

# KNSCHA

Empowering The World

## 广东科尼盛电子科技有限公司

## KNSCHA ELECTRONICS CO.,LIMITED

IATF16949:2016

ISO9001:2015

ISO14001:2015

### 部品规格书 APPROVE SHEET

|                          |                                                                   |
|--------------------------|-------------------------------------------------------------------|
| 客 户 名 称<br>Customer Name |                                                                   |
| 产 品 名 称<br>Product Name  | 高分子固态电解电容器<br>Conductive Polymer Aluminum Electrolytic Capacitors |
| 客 户 料 号<br>Customer P/N  |                                                                   |
| 科 尼 盛 料 号<br>KNSCHA P/N  | 217EC0004                                                         |
| 型 号 规 格<br>Product Type  | 10V/470 $\mu$ F 2000Hours@105 $^{\circ}$ C 引线型,6.3x8mm KHS Series |
| 日 期<br>Date              | 2024年10月25日                                                       |

|                    |                 |
|--------------------|-----------------|
| 制 造<br>Manufacture |                 |
| 核 准<br>APPROVAL    | 制 作<br>PREPARED |
| * 工程课 *            |                 |
| 王 勃 刘 国 栋          |                 |

|                                |                |                 |
|--------------------------------|----------------|-----------------|
| 客 户 承 认 栏<br>CUSTOMER APPROVED |                |                 |
| 核 准<br>APPROVED                | 确 认<br>CHECKED | 经 办<br>DESIGNED |
|                                |                |                 |

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# KNSCHA

Empowering The World

## KNSCHA ELECTRONICS CO., LIMITED

IATF16949:2016 ISO9001:2015 ISO14001:2015

### Aluminum Electrolytic Capacitors

- Source Manufacturer
- 25+ Years Experience
- 7X24 Hours Online Service



### Film Capacitors

- Source Manufacturer
- 10+ Years Experience



# KNSCHA

Empowering The World

KNSCHA ELECTRONICS CO., LIMITED is a manufacturing high-tech enterprise founded in 1987 with aluminum electrolytic capacitors and film capacitors as its core for automotive, renewable energy, industrial and consumer electronics. We are working on developing aluminum electrolytic capacitors and plastic film capacitors having higher performance and higher reliability and its product chain extends to multiple categories such as electric double layer capacitors, ceramic capacitors and resistors under the trademark "KNSCHA", quickly responding to customer needs.

KNSCHA's manufacturing facilities are located in Guangdong, Hunan and Jiangxi and employ over 380 peoples. Our state-of-art manufacturing facilities including R&D, testing labs, automated manufacturing, warehousing and customer service are operate with high quality standard, using Lean manufacturing processes with a comprehensive ISO 9001/14001 and IATF 16949 management systems.

Our products have obtained UL, VDE, TÜV, ENEC10, KTL, and CQC safety certification, and comply with SGS's RoHS, Reach, AECQ-200 and National Grid Testing standards.

As a supporter of this advanced electronic industry, we are very pleased to have contributed to its development.

## Plastic Film Capacitors Aluminum Electrolytic Capacitors



**KNSCHA has knowledge and know-how as a capacitor professional manufacturer.**  
**We are always comitted to the original performance our customers need.**  
**We solves problems together with our customers.**

# KNSCHA

Empowering The World



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## KNSCHA ELECTRONICS CO., LIMITED

IATF16949:2016 ISO9001:2015 ISO14001:2015

广东科尼盛电子科技有限公司  
KNSCHA ELECTRONICS CO.,LIMITED

# IATF16949:2016

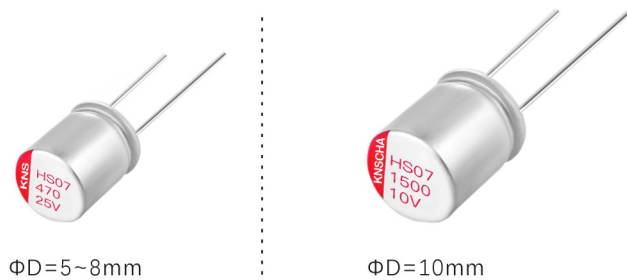
# ISO9001:2015

# ISO14001:2015

[illegible]

## 特性/ Features

- Load Life: 2000 hours at 105°C
- Ultra low ESR with large permissible ripple current
- RoHS Compliant
- 105°C 负荷寿命 2000 小时
- 极低等效串联电阻 (ESR) 并可承受大纹波电流
- 符合 RoHS 指令



ΦD=5~8mm

ΦD=10mm

Marking color: Red

引线型 Radial

表1 规格表 Specifications

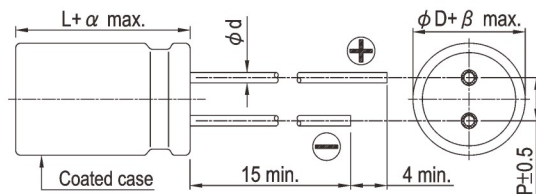
| 项目 Items                                                                             | 性 能 Performance                                                               |                          |              |                        |     |                                                         |      |      |    |      |  |
|--------------------------------------------------------------------------------------|-------------------------------------------------------------------------------|--------------------------|--------------|------------------------|-----|---------------------------------------------------------|------|------|----|------|--|
| 工作温度范围<br>Operating Temperature Range                                                | -55℃~+105℃                                                                    |                          |              |                        |     |                                                         |      |      |    |      |  |
| 额定静电容量容许误差值<br>Capacitance Tolerance                                                 | ± 20% (120 Hz, 20℃)                                                           |                          |              |                        |     |                                                         |      |      |    |      |  |
| 漏电流<br>Leakage Current(at 20℃)                                                       | 测试时间<br>Time                                                                  | 2 分钟后<br>after 2 minutes |              | 漏电流<br>Leakage Current |     | I≤0.2CV or 300(uA/微安)<br>之中任一较大值以下which ever is greater |      |      |    |      |  |
| 损失角正切值<br>Tanδ (at 120 Hz, 20℃)                                                      | 参阅标准品一览表                                                                      |                          |              |                        |     |                                                         |      |      |    |      |  |
| 等效串联电阻 ESR (mΩ/at 100k Hz, 20℃ max.)                                                 | 参阅标准品一览表                                                                      |                          |              |                        |     |                                                         |      |      |    |      |  |
| 耐久性<br>Endurance                                                                     | 在 105℃环境中，连续加载额定电压 20,00 小时后、待温度恢复到 20℃进行测量时，应满足以下要求。                         |                          |              |                        |     |                                                         |      |      |    |      |  |
|                                                                                      | 外观                                                                            |                          | 无明显变化        |                        |     |                                                         |      |      |    |      |  |
|                                                                                      | 静电容量变化率                                                                       |                          | ≤初始值的±20%    |                        |     |                                                         |      |      |    |      |  |
|                                                                                      | 损失角正切值                                                                        |                          | ≤初始规格值的 150% |                        |     |                                                         |      |      |    |      |  |
|                                                                                      | 等效串联电阻(ESR)                                                                   |                          | ≤初始规格值的 150% |                        |     |                                                         |      |      |    |      |  |
|                                                                                      | 漏电流                                                                           |                          | ≤初始规格值       |                        |     |                                                         |      |      |    |      |  |
| 耐湿性<br>Moisture Resistance<br>Stored at 60℃, RH90~95% 2000H<br>存放在60℃,RH90~95% 2000h | 在60℃90~95%RH 环境中，连续加载额定电压1,000 小时后，待温度恢复到20℃进行测量时，应满足以下要求。                    |                          |              |                        |     |                                                         |      |      |    |      |  |
|                                                                                      | 外观                                                                            |                          | 无明显变化        |                        |     |                                                         |      |      |    |      |  |
|                                                                                      | 静电容量变化率                                                                       |                          | ≤初始值的±20%    |                        |     |                                                         |      |      |    |      |  |
|                                                                                      | 损失角正切值                                                                        |                          | ≤初始规格值       |                        |     |                                                         |      |      |    |      |  |
|                                                                                      | 等效串联电阻(ESR)                                                                   |                          | ≤初始规格值的 150% |                        |     |                                                         |      |      |    |      |  |
|                                                                                      | 漏电流                                                                           |                          | ≤初始规格值       |                        |     |                                                         |      |      |    |      |  |
| 浪涌电压特性                                                                               | 在105℃环境中，按照充电30 秒、放电5 分30 秒连续加载浪涌电压1,000 次(Rc= 1kΩ) 后，待温度恢复到20℃进行测量时，应满足以下要求。 |                          |              |                        |     |                                                         |      |      |    |      |  |
|                                                                                      | 额定电压 (RV)                                                                     | 2.5                      | 4            | 6.3                    | 7.5 | 10                                                      | 12   | 16   | 20 | 25   |  |
|                                                                                      | 浪涌电压 (SV)                                                                     | 2.9                      | 4.6          | 7.2                    | 8.6 | 11.5                                                    | 13.8 | 18.4 | 23 | 28.8 |  |
|                                                                                      | 外观                                                                            |                          | 无明显变化        |                        |     |                                                         |      |      |    |      |  |
|                                                                                      | 静电容量变化率                                                                       |                          | ≤初始值的±20%    |                        |     |                                                         |      |      |    |      |  |
|                                                                                      | 损失角正切值                                                                        |                          | ≤初始规格值       |                        |     |                                                         |      |      |    |      |  |
|                                                                                      | 等效串联电阻(ESR)                                                                   |                          | ≤初始规格值的 150% |                        |     |                                                         |      |      |    |      |  |
| 漏电流                                                                                  |                                                                               | ≤初始规格值                   |              |                        |     |                                                         |      |      |    |      |  |

表2 纹波电流的频率系数  
Srequency Coefficient For Ripple Current

| Frequency   | 120Hz≤freq.<br>≤1KHz | 1KHz≤freq.<br>≤10KHz | 10KHz≤freq.<br>≤100KHz | 100KHz≤freq.<br>≤300KHz |
|-------------|----------------------|----------------------|------------------------|-------------------------|
| Coefficient | 0.05                 | 0.3                  | 0.7                    | 1                       |

表3 外形尺寸 Dimensions (mm)

| Lead Spacing and Diameter |     |     |     |     |      |
|---------------------------|-----|-----|-----|-----|------|
| Unit: mm                  |     |     |     |     |      |
| ΦD                        | 5.0 | 5.5 | 6.3 | 8.0 | 10.0 |
| P                         | 2.0 | 2.5 | 2.5 | 3.5 | 5.0  |
| Φd                        | 0.5 | 0.5 | 0.5 | 0.6 | 0.6  |
| β                         | 0.5 |     |     |     |      |
| α                         | 1.0 |     |     |     |      |



Marking

ΦD=5~8

ΦD=10

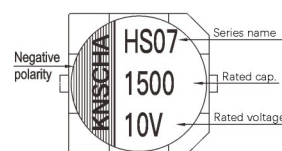
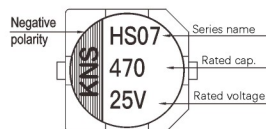


表4 标准品一览表 Standard Size

Standard Ratings

Dimension:  $\phi$  DxL(mm)  
Ripple Current: mA/rms at 100k Hz, 105°C

| Rated Volt.<br>(V) | Capacitance<br>( $\mu$ F) | Size<br>$\phi$ DxL(mm) | $\tan\delta$<br>(120Hz, 20°C) | L C<br>( $\mu$ A) | ESR<br>(m $\Omega$ /at 100k Hz,20°C max.) | Rated R. C.<br>(mA/rms at 100k Hz, 105°C) |
|--------------------|---------------------------|------------------------|-------------------------------|-------------------|-------------------------------------------|-------------------------------------------|
| 2.5V               | 470                       | 6.3X7                  | 0.08                          | 300               | 18                                        | 2690                                      |
|                    | 560                       | 6.3X7                  | 0.08                          | 300               | 18                                        | 2690                                      |
|                    |                           | 6.3X8                  | 0.08                          | 300               | 16                                        | 4100                                      |
|                    | 680                       | 6.3X8                  | 0.08                          | 340               | 16                                        | 4100                                      |
|                    |                           | 6.3X9                  | 0.08                          | 340               | 14                                        | 4500                                      |
|                    | 820                       | 6.3X8                  | 0.08                          | 410               | 16                                        | 4100                                      |
|                    |                           | 6.3X9                  | 0.08                          | 410               | 14                                        | 4500                                      |
|                    | 1000                      | 6.3X9                  | 0.08                          | 500               | 14                                        | 4500                                      |
|                    |                           | 8X8                    | 0.08                          | 500               | 14                                        | 4500                                      |
|                    | 1500                      | 8X8                    | 0.08                          | 750               | 14                                        | 4500                                      |
|                    |                           | 8X11.5                 | 0.08                          | 750               | 14                                        | 4750                                      |
|                    | 2200                      | 8X11.5                 | 0.08                          | 1100              | 14                                        | 4900                                      |
|                    |                           | 10X12                  | 0.08                          | 1100              | 14                                        | 4900                                      |
|                    | 3300                      | 10X12                  | 0.08                          | 1650              | 14                                        | 4900                                      |
|                    | 4700                      | 10X13.5                | 0.08                          | 2350              | 14                                        | 4900                                      |
|                    | 5600                      | 10X16                  | 0.08                          | 2800              | 14                                        | 4900                                      |
|                    | 6800                      | 10X16                  | 0.08                          | 3400              | 14                                        | 4900                                      |
| 4V                 | 220                       | 5X7                    | 0.08                          | 300               | 18                                        | 2350                                      |
|                    | 270                       | 5X7                    | 0.08                          | 300               | 18                                        | 2690                                      |
|                    |                           | 5X8                    | 0.08                          | 300               | 18                                        | 2750                                      |
|                    | 330                       | 5X7                    | 0.08                          | 300               | 18                                        | 2690                                      |
|                    |                           | 5X8                    | 0.08                          | 300               | 16                                        | 2750                                      |
|                    | 390                       | 5X8                    | 0.08                          | 312               | 16                                        | 2750                                      |
|                    | 470                       | 5X8                    | 0.08                          | 376               | 16                                        | 2750                                      |
|                    | 560                       | 6.3X7                  | 0.08                          | 448               | 16                                        | 3200                                      |
|                    | 680                       | 6.3X7                  | 0.08                          | 544               | 16                                        | 3350                                      |
|                    | 820                       | 6.3X8                  | 0.08                          | 656               | 16                                        | 3600                                      |
|                    |                           | 6.3X9                  | 0.08                          | 656               | 16                                        | 3950                                      |
|                    | 1000                      | 6.3X9                  | 0.10                          | 800               | 14                                        | 4100                                      |
|                    |                           | 8X8                    | 0.10                          | 800               | 14                                        | 4350                                      |
|                    | 1500                      | 8X11.5                 | 0.10                          | 1200              | 14                                        | 4500                                      |
|                    | 2200                      | 8X16                   | 0.10                          | 1760              | 14                                        | 4900                                      |
|                    |                           | 10X12                  | 0.10                          | 1760              | 14                                        | 4900                                      |
|                    | 3300                      | 8X16                   | 0.10                          | 2640              | 14                                        | 4900                                      |
|                    |                           | 10X12                  | 0.10                          | 2640              | 14                                        | 4900                                      |
|                    | 4700                      | 10X13.5                | 0.10                          | 3760              | 14                                        | 4900                                      |
|                    | 5600                      | 10X16                  | 0.10                          | 4480              | 14                                        | 4900                                      |

制品尺寸与容许纹波电流一览表

尺寸: 直径( $\phi$ D) $\times$ 长度(L), (毫米/mm)  
容许纹波电流: 毫安/均方根值(mA/rms), 120 赫兹(Hz), 105°C

Dimension and Permissible Ripple Current

Dimension:  $\phi D \times L$ (mm)  
Ripple Current: mA/rms at 120 Hz, 105°C

| Rated Volt.<br>(V) | Capacitance<br>( $\mu$ F) | Size<br>$\phi D \times L$ (mm) | $\tan\delta$<br>(120Hz, 20°C) | L C<br>( $\mu$ A) | ESR<br>(m $\Omega$ /at 100k Hz,20°C max.) | Rated R. C.<br>(mA/rms at 100k Hz, 105°C) |
|--------------------|---------------------------|--------------------------------|-------------------------------|-------------------|-------------------------------------------|-------------------------------------------|
| 6.3V               | 180                       | 5X7                            | 0.08                          | 300               | 21                                        | 1800                                      |
|                    | 220                       | 5X7                            | 0.08                          | 300               | 18                                        | 2690                                      |
|                    |                           | 6.3*5.5                        | 0.08                          | 300               | 25                                        | 2690                                      |
|                    | 270                       | 5X7                            | 0.08                          | 340               | 21                                        | 2690                                      |
|                    |                           | 6.3*5.5                        | 0.08                          | 340               | 22                                        | 2690                                      |
|                    | 330                       | 5X8                            | 0.08                          | 416               | 16                                        | 2690                                      |
|                    |                           | 6.3X5.5                        | 0.08                          | 416               | 22                                        | 2690                                      |
|                    | 390                       | 5X9                            | 0.08                          | 491               | 16                                        | 2690                                      |
|                    | 470                       | 5X9                            | 0.08                          | 592               | 16                                        | 2690                                      |
|                    |                           | 6.3X7                          | 0.08                          | 592               | 16                                        | 4100                                      |
|                    | 500                       | 5.5X7                          | 0.08                          | 630               | 16                                        | 3650                                      |
|                    | 560                       | 5X11.5                         | 0.08                          | 706               | 16                                        | 3500                                      |
|                    |                           | 5.5X9                          | 0.08                          | 706               | 16                                        | 4100                                      |
|                    |                           | 6.3X7                          | 0.08                          | 706               | 16                                        | 3950                                      |
|                    |                           | 6.3X8                          | 0.08                          | 706               | 16                                        | 4100                                      |
|                    | 680                       | 5.5X9                          | 0.08                          | 857               | 14                                        | 4150                                      |
|                    |                           | 6.3X8                          | 0.08                          | 857               | 16                                        | 4500                                      |
|                    |                           | 8X8                            | 0.08                          | 857               | 14                                        | 4500                                      |
|                    | 820                       | 5.5X11.5                       | 0.10                          | 1033              | 16                                        | 4250                                      |
|                    |                           | 6.3X8                          | 0.10                          | 1033              | 16                                        | 4300                                      |
|                    |                           | 6.3X9                          | 0.10                          | 1033              | 16                                        | 4500                                      |
|                    |                           | 8X8                            | 0.10                          | 1033              | 14                                        | 4500                                      |
|                    | 1000                      | 6.3X10.5                       | 0.10                          | 1260              | 14                                        | 4500                                      |
|                    |                           | 6.3X11.5                       | 0.10                          | 1260              | 14                                        | 4650                                      |
|                    |                           | 8X8                            | 0.10                          | 1260              | 14                                        | 4500                                      |
|                    |                           | 8X11.5                         | 0.10                          | 1260              | 14                                        | 4700                                      |
|                    | 1500                      | 6.3X11.5                       | 0.10                          | 1890              | 14                                        | 4650                                      |
|                    |                           | 8X11.5                         | 0.10                          | 1890              | 14                                        | 4800                                      |
|                    |                           | 10X12                          | 0.10                          | 1890              | 14                                        | 4900                                      |
|                    | 1800                      | 8X16                           | 0.10                          | 2268              | 14                                        | 4900                                      |
|                    | 2200                      | 8X16                           | 0.10                          | 2772              | 14                                        | 4900                                      |
|                    |                           | 10X12                          | 0.10                          | 2772              | 14                                        | 4900                                      |
|                    | 3300                      | 8X16                           | 0.10                          | 4158              | 14                                        | 5100                                      |
|                    |                           | 10X12                          | 0.10                          | 2640              | 14                                        | 5100                                      |
|                    | 4700                      | 10X16                          | 0.10                          | 3760              | 14                                        | 5350                                      |
|                    | 5600                      | 10X16                          | 0.10                          | 4480              | 14                                        | 5500                                      |

制品尺寸与容许纹波电流一览表

尺寸: 直径( $\phi D$ ) $\times$ 长度(L), (毫米/mm)  
容许纹波电流: 毫安/均方根值(mA/rms), 120 赫兹(Hz), 105°C

Dimension and Permissible Ripple Current

Dimension:  $\phi D \times L$ (mm)  
Ripple Current: mA/rms at 120 Hz, 105°C

| Rated Volt.<br>(V) | Capacitance<br>( $\mu$ F) | Size<br>$\phi D \times L$ (mm) | $\tan \delta$<br>(120Hz, 20°C) | L C<br>( $\mu$ A) | ESR<br>(m $\Omega$ /at 100k Hz,20°C max.) | Rated R. C.<br>(mA/rms at 100k Hz, 105°C) |
|--------------------|---------------------------|--------------------------------|--------------------------------|-------------------|-------------------------------------------|-------------------------------------------|
| 7.5V               | 220                       | 6.3X 5.5                       | 0.08                           | 330               | 28                                        | 2690                                      |
|                    | 330                       | 5X11.5                         | 0.08                           | 495               | 18                                        | 3100                                      |
|                    | 470                       | 6.3X 7                         | 0.08                           | 705               | 16                                        | 3350                                      |
|                    | 500                       | 5X11.5                         | 0.08                           | 750               | 14                                        | 3500                                      |
|                    |                           | 5.5X9                          | 0.08                           | 750               | 14                                        | 3500                                      |
|                    |                           | 6.3X8                          | 0.08                           | 750               | 14                                        | 3650                                      |
|                    | 560                       | 6.3X8                          | 0.08                           | 840               | 14                                        | 3800                                      |
|                    |                           | 8X8                            | 0.08                           | 840               | 14                                        | 4100                                      |
|                    | 680                       | 6.3X9                          | 0.10                           | 1020              | 14                                        | 4350                                      |
|                    |                           | 8X8                            | 0.10                           | 1020              | 14                                        | 4350                                      |
|                    | 820                       | 6.3X11.5                       | 0.10                           | 1230              | 14                                        | 4500                                      |
|                    |                           | 8X8                            | 0.10                           | 1230              | 14                                        | 4500                                      |
|                    | 1000                      | 6.3X11.5                       | 0.10                           | 1500              | 14                                        | 4500                                      |
|                    |                           | 8X11.5                         | 0.10                           | 1500              | 14                                        | 4650                                      |
|                    | 1200                      | 8X11.5                         | 0.10                           | 1800              | 14                                        | 4700                                      |
|                    | 1500                      | 6.3X15                         | 0.10                           | 2250              | 14                                        | 4750                                      |
|                    |                           | 8X11.5                         | 0.10                           | 2250              | 14                                        | 4900                                      |
|                    | 2200                      | 8X16                           | 0.10                           | 3300              | 14                                        | 5100                                      |
|                    |                           | 10X12                          | 0.10                           | 3300              | 14                                        | 5100                                      |
|                    | 3300                      | 10X1 3.5                       | 0.10                           | 4950              | 14                                        | 5250                                      |
|                    |                           | 10X 16                         | 0.10                           | 4950              | 14                                        | 5400                                      |
|                    | 4700                      | 10X16                          | 0.10                           | 7050              | 14                                        | 5500                                      |
| 10V                | 100                       | 5X7                            | 0.08                           | 300               | 28                                        | 2350                                      |
|                    |                           | 6.3X5.5                        | 0.08                           | 300               | 38                                        | 2250                                      |
|                    | 220                       | 5X8                            | 0.08                           | 440               | 16                                        | 2690                                      |
|                    |                           | 6.3X7                          | 0.08                           | 440               | 16                                        | 2950                                      |
|                    |                           | 6.3X8                          | 0.08                           | 440               | 16                                        | 3100                                      |
|                    | 330                       | 6.3X8                          | 0.08                           | 660               | 16                                        | 3300                                      |
|                    | 470                       | 5X11.5                         | 0.08                           | 940               | 16                                        | 3400                                      |
|                    |                           | 6.3X8                          | 0.08                           | 940               | 14                                        | 3500                                      |
|                    |                           | 8X8                            | 0.08                           | 940               | 14                                        | 3650                                      |
|                    | 560                       | 6.3X9                          | 0.08                           | 1120              | 14                                        | 3700                                      |
|                    |                           | 8X8                            | 0.08                           | 1120              | 14                                        | 4100                                      |
|                    | 680                       | 6.3X11.5                       | 0.10                           | 1360              | 14                                        | 4200                                      |
|                    |                           | 8X11.5                         | 0.10                           | 1360              | 14                                        | 4500                                      |
|                    | 820                       | 6.3X11.5                       | 0.10                           | 1640              | 14                                        | 4650                                      |
|                    |                           | 8X11.5                         | 0.10                           | 1640              | 14                                        | 4700                                      |
|                    | 1000                      | 8X11.5                         | 0.10                           | 2000              | 14                                        | 4850                                      |
|                    | 1500                      | 10X12                          | 0.10                           | 3000              | 14                                        | 4900                                      |
|                    | 2200                      | 10X12                          | 0.10                           | 4400              | 10                                        | 5300                                      |
|                    | 3300                      | 10X16                          | 0.10                           | 6600              | 10                                        | 5650                                      |

制品尺寸与容许纹波电流一览表

尺寸: 直径( $\phi D$ ) $\times$ 长度(L), (毫米/mm)  
容许纹波电流: 毫安/均方根值(mA/rms), 120 赫兹(Hz), 105°C

Dimension and Permissible Ripple Current

Dimension:  $\phi D \times L$ (mm)  
Ripple Current: mA/rms at 120 Hz, 105°C

| Rated Volt.<br>(V) | Capacitance<br>( $\mu$ F) | Size<br>$\phi D \times L$ (mm) | $\tan\delta$<br>(120Hz, 20°C) | L C<br>( $\mu$ A) | ESR<br>(m $\Omega$ /at 100k Hz,20°C max.) | Rated R. C.<br>(mA/rms at 100k Hz, 105°C) |
|--------------------|---------------------------|--------------------------------|-------------------------------|-------------------|-------------------------------------------|-------------------------------------------|
| 12V                | 330                       | 5X9                            | 0.10                          | 792               | 18                                        | 2900                                      |
|                    | 330                       | 5.5X9                          | 0.10                          | 792               | 16                                        | 3500                                      |
|                    | 470                       | 6.3X 8                         | 0.10                          | 1128              | 16                                        | 3650                                      |
|                    | 560                       | 6.3X11.5                       | 0.10                          | 1344              | 14                                        | 3800                                      |
|                    | 680                       | 6.3X11.5                       | 0.10                          | 1632              | 14                                        | 3900                                      |
|                    | 820                       | 8X11.5                         | 0.10                          | 1968              | 14                                        | 4000                                      |
|                    | 1000                      | 8X11.5                         | 0.10                          | 2400              | 14                                        | 4200                                      |
|                    | 1500                      | 8X16                           | 0.10                          | 3600              | 12                                        | 4500                                      |
|                    | 2200                      | 10X13.5                        | 0.10                          | 5280              | 12                                        | 4900                                      |
|                    | 3300                      | 10X 16                         | 0.10                          | 7920              | 12                                        | 5400                                      |
| 16V                | 22                        | 5X7                            | 0.12                          | 300               | 45                                        | 1650                                      |
|                    | 47                        | 5X7                            | 0.12                          | 300               | 38                                        | 1950                                      |
|                    | 100                       | 5X7                            | 0.12                          | 320               | 25                                        | 2250                                      |
|                    |                           | 6.3X5.5                        | 0.12                          | 320               | 38                                        | 1950                                      |
|                    |                           | 6.3X7                          | 0.12                          | 320               | 22                                        | 2350                                      |
|                    |                           | 6.3X8                          | 0.12                          | 320               | 22                                        | 2600                                      |
|                    | 180                       | 5X8                            | 0.12                          | 576               | 20                                        | 2690                                      |
|                    |                           | 6.3X7                          | 0.12                          | 576               | 20                                        | 2800                                      |
|                    | 220                       | 5X9                            | 0.12                          | 704               | 20                                        | 2850                                      |
|                    |                           | 6.3X7                          | 0.12                          | 704               | 18                                        | 2900                                      |
|                    |                           | 6.3X8                          | 0.12                          | 704               | 16                                        | 3000                                      |
|                    | 270                       | 5X11.5                         | 0.12                          | 864               | 16                                        | 3100                                      |
|                    |                           | 6.3X8                          | 0.12                          | 864               | 16                                        | 3200                                      |
|                    | 330                       | 5X11.5                         | 0.12                          | 1056              | 16                                        | 3200                                      |
|                    |                           | 5.5X11.5                       | 0.12                          | 1056              | 18                                        | 3100                                      |
|                    |                           | 6.3X7                          | 0.12                          | 1056              | 18                                        | 3100                                      |
|                    |                           | 6.3X9                          | 0.12                          | 1056              | 16                                        | 3300                                      |
|                    |                           | 8X8                            | 0.12                          | 1056              | 14                                        | 3700                                      |
|                    |                           | 8X11.5                         | 0.12                          | 1056              | 14                                        | 3900                                      |
|                    | 470                       | 5.5X11.5                       | 0.12                          | 1504              | 16                                        | 3500                                      |
|                    |                           | 6.3X9                          | 0.12                          | 1504              | 16                                        | 3500                                      |
|                    |                           | 6.3X10.5                       | 0.12                          | 1504              | 16                                        | 3500                                      |
|                    |                           | 6.3X11.5                       | 0.12                          | 1504              | 14                                        | 3650                                      |
|                    |                           | 8X8                            | 0.12                          | 1504              | 14                                        | 3800                                      |
|                    |                           | 8X11.5                         | 0.12                          | 1504              | 14                                        | 4100                                      |
|                    |                           | 10X12                          | 0.12                          | 1504              | 14                                        | 4500                                      |
|                    | 560                       | 5.5X11.5                       | 0.12                          | 1792              | 16                                        | 3600                                      |
|                    |                           | 6.3X11.5                       | 0.12                          | 1792              | 14                                        | 3800                                      |
|                    |                           | 8X8                            | 0.12                          | 1792              | 14                                        | 3950                                      |
|                    |                           | 8X11.5                         | 0.12                          | 1792              | 14                                        | 4200                                      |
|                    |                           | 10X12                          | 0.12                          | 1792              | 10                                        | 4600                                      |
|                    | 680                       | 6.3X11.5                       | 0.12                          | 2176              | 16                                        | 4150                                      |
|                    |                           | 6.3X15                         | 0.12                          | 2176              | 14                                        | 4500                                      |
|                    |                           | 8X11.5                         | 0.12                          | 2176              | 12                                        | 4500                                      |

制品尺寸与容许纹波电流一览表

尺寸: 直径( $\phi D$ ) $\times$ 长度(L), (毫米/mm)  
容许纹波电流: 毫安/均方根值(mA/rms), 120 赫兹(Hz), 105°C

Dimension and Permissible Ripple Current

Dimension:  $\phi D \times L$ (mm)  
Ripple Current: mA/rms at 120 Hz, 105°C

| Rated Volt.<br>(V) | Capacitance<br>( $\mu$ F) | Size<br>$\phi D \times L$ (mm) | $\tan \delta$<br>(120Hz, 20°C) | L C<br>( $\mu$ A) | ESR<br>(m $\Omega$ /at 100k Hz, 20°C max.) | Rated R. C.<br>(mA/rms at 100k Hz, 105°C) |
|--------------------|---------------------------|--------------------------------|--------------------------------|-------------------|--------------------------------------------|-------------------------------------------|
| 16V                | 680                       | 10X12                          | 0.12                           | 2176              | 12                                         | 4900                                      |
|                    | 820                       | 6.3X11.5                       | 0.12                           | 2624              | 14                                         | 4500                                      |
|                    |                           | 6.3X 15                        | 0.12                           | 2624              | 14                                         | 4700                                      |
|                    |                           | 8X11.5                         | 0.12                           | 2624              | 12                                         | 4750                                      |
|                    |                           | 10X12                          | 0.12                           | 2624              | 12                                         | 4900                                      |
|                    |                           | 10X12                          | 0.12                           | 2624              | 12                                         | 4900                                      |
|                    | 1000                      | 8X11.5                         | 0.12                           | 3200              | 14                                         | 4800                                      |
|                    |                           | 8X13.5                         | 0.12                           | 3200              | 14                                         | 4900                                      |
|                    |                           | 8X16                           | 0.12                           | 3200              | 12                                         | 5100                                      |
|                    |                           | 10X12                          | 0.12                           | 3200              | 12                                         | 5100                                      |
|                    | 1200                      | 8X16                           | 0.12                           | 3840              | 12                                         | 5250                                      |
|                    |                           | 10X12                          | 0.12                           | 3840              | 12                                         | 5250                                      |
|                    | 1500                      | 8X16                           | 0.12                           | 4800              | 12                                         | 5300                                      |
|                    |                           | 10X12                          | 0.12                           | 4800              | 12                                         | 5300                                      |
|                    |                           | 10X16                          | 0.12                           | 4800              | 12                                         | 5500                                      |
|                    | 2200                      | 10X16                          | 0.12                           | 7040              | 12                                         | 5800                                      |
|                    | 3300                      | 10X 16                         | 0.12                           | 10560             | 18                                         | 6100                                      |
| 20V                | 100                       | 5X7                            | 0.12                           | 400               | 28                                         | 2450                                      |
|                    | 220                       | 6.3X8                          | 0.12                           | 880               | 25                                         | 2800                                      |
|                    | 330                       | 6.3X 9                         | 0.12                           | 1320              | 25                                         | 3100                                      |
|                    | 470                       | 6.3X11.5                       | 0.12                           | 1880              | 25                                         | 3250                                      |
|                    | 560                       | 6.3X15                         | 0.12                           | 2240              | 22                                         | 3500                                      |
|                    |                           | 8X11.5                         | 0.12                           | 2240              | 20                                         | 3500                                      |
|                    | 680                       | 6.3X15                         | 0.12                           | 2720              | 22                                         | 3650                                      |
|                    |                           | 8X11.5                         | 0.12                           | 2720              | 20                                         | 3650                                      |
|                    | 820                       | 8X13.5                         | 0.12                           | 3280              | 20                                         | 3900                                      |
|                    |                           | 10X12                          | 0.12                           | 3280              | 20                                         | 3900                                      |
|                    | 1000                      | 8X 16                          | 0.12                           | 4000              | 20                                         | 4200                                      |
|                    |                           | 10X12                          | 0.12                           | 4000              | 20                                         | 4200                                      |
|                    | 1500                      | 10X13.5                        | 0.12                           | 6000              | 20                                         | 4500                                      |
|                    |                           | 10X16                          | 0.12                           | 6000              | 20                                         | 4700                                      |
|                    | 2200                      | 10X16                          | 0.10                           | 8800              | 20                                         | 4900                                      |

制品尺寸与容许纹波电流一览表

尺寸: 直径( $\phi D$ ) $\times$ 长度(L), (毫米/mm)  
容许纹波电流: 毫安/均方根值(mA/rms), 120 赫兹(Hz), 105°C

Dimension and Permissible Ripple Current

Dimension:  $\phi D \times L$ (mm)  
Ripple Current: mA/rms at 120 Hz, 105°C

| Rated Volt.<br>(V) | Capacitance<br>( $\mu$ F) | Size<br>$\phi D \times L$ (mm) | $\tan\delta$<br>(120Hz, 20°C) | L C<br>( $\mu$ A) | ESR<br>(m $\Omega$ /at 100k Hz,20°C max.) | Rated R. C.<br>(mA/rms at 100k Hz, 105°C) |
|--------------------|---------------------------|--------------------------------|-------------------------------|-------------------|-------------------------------------------|-------------------------------------------|
| 25V                | 10                        | 5X8                            | 0.12                          | 300               | 85                                        | 1950                                      |
|                    | 22                        | 5X7                            | 0.12                          | 300               | 68                                        | 2000                                      |
|                    | 33                        | 6.3X 5.5                       | 0.12                          | 300               | 58                                        | 2100                                      |
|                    | 47                        | 5X8                            | 0.12                          | 300               | 45                                        | 2250                                      |
|                    |                           | 6.3X5.5                        | 0.12                          | 300               | 48                                        | 2200                                      |
|                    |                           | 6.3X7                          | 0.12                          | 300               | 45                                        | 2350                                      |
|                    | 56                        | 5X8                            | 0.12                          | 300               | 45                                        | 2350                                      |
|                    | 82                        | 6.3X7                          | 0.12                          | 410               | 45                                        | 2550                                      |
|                    | 100                       | 5X7                            | 0.12                          | 500               | 48                                        | 2150                                      |
|                    |                           | 5X8                            | 0.12                          | 500               | 38                                        | 2450                                      |
|                    |                           | 5X9                            | 0.12                          | 500               | 38                                        | 2700                                      |
|                    |                           | 5X11.5                         | 0.12                          | 500               | 38                                        | 2900                                      |
|                    |                           | 6.3X5.5                        | 0.12                          | 500               | 48                                        | 2450                                      |
|                    |                           | 6.3X7                          | 0.12                          | 500               | 45                                        | 2750                                      |
|                    |                           | 6.3X8                          | 0.12                          | 500               | 32                                        | 2900                                      |
|                    |                           | 8X8                            | 0.12                          | 500               | 20                                        | 3500                                      |
|                    |                           | 8X11.5                         | 0.12                          | 500               | 20                                        | 3750                                      |
|                    | 120                       | 5X9                            | 0.12                          | 600               | 38                                        | 2850                                      |
|                    |                           | 6.3X8                          | 0.12                          | 600               | 32                                        | 3050                                      |
|                    | 150                       | 5X9                            | 0.12                          | 780               | 35                                        | 2950                                      |
|                    |                           | 5.5X9                          | 0.12                          | 780               | 35                                        | 3250                                      |
|                    |                           | 6.3X7                          | 0.12                          | 780               | 32                                        | 3200                                      |
|                    | 180                       | 5X9                            | 0.12                          | 900               | 35                                        | 3100                                      |
|                    |                           | 6.3X7                          | 0.12                          | 900               | 32                                        | 3300                                      |
|                    |                           | 8X8                            | 0.12                          | 900               | 20                                        | 3900                                      |
|                    | 220                       | 5X11.5                         | 0.12                          | 1100              | 35                                        | 3100                                      |
|                    |                           | 5.5X9                          | 0.12                          | 1100              | 35                                        | 3200                                      |
|                    |                           | 5.5X11.5                       | 0.12                          | 1100              | 35                                        | 3550                                      |
|                    |                           | 6.3X7                          | 0.12                          | 1100              | 35                                        | 3350                                      |
|                    |                           | 6.3X8                          | 0.12                          | 1100              | 35                                        | 3500                                      |
|                    |                           | 6.3X9                          | 0.12                          | 1100              | 32                                        | 3700                                      |
|                    |                           | 8X10.5                         | 0.12                          | 1100              | 20                                        | 4100                                      |
|                    |                           | 8X11.5                         | 0.12                          | 1100              | 20                                        | 4300                                      |
|                    | 270                       | 5X11.5                         | 0.12                          | 1350              | 35                                        | 3250                                      |
|                    |                           | 5.5X9                          | 0.12                          | 1350              | 35                                        | 3250                                      |
|                    |                           | 6.3X9                          | 0.12                          | 1350              | 32                                        | 3800                                      |
|                    | 330                       | 5X15                           | 0.12                          | 1650              | 35                                        | 3350                                      |
|                    |                           | 5.5X11.5                       | 0.12                          | 1650              | 35                                        | 3650                                      |
|                    |                           | 6.3X9                          | 0.12                          | 1650              | 35                                        | 3750                                      |
|                    |                           | 6.3X11.5                       | 0.12                          | 1650              | 35                                        | 3800                                      |
|                    |                           | 8X8                            | 0.12                          | 1650              | 28                                        | 4250                                      |

Dimension and Permissible Ripple Current

Dimension:  $\phi D \times L$ (mm)  
Ripple Current: mA/rms at 120 Hz, 105°C

| Rated Volt.<br>(V) | Capacitance<br>( $\mu$ F) | Size<br>$\phi D \times L$ (mm) | $\tan\delta$<br>(120Hz, 20°C) | L C<br>( $\mu$ A) | ESR<br>(m $\Omega$ /at 100k Hz,20°C max.) | Rated R. C.<br>(mA/rms at 100k Hz, 105°C) |
|--------------------|---------------------------|--------------------------------|-------------------------------|-------------------|-------------------------------------------|-------------------------------------------|
| 25V                | 330                       | 8X11.5                         | 0.12                          | 1650              | 28                                        | 4500                                      |
|                    |                           | 10X12                          | 0.12                          | 1650              | 20                                        | 4900                                      |
|                    | 470                       | 5.5X15                         | 0.12                          | 2350              | 35                                        | 3750                                      |
|                    |                           | 6.3X11.5                       | 0.12                          | 2350              | 35                                        | 3900                                      |
|                    |                           | 6.3X 15                        | 0.12                          | 2350              | 35                                        | 4100                                      |
|                    |                           | 8X8                            | 0.12                          | 2350              | 28                                        | 4250                                      |
|                    |                           | 8X11.5                         | 0.12                          | 2350              | 28                                        | 4750                                      |
|                    |                           | 8X16                           | 0.12                          | 2350              | 20                                        | 4900                                      |
|                    |                           | 10X12                          | 0.12                          | 2350              | 20                                        | 4900                                      |
|                    | 560                       | 5.5X15                         | 0.12                          | 2800              | 35                                        | 3850                                      |
|                    |                           | 6.3X15                         | 0.12                          | 2800              | 35                                        | 4300                                      |
|                    |                           | 8X11.5                         | 0.12                          | 2800              | 28                                        | 5100                                      |
|                    | 680                       | 6.3X15                         | 0.12                          | 3400              | 35                                        | 4500                                      |
|                    |                           | 8X11.5                         | 0.12                          | 3400              | 28                                        | 5100                                      |
|                    |                           | 8X16                           | 0.12                          | 3400              | 20                                        | 5250                                      |
|                    |                           | 10X12                          | 0.12                          | 3400              | 20                                        | 5250                                      |
|                    | 820                       | 6.3X15                         | 0.12                          | 4100              | 35                                        | 4700                                      |
|                    |                           | 8X13.5                         | 0.12                          | 4100              | 28                                        | 5400                                      |
|                    |                           | 8X16                           | 0.12                          | 4100              | 20                                        | 5500                                      |
|                    |                           | 10X12                          | 0.12                          | 4100              | 20                                        | 5500                                      |
|                    | 1000                      | 8X16                           | 0.12                          | 5000              | 20                                        | 5650                                      |
|                    |                           | 10X12                          | 0.12                          | 5000              | 20                                        | 5650                                      |
|                    |                           | 10X16                          | 0.12                          | 5000              | 20                                        | 5700                                      |
|                    | 1200                      | 10X 16                         | 0.12                          | 6000              | 20                                        | 5800                                      |
|                    | 1500                      | 10X16                          | 0.12                          | 7500              | 20                                        | 5900                                      |
|                    | 2200                      | 10X16                          | 0.12                          | 11000             | 20                                        | 6100                                      |

制品尺寸与容许纹波电流一览表

尺寸：直径( $\phi D$ ) $\times$ 长度(L)，(毫米/mm)  
容许纹波电流：毫安/均方根值(mA/rms)，120 赫兹(Hz), 105°C

◆ 高低温阻抗

| 阻抗比               | 性能           |
|-------------------|--------------|
| Z(-55°C)/Z(+20°C) | 0.75 to 1.25 |
| Z(105°C)/Z(+20°C) | 0.75 to 1.25 |