

A1 Series

3~10A MINIATURE POWER RELAY

FEATURES

- Outline dimension (18.2mm×10.2mm×14.9mm)
- 1 Form A (SPST) contact arrangement
- Designed to meet cULus,TUV,CQC requirements
- 4,000VAC dielectric stengt 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	

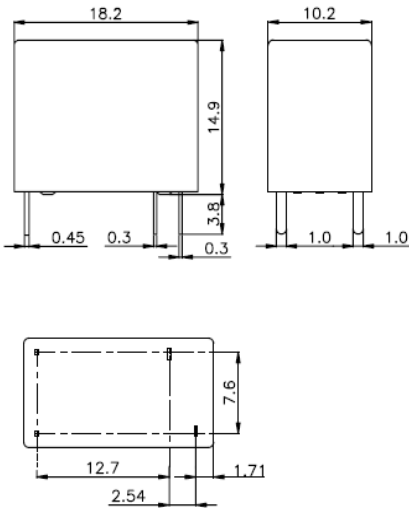
CHARACTERISTICS

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

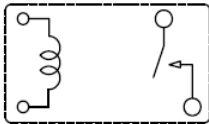
	A1	-V	-1	12	H	A	2	F	'000
1. Product Family									
2. Enclosure									
V=Vented(Flux-tight, RTII)									
S=Sealed(Wash-tight, RTIII)									
3. Number of Poles									
1=1 pole									
4. Rated Coil Voltage									
03=3VDC 05=5VDC 06=6VDC 09=9VDC									
12=12VDC 18=18VDC 24=24VDC 48=48VDC									
5. Coil Power									
LA/IA = 200mW									
DA/HA = 450mW									
6. Contact Arrangement									
A = Form A(SPST)									
7. Conact Arrangement									
DA/LA:=Blank=Ag									
IA/HA:=Blank=AgCdO									
IA2/HA2:=Blank=AgSnO									
8. Insulation System									
Blank = Class(105℃)									
F = Class F(155℃)									
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



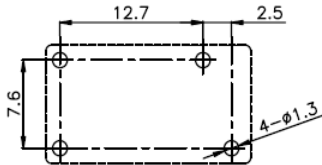
WIRING DIAGRAMS (BOTTOM VIEWS)

Unit:mm



PC BOARD LAYOUTS (BOTTOM VIEWS)

Unit:mm



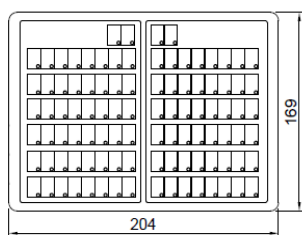
Remarks: 1)The reference tolerance in outline dimension:
outline dimension $\leq 1\text{mm}$, reference tolerance is $\pm 0.2\text{mm}$;
outline dimension $> 1\text{mm}$ and $\leq 5\text{mm}$, reference tolerance is $\pm 0.3\text{mm}$;
outline dimension $> 5\text{mm}$, reference tolerance is $\pm 0.5\text{mm}$.
2)The reference tolerance for PC Board layout is $\pm 0.1\text{mm}$.

Typical products

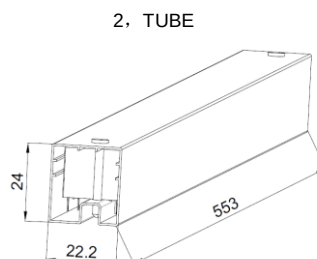
Product Description		Characteristic															
Product Name	Code	Coil Rated voltage	Contact material	Contact Load	Electrical endurance	Safety certification	Glow	Anti-explosion	Special Feature								
A1-V-1**LA	000	3V.5V.6V.9V.12V .18V.24V.48V	Ag	3A @250VAC	100000ops.min	UL/cUL,TUV,CQC										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