

TPF Series Low ESR · High Capacitance Products

Feature

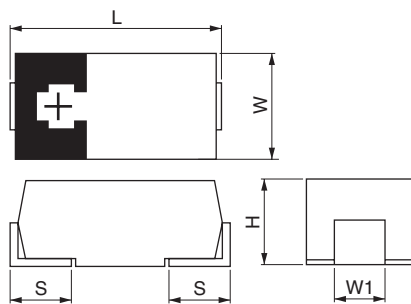
TPF series has low ESR and high capacitance at standard form.



Specifications

| Items | Condition | Characteristics | | |
|------------------------------------------------|---------------------------------------------------------------------|----------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------|
| Operating Temperature range | — | -55 to +105 (°C) | | |
| Rated capacitance range | 120Hz/20°C | 150 to 680 (μF) | | |
| Capacitance tolerance | 120Hz/20°C | M:±20% | | |
| Rated voltage | — | 2.0 to 10.0 (V.DC) | | |
| Dissipation Factor (D.F.) | 120Hz/20°C | 10.0 (%) | | |
| Leakage current | Rated voltage applied, after 5 minutes | Please see the attached characteristics list | | |
| Equivalent series resistance (E.S.R. mΩmax.) | 100kHz/20°C | Please see the attached characteristics list | | |
| Temperature characteristics of Impedance ratio | 100kHz/+20°C | -55°C | Z/Z _{20°C} | 1.0 to 2.0 |
| | | +105°C | Z/Z _{20°C} | 0.6 to 1.0 |
| Endurance | 105°C, 2000h, rated voltage applied | ΔC/C | Within±20% of the initial value | |
| | | D.F. | ≤ 1.5 times the initial limit | |
| | | L.C. | ≤ The initial limit | |
| Damp heat (Steady state) | 60°C, 90 to 95%RH, 500h, No voltage applied | ΔC/C | Within+50%, -20% of the initial value (D2E size) Within+40%, -20% of the initial value (Except for the above model) | |
| | | D.F. | ≤ 1.5 times the initial limit | |
| | | L.C. | ≤ 3 times the initial limit | |
| Surge | 105°C, 1000 cycles, 1kΩ discharge resistance, surge voltage applied | ΔC/C | Within±5% of the initial value | |
| | | D.F. | ≤ The initial limit | |
| | | L.C. | ≤ 3 times the initial limit | |

Dimensions



(unit: mm)

| Size code | L (±0.3) | W (±0.2) | H*1 (±0.1) | S (±0.1) | W1 (±0.1) |
|-----------|----------|----------|------------|----------|-----------|
| D3L | 7.3 | 4.3 | 2.8 | 1.3 | 2.4 |
| D2E | 7.3 | 4.3 | 1.8 | 1.3 | 2.4 |

Size List

*1 ±0.1; D2E

| μF | RV (SV) | 2.0 (2.6) | 2.5 (3.2) | 4.0 (5.0) | 6.3 (8.0) | 10.0 (13.0) |
|-----|---------|-----------|-----------|-----------|-----------|-------------|
| 150 | | | | | | D3L |
| 220 | | D2E | | | D3L | |
| 330 | | D2E | D3L | D3L | D3L | |
| 470 | | D2E | D3L | D3L | | |
| 680 | | | D3L | | | |

Characteristics List

| Size code | SANYO Part number | Rated Voltage (V) | Rated Temperature (°C) | Rated Capacitance (μF) | Category Voltage (V) | Category Temperature (°C) | D.F. (%max.) | L.C. (μA) max./5min. | E.S.R. (mΩmax.) 100kHz/20°C | Maximum allowable ripple current (mA _{rms}) 100kHz ^{*1} | MSL | |
|-----------|-------------------|-------------------|------------------------|------------------------|----------------------|---------------------------|--------------|----------------------|-----------------------------|----------------------------------------------------------------------------|----------------------|----------------------|
| | | | | | | | | | | | Reflow Temp. ≤ 260°C | Reflow Temp. ≤ 250°C |
| D3L | 10TPF150ML | 10.0 | 105 | 150 | 10.0 | 105 | 10.0 | 150.0 | 15 | 3600 | 3 | 2a |
| | 6TPF330M9L | 6.3 | 105 | 330 | 6.3 | 105 | 10.0 | 207.9 | 9 | 3900 | | |
| | 6TPF220ML | 6.3 | 105 | 220 | 6.3 | 105 | 10.0 | 138.6 | 12 | 4000 | | |
| | 4TPF470ML | 4.0 | 105 | 470 | 4.0 | 105 | 10.0 | 188.0 | 10 | 4400 | | |
| | 4TPF330ML | 4.0 | 105 | 330 | 4.0 | 105 | 10.0 | 132.0 | 12 | 4000 | | |
| | 2R5TPF680ML | 2.5 | 105 | 680 | 2.5 | 105 | 10.0 | 170.0 | 10 | 4400 | | |
| | 2R5TPF680M7L | 2.5 | 105 | 680 | 2.5 | 105 | 10.0 | 170.0 | 7 | 4400 | | |
| | 2R5TPF680M6L | 2.5 | 105 | 680 | 2.5 | 105 | 10.0 | 170.0 | 6 | 4400 | | |
| | 2R5TPF470ML | 2.5 | 105 | 470 | 2.5 | 105 | 10.0 | 117.5 | 10 | 4400 | | |
| | 2R5TPF470M7L | 2.5 | 105 | 470 | 2.5 | 105 | 10.0 | 117.5 | 7 | 4400 | | |
| D2E | 2TPF470M6 | 2.0 | 105 | 470 | 2.0 | 105 | 10.0 | 188.0 | 6 | 4400 | (*2) | |
| | 2TPF330M6 | 2.0 | 105 | 330 | 2.0 | 105 | 10.0 | 132.0 | 6 | 4400 | | |
| | 2TPF220M6 | 2.0 | 105 | 220 | 2.0 | 105 | 10.0 | 188.0 | 6 | 4400 | | |
| | | | | | | | | | | | | |

*1 100k to 500kHz, 45°C *2 Under evaluation