AZSR235/250

50A (35A)

MINIATURE POWER RELAY

FEATURES:

- 50 Amp switching (AZSR250)
- 35 Amp switching (AZSR235)
- Wide contact gap > 1.85 mm (AZSR250)
- Wide contact gap > 2.05 mm (AZSR235)
- Holding power <100 mW
- Dielectric strength 5000 Vrms
- Isolation spacing greater than 10 mm
- Reinforced insulation, EN 60730-1 (VDE 0631, part 1), EN 60335-1 (VDE 0700, part 1)
- UL, CUR file E44211
- VDE file 40033251
- CQC certificate 15002138157

CONTACTS

Arrangement	SPST (1 Form A) DPST (2 Form A)
Ratings	Resistive load: AZSR235 Max. switched power: 1050 W or 9695 VA Max. switched current: 35 A Max. switched voltage: 150 VDC* or 440 VAC Max. continuous current：35 A AZSR250 Max. switched power: 1500 W or 13850 VA Max. switched current: 50 A Max. switched voltage: 150 VDC* or 440 VAC Max. continuous current：50 A * Note: If switching voltage is greater than 30 VDC, special precautions must be taken. Please contact the factory.
Rated Load **UL/CQC/TÜV** **VDE**	 AZSR235 35A at 277 VAC, resistive AZSR250 50A at 277 VAC, resistive AZSR235 35A at 263 VAC, AC-7a, 85℃ AZSR250 50A at 263 VAC, AC-7a, 85℃
Material	Silver tin oxide
Resistance	＜50 mΩ initially (at 6V,1A,voltage drop method)

GENERAL DATA

Life Expectancy **Mechanical** **Electrical**	Minimum operations 1 x 10^6 3 x 10^4 at 35 A 250 VAC Res.(AZSR235) 3 x 10^4 at 50 A 250 VAC Res.(AZSR250)
Operate Time(typical)	40 ms at nominal coil voltage
Release Time(typical)	5 ms at nominal coil voltage (with no coil suppression)
Dielectric Strength **(at sea level for 1min.)**	5000 Vrms coil to contact 2500 Vrms between contact sets 2500 Vrms between open contacts
Insulation Resistance	1,000 MΩ min. at 20℃ 500VDC 50% RH
Insulation **(according to** **DIN VDE 0110,** **IEC 60664-1)**	C250 Overvoltage category: III Pollution degree: 3 Nominal voltage: 250 VAC
Dropout	Greater than 5% of nominal coil voltage
Ambient Temperature **Operating**	At nominal coil voltage -40℃(-40℉) to 85℃(185℉)
Vibration	0.062" (1.5 mm) DA at 10–55 Hz
Shock	10 g
Enclosure	PA
Terminals	Tinned copper alloy, P.C.
Max. Solder Temp.	270℃ (518℉)
Max. solder time	5 seconds
Weight	105 g
Packing unit in pcs	10 per inner carton / 100 per carton box

NOTES

1. All values at 20℃ (68℉)
2. Relay may pull in with less than “Must Operate” value
3. Specifications subject to change without notice
4. PCB terminal downward mounting is prefer

ZETTLER RELAY (XIAMEN) CO., LTD. ***www.zettlercn.com***

5F,No.6 , Xinjin Road , Xinyang Industrial Zone, Haicang District, Xiamen, China.Tel:(0592)2631523 Fax: (0592)2631599

2024-11-20

AZSR235/250

COIL

Power **At pickup Voltage (typical)**	270 mw (typical,AZSR250)
Max. Continuous Dissipation	2.0 W at 20℃(68℉) ambient
Temperature Rise	15℃(27℉) at nominal coil voltage
Temperature	Max. 155℃ (311℉) class F

RELAY ORDERING DATA

COIL SPECIFICATIONS-SPST(1 FORM A) @20℃					ORDER NUMBER	
Nominal Coil VDC	**Must Operate VDC**	**Min. holding VDC**	**Max. Continuous VDC**	**Coil Resistance Ω±10%**	**AZSR235-1A(35A)**	**AZSR250-1A(50A)**
5	3.75	1.7	10.0	50	AZSR235-1AE-5D	AZSR250-1AE-5D
9	6.75	3.1	18.0	170	AZSR235-1AE-9D	AZSR250-1AE-9D
12	9.00	4.0	24.0	300	AZSR235-1AE-12D	AZSR250-1AE-12D
18	13.50	6.5	36.0	675	AZSR235-1AE-18D	AZSR250-1AE-18D
24	18.00	8.0	48.0	1200	AZSR235-1AE-24D	AZSR250-1AE-24D

COIL SPECIFICATIONS-SPST(2 FORM A) @20℃					ORDER NUMBER	
Nominal Coil VDC	**Must Operate VDC**	**Min. holding VDC**	**Max. Continuous VDC**	**Coil Resistance Ω±10%**	**AZSR235-2A(35A)**	**AZSR250-2A(50A)**
5	3.75	2.1	10.0	50	AZSR235-2AE-5D	AZSR250-2AE-5D
9	6.75	3.8	18.0	170	AZSR235-2AE-9D	AZSR250-2AE-9D
12	9.00	5.0	24.0	300	AZSR235-2AE-12D	AZSR250-2AE-12D
18	13.50	7.5	36.0	675	AZSR235-2AE-18D	AZSR250-2AE-18D
24	18.00	10.0	48.0	1200	AZSR235-2AE-24D	AZSR250-2AE-24D

NOMENCLATURE

AZSR250 - 1A E -12D (XXX)
I II III IV V

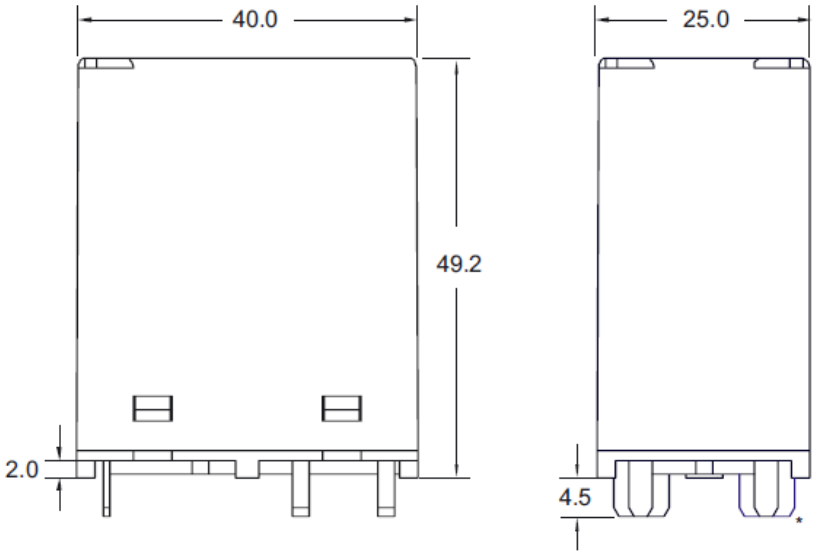
I. Basic Series AZSR235 or AZSR250
II. Contact Form 1A: 1 form A 2A: 2 form A
III. Contact Material E: $AgSnO_2$
IV. Coil Voltage 5, 9, 12, 18 , 24VDC.
V. Special code Additional numbers or letters, which does not designate construction features or ratings

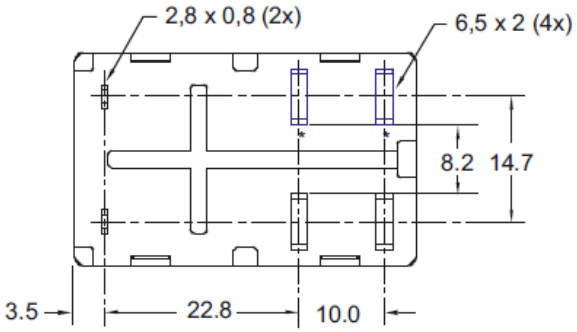
ZETTLER RELAY (XIAMEN) CO., LTD. ***www.zettlercn.com***
5F,No.6 , Xinjin Road , Xinyang Industrial Zone, Haicang District, Xiamen, China.Tel:(0592)2631523 Fax: (0592)2631599

2024-11-20

AZSR235/250

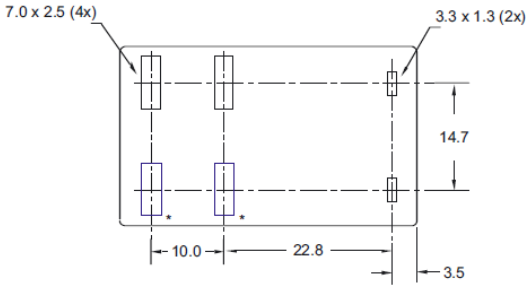
MECHANICAL DATA





*not used on 1 Form A version

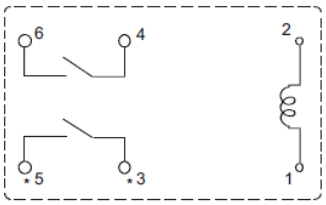
PC BOARD LAYOUT



*not used on 1 Form A version

Viewed toward terminals

WIRING DIAGRAM



*not used on 1 Form A version

Viewed toward terminals

Tolerance: ±0.25mm

ZETTLER RELAY (XIAMEN) CO., LTD. ***www.zettlercn.com***

5F,No.6 , Xinjin Road , Xinyang Industrial Zone, Haicang District, Xiamen, China.Tel:(0592)2631523 Fax: (0592)2631599

2024-11-20

- **General**
- 1. All values in this datasheet are at reference temperature of 23° C (73° F) unless stated otherwise.
- 2. Evaluate the component's performance and operating conditions under the worst-case conditions of the actual application.
- 3. The datasheet and the component's specifications are subject to change without notice.
- **Storage, handling, and environmental guidelines**
- 4. Relays are electromechanical components that are sensitive to shock. The relay's adjustment can be affected if the relay is subjected to excessive shock or excessive pressure is applied to the relay case. Relays which have been dropped must no longer be used.
- 5. Substances containing silicone o r phosphorus must be avoided in the vicinity to the relay. Outgassing from these substances can penetrate the relay and adhere on the contacts. Deposits of these substances may act as insulators and adversely affect the contact resistance. Silicone can be found e.g. in gaskets, lubricants or filling materials, phosphorus can be found e.g. as a flame retardant in plastics.
- 6. Prevent relays from atmospheres containing corrosive gases or liquid or solid. Corrosion of structures and contacts leads to malfunction and shortens the component's service life.
- 7. Prevent non-sealed relays from atmospheres subject to dust. Dust particles may enter the case and get stuck between the contacts, causing the contact circuits to fail.
- 8. Do not use these relays in environments with explosive or flammable gases. Electrical arcing at the contacts could ignite these gases and cause fire.
- 9. For automated dual wave soldering process we recommend preheating with 120° C (248° F) for max. 120 seconds and a soldering temperature of 260 ±5° C (500 ±9° F) for max. 10 seconds soldering time (max. 5 seconds per wave). For manual soldering we recommend 350° C (662° F) max. temperature for max. 5 seconds. During the soldering process, no force may be exerted on the relay terminals.
- 10. Non-sealed relays (RTII) must not be washed, immersion cleaned or conformal coated as substances may enter the case and cause corrosion or seizure of mechanical parts.
- 11. Avoid high frequency or ultrasonic vibrations on the relays as these can cause contact welding and misalignment or destruction of internal structures.
- 12. During operation, storage and transport, ambient temperature should be within the specified operating temperature range. Humidity should be in the range of 5% to 85% RH. Icing and condensation must be avoided. Relays stored for an extended period of time may show initially increased contact resistance values due to chemical effects such as oxidation.
- **Design guidelines**
- 13. The relay may pull in and operate with less than the specified *must operate* voltage value.
- 14. The coil's *must operate* and *min. holding* voltages, the coil's *ohmic resistance* and the relay's *operate time* depend on the temperature of the coil. The specified values are given for a coil temperature of 23° C and increase by approx. 0.39% per Kelvin of temperature rise. This circumstance must be considered, especially during operation with high load currents and elevated ambient temperature.
- 15. At elevated ambient temperatures, after applying the rated nominal coil voltage for ≥ 200 milliseconds, the coil energization must be reduced to a suitable holding level in order to reduce thermal stress and to prevent the coil from overheating.
- 16. Coil suppression circuits such as diodes, etc. in parallel to the coil will lengthen the release time. We recommend using suppression circuits with a breakdown voltage of approx. 2 times the nominal coil voltage in order to achieve a quick release time.
- 17. When using PWM coil control, use a fast-switching recirculation diode in parallel with the coil to keep the coil current during pulse pauses. To achieve a quick release time when de-energizing the coil, the recirculation diode must be eliminated from the circuit to get a fast decay of coil current. As PWM frequency we recommend ≥ 15 kHz in order to avoid audible noise from magnetostriction. To reduce negative EMI effects, we recommend to apply the PWM to the coil's inner/center layer terminal and have the outer layer terminal connected to ground or the supply rail.
- 18. Contact resistance is a function of load current, dwell time and wear level of the contacts. Immediately after closing the contacts, or if tested with low current only, the contact resistance will show a relatively high value. A low level steady state contact resistance is reached at higher current after a certain time in thermal equilibrium.
- 19. The relay dissipates heat form power losses through its load terminals. Provide sufficient cross section and area of the PCB traces so that they can act as heat spreader.
- 20. For PCBs with multiple relays, do not place the components directly next to each other. We suggest providing a mounting distance of minimum 10 mm to allow for better cooling.
- 21. A minimum load of 10 mA / 5 V / 50 mW is recommended for the gold plated NC signal contact to ensure a reliable and stable electrical connection.
- 22. As with any contact mechanism, the relay's NC signal contact bounces when switching. For evaluation of its signal, suitable debouncing measures must be taken to get a reliable signal.

5F,No.6 , Xinjin Road , Xinyang Industrial Zone, Haicang District, Xiamen, China.Tel:(0592)2631523 Fax: (0592)2631599