DATA SHEET

AUTOMOTIVE HIGH VOLTAGE DC RELAYS

ER250 SERIES

DESCRIPTION

The NEXEM ER250 series is High Voltage DC relay for Battery Disconnection Unit (BDU) / Junction Box of Electric Vehicle and Quick Charge applications for automobiles which require high quality and high performance.

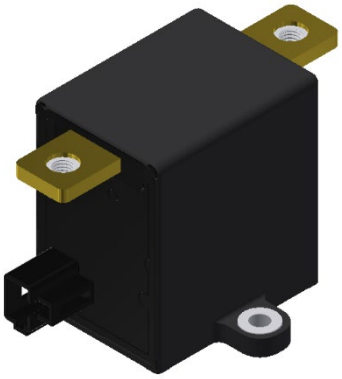
The ER250 series have higher carrying current and short circuit performance than the current High Voltage DC relay.

FEATURE

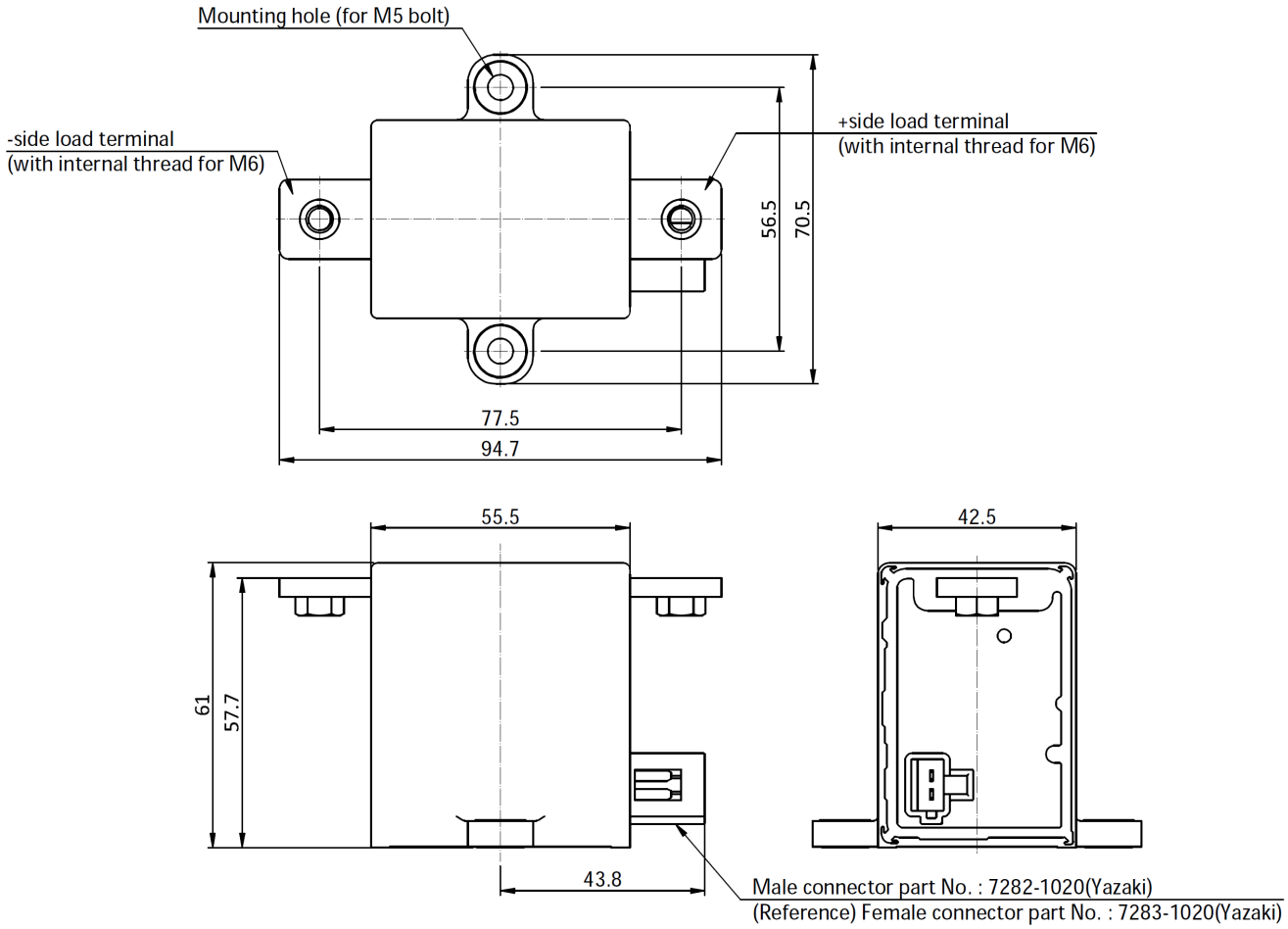
- High Short Circuit Capability (20kA)
- Large current capacity (250A rated current)
- Small size
- High heat resistance
- Plastic Sealed
- Pb free

APPLICATION

- Battery Disconnection Unit (BDU) / Junction Box of Electric Vehicles (PHEV, BEV and FCV)
- Quick charge
- High voltage DC applications



DIMENSIONS (in mm)



SPECIFICATIONS

(Ambient temperature: 20°C)

Items		Specifications
Contact form		1 form A (1 form X) with polarity
Contact rating	Max. switching voltage	500Vdc
	Max. switching current (1)	1800A at 450Vdc
	Min. switching current	1A, 5Vdc (Reference value)
	Max. carrying current	250A continuous (at 120mm^2 wire, 85°C)
	Short circuit capability (2)	20kA (5ms max.)
	Contact voltage drop	0.125V max. at 250A
	Rated load	250A, 450Vdc, Resistive load
Contact material		Silver alloy
Operate time (3)		50ms max.
Release time (3)		30ms max.
Insulation resistance		100MΩ min. at 1000Vdc
Dielectric strength	Between open contacts	2500Vac
	Between coil and contact	2500Vac
Shock resistance	Misoperation	588m/s^2 (close), 196m/s^2 (open)
	Destructive failure	588m/s^2
Vibration resistance	Misoperation	10 to 200Hz, 45m/s^2
	Destructive failure	10 to 200Hz, 45m/s^2
Ambient temperature		-40 to +85°C
Life expectancy (4)	Mechanical	200,000 cycles
	Electrical (Rated load)	100 cycles (forward load current direction) 10 cycles (reverse load current direction)
Enclosure (5)		Wash tight relay - RTIII
Load terminal structure		M6 terminal (with internal thread)
Coil input terminal		Connector
Mounting hole		ϕ 5.5mm (for M5 bolt)

(1) Resistive, 1 cycle, forward load current direction, No explosion

(2) No smoke, No fire and No explosion

(3) Excluding contact bounce, nominal voltage applied, without diode or varistor.

(4) If only diode is connected in parallel to the relay coil, break performance of relay cannot be assured because contact release speed becomes slower. So do not use such a circuit. Instead of diode, a Varistor or Zener diode (ZD) when clamp voltage is 1.5 times larger than the rated voltage (Min. 18V for the rated 12V relay), shall be used for the absorber.

(5) Category of environmental protection at IEC 61810-1

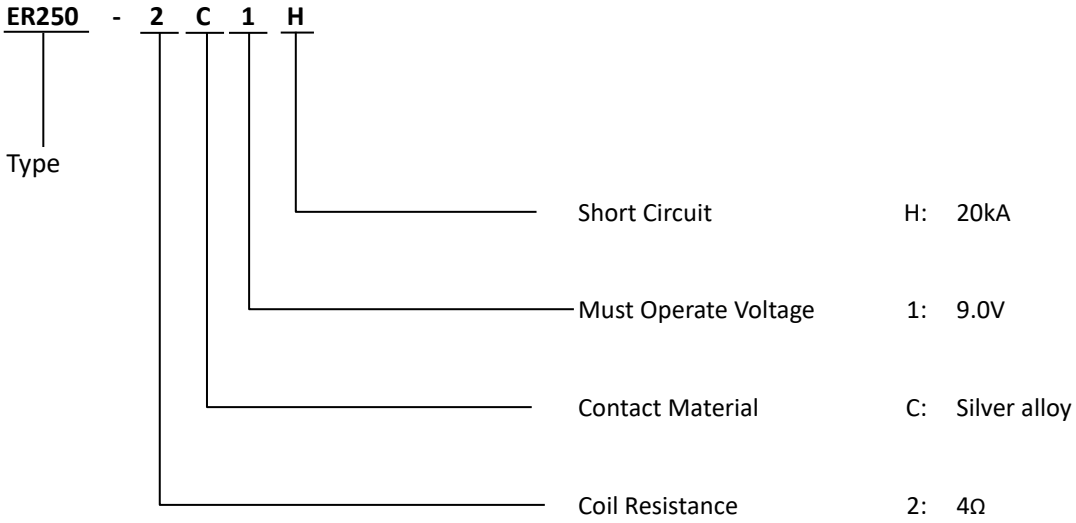
COIL RATING

(Ambient temperature: 20°C)

Nominal Voltage (VDC)	Coil Resistance (Ω)±10%	Must Operate Voltage (VDC)	Must Release Voltage (VDC)	Holding Voltage (6) (VDC)	Nominal Operating Power (6) (W)
12	4	9.0	0.5	3.0±0.3	36W at coil activation 2.25W at holding voltage

(6) Requires external coil control circuit that must start 100-200ms after coil activation. (ER250 dose not have holding voltage control circuit.)

PART NUMBER SYSTEM



Rated Current	Short Circuit Capability	Coil Nominal Voltage	Coil Resistance	Part Number
250A	20kA	12VDC	4Ω	ER250-2C1H