

EPCOS Product Brief 2017

High-Voltage Contactors

Gas-Filled Contactor for High-Voltage DC Switching Applications

The HVC series are specially designed to meet the requirements of high-voltage DC switching applications.

The hermetically sealed design based on our gas technology experience exhibits excellent reliability in harsh environments. The HVC series can be used in a wide range of applications where fast and reliable switching operations are required.

Features

- Bipolar design
- 1 million nominal switching cycles
- Operating voltage up to 900 V
- Contact stuck detection available
- EMI free, hermetically sealed and RoHS compatible
- UL 60947-4-1 in preparation

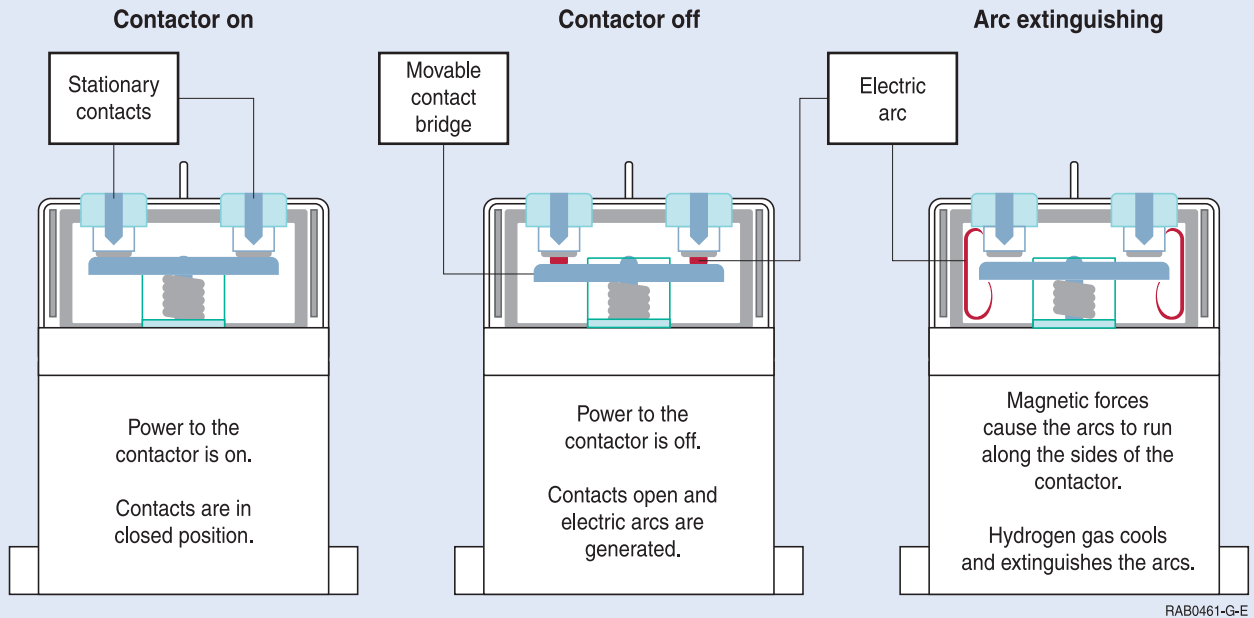
Applications

- DC fast charging stations
- Renewable energy storage systems
- Battery disconnect units
- High-voltage/ high-current applications

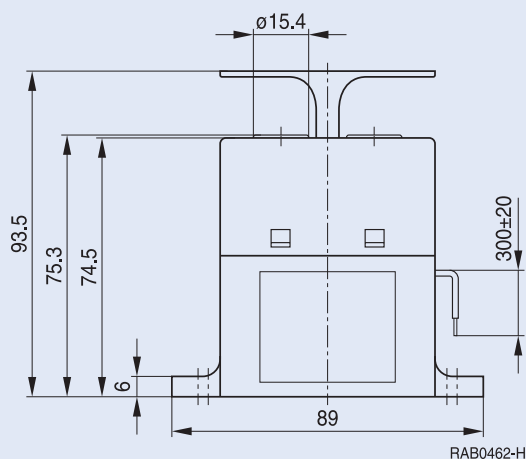


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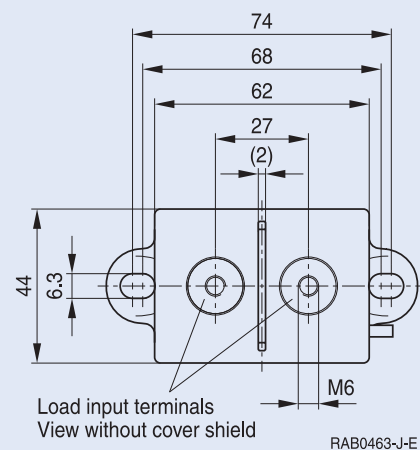
Operating principle



Dimensional drawings



Weight: approx. 500 g
Dimensions in mm



High-Voltage Contactors



Electrical specifications ¹⁾							
	HVC200		HVC300 Preliminary data		HVC500 Preliminary data		
	12-V type	24-V type	12-V type	24-V type	12-V type	24-V type	
Contact							
Ordering code	B88269X1000C011 (1 pc.)	Upon request	Upon request		Upon request		
	B88269X1000C101 (10 pcs.)	Upon request					
Operating voltage	12 ... 450		12 ... 900		12 ... 900		V _{DC}
Nominal current	200		300		500		A
Temporary overcurrent (10 min.)	300		400		600		A
Temporary overcurrent (1 min.)	400		500		750		A
Minimum make and break current	1		1		1		A
Contact resistance typical (> 100 A)	< 0.4		< 0.4		< 0.4		mΩ
Coil ²⁾							
Rated voltage	12	24	12	24	12	24	V _{DC}
Operating voltage range	9 ... 16	18 ... 32	9 ... 16	18 ... 32	9 ... 16	18 ... 32	V _{DC}
Pick-up voltage range (max.)	9	18	9	18	9	18	V _{DC}
Drop-out voltage (min.)	1	2	1	2	1	2	V _{DC}
Power	6	6	6	6	6	6	W
Nominal operating current ³⁾	500	250	500	250	500	250	mA
Minimum holding current	160	80	160	80	160	80	mA
Electrical characteristics							
Operating time make	< 40		< 40		< 40		ms
Operating time break	< 20		< 20		< 20		ms
Insulation resistance at 500 V (initial) contact to contact / contact to coil	> 1		> 1		> 1		GΩ
Dielectric strength ⁴⁾ contact to contact / contact to coil	> 3800		> 3800		> 3800		V _{AC}
Service life ⁵⁾							
Mechanical	1000000		1000000		1000000		operations
Make and break at 10 A	50000		50000		100000		operations
Make and break at 30 A	30000		30000		50000		operations
Make and break at 100 A	10000		10000		20000		operations
Make and break at 200 A	100		100		1000		operations
Break only at 500 A	10		10		10		operations
Break only at 2000 A ⁶⁾	1		1		1		operation

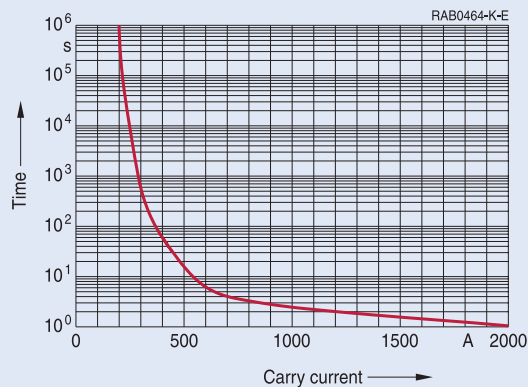
Notes:

- 1) Specified according to JIS C5442 (temperature +15 °C to +35 °C, humidity 25% to 85% RH)
- 2) Ambient temperature at +25 °C
- 3) Tolerance ±10%
- 4) Detection limit 10 mA
- 5) Tested at 450 V for resistive loads including inductance L < 35 µH. End of life is reached when dielectric strength is < 50 MΩ @ 500 V.
- 6) No fire and no explosion will occur after a break at 2000 A. After such an event, however, the dielectric strength and insulation resistance may not meet initial data sheet specifications.

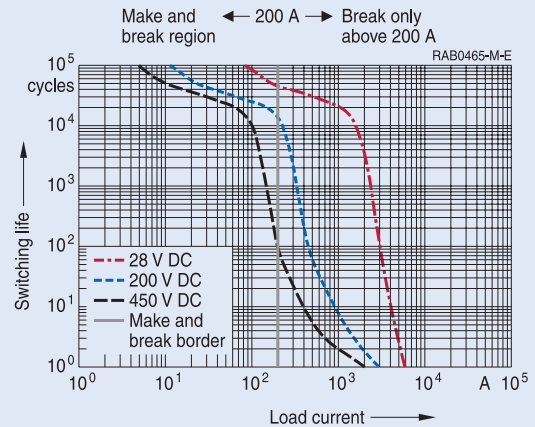
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Characteristics for 200 A type

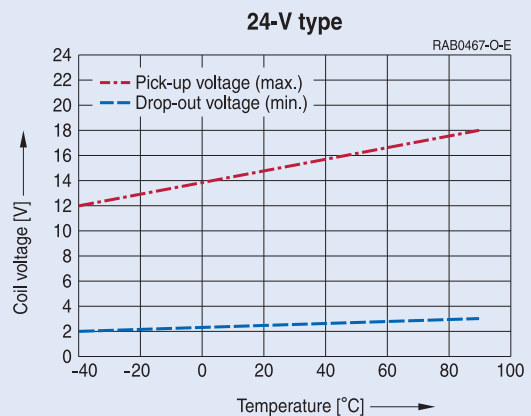
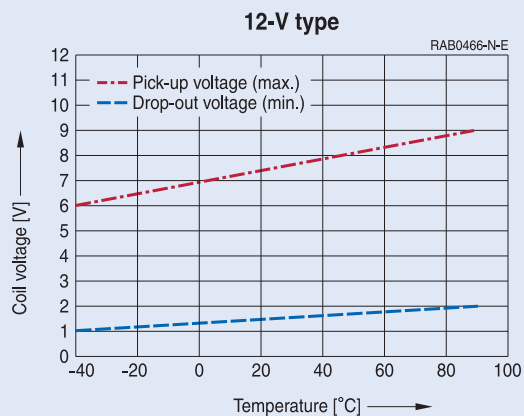
Current handling capability



Estimated service life



Operating voltage characteristics



Application examples

