

# UFZ チップ 低インピーダンス品

## Series, SMD 105°C, Low Impedance

- 小形・薄形セットへの高密度表面実装に対応  
Chip type for high-density circuit use
- 105°C 2,000~5,000時間保証  
Load life: 2,000~5,000 hours
- 定格電圧範囲 Rated voltage range : 6.3 ~ 100V
- 静電容量範囲 Capacitance range : 3.3 ~ 4,700 $\mu$ F
- RoHS指令対応済/RoHS Compliant

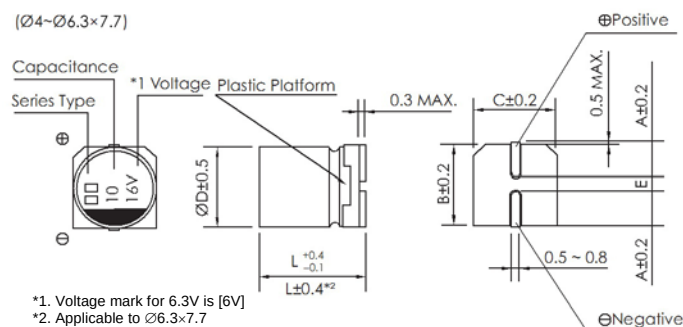


### 仕様 SPECIFICATIONS

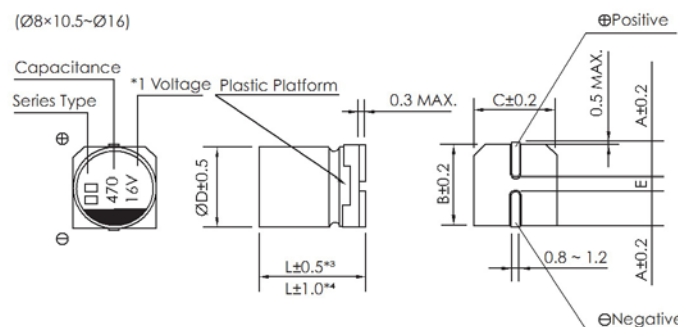
| 項 目 Items                               |                                                                                                                                                                                                                                                                                   | 特 性 Characteristics                                                                                                            |                     |        |      |      |      |        |      |      |  |
|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|---------------------|--------|------|------|------|--------|------|------|--|
| カテゴリ温度範囲<br>Operating Temperature Range |                                                                                                                                                                                                                                                                                   | -55 ~ +105°C                                                                                                                   |                     |        |      |      |      |        |      |      |  |
| 定格電圧範囲<br>Rated Voltage Range           |                                                                                                                                                                                                                                                                                   | 6.3V ~ 100V                                                                                                                    |                     |        |      |      |      |        |      |      |  |
| 静電容量範囲<br>Nominal Capacitance Range     |                                                                                                                                                                                                                                                                                   | 3.3 ~ 4700 μF                                                                                                                  |                     |        |      |      |      |        |      |      |  |
| 静電容量許容差<br>Capacitance Tolerance        |                                                                                                                                                                                                                                                                                   | ±20% (120Hz, 20°C)                                                                                                             |                     |        |      |      |      |        |      |      |  |
| 漏れ電流<br>Leakage Current                 | φ4~10                                                                                                                                                                                                                                                                             | I ≤ 0.01CV 又は 3 μA のいずれか大きい値以下(2 分値)<br>I ≤ 0.01CV or 3 μA whichever is greater, after 2 minutes application of rated voltage. |                     |        |      |      |      |        |      |      |  |
|                                         | φ12.5~16                                                                                                                                                                                                                                                                          | I ≤ 0.03CV 又は 4 μA のいずれか大きい値以下(1 分値)<br>I ≤ 0.03CV or 4 μA whichever is greater, after 1 minutes application of rated voltage. |                     |        |      |      |      |        |      |      |  |
| 損失角の正接<br>Dissipation Factor            | 定格電圧(V) Rated voltage                                                                                                                                                                                                                                                             | 6.3                                                                                                                            | 10                  | 16     | 25   | 35   | 50   | 63~80  | 100  |      |  |
|                                         | tan δ (max.)                                                                                                                                                                                                                                                                      | φ4~10                                                                                                                          | 0.26                | 0.19   | 0.16 | 0.14 | 0.12 | 0.10   | 0.08 | 0.07 |  |
|                                         |                                                                                                                                                                                                                                                                                   | φ12.5~16                                                                                                                       | 0.26                | 0.19   | 0.18 | 0.16 | 0.14 | 0.10   | 0.08 | 0.07 |  |
|                                         | 1,000μF を越えるものについては、1,000μF を増す毎に 0.02 を加えた値とする。<br>For capacitance of more than 1,000μF, add 0.02 for every increase of 1,000 μF (120Hz,20°C)                                                                                                                                    |                                                                                                                                |                     |        |      |      |      |        |      |      |  |
| 温度特性<br>Temperature Characteristics     |                                                                                                                                                                                                                                                                                   | インピーダンス比 Impedance Ratio /120 Hz                                                                                               |                     |        |      |      |      |        |      |      |  |
|                                         |                                                                                                                                                                                                                                                                                   | 定格電圧(V) Rated voltage                                                                                                          |                     | 6.3~16 |      |      |      | 25~100 |      |      |  |
|                                         |                                                                                                                                                                                                                                                                                   | インピーダンス比<br>Impedance Ratio<br>ZT/Z20(max)                                                                                     | Z(-25°C) / Z(+20°C) |        | 2    |      |      |        | 2    |      |  |
|                                         |                                                                                                                                                                                                                                                                                   |                                                                                                                                | Z(-40°C) / Z(+20°C) |        | 3    |      |      |        | 3    |      |  |
|                                         |                                                                                                                                                                                                                                                                                   | Z(-55°C) / Z(+20°C)                                                                                                            |                     | 4      |      |      |      | 3      |      |      |  |
| 高温負荷特性<br>Load Life                     | 105°C 5,000(φ4~φ6.3×5.8 は 2,000 時間)時間定格電圧連続印加後、20°Cに戻し測定を行ったとき、下記項目を満足する<br>After 5,000(2000 hrs. for φ4~φ6.3×5.8) hours application of rated voltage at 105°C, capacitor meet the characteristic requirements as below.                                                          |                                                                                                                                |                     |        |      |      |      |        |      |      |  |
|                                         | 静電容量変化率<br>Capacitance change                                                                                                                                                                                                                                                     | 初期値の±30%以内<br>Within ±30% of initial value                                                                                     |                     |        |      |      |      |        |      |      |  |
|                                         | 損失角の正接<br>Dissipation Factor                                                                                                                                                                                                                                                      | 初期規格値の 200%以下<br>200% or less of initial specified value                                                                       |                     |        |      |      |      |        |      |      |  |
|                                         | 漏れ電流<br>Leakage current                                                                                                                                                                                                                                                           | 初期規格値以下<br>Initial specified value or less                                                                                     |                     |        |      |      |      |        |      |      |  |
| 高温無負荷特性<br>Shelf Life                   | 105°C 1,000 時間無負荷放置後、下記規格を満足する。(但し、JIS C-5102 4.4 項の電圧処理後)<br>After storing the capacitors under no load at 105°C for 1,000 hours, capacitors meet the characteristic requirements as below. Be sure to apply voltage to the capacitors before test according to JIS-C-5101-4.4.1 |                                                                                                                                |                     |        |      |      |      |        |      |      |  |
|                                         | 静電容量変化率<br>Capacitance change                                                                                                                                                                                                                                                     | 初期値の±30%以内<br>Within ±30%of initial value                                                                                      |                     |        |      |      |      |        |      |      |  |
|                                         | 損失角の正接<br>Dissipation Factor                                                                                                                                                                                                                                                      | 初期規格値の 200%以下<br>200% or less of initial specified value                                                                       |                     |        |      |      |      |        |      |      |  |
|                                         | 漏れ電流<br>Leakage current                                                                                                                                                                                                                                                           | 初期規格値以下<br>Initial specified value or less                                                                                     |                     |        |      |      |      |        |      |      |  |
| はんだ耐熱性<br>Resistance to soldering heat  | 電極端子面を 250°Cの熱板上に 30 秒間放置後、20°Cに戻し測定を行ったとき、下記項目を満足する<br>Capacitors placed on a 250°C hot plate for 30 seconds with their electrode terminals facing downward will fulfill the following requirements after being cooled to room temperature.                                      |                                                                                                                                |                     |        |      |      |      |        |      |      |  |
|                                         | 静電容量変化率<br>Capacitance change                                                                                                                                                                                                                                                     | 初期値の±10%以内<br>Within ±10% of initial value                                                                                     |                     |        |      |      |      |        |      |      |  |
|                                         | 損失角の正接<br>Dissipation Factor                                                                                                                                                                                                                                                      | 初期規格値以下<br>Initial specified value or less                                                                                     |                     |        |      |      |      |        |      |      |  |
|                                         | 漏れ電流<br>Leakage current                                                                                                                                                                                                                                                           | 初期規格値以下<br>Initial specified value or less                                                                                     |                     |        |      |      |      |        |      |      |  |

### 寸法図 Dimensions

( $\phi 4 \sim \phi 6.3 \times 7.7$ )



( $\phi 8 \times 10.5 \sim \phi 16$ )



\*1. Voltage mark for 6.3V is [6V]

\*2. Applicable to  $\phi 6.3 \times 7.7$

\*3. Applicable to  $\phi 8 \times 10.5 \sim \phi 10$

\*4. Applicable to  $\phi 12.5 \sim \phi 16$

| ØD x L  | 4 x 5.8 | 5 x 5.8 | 6.3 x 5.8 | 6.3 x 7.7 | 8 x 10.5 | 10 x 10.5 | 10 x 13.5 | 12.5 x 13.5 | 12.5 x 16 | 16 x 16.5 |
|---------|---------|---------|-----------|-----------|----------|-----------|-----------|-------------|-----------|-----------|
| A       | 2.0     | 2.2     | 2.6       | 2.6       | 3.0      | 3.3       | 3.3       | 4.9         | 4.9       | 5.8       |
| B       | 4.3     | 5.3     | 6.6       | 6.6       | 8.4      | 10.4      | 10.4      | 13.0        | 13.0      | 17.0      |
| C       | 4.3     | 5.3     | 6.6       | 6.6       | 8.4      | 10.4      | 10.4      | 13.0        | 13.0      | 17.0      |
| E ± 0.2 | 1.0     | 1.4     | 1.9       | 1.9       | 3.1      | 4.7       | 4.7       | 4.7         | 4.7       | 6.4       |
| L       | 5.8     | 5.8     | 5.8       | 7.7       | 10.5     | 10.5      | 13.5      | 13.5        | 16.0      | 16.5      |

品名コード体系 Part Numbering (例 example: 25V 470 µF)

|                      |   |                                           |   |                     |   |                      |   |                  |  |  |
|----------------------|---|-------------------------------------------|---|---------------------|---|----------------------|---|------------------|--|--|
| U                    | F | Z                                         | 1 | E                   | 4 | 7                    | 1 | M                |  |  |
| シリーズ名<br>Series Name |   | 定格電圧<br>Rated Voltage<br>Tolerance (±20%) |   | 静電容量<br>Capacitance |   | 容量許容差<br>Capacitance |   | 個別指定<br>Reserved |  |  |

許容リプル電流周波数補正係数 Frequency coefficient of allowable ripple current

| Frequency 頻率      |             |               | 50Hz | 120Hz | 300Hz | 1KHz | 10KHz~ |
|-------------------|-------------|---------------|------|-------|-------|------|--------|
| Coefficient<br>係数 | Ø4 ~ Ø10    | 4.7 ~ 68µF    | 0.35 | 0.50  | 0.64  | 0.83 | 1.00   |
|                   |             | 100 ~ 1500µF  | 0.40 | 0.55  | 0.70  | 0.85 | 1.00   |
|                   | Ø12.5 ~ Ø16 | ~ 68µF        | 0.40 | 0.55  | 0.70  | 0.85 | 1.00   |
|                   |             | 100 ~ 680µF   | 0.40 | 0.65  | 0.80  | 0.90 | 1.00   |
|                   |             | 1000 ~ 4700µF | 0.65 | 0.85  | 0.95  | 1.00 | 1.00   |

□ DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & IMPEDANCE 規格尺寸及最大允許紋波電流及阻抗值

| WV<br>Code<br>代碼 |     | 6.3                      |                |              | 10                       |                |              | 16                                        |                           |                          |
|------------------|-----|--------------------------|----------------|--------------|--------------------------|----------------|--------------|-------------------------------------------|---------------------------|--------------------------|
| µF               |     | 0J                       |                |              | 1A                       |                |              | 1C                                        |                           |                          |
| 10               | 100 |                          |                |              |                          |                |              | 4 x 5.8                                   | 1.35                      | 90                       |
| 15               | 150 |                          |                |              |                          |                |              | 4 x 5.8                                   | 1.35                      | 90                       |
| 22               | 220 | 4 x 5.8                  | 1.35           | 90           | 4 x 5.8                  | 1.35           | 90           | 5 x 5.8                                   | 0.70                      | 160                      |
| 33               | 330 | 5 x 5.8<br>(4 x 5.8)     | 0.76<br>(1.35) | 160<br>(90)  | 5 x 5.8                  | 0.76           | 160          | 5 x 5.8                                   | 0.76                      | 160                      |
| 47               | 470 | 5 x 5.8<br>(4 x 5.8)     | 0.76<br>(1.35) | 160<br>(90)  | 6.3 x 5.8                | 0.44           | 240          | 6.3 x 5.8                                 | 0.44                      | 240                      |
| 56               | 560 | 5 x 5.8                  | 0.76           | 160          | 6.3 x 5.8                | 0.44           | 240          | 6.3 x 5.8<br>(5 x 5.8)                    | 0.44<br>(0.76)            | 240<br>(160)             |
| 68               | 680 | 6.3 x 5.8                | 0.44           | 240          | 6.3 x 5.8                | 0.44           | 240          | 6.3 x 5.8                                 | 0.44                      | 240                      |
| 100              | 101 | 6.3 x 5.8                | 0.44           | 240          | 6.3 x 7.7                | 0.34           | 300          | 6.3 x 7.7<br>(6.3 x 5.8)                  | 0.34<br>(0.44)            | 300<br>(240)             |
| 150              | 151 | 6.3 x 5.8                | 0.44           | 240          | 6.3 x 7.7                | 0.34           | 300          | 6.3 x 7.7<br>(6.3 x 5.8)                  | 0.34<br>(0.44)            | 300<br>(240)             |
| 220              | 221 | 6.3 x 7.7<br>(6.3 x 5.8) | 0.34<br>(0.44) | 300<br>(240) | 6.3 x 7.7                | 0.34           | 300          | 6.3 x 7.7                                 | 0.34                      | 300                      |
| 330              | 331 | 8 x 10.5                 | 0.17           | 600          | 10 x 10.5<br>(8 x 10.5)  | 0.09<br>(0.17) | 850<br>(600) | 8 x 10.5<br>(6.3 x 7.7)                   | 0.17<br>(0.34)            | 600<br>(300)             |
| 470              | 471 | 8 x 10.5                 | 0.17           | 600          | 10 x 10.5<br>(8 x 10.5)  | 0.09<br>(0.17) | 850<br>(600) | 10 x 10.5<br>(8 x 10.5)                   | 0.08<br>(0.17)            | 850<br>(600)             |
| 680              | 681 | 10 x 10.5<br>(8 x 10.5)  | 0.09<br>(0.17) | 850<br>(600) | 10 x 10.5                | 0.09           | 850          | 10 x 10.5<br>(8 x 10.5)                   | 0.09<br>(0.17)            | 850<br>(600)             |
| 1000             | 102 | 10 x 10.5<br>(8 x 10.5)  | 0.09<br>(0.17) | 850<br>(600) | 10 x 13.5<br>(10 x 10.5) | 0.07<br>(0.09) | 950<br>(850) | 16 x 16.5<br>(12.5 x 16)<br>(12.5 x 13.5) | 0.05<br>(0.055)<br>(0.06) | 1450<br>(1200)<br>(1100) |
| 1500             | 152 | 10 x 13.5                | 0.09           | 950          | 12.5 x 13.5              | 0.06           | 1100         | 16 x 16.5                                 | 0.05                      | 1450                     |
| 2200             | 222 | 12.5 x 13.5              | 0.06           | 1100         | 12.5 x 16                | 0.055          | 1200         |                                           |                           |                          |
| 3300             | 332 | 12.5 x 16                | 0.055          | 1200         | 16 x 16.5                | 0.05           | 1450         | Case size<br>尺寸                           | Impedance<br>阻抗值          | Ripple current<br>紋波電流   |
| 4700             | 472 | 16 x 16.5                | 0.05           | 1450         |                          |                |              |                                           |                           |                          |

| WV<br>Code<br>代碼<br>μF |     | 25                                        |                           |                          | 35                                        |                          |                         | 50                                        |                          |                          |
|------------------------|-----|-------------------------------------------|---------------------------|--------------------------|-------------------------------------------|--------------------------|-------------------------|-------------------------------------------|--------------------------|--------------------------|
|                        |     | 1E                                        |                           |                          | 1V                                        |                          |                         | 1H                                        |                          |                          |
| 4.7                    | 4R7 |                                           |                           |                          | 4 × 5.8                                   | 1.35                     | 90                      | 5 × 5.8                                   | 1.52                     | 85                       |
| 10                     | 100 | 4 × 5.8                                   | 1.35                      | 90                       | 5 × 5.8                                   | 0.76                     | 160                     | 6.3 × 5.8<br>(5 × 5.8)                    | 0.88<br>(1.35)           | 165<br>(115)             |
| 15                     | 150 | 5 × 5.8                                   | 0.76                      | 160                      | 5 × 5.8                                   | 0.76                     | 160                     | 6.3 × 5.8                                 | 0.88                     | 165                      |
| 22                     | 220 | 6.3 × 5.8<br>(5 × 5.8)                    | 0.44<br>(0.76)            | 240<br>(160)             | 6.3 × 5.8                                 | 0.44                     | 240                     | 6.3 × 7.7<br>(6.3 × 5.8)                  | 0.68<br>(0.88)           | 195<br>(165)             |
| 33                     | 330 | 6.3 × 5.8                                 | 0.44                      | 240                      | 6.3 × 5.8                                 | 0.44                     | 240                     | 6.3 × 7.7                                 | 0.68                     | 195                      |
| 47                     | 470 | 6.3 × 7.7<br>(6.3 × 5.8)                  | 0.34<br>(0.44)            | 300<br>(240)             | 6.3 × 7.7<br>(6.3 × 5.8)                  | 0.34<br>(0.88)           | 300<br>(165)            | 8 × 10.5<br>(6.3 × 7.7)                   | 0.34<br>(0.68)           | 350<br>(195)             |
| 56                     | 560 | 6.3 × 7.7                                 | 0.34                      | 300                      | 6.3 × 7.7                                 | 0.34                     | 300                     | 8 × 10.5                                  | 0.34                     | 350                      |
| 68                     | 680 | 6.3 × 7.7                                 | 0.34                      | 300                      | 8 × 10.5                                  | 0.17                     | 600                     | 8 × 10.5                                  | 0.34                     | 350                      |
| 100                    | 101 | 8 × 10.5<br>(6.3 × 7.7)                   | 0.17<br>(0.34)            | 600<br>(300)             | 8 × 10.5                                  | 0.17                     | 600                     | 10 × 10.5<br>(8 × 10.5)                   | 0.18<br>(0.34)           | 670<br>(350)             |
| 150                    | 151 | 8 × 10.5<br>(6.3 × 7.7)                   | 0.16<br>(0.34)            | 600<br>(300)             | 10 × 10.5                                 | 0.09                     | 850                     | 10 × 13.5<br>(10 × 10.5)                  | 0.14<br>(0.18)           | 780<br>(670)             |
| 220                    | 221 | 8 × 10.5                                  | 0.17                      | 600                      | 10 × 10.5<br>(8 × 10.5)                   | 0.09<br>(0.16)           | 850<br>(600)            | (10 × 13.5)<br>(10 × 10.5)                | (0.14)<br>(0.26)         | (780)<br>(750)           |
| 330                    | 331 | 10 × 10.5<br>(8 × 10.5)                   | 0.09<br>(0.17)            | 850<br>(600)             | (10 × 13.5)<br>(10 × 10.5)                | (0.07)<br>(0.10)         | (950)<br>(850)          | 12.5 × 13.5                               | 0.12                     | 900                      |
| 470                    | 471 | 10 × 13.5<br>(10 × 10.5)                  | 0.07<br>(0.09)            | 950<br>(850)             | 12.5 × 13.5<br>(10 × 13.5)<br>(10 × 10.5) | 0.06<br>(0.07)<br>(0.10) | 1100<br>(1000)<br>(950) | 16 × 16.5<br>(12.5 × 16)<br>(12.5 × 13.5) | 0.08<br>(0.10)<br>(0.08) | 1250<br>(1050)<br>(1100) |
| 680                    | 681 | 12.5 × 13.5                               | 0.06                      | 1100                     | 12.5 × 16<br>(12.5 × 13.5)                | 0.055<br>(0.06)          | 1200<br>(1100)          |                                           |                          |                          |
| 1000                   | 102 | 16 × 16.5<br>(12.5 × 16)<br>(12.5 × 13.5) | 0.05<br>(0.055)<br>(0.06) | 1450<br>(1200)<br>(1100) | 16 × 16.5                                 | 0.05                     | 1450                    | Case size<br>尺寸                           | Impedance<br>阻抗值         | Ripple current<br>紋波電流   |
| 1500                   | 152 | 16 × 16.5                                 | 0.05                      | 1450                     |                                           |                          |                         |                                           |                          |                          |

•Case size 尺寸 ØD×L(mm), Impedance 阻抗值 (Ω) at 20°C, 100KHz, Ripple current 紋波電流 (mA rms) at 105°C, 100KHz

□ DIMENSIONS & MAXIMUM PERMISSIBLE RIPPLE CURRENT & IMPEDANCE 規格尺寸及最大允許紋波電流及阻抗值

| WV<br>Code<br>代碼<br>μF |     | 63                                        |                          |                       | 80                         |                |              | 100                                       |                          |                        |
|------------------------|-----|-------------------------------------------|--------------------------|-----------------------|----------------------------|----------------|--------------|-------------------------------------------|--------------------------|------------------------|
|                        |     | 1J                                        |                          |                       | 1K                         |                |              | 2A                                        |                          |                        |
| 3.3                    | 3R3 |                                           |                          |                       | 5 × 5.8                    | 5.0            | 25           |                                           |                          |                        |
| 4.7                    | 4R7 | 5 × 5.8                                   | 3.0                      | 50                    | 6.3 × 5.8                  | 3.0            | 40           |                                           |                          |                        |
| 10                     | 100 | 6.3 × 7.7<br>(6.3 × 5.8)                  | 1.2<br>(1.5)             | 120<br>(80)           | 6.3 × 7.7                  | 2.4            | 60           | 8 × 10.5                                  | 1.3                      | 130                    |
| 22                     | 220 | 8 × 10.5<br>(6.3 × 7.7)                   | 0.65<br>(1.2)            | 250<br>(120)          | 8 × 10.5                   | 1.3            | 130          | 10 × 10.5<br>(8 × 10.5)                   | 0.7<br>(1.3)             | 200<br>(160)           |
| 33                     | 330 | 8 × 10.5                                  | 0.65                     | 250                   | 10 × 10.5                  | 0.7            | 200          | 10 × 10.5                                 | 0.7                      | 200                    |
| 47                     | 470 | 10 × 10.5<br>(8 × 10.5)                   | 0.50<br>(0.65)           | 300<br>(250)          | 10 × 10.5                  | 0.7            | 200          | 10 × 10.5                                 | 0.7                      | 200                    |
| 68                     | 680 | 12.5 × 13.5<br>(10 × 10.5)                | 0.16<br>(0.50)           | 800<br>(300)          | 12.5 × 13.5                | 0.32           | 500          | 12.5 × 13.5                               | 0.32                     | 500                    |
| 100                    | 101 | 12.5 × 13.5<br>(10 × 13.5)<br>(10 × 10.5) | 0.16<br>(0.25)<br>(0.50) | 800<br>(400)<br>(300) | 12.5 × 13.5<br>(10 × 13.5) | 0.32<br>(0.18) | 500<br>(750) | 16 × 16.5<br>(12.5 × 16)<br>(12.5 × 13.5) | 0.22<br>(0.26)<br>(0.32) | 670<br>(550)<br>(500)  |
| 150                    | 151 | 12.5 × 13.5<br>(10 × 13.5)                | 0.16<br>(0.25)           | 800<br>(650)          | 12.5 × 13.5                | 0.32           | 500          |                                           |                          |                        |
| 220                    | 221 | 12.5 × 13.5                               | 0.16                     | 800                   | 12.5 × 16<br>(12.5 × 13.5) | 0.26<br>(0.12) | 550<br>(900) | Case size<br>尺寸                           | Impedance<br>阻抗值         | Ripple current<br>紋波電流 |
| 330                    | 331 | 16 × 16.5                                 | 0.082                    | 1400                  | 16 × 16.5                  | 0.17           | 795          |                                           |                          |                        |

•Case size 尺寸 ØD×L(mm), Impedance 阻抗值 (Ω) at 20°C, 100KHz, Ripple current 紋波電流 (mA rms) at 105°C, 100KHz