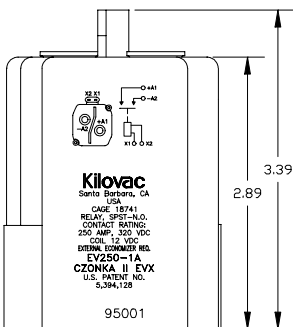
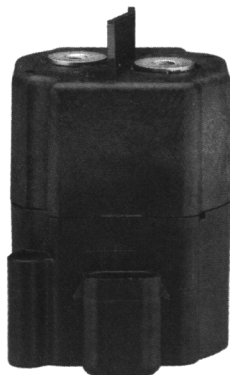


**Kilovac EV250-1A & 1B - 400 Amps ("Czonka II EVX")**

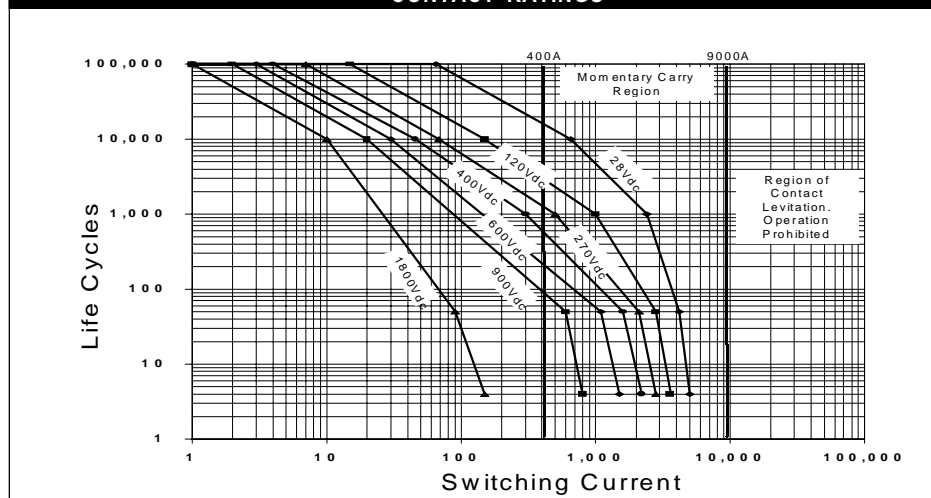
**Make & Break Load Switching**



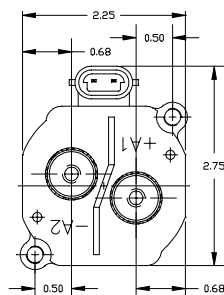
**Features:**

- 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 consumption
- 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

**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 .....	°C	-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.

**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 continuously. 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.

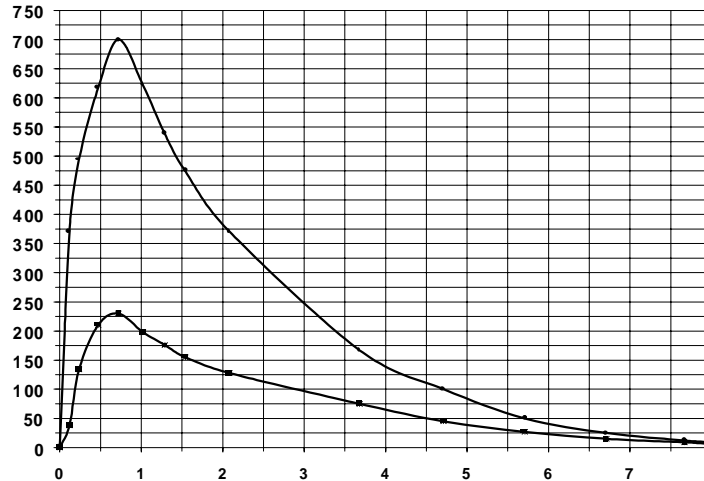
**PART NUMBER SELECTION**

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.**

## 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 test circuit diagram (sht. 8)		-250 A	2500 A
Voltage	reference graph and 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 mm<sup>2</sup> (AWG 0) required for > 250 A carry.

1 Copper (AWG 0) conductor recommended for ≤ 250 A

(3) Life based on projected Weibull Life with 95% Reliability