

A1 Series

3~10A MINIATURE POWER RELAY

FEATURES

- Outline dimension (18.2mmx10.2mmx14.9mm)
- 1 Form A (SPST) contact arrangement
- Designed to meet cULus,TUV,CQC requirements
- 4,000VAC dielectric strength between coil and contact
- Sensitive and standard coils available
- RoHS compliance
- REACH SvHC compliance
- Halogen-Free type available Glow
- Glow wire type

APPLICATION

Industrial Control Appliances

COIL PARAMETER

| | | |
|--------------|----------|-------|
| Coil voltage | 3-48VDC | |
| Coil power | A1-LA/IA | 200mW |
| | A1-DA/HA | 450mW |

COIL DATA @23°C

| A1-LA/IA/IA2(200mW), Sensitive | | | | |
|--------------------------------|----------------------|-------------------------|----------------------------|----------------------------|
| Nominal coil voltage (VDC) | Nominal Current (mA) | Coil Resistance (Ω)±10% | Operate Voltage (VDC Max.) | Release Voltage (VDC Min.) |
| 3 | 66.7 | 45 | 2.25 | 0.15 |
| 5 | 40.0 | 125 | 3.75 | 0.25 |
| 6 | 33.3 | 180 | 4.50 | 0.30 |
| 9 | 22.5 | 400 | 6.75 | 0.45 |
| 12 | 16.7 | 720 | 9.00 | 0.60 |
| 18 | 11.1 | 1620 | 13.50 | 0.90 |
| 24 | 8.6 | 2880 | 18.00 | 1.20 |

| A1-DA/HA/HA2(450mW), Standard | | | | |
|-------------------------------|----------------------|-------------------------|----------------------------|----------------------------|
| Nominal coil voltage (VDC) | Nominal Current (mA) | Coil Resistance (Ω)±10% | Operate Voltage (VDC Max.) | Release Voltage (VDC Min.) |
| 3 | 150.0 | 20 | 2.25 | 0.15 |
| 5 | 90.9 | 55 | 3.75 | 0.25 |
| 6 | 75.0 | 80 | 4.50 | 0.30 |
| 9 | 50.0 | 180 | 6.75 | 0.45 |
| 12 | 37.5 | 320 | 9.00 | 0.60 |
| 18 | 25.0 | 720 | 15.50 | 0.90 |
| 24 | 18.0 | 1280 | 18.00 | 1.20 |
| 48 | 9.4 | 5100 | 36.00 | 2.40 |

- UL File NO. E341422
- TUV File NO. R50174892
- CQC File NO. CQC10002043606



CONTACT DATA

| | | |
|------------------------------------|------------------------------------|-------------------------------|
| Contact arrangement | 1 Form A (SPST) | |
| Contact material | Ag Alloy | |
| Initial contact resistance | 100mΩ max.@6VDC,1A | |
| Max. switching voltage | 250VAC/30V DC | |
| Max. switching current | 3A(LA) / 5A(DA) / 8A(IA) / 10A(HA) | |
| Max. switching power | 750VA/90W(LA) | 1250VA/150W(DA) |
| | 2000VA/240W(IA) | 2500VA/300W(HA) |
| Contact rating (Resistive Load) | A1-LA: | 3A@250VAC 3A@30VDC |
| | A1-IA/IA2: | 8A/10A@250VAC 8A/10A@30VDC |
| | A1-DA: | 5A@250VDC 5A@30VDC |
| | A1-HA/HA2: | 10A@250VAC 10A@30VDC |
| Mechanical endurance | 10,000,000 ops Min.(no load) | |
| Electrical endurance | 100,000 ops Min.(rated load) | |
| Minimum load (reference value) | 100mA@5VDC | |

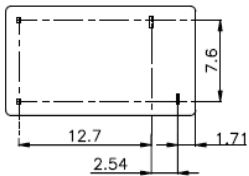
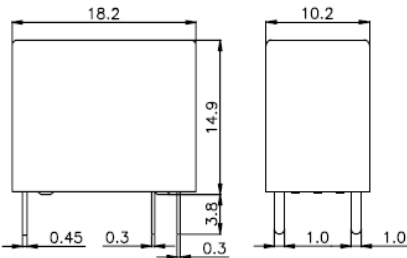
CHARACTERISTICS

| | | |
|---|---|--|
| Operate voltage | 75% of nominal voltage or less | |
| Release voltage | 5% of nominal voltage or more | |
| Operate time (At nominal voltage) | A1-LA/IA/IA2 | 15ms max. |
| | A1-DA/HA/HA2 | 10ms max. |
| Release time(At nominal voltage) | 4ms max. | |
| Insulation resistance | 1,000 MΩ min. (at 500 VDC) | |
| Dielectric strength | Between coil and contacts | 4,000 VAC, 50/60 Hz for 1 min |
| | Between open contacts | 1,000 VAC, 50/60 Hz for 1 min |
| Surge voltage between coil and contacts | 10,000V(1.2/50μs) | |
| Vibration resistance | Destruction | 10 to 55 Hz.,1.5mm double amplitude |
| | Malfunction | 10 to 55 Hz.,1.5mm double amplitude |
| Shock resistance | Destruction | 1,000 m/s ² (100G approximately) |
| | Malfunction | 100 m/s ² (10G approximately) |
| Ambient temperature | Operating: -30~+85°C or 105°C(H) (without icing or condensation) | |
| Ambient humidity | Operating: 20% to 85% RH | |
| Terminal | PCB terminals | |
| Enclosure (94V-0 Flammability Ratings) | V: Vented(Flux-tight, RTII) | |
| | S: Sealed(Wash-tight, RTIII) | |
| Weight | Approx. 6g | |

ORDERING INFORMATION

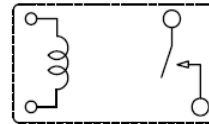
| | A1 | -V | -1 | 12 | H | A | 2 | F | '000 |
|--|----|----|----|----|---|---|---|---|------|
| 1. Product Family | | | | | | | | | |
| 2. Enclosure V=Vented(Flux-tight, RTII) S=Sealed(Wash-tight, RTIII) | | | | | | | | | |
| 3. Number of Poles 1=1 pole | | | | | | | | | |
| 4. Rated Coil Voltage 03=3VDC 05=5VDC 06=6VDC 09=9VDC 12=12VDC 18=18VDC 24=24VDC 48=48VDC | | | | | | | | | |
| 5. Coil Power LA/IA = 200mW DA/HA = 450mW | | | | | | | | | |
| 6. Contact Arrangement A = Form A(SPST) | | | | | | | | | |
| 7. Contact Arrangement DA/LA:=Blank=Ag IA/HA:=Blank=AgCdO IA2/HA2:=Blank=AgSnO | | | | | | | | | |
| 8. Insulation System Blank = Class(105°C) F = Class F(155°C) | | | | | | | | | |
| 7. Additional numbers and /or letters 000-999, AAA-ZZZ, aaa-zzz or blank, which does not represent electrical changes, only for specific customer requirements | | | | | | | | | |

OUTLINE DIMENSION



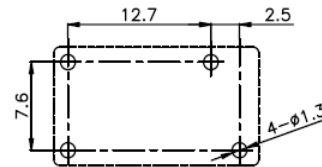
WIRING DIAGRAMS (BOTTOM VIEWS)

Unit:mm



PC BOARD LAYOUTS (BOTTOM VIEWS)

Unit:mm



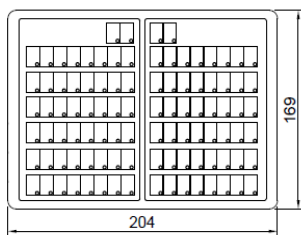
- Remarks:**
- The reference tolerance in outline dimension:
 - outline dimension ≤ 1mm, reference tolerance is ±0.2mm;
 - outline dimension > 1mm and ≤ 5mm, reference tolerance is ±0.3mm;
 - outline dimension > 5mm, reference tolerance is ±0.5mm.
 - The reference tolerance for PC Board layout is ±0.1mm.

Typical products

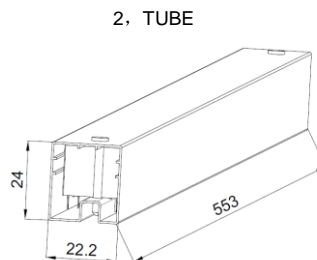
| Product Description | | Characteristic | | | | | | | | | | |
|---------------------|------|---------------------------------|------------------|--------------|----------------------|----------------------|------|----------------|-----------------|--------------|---------------------------|--------------|
| Product Name | Code | Coil Rated voltage | Contact material | Contact Load | Electrical endurance | Safety certification | Glow | Anti-explosion | Special Feature | | | |
| A1-V-1**LA | 000 | 3V.5V.6V.9V.12V .18V.24V.48V | Ag | 3A @250VAC | 100000ops.min | UL/cUL,TUV,CQC | | | | | | |
| A1-S-1**LA | 000 | | | | | | | | | | | |
| A1-V-1**DA | 000 | | Ag | 5A @250VAC | | | | | | | Packing: box | |
| | 000T | | | | | | | | | | Packing: tube | |
| | 200 | | | | | | | | | | Black case | |
| | 900 | | | | | | ● | | | | | |
| | 900T | | | | | | ● | | | | Packing: tube | |
| A1-S-1**DA | 000 | | AgSnO | 5A @250VAC | | | | | | | Packing: tube | |
| | 000T | | | | | | | | | | Black case | |
| | 200 | | | | | | ● | | | | | |
| | 600 | | | | | | ● | ● | | | | |
| A1-V-1**DAF | 000 | | Ag | 5A @250VAC | | | | | | | White bobbin | |
| A1-S-1**DAF | 000 | | | | | | | | | | White bobbin | |
| A1-V-1**IA | 000 | | AgCdO | 8A @250VAC | | | | | | | | |
| | 600 | | | | | | ● | | | | | |
| | 200 | | | | | | | | | | | |
| A1-V-1**IA2 | 000 | | AgSnO | 8A @250VAC | | | | | | | | |
| A1-S-1**IA2 | 000 | | | | | | | | | | | |
| A1-V-1**IA2F | 000 | | | | | | | | | | | |
| A1-S-1**IA2F | 000 | | | | | | | | | | | White bobbin |
| | 100 | | | | | | | | | | | Halogen-Free |
| | 201 | | | | | | | | | Halogen-Free | | |
| A1-V-1**IA(10A) | 000 | | AgCdO | 10A @250VAC | | | | | | | | |
| | 600 | | | | | | ● | | | | | |
| | 200 | | | | | | | | | | | |
| A1-V-1**IA2(10A) | 000 | | AgSnO | 10A @250VAC | | | | | | | | |
| A1-S-1**IA2(10A) | 000 | | | | | | | | | | | |
| A1-V-1**IA2F(10A) | 000 | | | | | | | | | | | |
| A1-S-1**IA2F(10A) | 000 | | | | | | | | | | | White bobbin |
| | 100 | | | | | | | | | | | Halogen-Free |
| | 201 | | | | | | | | | Halogen-Free | | |
| A1-V-1**HA | 000 | | AgCdO | 10A @250VAC | | | | | | | | Marking top |
| | 101 | | | | | | | | | | Marking top Packing: tube | |
| | 101T | | | | | | ● | | | | | |
| A1-S-1**HA | 000 | | AgCdO | 10A @250VAC | | | | | | | | Marking top |
| | 101 | | | | | | | | | | Marking top Packing: tube | |
| | 600 | | | | | | ● | | | | | |
| | F600 | | | | | | ● | ● | | | | |
| A1-V-1**HAF | 000 | | Ag alloy | | | | | | | | TV-5 | |
| A1-S-1**HAF | 000 | | AgCdO | 10A @250VAC | | | | | | | | White bobbin |
| | 600 | | | | | | | White bobbin | | | | |
| | F600 | ● | | | | | | | | | | |
| | 601 | ● | | | ● | | | | | | | |
| A1-V-1**HA2 | 000 | Ag alloy | 10A @250VAC | | | | | | T105 | | | |
| | 000T | | | ● | | | | Packing: tube | | | | |
| | 100 | | | ● | | | | | | | | |
| A1-S-1**HA2 | 000 | AgSnO | 10A @250VAC | | | | | | Packing: tube | | | |
| | 000T | | | | | | | Halogen-Free | | | | |
| | 600 | | | ● | | | | | | | | |
| | F600 | | | ● | ● | | | | | | | |
| A1-V-1**HA2F | 000 | | | | | | | | | | | |
| A1-S-1**HA2F | 000 | | | | | | | | | | | |

Remarks: Special ordering for other requirements

Packaging Figure



100 pcs inside a box
1000pcs inside a carton



50 pcs inside a tube
2000 pcs inside a carton

Note: Packaging Can be Changed According to Customer Requirements