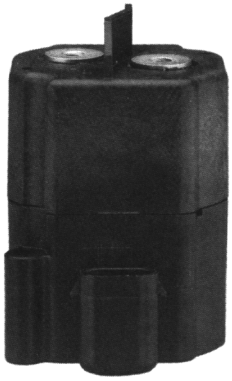
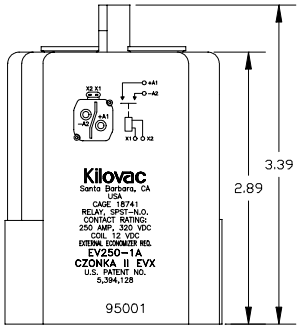
Kilovac EV250-1A & 1B - 400 Amps ("Czonka II EVX")

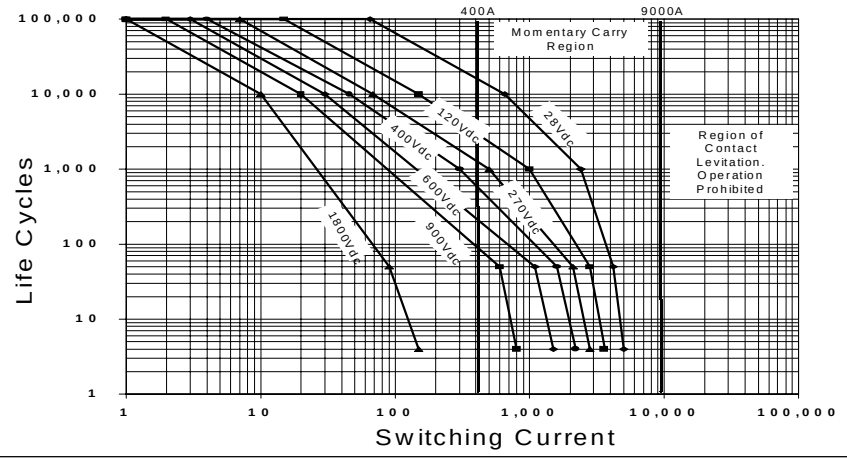
Make & Break Load Switching





Note: Dimensions in inches. Multiply values by 25.4 for dimensions in mm.

CONTACT RATINGS*



* For circuit conditions and actual data refer to the EV250 hot switch study. Since each application is unique, user is encouraged to verify rating in actual application.

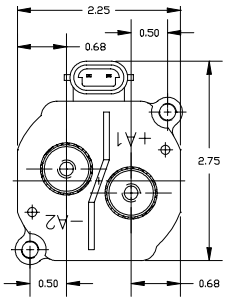
PRODUCT SPECIFICATIONS

Part Number	UNIT	EV250-1A	EV250-1B
Contact Arrangement		SPST-NO	SPST-NO
Contact Form		X	X
Continuous Current Carry, Max.	A	400	400
6.5 Minutes	A	500	500
Break Current @ 320 Vdc	A	2,500	2,500
Contact Resistance, Max.	ohms	0.0003	0.0003
Contact Resistance, Typ.	ohms	0.0001 - 0.0002	0.0001 - 0.0002
Dielectric at Sea Level (leakage < 1mA)	Vrms	2,200	2,200
Shock, 11 ms 1/2 Sine (peak), operating	G's Peak	30	30
Vibration, Sinusoidal (80-2000 Hz, peak)	G's	20	20
Operating Ambient Temperature Range	℃	-40 to +85	-40 to +85
Load Life, @320 Vdc, 95% Weibull*	cycles	See Page 19	See Page 19
Operate Time, 25°C			
Close (includes bounce) Typ.	ms	30	30
Bounce (after close only), Max.	ms	5	5
Open (includes arcing), Max.	ms	15	15
Insulation Resistance @ 500 Vdc, Min.	Mohm	100	100
Weight, Nominal	pound (kg)	1.54 (0.7)	1.54 (0.7)

* Refer to Page 19 for actual mix of precharge and break currents used on each cycle.

Features:

- Hydrogen dielectric for power switching high current loads
- 400 A carry, 2,500 A interrupt @ 320 Vdc
- Ideal for circuit protection, control, battery switching, and main power safety disconnect
- Versatile power, voltage, and current operating range: 28-1800Vdc tested
- Low-cost compact version for volume production applications. Requires external coil economizer (PWM or lower hold voltage)
- Patented "hammer effect" mechanism breaks light contact welds
- Patented "Super-sealed" environment chamber uniquely protects ALL moving parts
- Can operate in harsh environments
- Moving contact rotates to provide fresh contact surface for low contact resistance and low power comsumption
- Sealed control connector. Mating connector with flying leads P/N 2005 available, see page 59
- Logic control enabled by external economizer P/N 9913
- High temperature (135°C) model with 10 inch flying leads available (-4A call factory for sales drawing)
- Bi-directional power switching
- Fast operate and release time



COIL DATA***

Parameter	EV250-1A	EV250-1B	Units
Voltage* (nominal)	12	24	Vdc
Pickup (close), max.	8.3	16.6	
Continuous Hold, max/min	** 5.1/3.8	10.2/7.6	
Dropout (open), min.	0.88 - 3.3	2.4 - 6.6	
Coil Resistance @ 25°C, +/- 10%	3	12	Ohms
Coil Energy, max.	0.2	0.2	J
Coil Clamping	3 x nom.	3 x nom.	

* Do not apply continously. Requires external coil economizer. Other special coil voltages available upon request.

** At maximum continuous current and maximum ambient temperature. Hold voltage must be maintained within the limits specified to keep contacts closed and to prevent coil overheating.

*** Do not use a free wheeling diode or capacitor across the coil.

PART NUMBER SELECTION

Sample Part No. **EV250-1** [A]

Coil Voltage

A = 12 Vdc, Nominal

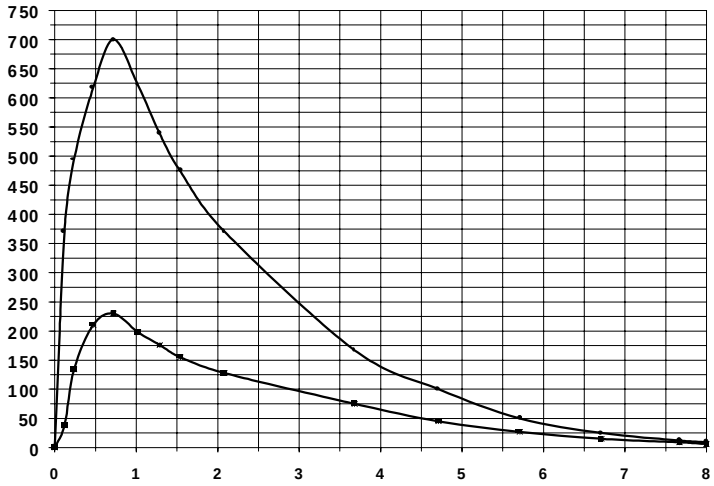
B = 24 Vdc, Nominal

For detailed specifications and recommendations, refer to the EV250-1A & B sales drawings.

EV250 Contact Ratings

CURRENT vs TIME

CONTACTS CLOSED INTO 70% AND 90% CAPACITOR PRE CHARGE



LIFE RATINGS AND QUALIFICATION TEST PLAN				
	Normal Operations	Abnormal Operations		
Test #	**1**	**2**	**3**	**4**
Current	reference graph and		-250 A	2500 A
Voltage	test circuit diagram (sht. 8)		320 V	320 V
Load Type	Capacitive	Capacitive	Resistive	Resistive
% Pre Charge	90%	70%	N/A	N/A
Switch Mode	make only	make only	make/ break	break only
Sequence				
1	10K cycles	10 cycles	2	2
2	10K	10	2	
3	10K	10	2	
4	10K	10	2	2
5	10K	10	2	
Etc.	**Continue Cycling to Relay Failure**			

The testing objective is to verify proper relay function for a given number of consecutive and cumulative cycles under both normal and abnormal conditions in a variety of load switching applications. The life rating of 40K cycles minimum was calculated with 95% Weibull reliability.

Electrical Data (Over Temperature Range - Max. Terminal Temp. = 200°C)

Make/Break Life for Capacitive & Resistive Loads at 320 Vdc (1) (2)		
@ 90% capacitive pre-charge	Cycles	50,000
@ 70% capacitive pre-charge	Cycles	50
@ -250 A (2 consecutive, reverse polarity) (1)	Cycles	10
@ 3300 A (break only, 2 consecutive) (1)	Cycles	4
Mechanical Life	Cycles	100,000

(1) Resistive load includes inductance L = 25 uH. Load @ 2500 A tested @ 200 uH.
(2) Conductor: 2 each of Copper 54 mm2 (AWG 0) required for > 250 A carry.
1 Copper (AWG 0) conductor recommneded for ≤ 250 A
(3) Life based on projected Weibull Life with 95% Reliability