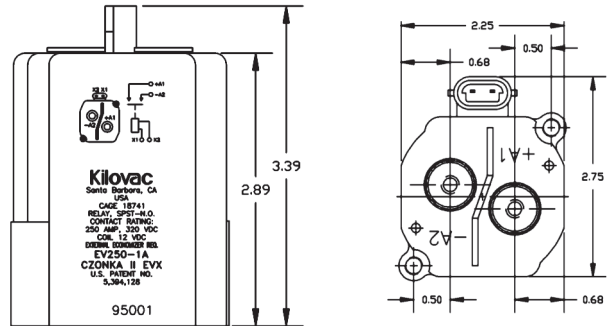


## EV250-1A & 1B 400 Amps CZONKA-II EVX Make & Break Load Switching

### Product Facts

- Hydrogen dielectric for power switching high current loads
- 400 A carry, 2,500 A interrupt @ 320 Vdc
- Suited for circuit protection, control, battery switching, and main power safety disconnect
- Versatile power, voltage, and current operating range: 28-1800 Vdc tested
- Low-cost compact version for volume production applications. Requires external coil economizer (PWM or lower hold voltage)
- “Hammer effect” mechanism breaks light contact welds
- “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 Part Number 2005 available, see page 7-95
- Logic control enabled by external economizer Part Number 9913
- High temperature (135°C) model with 10 inch flying leads available (-4A — Call TE for sales drawing)
- Bi-directional power switching
- Fast operate and release time

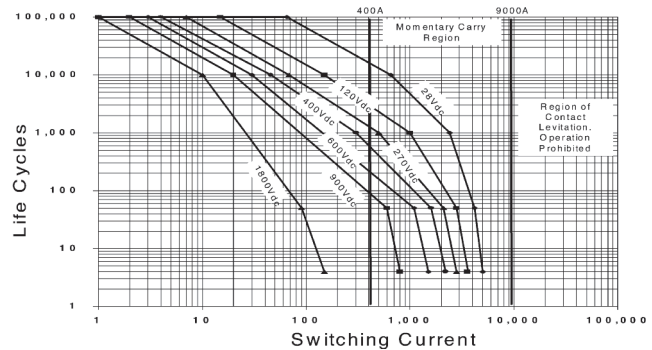


Note: Dimensions in inches. Multiply values by 25.4 for dimensions in mm.

### Product Specifications

**Contact Arrangement** — SPST-NO  
**Contact Form** — X  
**Continuous Current Carry, Max.** — 400 A; 6.5 Minutes — 500 A  
**Break Current @ 320 Vdc** — 2,500 A  
**Contact Resistance, Max.** — 0.0003 ohm  
**Contact Resistance, Typ.** — 0.0001 – 0.0002 ohm  
**Dielectric at Sea Level (Leakage < 1mA)** — 2,200 Vrms  
**Shock, 11ms, 1/2 Sine (Peak), Operating** — 30 g  
**Vibration, Sinusoidal (80-2000 Hz, Peak)** — 20 g  
**Operating Ambient Temperature Range** — -40°C to +85°C  
**Load Life** — See chart on next page  
**Operate Time, @ 25°C** — 30 ms  
**Close (Includes Bounce), Typ.** — 30 ms  
**Bounce (After Close Only), Max.** — 5 ms  
**Open (Includes Arcing), Max.** — 15 ms  
**Insulation Resistance @ 500 Vdc, Min.** — 100 mohm  
**Weight, Nominal** — 1.54 lb (0.7 kg)

### 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.

### Coil Data\*\*\*

|                              | EV250-1A       | EV250-1B      |
|------------------------------|----------------|---------------|
| Voltage, Nominal*            | 12 Vdc         | 24 Vdc        |
| Pickup (Close), Max.         | 8.3 Vdc        | 16.6 Vdc      |
| Continuous Hold, Max./Min.** | 5.1/3.8 Vdc    | 10.2/7.6 Vdc  |
| Dropout (Open), Min.         | 0.88 - 3.3 Vdc | 2.4 - 6.6 Vdc |
| Coil Resistance @ 25°C, ±10% | 3 Ω            | 12 Ω          |
| Coil Energy, Max.            | 0.2 J          | 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.

### Ordering Information

Sample Part Number ►

EV250-1 A

Series: \_\_\_\_\_

Coil Voltage: \_\_\_\_\_

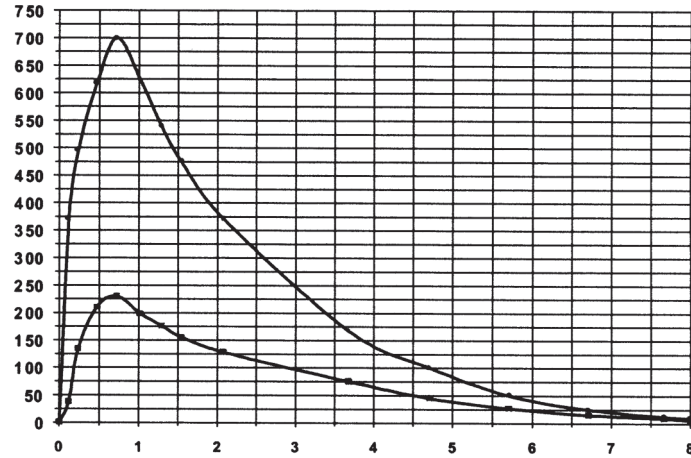
A = 12 Vdc, Nominal

B = 24 Vdc, Nominal

For factory-direct application assistance, dial 800-253-4560, ext. 2055, or 805-220-2055.

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

**EV250-1A & 1B 400 Amps CZONKA-II EVX Make & Break Load Switching** (Continued)

**Current vs Time**
**CONTACTS CLOSED INTO 70% AND 90% CAPACITOR PRE CHARGE**

**Life Ratings and Qualification Test Plan**

| Test #              | Normal Operations                                 |            | Abnormal Operations |            |
|---------------------|---|------------|---------------------|------------|
|                     | 1   | 2          | 3                   | 4          |
| <b>Current</b>      | Reference Graph and Test Circuit Diagram (Sht. 8) |            | -250 A              | 2500 A     |
| <b>Voltage</b>      |   |            | 320 V               | 320 V      |
| <b>Load Type</b>    | Capacitive  | Capacitive | Resistive           | Resistive  |
| <b>% Pre Charge</b> | 90%   | 70%        | NA                  | N/A        |
| <b>Switch Mode</b>  | Make Only   | Make Only  | Make/Break          | Break Only |
| <b>Sequence</b>     |   |            |                     |            |
| 1                   | 10K cycles  | 10 cycles  | 2                   | 2          |
| 2                   | 10K   | 10         | 2                   | —          |
| 3                   | 10K   | 10         | 2                   | —          |
| 4                   | 10K   | 10         | 2                   | 2          |
| 5                   | 10K   | 10         | 2                   | —          |
| <b>Etc.</b>         | 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<sup>1,2</sup> —**

@ 90% Capacitive Pre-Charge —  
50,000 cycles

@ 70% Capacitive Pre-Charge —  
50 cycles

@ -250 A (2 Consecutive, Reverse  
Polarity)<sup>1</sup> — 10 cycles

@ 3300 A (Break only,  
2 Consecutive)<sup>1</sup> — 4 cycles

**Mechanical Life** — 100,000 cycles

**Notes:**

1 Resistive load includes inductance  
L = 25 μH. Load @ 2500 A tested  
@ 200 μH.

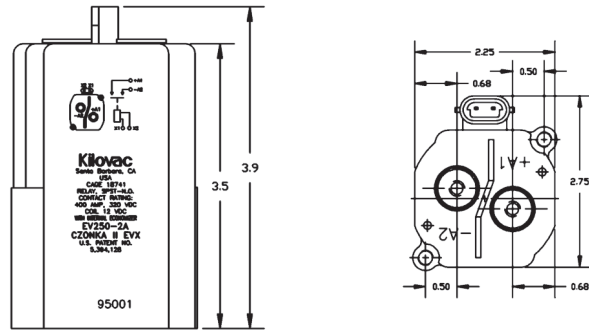
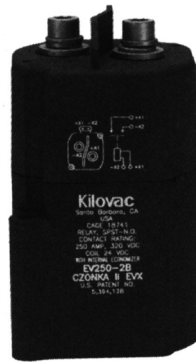
2 Conductor: 2 each of copper  
54 mm<sup>2</sup> (AWG 0) required for  
> 250 A carry. 1 Copper (AWG 0)  
conductor recommended for  
≤ 250 A

For factory-direct application assistance,  
dial 800-253-4560, ext. 2055, or  
805-220-2055.

## EV250-2A & 2B 400 Amps CZONKA II EVX Make & Break Load Switching

### Product Facts

- Hydrogen dielectric for power switching high current loads
- 400 A carry, 2,500 A interrupt @ 320 Vdc
- Suited for circuit protection, control, battery switching, and main power safety disconnect
- Versatile power, voltage, and current operating range: 28-1800 Vdc tested
- Internal coil economizer provides:
  - 4W typical hold power independent of temperature & voltage range
  - EMI spectrum tested and approved
  - Built-in coil suppression
- "Hammer effect" mechanism breaks light contact welds
- Hermetically "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 Part Number 2005 available
- Special versions available:
  - Economical (-8A/B) for light duty power switching (without arc blowout magnets)
  - 10 inch flying leads model (-7A)

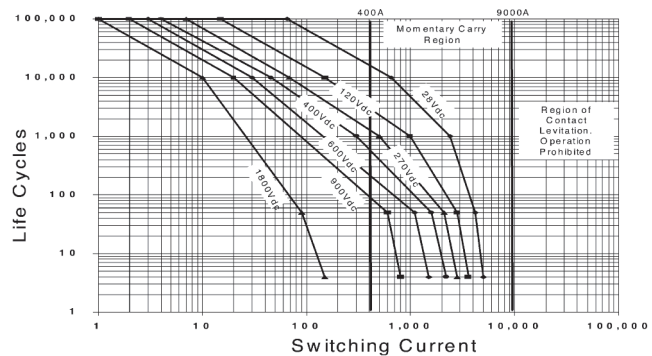


Note: Dimensions in inches. Multiply values by 25.4 for dimensions in mm.

### Product Specifications

**Contact Arrangement** — SPST-NO  
**Contact Form** — X  
**Continuous Current Carry, Max.** — 400 A; 6.5 Minutes — 500 A  
**Break Current @ 320 Vdc** — 2,500 A  
**Contact Resistance, Max.** — 0.0003 ohm  
**Contact Resistance, Typ.** — 0.0001 – 0.0002 ohm  
**Dielectric at Sea Level (Leakage < 1mA)** — 2,200 Vrms  
**Shock, 11ms, 1/2 Sine (Peak), Operating** — 30 g  
**Vibration, Sinusoidal (80-2000 Hz, Peak)** — 20 g  
**Operating Ambient Temperature Range** — -40°C to +85°C  
**Load Life** — See chart on next page  
**Operate Time, @ 25°C** —  
**Close (Includes Bounce), Typ.** — 18 ms  
**Bounce (After Close Only), Max.** — 5 ms  
**Release Time (Includes Arcing), Max.** — 15 ms  
**Insulation Resistance @ 500 Vdc, Min.** — 100 mohm  
**Weight, Nominal** — 1.76 lb (0.8 kg)

### 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.

### Coil Data\*\*

|                          | EV250-2A | EV250-2B |
|--------------------------|----------|----------|
| Voltage, Nominal*        | 12 Vdc   | 24 Vdc   |
| Pickup (Close), Max.     | 9 Vdc    | 18 Vdc   |
| Hold, Min.               | 7 Vdc    | 14 Vdc   |
| Dropout (Open), Min.     | 5 Vdc    | 10 Vdc   |
| Current (@ VsNom / 25°C) |          |          |
| Inrush                   | 2.8 A    | 1.8 A    |
| Holding, Standby         | 0.34 A   | 0.11 A   |
| Inrush Time, Max.        | 200 ms   | 200 ms   |

\*Other special coil voltages available upon request.

\*\*Do not use a free wheeling diode or capacitor across the coil. Built in suppression limits back EMF to zero volts.

### Ordering Information

Sample Part Number ► **EV250 -2 A**

**Series:** \_\_\_\_\_  
**Model:** \_\_\_\_\_  
 2 = With Blowout Magnets  
 8 = Without Blowout Magnets  
 7 = 10" Flying Leads (12 V, with Magnets Only)

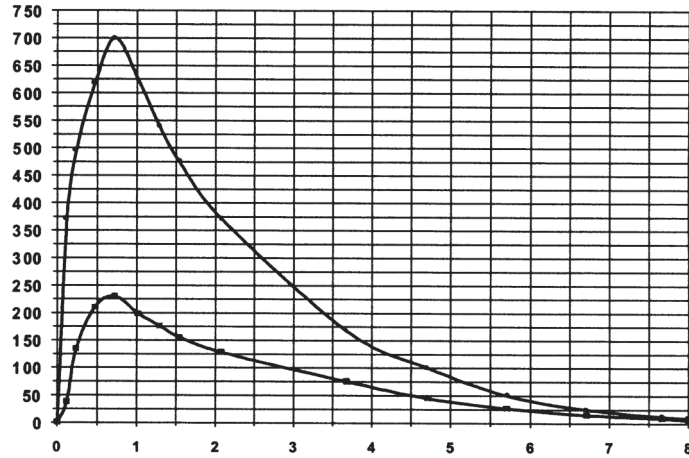
**Coil Voltage:** \_\_\_\_\_  
 A = 12 Vdc, Nominal  
 B = 24 Vdc, Nominal

For detailed specifications and recommendations, refer to the EV250-2A & B or 7A sales drawings.

For factory-direct application assistance, dial 800-253-4560, ext. 2055, or 805-220-2055.

**EV250-2A & 2B 400 Amps CZONKA II EVX Make & Break Load Switching** (Continued)

**CONTACTS CLOSED INTO 70% AND 90% CAPACITOR PRE CHARGE**



**Life Ratings and Qualification Test Plan**

| Test #              | Normal Operations                                 |            | Abnormal Operations |            |
|---------------------|---|------------|---------------------|------------|
|                     | 1   | 2          | 3                   | 4          |
| <b>Current</b>      | Reference Graph and Test Circuit Diagram (Sht. 8) |            | -250 A              | 2500 A     |
| <b>Voltage</b>      |   |            | 320 V               | 320 V      |
| <b>Load Type</b>    | Capacitive  | Capacitive | Resistive           | Resistive  |
| <b>% Pre Charge</b> | 90%   | 70%        | NA                  | N/A        |
| <b>Switch Mode</b>  | Make Only   | Make Only  | Make/Break          | Break Only |
| <b>Sequence</b>     |   |            |                     |            |
| 1                   | 10K cycles  | 10 cycles  | 2                   | 2          |
| 2                   | 10K   | 10         | 2                   | —          |
| 3                   | 10K   | 10         | 2                   | —          |
| 4                   | 10K   | 10         | 2                   | 2          |
| 5                   | 10K   | 10         | 2                   | —          |
| <b>Etc.</b>         | 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<sup>1,2</sup> —**

@ 90% Capacitive Pre-Charge — 50,000 cycles

@ 70% Capacitive Pre-Charge — 50 cycles

@ -250 A (2 Consecutive, Reverse Polarity)<sup>1</sup> — 10 cycles

@ 3300 A (Break only, 2 Consecutive)<sup>1</sup> — 4 cycles

**Mechanical Life** — 100,000 cycles

**Notes:**

1 Resistive load includes inductance L = 25 µH. Load @ 2500 A tested @ 200 µH.

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

For factory-direct application assistance, dial 800-253-4560, ext. 2055, or 805-220-2055.

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [General Purpose Relays](#) category:*

*Click to view products by [TE Connectivity](#) manufacturer:*

Other Similar products are found below :

[JVN1AF-4.5V-F](#) [PCN-105D3MHZ](#) [5JO-10000S-SIL](#) [5JO-1000CD-SIL](#) [5JO-400CD-SIL](#) [LY2S-AC220/240](#) [LYQ20DC12](#) [6031007G](#)  
[6131406HQ](#) [6-1393099-8](#) [6-1393122-4](#) [6-1393123-2](#) [6-1393767-1](#) [6-1393843-7](#) [6-1415012-1](#) [6-1419102-2](#) [6-1423698-4](#) [6-1608051-6](#) [6-1608067-0](#) [6-1616170-6](#) [6-1616248-2](#) [6-1616282-3](#) [6-1616348-2](#) [6-1616349-9](#) [6-1616350-1](#) [6-1616350-8](#) [6-1616358-7](#) [6-1616359-9](#) [6-1616360-9](#) [6-1616931-6](#) [6-1617039-1](#) [6-1617052-1](#) [6-1617090-2](#) [6-1617090-5](#) [6-1617347-5](#) [6-1617353-3](#) [6-1617801-8](#) [6-1618107-9](#) [6-1618248-4](#) [CX-4014](#) [MAHC-5494](#) [MAVCD-5419-6](#) [703XCX-120A](#) [7-1393100-5](#) [7-1393111-7](#) [7-1393767-8](#) [7-1414968-8](#) [7-1419130-3](#) [7-1608047-2](#) [7-1608065-1](#)