × 5.4) | 27<br>(22) | 5 × 5.4<br>(4 × 5.4) | 30<br>(22) | 6.3 × 5.4<br>(5 × 5.4) | 40<br>(28) | 6.3 × 5.4<br>(5 × 5.4) | 44<br>(29) |
| 47 | 470 | 5 × 5.4<br>(4 × 5.4) | 36<br>(24) | 5 × 5.4<br>(4 × 5.4) | 33<br>(25) | 6.3 × 5.4<br>(5 × 5.4)<br>4× 5.4 | 41<br>(30)<br>25 | 6.3 × 5.4<br>(5 × 5.4) | 48<br>(31) | 6.3 × 5.4<br>5 × 5.4 | 48<br>41 |
| 100 | 101 | 6.3 × 5.4<br>(5 × 5.4) | 60<br>(43) | 6.3 × 5.4<br>(5 × 5.4) | 50<br>(39) | 5 × 5.4<br>6.3 × 5.4 | 39<br>(53) | 6.3 × 5.4<br>(8 × 6.2) | 60<br>(120) | 6.3 × 5.4<br>6.3 × 5.7<br>6.3 × 7.7<br>(8 × 6.2) | 75<br>60<br>85<br>91 |
| 150 | 151 | 6.3 × 5.4 | 52 | 6.3 × 5.4 | 55 | 6.3 × 5.4 | 62 | 6.3 × 7.7 | 95 | 8 × 10.5<br>(6.3 × 7.7) | 140<br>(100) |
| 220 | 221 | 6.3 × 5.4 | 57 | 6.3 × 4.5<br>6.3 × 7.7<br>(6.3 × 5.4) | 60<br>105<br>(67) | 6.3 × 5.4<br>6.3 × 7.7<br>(8 × 6.2) | 85<br>105<br>(105) | 8 × 10.5<br>(6.3 × 7.7)<br>(8 × 6.2) | 150<br>(105)<br>(85) | 6.3 × 7.7<br>8 × 10.5 | 110<br>175 |
| 330 | 331 | 6.3 × 7.7 | 100 | 6.3 × 7.7 | 105 | 6.3 × 7.7<br>8×10.5 | 105<br>196 | 8 × 10.5 | 195 | 10 × 10.5<br>(8 × 10.5) | 240<br>(220) |
| 470 | 471 | 6.3 × 7.7 | 105 | 8 × 10.5<br>(6.3 x 7.7) | 210<br>(120) | 10 × 10.5<br>(8 × 10.5)<br>6.3 × 7.7 | 260<br>(210)<br>120 | 10 × 10.5<br>(8 × 10.5) | 295<br>(230) | 8 × 10.5<br>10 × 10.5 | 250<br>280 |
| 560 | 561 | | | | | | | | | 10 × 10.5 | 320 |
| 680 | 681 | 8 × 10.5 | 210 | 8 × 10.5 | 210 | 10 × 10.5 | 270 | 10 × 10.5 | 315 | 10 × 12.5 | 400 |
| 1000 | 102 | 8 × 10.5 | 230 | 10 × 10.5<br>(8 × 10.5) | 300<br>(230) | 10 × 10.5<br>8× 10.5 | 315<br>230 | 12.5 × 13.5<br>(10 × 12.5)<br>(10 × 10.5) | 500<br>(390)<br>(340) | 12.5 × 13.5 | 580 |
| 1500 | 152 | 10 × 10.5 | 315 | 10 × 12.5<br>(10 × 10.5) | 450<br>(315) | 10 × 12.5 | 460 | 12.5 × 13.5 | 550 | 12.5 × 16 | 850 |
| 2200 | 222 | 10 × 12.5<br>(10 × 10.5) | 440<br>（340） | 12.5 × 13.5<br>(10 × 12.5) | 620<br>(500) | 12.5 × 13.5 | 680 | 16 × 16.5<br>(12.5 × 16) | 950<br>(750) | 16 × 16.5 | 1050 |
| 3300 | 332 | 10 × 12.5 | 490 | 12.5 × 16<br>(12.5 × 13.5) | 700<br>(660) | 16 × 16.5 | 1000 | 16 × 16.5 | 1000 | | |
| 4700 | 472 | 12.5 × 13.5 | 600 | 16 × 16.5 | 1000 | | | | | Case size<br>尺寸 | Ripple<br>current<br>紋波電流 |
| 6800 | 682 | 16 × 16.5<br>(12.5 × 16) | 950<br>（650） | | | | | | | | |

•Case size ∅D×L(mm), ripple current (mA rms) at 105°C 120Hz •尺寸∅D×L(mm)，紋波電流(mA rms)於 105°C 120Hz

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## ☐ DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT 規格尺寸及最大允許紋波電流

| WV / Code 代碼 / μF | | 35 | | 50 | | 63 | | 100 | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1V | | 1H | | 1J | | 2A | |
| 0.1 | 0R1 | | | 4 × 5.4 | 0.7 | 4 × 5.4 | 0.7 | | |
| 0.22 | R22 | | | 4 × 5.4 | 1.6 | 4 × 5.4 | 1.6 | | |
| 0.33 | R33 | | | 4 × 5.4 | 2.5 | 4 × 5.4 | 2.5 | | |
| 0.47 | R47 | | | 4 × 5.4 | 3.5 | 4 × 5.4 | 3.5 | | |
| 1 | 010 | | | 4 × 5.4 | 7 | 4 × 5.4 | 7 | 4 × 5.4 | 7 |
| 2.2 | 2R2 | | | 4 × 5.4 | 11 | 4 × 5.4 | 11 | 6.3 × 5.4 | 14 |
| 3.3 | 3R3 | 4 × 5.4 | 13 | 4 × 5.4 | 13 | 5 × 5.4 | 13 | 6.3 × 7.7<br>(6.3 × 5.4)<br>(8 × 6.2) | 32<br>(20)<br>(30) |
| 4.7 | 4R7 | 4 × 5.4 | 14 | 5 × 5.4<br>(4 × 5.4) | 16<br>(13) | 5 × 5.4 | 16 | 6.3 × 7.7<br>(6.3 × 5.4)<br>5× 5.4 | 35<br>(21)<br>18 |
| 10 | 100 | 5 × 5.4<br>(4 × 5.4) | 21<br>(14) | 6.3 × 5.4<br>5 × 5.4 | 24<br>22 | 6.3 × 7.7<br>(6.3 × 5.4)<br>(8 × 6.2) | 39<br>(24)<br>(25) | 8 × 10.5<br>8 × 6.2<br>(6.3 × 7.7) | 77<br>40<br>(35) |
| 22 | 220 | 6.3 × 5.4<br>5 × 5.4 | 38<br>30 | 6.3 × 7.7<br>(6.3 × 5.4)<br>(8 × 6.2) | 51<br>(42)<br>(70) | 8 × 10.5<br>(6.3 × 7.7) | 98<br>(49) | 10 × 10.5<br>(8 × 10.5) | 126<br>(84) |
| 33 | 330 | 6.3 × 5.4<br>(8 × 6.2) | 42<br>(84) | 6.3 × 7.7 | 60 | 8 × 10.5 | 112 | 10 × 10.5 | 133 |
| 47 | 470 | 6.3 × 7.7<br>(6.3 × 5.4) | 70<br>(50) | 8 × 10.5<br>(6.3 × 7.7) | 120<br>(63) | 10 × 10.5<br>（8 × 10.5） | 160<br>(119) | 12.5 × 13.5<br>(10 × 12.5)<br>(10 × 10.5) | 250<br>(160)<br>(140) |
| 56 | 470 | | | | | 10 × 10.5<br>(8 × 10.5) | 165<br>(120) | | |
| 68 | 680 | 4 × 5.4<br>6.3 × 7.7 | 13<br>75 | | | | | 12.5 × 13.5<br>(10 × 12.5) | 300<br>(180) |
| | | | | | | | | Case size<br>尺寸 | Ripple current<br>紋波電流 |

| WV / Code 代碼 / μF | | 35 | | 50 | | 63 | | 100 | |
|---|---|---|---|---|---|---|---|---|---|
| | | 1V | | 1H | | 1J | | 2A | |
| 100 | 101 | 6.3 × 5.7<br>(6.3 × 7.7)<br>8 × 6.2<br>8 × 10.5 | 70<br>(84)<br>105<br>120 | 10 × 10.5<br>(8 × 10.5) | 170<br>(140) | 12.5 × 13.5<br>(10 × 12.5)<br>(10 × 10.5) | 270<br>(210)<br>(196) | 16× 16.5<br>(12.5 × 13.5) | 450<br>(380) |
| 150 | 151 | 8 × 10.5 | 155 | 10 × 10.5 | 170 | 10 × 12.5 | 225 | | |
| 220 | 221 | 10 × 10.5<br>(8 × 10.5) | 220<br>(190) | 10 × 12.5<br>(10 × 10.5) | 280<br>(220) | 16× 16.5<br>(12.5 × 13.5) | 560<br>（470）<br>(235) | 16 × 16.5 | 550 |
| 330 | 331 | 10 × 10.5 | 245 | 16× 16.5<br>(12.5 × 13.5)<br>(10 × 12.5)<br>10 × 10.5 | 600<br>（420）<br>(295)<br>280 | 16 × 16.5<br>(12.5 × 16) | 700<br>(510) | | |
| 470 | 471 | 12.5 × 13.5<br>(10 × 12.5)<br>(10 × 10.5) | 520<br>(375)<br>(280) | 16 × 16.5<br>(12.5 × 16) | 700<br>(420) | 16 × 16.5 | 750 | | |
| 680 | 681 | 12.5 × 13.5<br>(10 × 12.5) | 530<br>(395) | 16 × 16.5 | 750 | | | Case size<br>尺寸 | Ripple current<br>紋波電流 |
| 1000 | 102 | 16 × 16.5<br>(12.5 × 16) | 750<br>(600) | | | | | | |

•Case size ∅D×L(mm), ripple current (mA rms) at 85°C 120Hz •尺寸∅D×L(mm)，紋波電流(mA rms)於 85°C 120Hz

## ☐ FREQUENCY COEFFICIENT OF ALLOWABLE RIPPLE CURRENT 紋波電流頻率補償系數

| Frequency 頻率 | | | 50Hz | 120Hz | 300Hz | 1KHz | 10KHz~ |
|---|---|---|---|---|---|---|---|
| Coefficient 系數 | Ø4 ~ Ø10 | 0.1 ~ 68μF | 0.70 | 1.00 | 1.17 | 1.36 | 1.50 |
| | | 100 ~ 3300μF | 0.85 | 1.00 | 1.08 | 1.20 | 1.30 |
| | Ø12.5 ~ Ø16 | ~ 68μF | 0.75 | 1.00 | 1.35 | 1.57 | 2.00 |
| | | 100 ~ 680μF | 0.80 | 1.00 | 1.23 | 1.34 | 1.50 |
| | | 1000 ~ 6800μF | 0.85 | 1.00 | 1.10 | 1.13 | 1.15 |

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