

## TS 系列 SERIES

High Ripple

High Reliability

Long Life

RoHS

- 全焊结构，确保可靠的电气接触性  
All-welded construction ensures reliable electrical contact
- 高可靠性及高耐纹波电流能力  
High reliability and high ripple current capability.
- 保证 85℃、5000 小时寿命（叠加纹波电流）  
Endurance with ripple current: 5000 hours at 85℃.
- 应用：变频器、不间断电源、太阳能和风力发电设备  
Applications: Frequency converters, Uninterruptible power supplies, Solar and Wind power generator

TG P105  
↑  
Long life  
TS



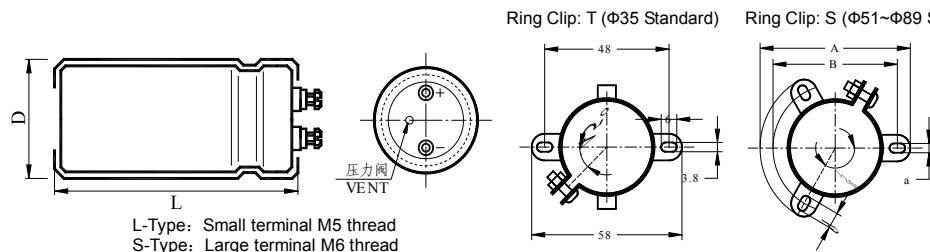
## ◆ 规格表 SPECIFICATIONS

| 项 目<br>Items                                     | 特 性<br>Characteristics                                                                                                                                                                                                                                                                                                                                                                               |     |      |     |  |                    |     |     |     |     |      |      |  |      |  |
|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|------|-----|--|--------------------|-----|-----|-----|-----|------|------|--|------|--|
| 工作温度范围<br>Operating Temperature Range            | -40~+85℃                                                                                                                                                                                                                                                                                                                                                                                             |     |      |     |  |                    |     |     |     |     |      |      |  |      |  |
| 额定工作电压范围<br>Rated Working Voltage Range          | 350~550V                                                                                                                                                                                                                                                                                                                                                                                             |     |      |     |  |                    |     |     |     |     |      |      |  |      |  |
| 静电容量范围<br>Capacitance Range                      | 1000~18000 μ F                                                                                                                                                                                                                                                                                                                                                                                       |     |      |     |  |                    |     |     |     |     |      |      |  |      |  |
| 静电容量允许偏差<br>Capacitance Tolerance                | ±20% (20℃,120Hz)                                                                                                                                                                                                                                                                                                                                                                                     |     |      |     |  |                    |     |     |     |     |      |      |  |      |  |
| 损耗角正切值<br>Dissipation Factor (MAX)<br>20℃, 120Hz | <table><tr><td>U<sub>R</sub>(V)</td><td>400</td><td>450</td><td>500</td><td>550</td></tr><tr><td>tanδ</td><td colspan="2">0.15</td><td colspan="2">0.20</td></tr></table>                                                                                                                                                                                                                            |     |      |     |  | U <sub>R</sub> (V) | 400 | 450 | 500 | 550 | tanδ | 0.15 |  | 0.20 |  |
| U <sub>R</sub> (V)                               | 400                                                                                                                                                                                                                                                                                                                                                                                                  | 450 | 500  | 550 |  |                    |     |     |     |     |      |      |  |      |  |
| tanδ                                             | 0.15                                                                                                                                                                                                                                                                                                                                                                                                 |     | 0.20 |     |  |                    |     |     |     |     |      |      |  |      |  |
| 漏电流<br>Leakage Current (MAX)                     | I=0.01C <sub>R</sub> U <sub>R</sub> 或 5mA 取小者 (20℃, 施加额定电压 5 分钟后)<br>I=0.01C <sub>R</sub> U <sub>R</sub> or 5mA whichever is minimum. (at 20℃, After 5 minutes application of rated voltage)<br>I=漏电流 (μA)                      U <sub>R</sub> =额定电压 (V)                      C <sub>R</sub> =静电容量 (μF)<br>Leakage Current                      Rated Voltage                      Rated Capacitance |     |      |     |  |                    |     |     |     |     |      |      |  |      |  |

|                                                                                                                                | 使用寿命<br>Useful Life                       | 负荷寿命<br>Load Life                                    | 耐久性特性<br>Endurance Test                  | 高温无负荷特性<br>Shelf Life                                                                                                                           |
|--------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|------------------------------------------------------|------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| 产品寿命<br>Life Time                                                                                                              | 10000h                                    | >100000h                                             | 5000h                                    | 1000h                                                                                                                                           |
| 漏电流<br>Leakage Current                                                                                                         | ≤规定值<br>≤Specified value                  | ≤规定值<br>≤Specified value                             | ≤规定值<br>≤Specified value                 | ≤规定值<br>≤Specified value                                                                                                                        |
| 损耗角正切值变化率<br>tanδ Change                                                                                                       | ≤规定值的 300%<br>≤300% of specified value    | ≤规定值的 200%<br>≤200% of specified value               | ≤规定值的 130%<br>≤130% of specified value   | ≤规定值的 150%<br>≤150% of specified value                                                                                                          |
| 静电容量变化率<br>Capacitance change                                                                                                  | 初始值±30%以内<br>Within±30% of initial value  | 初始值±20%以内<br>Within±20% of initial value             | 初始值±10%以内<br>Within±10% of initial value | 初始值±15%以内<br>Within±15% of initial value                                                                                                        |
| 施加条件 Condition<br>施加电压 Applied Voltage<br>施加纹波电流 Applied Ripple Current<br>环境温度 Applied Temperature<br>失效等级 Failure Rate Level | $U_R$<br>$I_R$<br>85℃<br>≤1% Failure rate | $U_R$<br>$1.4 \times I_R$<br>40℃<br>≤1% Failure rate | $U_R$<br>$I_R=0$<br>85℃<br>0%            | $U_R=0$<br>$I_R=0$<br>85℃<br>0%<br>Back up to 20℃ and placed more than 24 hours.<br>U <sub>R</sub> to be applied for 60 min before measurement. |

## ◆ 尺寸图 Dimensions

- 常用端子型式代码: Terminal Code



Ring Clip Dimensions:

| ΦD | A     | B     | a   | b |
|----|-------|-------|-----|---|
| 51 | 73.0  | 63.5  | 4.5 | 7 |
| 64 | 85.1  | 76.2  | 4.5 | 7 |
| 76 | 98.4  | 88.9  | 4.5 | 7 |
| 89 | 111.1 | 101.6 | 4.5 | 7 |

产品详细尺寸和公差请参照 P90  
For detailed dimension & tolerance, please refer to P90

- 记载以外的端子形状，请另行咨询。Please consult to us for the terminal type not displayed in content.

## ◆ 产品编码体系 PART NUMBER SYSTEM

●例如: Example TS 500V5600µF Φ89×155 ±20%

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15

T S C 5 6 2 M 8 9 1 5 5 S V A

客户特殊要求 special requirement  
套管材质代码 Sleeve Code  
端子型式代码 Lead Form Code  
高度代码 (例: 155→155) The height of the code (mm)  
直径代码 (例: 76→76, 89→89) Diameter code (mm)  
容差代码 (例: ±20%→M) Capacitance Tolerance code  
容量代码 (例: 5600→562, 10000→103) Capacitance Code (µF)  
电压代码 (例: 400V→G, 500V→C) Rated Voltage Code (V)  
产品系列代码 (例: TS→TS) Series Code

## ◆ 纹波电流修正系数 Rated Ripple Current Multiplies

- 频率修正系数 Frequency coefficient

| 频率 Frequency (Hz) | 50(60) | 100(120) | 300  | 1k   | ≥10k |
|-------------------|--------|----------|------|------|------|
| 系数 Coefficient    | 0.70   | 1.00     | 1.10 | 1.30 | 1.40 |

- 温度修正系数 Temperature coefficient

| 温度 Temperature (℃) | +40  | +60  | +85  |
|--------------------|------|------|------|
| 系数 Coefficient     | 1.89 | 1.67 | 1.00 |

## TS SERIES

## ◆ 产品一览表 Standard Ratings

| WV <sub>DC</sub><br>(Surge<br>Voltage)<br>(V) | Cap<br>(μF) | Size<br>D×L<br>(mm) | tanδ<br>20℃ 120Hz | Ripple<br>Current<br>85℃ 120Hz<br>(Arms) | Catalog Part Number |
|-----------------------------------------------|-------------|---------------------|-------------------|------------------------------------------|---------------------|
| 350<br>(400)                                  | 1200        | 51×80               | 0.15              | 5.5                                      | TSH122M51080□VA     |
|                                               | 1500        | 51×80               | 0.15              | 6.1                                      | TSH152M51080□VA     |
|                                               | 1800        | 51×95               | 0.15              | 7.4                                      | TSH182M51095□VA     |
|                                               | 2200        | 51×95               | 0.15              | 8.2                                      | TSH222M51095□VA     |
|                                               | 2700        | 51×130              | 0.15              | 10.2                                     | TSH272M51130□VA     |
|                                               | 3300        | 51×130              | 0.15              | 11.3                                     | TSH332M51130□VA     |
|                                               | 3900        | 64×115              | 0.15              | 12.8                                     | TSH392M64115□VA     |
|                                               | 4700        | 64×130              | 0.15              | 14.8                                     | TSH472M64130□VA     |
|                                               | 5600        | 76×115              | 0.15              | 16.3                                     | TSH562M76115□VA     |
|                                               | 6800        | 76×130              | 0.15              | 18.8                                     | TSH682M76130□VA     |
|                                               | 8200        | 76×155              | 0.15              | 22.2                                     | TSH822M76155□VA     |
|                                               | 10000       | 89×155              | 0.15              | 25.9                                     | TSH103M89155□VA     |
|                                               | 12000       | 89×155              | 0.15              | 29.1                                     | TSH123M89155□VA     |
|                                               | 15000       | 89×195              | 0.15              | 35.7                                     | TSH153M89195□VA     |
| 400<br>(450)                                  | 1000        | 51×80               | 0.15              | 5.0                                      | TSG102M51080□VA     |
|                                               | 1200        | 51×80               | 0.15              | 5.8                                      | TSG122M51080□VA     |
|                                               | 1500        | 51×95               | 0.15              | 6.7                                      | TSG152M51095□VA     |
|                                               | 1800        | 51×95               | 0.15              | 7.5                                      | TSG182M51095□VA     |
|                                               | 2200        | 51×130              | 0.15              | 9.2                                      | TSG222M51130□VA     |
|                                               | 2700        | 64×95               | 0.15              | 9.9                                      | TSG272M64095□VA     |
|                                               | 3300        | 64×115              | 0.15              | 11.8                                     | TSG332M64115□VA     |
|                                               | 3900        | 64×130              | 0.15              | 13.5                                     | TSG392M64130□VA     |
|                                               | 4700        | 76×115              | 0.15              | 14.9                                     | TSG472M76115□VA     |
|                                               | 5600        | 76×130              | 0.15              | 17.0                                     | TSG562M76130□VA     |
|                                               | 6800        | 76×155              | 0.15              | 20.2                                     | TSG682M76155□VA     |
|                                               | 8200        | 89×155              | 0.15              | 23.5                                     | TSG822M89155□VA     |
|                                               | 10000       | 89×155              | 0.15              | 26.6                                     | TSG103M89155□VA     |
|                                               | 12000       | 89×195              | 0.15              | 31.0                                     | TSG123M89195□VA     |
| 450<br>(500)                                  | 1000        | 51×80               | 0.15              | 5.1                                      | TSE102M51080□VA     |
|                                               | 1200        | 51×95               | 0.15              | 6.0                                      | TSE122M51095□VA     |
|                                               | 1500        | 51×115              | 0.15              | 7.2                                      | TSE152M51115□VA     |
|                                               | 1800        | 51×130              | 0.15              | 8.3                                      | TSE182M51130□VA     |

| WV <sub>DC</sub><br>(Surge<br>Voltage)<br>(V) | Cap<br>(μF) | Size<br>D×L<br>(mm) | tanδ<br>20℃ 120Hz | Ripple<br>Current<br>85℃ 120Hz<br>(Arms) | Catalog Part Number |
|-----------------------------------------------|-------------|---------------------|-------------------|------------------------------------------|---------------------|
| 450<br>(500)                                  | 2200        | 64×95               | 0.15              | 9.0                                      | TSE222M64095□VA     |
|                                               | 2700        | 64×115              | 0.15              | 10.7                                     | TSE272M64115□VA     |
|                                               | 3300        | 64×130              | 0.15              | 12.4                                     | TSE332M64130□VA     |
|                                               | 3900        | 76×115              | 0.15              | 13.6                                     | TSE392M76115□VA     |
|                                               | 4700        | 76×130              | 0.15              | 15.6                                     | TSE472M76130□VA     |
|                                               | 5600        | 76×155              | 0.15              | 18.3                                     | TSE562M76155□VA     |
|                                               | 6800        | 89×155              | 0.15              | 21.4                                     | TSE682M89155□VA     |
|                                               | 8200        | 89×155              | 0.15              | 23.5                                     | TSE822M89155□VA     |
|                                               | 10000       | 89×195              | 0.15              | 28.3                                     | TSE103M89195□VA     |
|                                               | 12000       | 89×235              | 0.15              | 33.6                                     | TSE123M89235□VA     |
| 500<br>(550)                                  | 1000        | 51×115              | 0.20              | 4.2                                      | TSC102M51115□VA     |
|                                               | 1200        | 64×95               | 0.20              | 4.8                                      | TSC122M64095□VA     |
|                                               | 1500        | 64×95               | 0.20              | 5.5                                      | TSC152M64095□VA     |
|                                               | 1800        | 64×115              | 0.20              | 6.5                                      | TSC182M64115□VA     |
|                                               | 2200        | 64×130              | 0.20              | 7.7                                      | TSC222M64130□VA     |
|                                               | 2700        | 76×115              | 0.20              | 8.8                                      | TSC272M76115□VA     |
|                                               | 3300        | 76×130              | 0.20              | 10.4                                     | TSC332M76130□VA     |
|                                               | 3900        | 76×130              | 0.20              | 11.4                                     | TSC392M76130□VA     |
|                                               | 4700        | 89×130              | 0.20              | 13.7                                     | TSC472M89130□VA     |
|                                               | 5600        | 89×155              | 0.20              | 15.9                                     | TSC562M89155□VA     |
|                                               | 6800        | 89×170              | 0.20              | 18.5                                     | TSC682M89170□VA     |
|                                               | 8200        | 89×195              | 0.20              | 21.4                                     | TSC822M89195□VA     |
| 550<br>(600)                                  | 1000        | 51×130              | 0.20              | 4.3                                      | TSZ102M51130□VA     |
|                                               | 1200        | 64×115              | 0.20              | 5.0                                      | TSZ122M64115□VA     |
|                                               | 1500        | 64×130              | 0.20              | 6.0                                      | TSZ152M64130□VA     |
|                                               | 1800        | 76×105              | 0.20              | 6.6                                      | TSZ182M76105□VA     |
|                                               | 2200        | 76×115              | 0.20              | 7.8                                      | TSZ222M76115□VA     |
|                                               | 2700        | 76×130              | 0.20              | 8.9                                      | TSZ272M76130□VA     |
|                                               | 3300        | 76×155              | 0.20              | 10.5                                     | TSZ332M76155□VA     |
|                                               | 3900        | 76×155              | 0.20              | 11.7                                     | TSZ392M76155□VA     |
|                                               | 4700        | 89×155              | 0.20              | 13.8                                     | TSZ472M89155□VA     |
|                                               | 5600        | 89×170              | 0.20              | 16.0                                     | TSZ562M89170□VA     |
| 550<br>(600)                                  | 6800        | 89×195              | 0.20              | 18.6                                     | TSZ682M89195□VA     |

\*产品编码中□内为产品端子引出型式代码

\*□Enter the appropriate terminal code

\*记载之外的体积，请另行咨询。

\*Please consult to us for the terminal type not displayed in content.

\*铝电解电容器由于承受纹波电流而发热，随着温升而发生性能劣化，每升高 5℃ 寿命减少一半。请在使用中降低产品承受的纹波电流。

Aluminum electrolytic capacitor will emit heat when ripple current is applied, the performance will deteriorate when temp. rises. the useful life will be half of original life when temp rises every 5℃. Please reduce the ripple current when using capacitor.