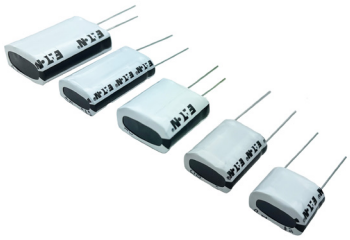
PHVL supercapacitors for long life, reliable energy storage



Eaton's PHVL are two-cell supercapacitor packs for providing backup power or pulse power for battery-operated and electronic systems.

Product description

Eaton's PHVL are two-cell supercapacitor packs for providing backup power or pulse power for battery-operated and electronic systems. Applications for Eaton PHVL supercapacitor packs include water and gas meters, battery assist for peak power, IoT sensors, long-duration discharges, RTC, and memory backup. These products have the same size, capacitance, and configurations as Eaton's PHV series supercapacitors.

For systems operating on a primary battery, PHVL can extend the battery life by 10-20% over PHV solutions. Likewise, to provide backup for low power devices like real-time clocks, PHVL can provide up to 20% longer backup time. In emergency power applications that could be disconnected from a charging source, PHVL also extends the backup time.

Features and benefits

- 3.9 V operating voltage, 5.0 V surge voltage for longer battery life when used with primary batteries
- Capacitances from 0.47 to 5.0 F
- Low leakage current
- Low self discharge (10-20% of PHV product)
- Identical size, capacitance, and configurations as PHV supercapacitors

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Ratings

Capacitance	0.47 F to 5.0 F
Working voltage	3.9 V
Surge voltage	5.0 V
Capacitance tolerance	-10% to +30% (+20 °C)
Operating temperature range	-40 °C to +65 °C
Extended operating temperature range	-40 °C to +85 °C

Specifications

Capacitance (F)	Vertical part number	Horizontal part number	Maximum initial ESR (Ω)	Peak current (A)	Nominal leakage current (µA)	Peak power (W)	Stored energy (mWh)	Short circuit current** (A)
0.47	PHVL-3R9V474-R	PHVL-3R9H474-R	0.40	0.77	1.0	9.5	0.993	9.75
1.5	PHVL-3R9V155-R	PHVL-3R9H155-R	0.16	2.35	2.0	23.8	3.17	24.3
2.5	PHVL-3R9V255-R	PHVL-3R9H255-R	0.08	4.06	4.0	47.5	5.28	48.8
3.0	PHVL-3R9V305-R	PHVL-3R9H305-R	0.08	4.71	4.0	47.5	6.34	48.8
5.0	PHVL-3R9V505-R	PHVL-3R9H505-R	0.07	7.22	5.0	54.3	10.6	55.7

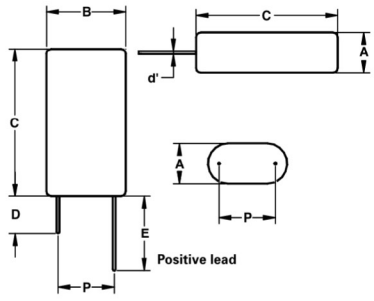
** Repeated short circuit current will permanently damage the leads.

Performance

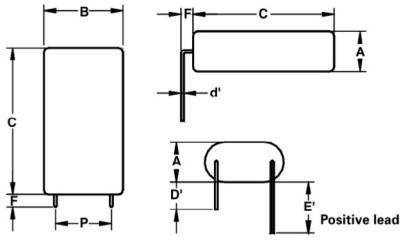
Parameter	Capacitance change (% of initial value)	ESR (% of maximum initial value)
Lifetime: (3.9 V; 2 years @ +65 °C, 5,000 hours @ +85 °C)	≤ 30%	≤ 200%
Charge/discharge cycles: (500,000 at +20 °C)	≤ 30%	≤ 200%
Storage: Low and high temperature (1000 hours @ -40 °C and +85 °C)	≤ 30%	≤ 200%

Vertical part number	Horizontal part number	A	B	C	d'	D	D'	E	E'	F	P	Typical mass (g)
PHVL-3R9V474-R	PHVL-3R9H474-R	9.0	17.3	14.5	0.5	20	15	25	20	2.0	11.8	2.6
PHVL-3R9V155-R	PHVL-3R9H155-R	9.0	17.3	22	0.5	20	15	25	20	2.0	11.8	3.0
PHVL-3R9V255-R	PHVL-3R9H255-R	11	21.3	23	0.6	20	15	25	20	2.0	5.3	4.5
PHVL-3R9V305-R	PHVL-3R9H305-R	9.0	17.3	32.5	0.5	20	15	25	20	2.0	11.8	4.8
PHVL-3R9V505-R	PHVL-3R9H505-R	11	21.3	32.5	0.6	20	15	25	20	2.0	5.3	6.8
Tolerances		**Maximum**			± 0.02	**Minimum**				± 0.5		

Vertical



Horizontal



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