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# Product Spotlight
# Wurth Electronics Aluminum Polymer Capacitors

## Aluminum Polymer Capacitors

Wurth Electronics Aluminum Polymer Capacitors contain solid conductive polymer instead of wet electrolytic. The Aluminum Polymer Capacitors offer the following benefits in comparison to Aluminum Electrolytic Capacitors:

- Lower ESR
- Higher acceptable ripple current due to lower ESR
- Higher long term stability / expected life
- No dry out phenomenon due to solid conductive polymer

## WCAP-PTG5: General Purpose, +105°C, Radial THT

**Characteristics**

- Available in 6.3 V, 16 V, 25 V
- Recommended soldering: Wave
- Operating temperature: -55°C to +105°C
- Capacitance tolerance: ±20%
- Low ESR at high frequency range
- High permissible ripple current
- Load life: 2000 h at +105°C

## WCAP-PTHR: High Reliability, +105°C, Radial THT

**Characteristics**

- Available in 35 V, 50 V, 63 V, 80 V, 100 V
- Recommended soldering: Wave
- Operating temperature: -55°C to +105°C
- Capacitance tolerance: ±20%
- High reliability series
- Low ESR at high frequency range
- High permissible ripple current
- Load life: 2000 h at +105°C

## WCAP-PTHT: High Temperature, +125°C, Radial THT

**Characteristics**

- Available in 6.3 V, 16 V, 35 V, 50 V

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- Recommended soldering: Wave
- Operating temperature: -55°C to +125°C
- Capacitance tolerance: ±20%
- +125°C product series
- Low ESR at high frequency range
- Load life: 2000 h at +125°C

## WCAP-PT5H: Long Life, 5000 h, +105°C, Radial THT

**Characteristics**

- Available in 6.3 V, 16 V, 35 V
- Recommended soldering: Wave
- Operating temperature: -55°C to +105°C
- Capacitance tolerance: ±20%
- Long life product series with 5000 h
- Low ESR at high frequency range
- Load life: 5000 h at +105°C

## WCAP-PSLC: Large Capacitance, +105°C, V-Chip SMT

**Characteristics**

- Available in 6.3 V, 16 V, 25 V, 35 V, 50 V, 63 V, 80 V, 100 V
- Recommended soldering: Reflow
- Operating temperature: -55°C to +105°C
- Capacitance tolerance: ±20%
- Large capacitance SMD product series
- Very low ESR at high frequency range
- High permissible ripple current
- Long life and high reliability
- Load life: 2000 h at +105°C

## WCAP-PSLP: Low Profile, +105°C, V-Chip SMT

**Characteristics**

- Available in 6.3 V, 10 V, 16 V, 20 V, 25 V, 35 V, 50 V, 63 V, 100 V
- Recommended soldering: Reflow
- Operating temperature: -55°C to +105°C
- Capacitance tolerance: ±20%
- Low profile SMD product series
- Low ESR at high frequency range
- High permissible ripple current
- Load life: 2000 h at +105°C

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## WCAP-PSHP: High Ripple Current, +105°C, V-Chip SMT

### Characteristics

- Available in 6.3 V, 10 V, 16 V, 20 V, 25 V, 50 V, 63 V, 80 V, 100 V
- Recommended soldering: Reflow
- Operating temperature: -55°C to +105°C
- Capacitance tolerance: ±20%
- Miniaturized product series
- Low ESR at high frequency range
- High permissible ripple current
- Load life: 2000-5000 h at +105°C

The expected life of a specific capacitor can be calculated based on the given load life, maximum temperature and temperature of the application.

### Aluminum Polymer Capacitors:

$$L_x = L_{Nom} * 10^{\frac{T_{max} - T_A}{20}}$$

| | | |
|---|---|---|
| $L_x$ | = | Expected life of component |
| $L_{Nom}$ | = | Load life of component |
| $T_{max}$ | = | Maximum allowed temperature of component |
| $T_A$ | = | Component ambient temperature within application |

### Examples of Expected Life Calculation:

| | Aluminum Polymer Capacitor | | Aluminum Electrolytic Capacitor | | | |
|---|---|---|---|---|---|---|
| Application Temperature (C°) | Expected Life (h) | | Expected Life (h) | | | |
| 125 | 2,000 | - | - | - | - | - |
| 115 | 6,325 | - | - | - | - | - |
| 105 | 20,000 | 2,000 | 5,000 | 2,000 | - | - |
| 95 | 63,246 | 6,325 | 10,000 | 4,000 | - | - |
| 85 | 200,000 | 20,000 | 20,000 | 8,000 | 5,000 | 2,000 |
| 75 | 630,455 | 63,246 | 40,000 | 16,000 | 10,000 | 4,000 |
| 65 | 2,000,000 | 200,000 | 80,000 | 32,000 | 20,000 | 8,000 |
| 55 | 6,324,555 | 632,455 | 160,000 | 64,000 | 40,000 | 16,000 |
| 45 | 20,000,000 | 2,000,000 | 320,000 | 128,000 | 80,000 | 32,000 |

The first line represents typical datasheet lifetime values as an example for load life with max. temperature for different capacitors.