PEG 127 150°C

RoHS Compliant

- **Temperature rating 150°C**
- **High ripple capability**

APPLICATION

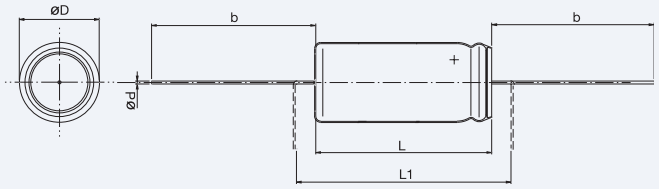
PEG 127 is a high performance axial electrolytic capacitor. It is designed for automotive applications with high demand on resistance to vibrations and high ambient temperature.

BASIC DESIGN

PEG127 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 127 winding is housed in a cylindrical aluminium can with a high purity aluminium lid and a high quality rubber gasket. High temperature capability also in small case sizes. 1600 h operational life at 150°C for all case sizes.

SPECIFICATION

Standards	IEC 60384-4 Long Life Grade 40/125/56 AEC-Q200
Capacitance range	33-1300 µF
Capacitance tolerance	–10 to +30%
Rated voltage	25 – 63 VDC
Temperature range	–40 to +150°C
Shelf life at	5000 h at 0V +105°C, or 10 years at 0V +40°C
Diameter range	10 – 13 mm
Resistance to vibrations	10 – 2000 Hz, 1.5 mm displacement amplitude or max. 20 g 3x22 hours The capacitors must be clamped by their body.
Life test	1600 h, 150°C



Dimensions table PEG 127 (mm)

D x L	Case code	D ±0.5	d ± 0.03	L ±1	L_1 min	b +3/-2 Box	Taped	Weight approx (g)
10 x 20	A	10	0.8	20.0	26.0	42	31	3
10 x 29	B	10	0.8	29.0	35.0	42	27	4
13 x 20	C	13	0.8	20.0	26.0	42	31	4
13 x 29	D	13	0.8	29.0	35.0	42	27	6
13 x 37	E	13	0.8	37.0	43.0	42	24	7

ARTICLE TABLE PEG 127 (150°C)

C_R µF	D x L mm	I_{RAC}* 100°C ≥5 kHz A	I_{RAC}* 125°C ≥5 kHz A	I_{RAC}* 140°C ≥5kHz A	I_{RAC}* 150°C ≥5kHz A	ESR* 20°C 100 Hz mΩ	ESR* 20°C 100 kHz mΩ	ESR* 125-150 °C 5-100 kHz mΩ	Article code
				25 VDC (U_R)					
180	10 X 20	2.4	1.7	1.1	0.49	560	255	80	PEG127HA3180Q
360	10 X 29	3.5	2.5	1.6	0.71	281	130	43	PEG127HB3360Q
470	13 X 20	3.8	2.8	1.8	0.79	226	110	40	PEG127HC3470Q
900	13 X 29	5.6	4.0	2.6	1.15	118	58	23	PEG127HD3900Q
1300	13 X 37	6.6	4.8	3.0	1.35	85	42	18	PEG127HE4130Q
				40 VDC (U_R)					
110	10 x 20	2.3	1.7	1.1	0.48	710	240	82	PEG127KA3110Q
220	10 x 29	3.4	2.5	1.6	0.70	360	125	45	PEG127KB3220Q
270	13 x 20	3.7	2.7	1.7	0.77	301	110	42	PEG127KC3270Q
520	13 x 29	5.4	3.9	2.5	1.11	157	58	24	PEG127KD3520Q
750	13 x 37	6.5	4.7	3.0	1.32	110	42	19	PEG127KE3750Q
				63 VDC (U_R)					
33	10 x 20	1.6	1.1	0.7	0.32	1700	370	181	PEG127MA2330Q
68	10 x 29	2.4	1.7	1.1	0.49	825	185	92	PEG127MB2680Q
80	13 x 20	2.7	1.9	1.2	0.55	704	160	82	PEG127MC2800Q
160	13 x 29	4.0	2.9	1.8	0.83	354	82	44	PEG127MD3160Q
230	13 x 37	4.9	3.5	2.2	1.00	250	59	32	PEG127ME3230Q

* Maximum specified values

RIPPLE CURRENT SPECIFICATION AND OPERATIONAL LIFE

The ripple current specification (see article table) is given at ambient temperature (T_a). Frequency correction factor, for ripple current (Corr), see table to the right.
Max allowed hot-spot temperature (T_h), continuous operation:
$T_{h\,max} = 0.5 \times T_a + 75$ (°C)
$T_h - T_a$ = max 40 °C

Expected Operational Life (Lop):

$$Lop = 68 \times 2^{\frac{85 - T_h}{12}} \text{ (kh)}$$

$T_h = T_a + R_{th} \times P_{LOSS}$
$P_{LOSS} = I_{RMS}^2 \times ESR$
R_{th}, see table

Capacitor Size (Case code)	Thermal resistance, R_{th}, at natural conv. (°C/W)
A	55
B	47
C	42
D	34
E	31

Ripple current correction factor

	FREQUENCY 100 Hz	300 Hz	1 kHz	5 kHz	100 kHz
Correction factor (Corr) (Typical value)	0.35	0.57	0.80	1.00	1.04

ESR correction factor vs. frequency [ESR / ESR (5 kHz, 125 °C)]

	FREQUENCY 300 Hz	1 kHz	5 kHz	100 kHz
Correction factor (Corr)	8.0	3.0	1.5	1.0

ESR correction factor vs. temperature [ESR / ESR (5 kHz, 125 °C)]

	TEMPERATURE -10 °C	60 °C	105 °C	125 °C
Correction factor (Corr)	5.0	1.5	1.1	1.0

RELIABILITY

Estimated field failure rate: ≤ 0.15 ppm (failures per year / produced number of capacitors per year)
The expected failure rate, for this capacitor range, is based on field experience for capacitors with structural similarity.

LEAKAGE CURRENT

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

CUSTOMER DESIGN

On request PEG127 can be designed in other capacitance values and case sizes.

ORDERING INFORMATION

For further ordering information please see page 8.

P	E	G	1	2	7	K	A	3	1	1	0	Q	T	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%

T1: Tape deliveries on reels
L1: Packed in boxes

Quantities and weights

CASE CODE	A	B	C	D	E
Weight approx (g)	3	4	4	6	7
Standard content per reel	500	500	400	400	400[1]
Standard box quantity	250[1]	200[1]	250[1]	200[1]	150

[1] On request