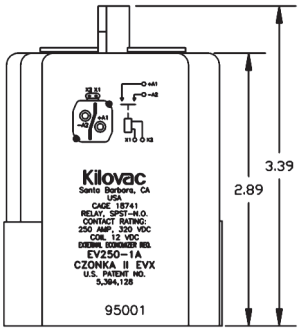
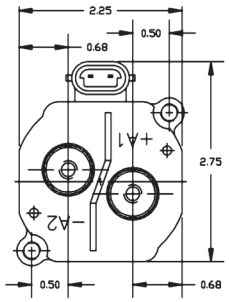
EV250-1A & 1B 400 Amps CZONKA-II EVX Make & Break Load Switching

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 —

Close (Includes Bounce), Typ. — 30 ms

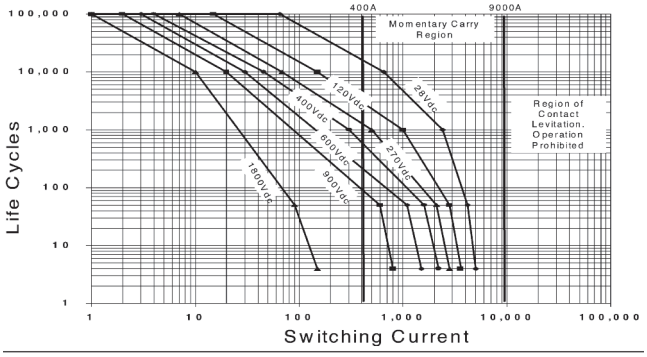
Bounce (After Close Only), Max. — 5 ms

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

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

Catalog 5-1773450-5
Revised 3-13

www.te.com

Dimensions are shown for reference purposes only. Specifications subject to change.

Dimensions are in millimeters unless otherwise specified.

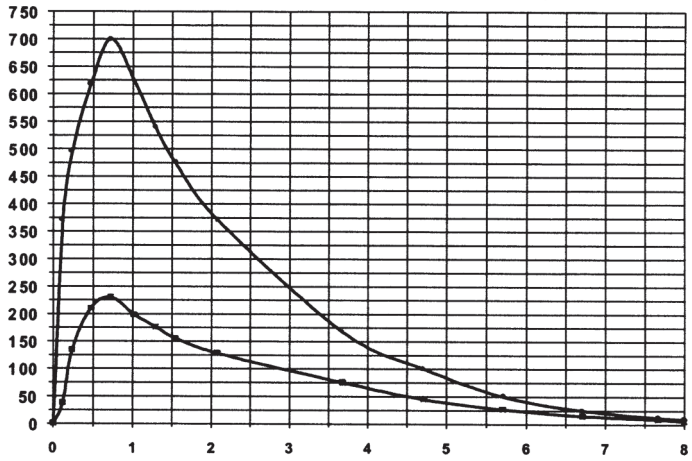
USA: +1 800 522 6752
Asia Pacific: +86 0 400 820 6015
UK: +44 800 267 666

For additional support numbers please visit www.te.com

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

	Normal Operations		Abnormal Operations	
Test #	**1**	**2**	**3**	**4**
Current	Reference Graph and Test Circuit Diagram (Sht. 8)		-250 A	2500 A
Voltage			320 V	320 V
Load Type	Capacitive	Capacitive	Resistive	Resistive
% Pre Charge	90%	70%	NA	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 — 50,000 cycles
@ 70% Capacitive Pre-Charge — 50 cycles
@ -250 A (2 Consecutive, Reverse Polarity) [1] — 10 cycles
@ 3300 A (Break only, 2 Consecutive) [1] — 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 mm² (AWG 0) required for > 250 A carry. 1 Copper (AWG 0) conductor recommended for ≤ 250 A

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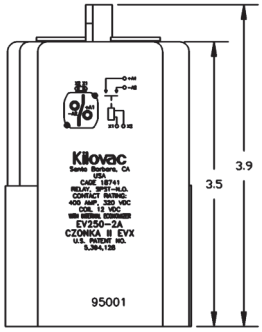
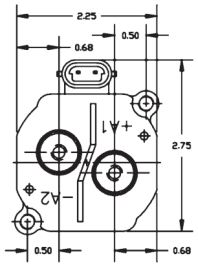
EV250-2A & 2B 400 Amps CZONKA II EVX Make & Break Load Switching

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

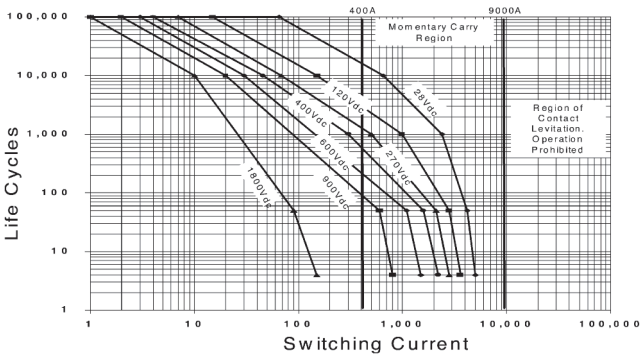
Bounce (After Close Only), Max. — 5 ms

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.

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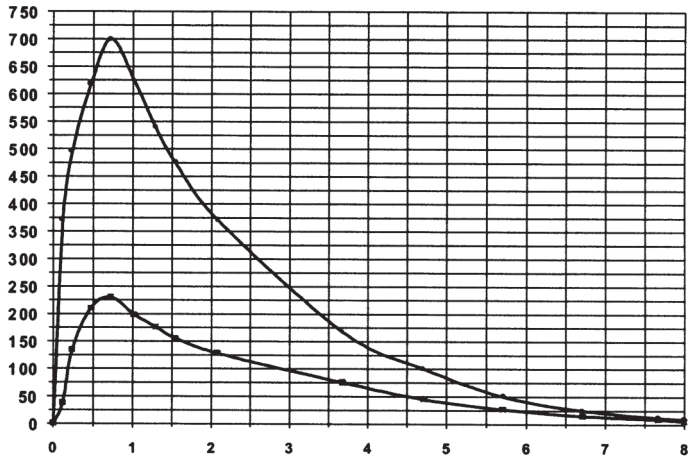

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