

PEG 126 150°C

- 150°C
- Resistance to vibrations
- Low ESR
- High ripple capability

APPLICATION

PEG 126 is a high performance axial electrolytic capacitor. It is designed for automotive applications with high demands on resistance to vibrations and high ambient temperature.

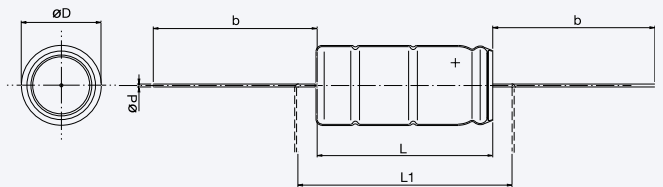
BASIC DESIGN

PEG126 is an electrolytic capacitor with outstanding electrical performance. Polarized, all-welded design, tinned copper wire leads, negative pole connected to the case, plastic insulation. The PEG 126 winding is housed in a cylindrical aluminium can with a high purity aluminium lid and a high quality

rubber gasket. Low ESR is a result of a low resistive electrolyte/paper system and an all-welded design. Thanks to its mechanical robustness the PEG 126 is suitable for use in mobile and aircraft installations, operation up to 150°C.

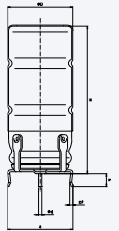
SPECIFICATION

| | |
|---------------------------------|---|
| Standards | IEC 384-4 Long Life Grade 40/125/56 |
| Capacitance range | 250-4000µF |
| Capacitance tolerance | -10 to +30% |
| Rated voltage | 25-63 VDC |
| Temperature range | -40 to +150°C |
| Operational life time | 8500 h at 125°C (Case Ø = 20 mm) 6500 h at 125°C (Case Ø = 16 mm) |
| Shelf life at | 5000 h at 0V+105°C, or 10 years at 0V +40°C |
| Diameter range | 16 – 20 mm |
| Resistance to vibrations | 10-2000 Hz, 1.5 mm displacement amplitude or max 20 g 3x2 hours The capacitors shall be clamped by their body. |
| Life test | 2000 h, 150°C (Case Ø = 20 mm) 1500 h, 150°C (Case Ø = 16 mm) |



On request
Can also be ordered with radial leads; PEH126.

Dimensions: See PEH124 on page 29



Dimensions table PEG 126 (mm)

| D x L | Case code | D ±0.5 | d ± 0.03 | L ±1 | L ₁ min | b+3/-2 Box | Weight approx (g) |
|---------|-----------|--------|----------|------|--------------------|------------|-------------------|
| 16 x 29 | F | 16 | 0.8 | 29.0 | 35.0 | 42 | 8 |
| 16 x 37 | G | 16 | 0.8 | 37.0 | 43.0 | 42 | 11 |
| 20 x 29 | H | 20 | 0.8 | 29.0 | 35.0 | 42 | 13 |
| 20 x 37 | J | 20 | 0.8 | 37.0 | 43.0 | 42 | 20 |
| 20 x 46 | L | 20 | 0.8 | 46.0 | 52.0 | 42 | 24 |

ARTICLE TABLE PEG 126 (150°C)

| C _R | D x L | I _{RAC} * 125°C 100 Hz | I _{RAC} * 105°C ≥5 kHz | I _{RAC} * 125°C ≥5kHz | I _{RAC} * 150°C ≥5kHz | ESR* 20°C 100Hz | ESR* 20°C 100kHz | L _{ESL} Approx | Article code |
|-------------------------------|---------|---------------------------------|---------------------------------|--------------------------------|--------------------------------|-----------------|------------------|-------------------------|---------------|
| µF | mm | A | A | A | A | mΩ | mΩ | nH | |
| 25 VDC (U_R) | | | | | | | | | |
| 680 | 16 x 29 | 1.4 | 6.9 | 4.1 | 1.6 | 120 | 43 | 10 | PEG126HF368EQ |
| 1000 | 16 x 37 | 1.7 | 8.8 | 5.2 | 2.0 | 80 | 28 | 12 | PEG126HG410EQ |
| 1500 | 16 x 37 | 2.1 | 9.2 | 5.4 | 2.1 | 63 | 26 | 12 | PEG126HG415EQ |
| 2200 | 20 x 29 | 2.5 | 9.4 | 5.5 | 2.1 | 51 | 25 | 12 | PEG126HH422EQ |
| 3300 | 20 x 37 | 3.2 | 11.7 | 6.9 | 2.6 | 34 | 17 | 15 | PEG126HJ433EQ |
| 4000 | 20 x 46 | 3.7 | 13.1 | 7.7 | 2.9 | 29 | 14 | 17 | PEG126HL440EM |

* Maximum specified values.

ARTICLE TABLE PEG 126 (150°C)

| C_R | D x L | I_{RAC}^* 125°C 100 Hz | I_{RAC}^* 105°C ≥5 kHz | I_{RAC}^* 125°C ≥5kHz | I_{RAC}^* 150°C ≥5kHz | ESR* 20°C 100Hz | ESR* 20°C 100kHz | L_{ESL} Approx | Article code |
|----------------------------------|---------|--------------------------------|--------------------------------|-------------------------------|-------------------------------|-----------------------|------------------------|---------------------|-----------------|
| μF | mm | A | A | A | A | mΩ | mΩ | nH | |
| 40 VDC (U_R) | | | | | | | | | |
| 470 | 16 x 29 | 1.1 | 5.9 | 3.5 | 1.3 | 150 | 45 | 10 | PEG126KF347EQ |
| 600 | 16 x 37 | 1.4 | 8.3 | 4.9 | 1.9 | 120 | 30 | 12 | PEG126KG360EQ |
| 1000 | 20 x 29 | 1.9 | 9.4 | 5.5 | 2.1 | 75 | 23 | 12 | PEG126KH410EQ |
| 1200 | 20 x 29 | 2.0 | 9.0 | 5.3 | 2.0 | 71 | 26 | 12 | PEG126KH412EQ |
| 1500 | 20 x 29 | 2.2 | 9.7 | 5.7 | 2.2 | 58 | 22 | 12 | PEG126KH415EQ |
| 2200 | 20 x 37 | 2.8 | 11.4 | 6.7 | 2.6 | 43 | 18 | 15 | PEG126KJ422EQ |
| 2700 | 20 x 46 | 3.1 | 12.1 | 7.1 | 2.7 | 37 | 17 | 17 | PEG126KL427EQ |
| 63 VDC (U_R) | | | | | | | | | |
| 250 | 16 x 29 | 0.9 | 5.3 | 3.1 | 1.2 | 240 | 53 | 10 | PEG126MF325EQ |
| 370 | 16 x 37 | 1.2 | 6.7 | 3.9 | 1.5 | 160 | 37 | 12 | PEG126MG337EQ |
| 470 | 20 x 29 | 1.4 | 7.3 | 4.3 | 1.6 | 130 | 32 | 12 | PEG126MH347EQ |
| 680 | 20 x 37 | 1.7 | 9.0 | 5.3 | 2.0 | 90 | 23 | 15 | PEG126MJ368EQ |
| 900 | 20 x 46 | 2.1 | 10.5 | 6.1 | 2.3 | 69 | 18 | 17 | PEG126ML390EQ |

* Maximum specified values.

INTERMITTENT RIPPLE CURRENT

During intermittent operation, the PEG 126-capacitors allows a significant increase of ripple current compared with specified values (I_{RAC} at continuous operation). Increased ripple current, with up to x1.95, is allowed at max 25% intermittence.

Example 1

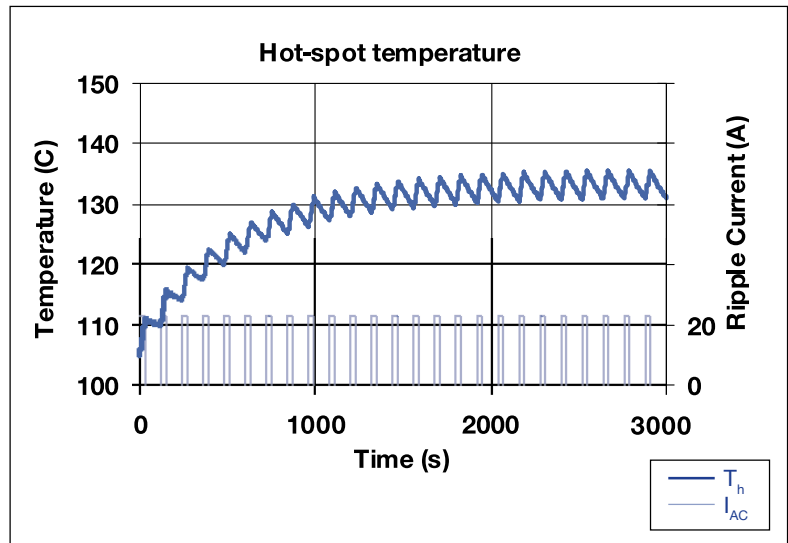
Article: PEG126KL427
 23A, 5kHz during 30 s, period time 120 s
 (90 s without ripple)
 Ambient temperature: 105°C

⇒ Hot-spot temperature during operation:
 Max 135°C (see diagram)
 $L_{OP} = 4700h$

Example 2

Article: PEG126KL427
 23A, 5kHz during 140 s, period time 17 minutes
 (14.7 minutes without ripple, per cycle)
 Ambient temperature: 105°C

⇒ Hot-spot temperature during operation:
 Max 135°C
 $L_{OP} = 4700h$



Operational life can be calculated for arbitrary intermittence.
 Please contact Customer Support.

OPERATIONAL LIFE AND RIPPLE CURRENT

OPERATIONAL LIFE (L_{op}), at ambient temperature T_a and ripple current I_{AC} .
 Diagram valid for Ø20- case size.
 Operational life, Ø16- case size: 0.75 x diagram value

Example:

Article: PEG126KJ422EQ (Ø20 x 37 mm)
 Ambient temperature (T_a): 85°C

Ripple current, at 10kHz (I_{AC}): 12 A

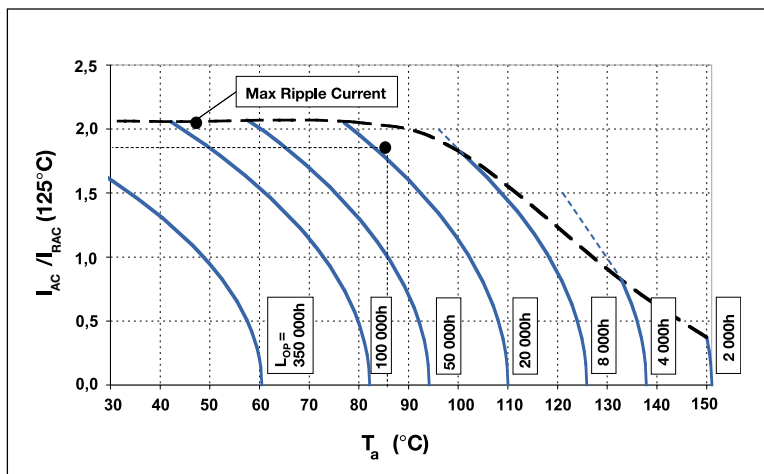
$I_{RAC}(125^\circ\text{C}, \geq 5\text{kHz}) = 6.7\text{A}$ (from data table)

$\Rightarrow I_{AC} / I_{RAC}(125^\circ\text{C}) = 12 / 6.7 = 1.8$

Operational life: Interpolation between the L_{op} -curves $\Rightarrow L_{op} \approx 18\text{kh}$ (blue curves)

When the capacitor load is at 100Hz,
 use $I_{AC} / I_{RAC}(125^\circ\text{C}, 100\text{Hz})$ as input value to the diagram (see data table). At other frequencies use $I_{AC} / I_{RAC}(125^\circ\text{C}, \geq 5\text{kHz}) \times 1/\text{Corr} =$

Frequency correction factor, for ripple current (Corr):



| | FREQUENCY | | | |
|--|-----------|-------|-------|---------|
| | 300 Hz | 1 kHz | 5 kHz | 100 kHz |
| Correction factor (Corr) (Typical value) | 0.57 | 0.80 | 1.00 | 1.04 |

CUSTOMER DESIGN

On request PEG126 can be designed in other capacitance values and case sizes.

RELIABILITY

Estimated field failure rate: < 2 PPM/year.
 The expected failure rate, for this capacitor range, is based on field experience for capacitors with structural similarity. This failure rate is valued during first year of operation. Expected failure rate thereafter: < 1 PPM/y. (Until end of specified operational life)

LEAKAGE CURRENT

Rated leakage current, I_{RL} (μA)
 Rated voltage, U_R (V)
 Rated capacitance, C_R (μF)
 $I_{RL} = 0.003 \times C_R \times U_R + 4$

ORDERING INFORMATION

For further ordering information please see page 8.

| | | | | | | | | | | | | | | | | | | | | |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----|----|----|----|----|--|
| P | E | G | 1 | 2 | 6 | K | F | 3 | 4 | 7 | E | Q | E | 1 | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | |

Capacitance tolerances:
 Pos. 13: Q: -10 to +30%
 M: -20 to +20%

E1: Packed in boxes

Quantities and weights

| CASE CODE | F | G | H | J | L |
|-----------------------|-----|-----|-----|-----|-----|
| Weight approx (g) | 8 | 11 | 13 | 20 | 24 |
| Standard box quantity | 150 | 100 | 150 | 125 | 100 |