

LAUBE TECHNOLOGY

PCB RELAYS

<u>CONTACT FORM</u>	<u>CURRENT</u>	<u>PART SERIES</u>	<u>PAGE #'S</u>
(1A) SPST-NO	5	TRJV	28~30 (Link)
(1A) SPST-NO	10	TRG1	31~33 (Link)
(1A) SPST-NO	12	TRA1	34~36 (Link)
(1A) SPST-NO	12	TRA4	43~45 (Link)
(1A) SPST-NO	15	HJR-21FF	22~24 (Link)
(1A) SPST-NO	15	HJR-3FF	19~21 (Link)
(1A) SPST-NO	20	TRA2	37~39 (Link)
(1A) SPST-NO	25	HJR-78F	25~27 (Link)
(1C) SPDT	10	TRG1	31~33 (Link)
(1C) SPDT	12	TRA1	34~36 (Link)
(1C) SPDT	15	HJR-21FF	22~24 (Link)
(1C) SPDT	20	TRA2	37~39 (Link)
(1C) SPDT	25	HJR-78F	25~27 (Link)
(2A) 2-SPST-NO	8	TRA3	40~42 (Link)
(2A) 2-SPST-NO	7	TRA5	46~48 (Link)
(2C) DPDT	8	TRA3	40~42 (Link)

HJR-3FF

SPECIFICATION

FILE NUMBER: P-08KA501A

DATE: 2001/11/02



■ Features

10A switching capability

Small footprint

Sealed type available

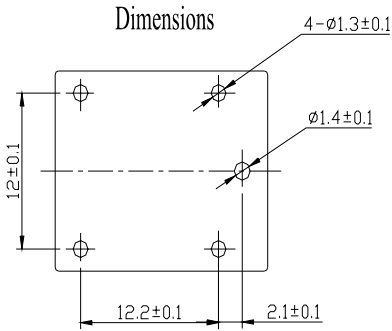
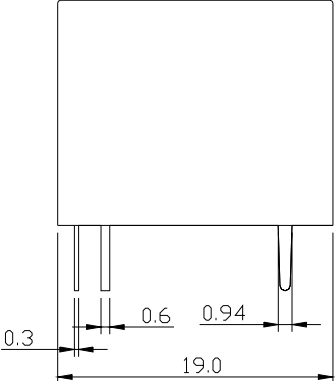
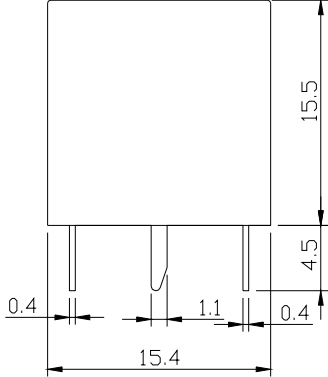
■ CONTACT DATA

Contact Form	1A/1C	
Contact Material	AgCdO	AgSnO
Contact Ratings	1A:10A 240VAC, 15A 12VDC(TUV) 12A 120VAC/24VDC	1C: 7A 240VAC/10A 120VAC/24VDC 5A 240VAC(TUV)
Max Switching Voltage	250VAC/30VDC	
Max Switching Current	15A	
Max Switching Power	2770VA/240W	
Contact Resistance	100m Ω Max	at 6VDC 1A
Life Expectancy Electrical	100,000	Operations(at 30 Operations/min.)
Mechanical	10,000,000	Operations

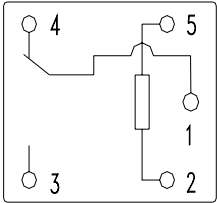
■ GENERAL DATA

Insulation Resistance	100M Ω Min at 500VDC	
Dielectric Strength Between Open Contacts	750VAC(for one minute)	
Between Contacts and coil	1500VAC(for one minute)	
Operate Time	10ms	
Release Time	5ms	
Temperature Range	-40°C to+70 °C	
Shock Resistance	Operating Extremes	10G
	Damage Limits	100G
Vibration Resistance	10-50Hz 1.5mm	
Humidity	40—85%	
Weight	Approx 10g	
Safety Standard	UL:E 173485 TUV:R 9859574,CH0062184-2001	

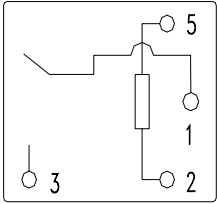
OVERALL AND MOUNTING DIMENSIONS



Terminal Arrangement/
Internal Connections
(Bottoms view)



Form C



Form A

HJR-21FF

SPECIFICATION

FILE NUMBER: P-08KA601A

DATE: 2001/11/02



■ Features

- 10A switching capability
- SPST-NO configuration
- Small footprint
- Sealed version available

■ CONTACT DATA

Contact Form	1A/1C	
Contact Material	AgCdO	AgSnO
Contact Ratings	1A:12A 240VAC 15A 12VDC(TUV) 15A 120VAC/24VDC	1C:10A 240VAC/12A 120VAC/240VDC 7A 240VAC(TUV)
Max Switching Voltage	250VAC/30VDC	
Max Switching Current	15A	
Max Switching Power	2770VA/240W	
Contact Resistance	100m Ω Max	at 6VDC 1A
Life Expectancy Electrical	100,000	Operations(at 30 Operations/min.)
Mechanical	10,000,000	Operations

■ GENERAL DATA

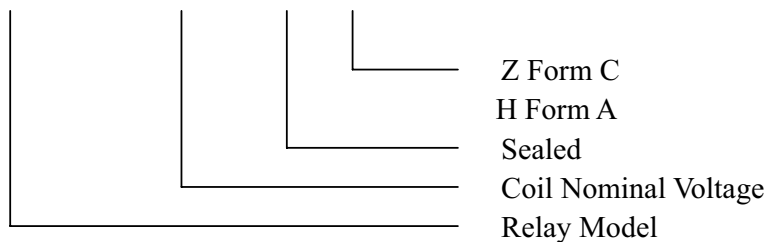
Insulation Resistance	100M Ω Min at 500VDC	
Dielectric Strength Between Open Contacts	750VAC(for one minute)	
Between Contacts and coil	1500VAC(for one minute)	
Operate Time	10ms	
Release Time	5ms	
Temperature Range	-40°C to+70 °C	
Shock Resistance	Operating Extremes	10G
	Damage Limits	100G
Vibration Resistance	10-55Hz,1.5mm	
Humidity	40-85%	
Weight	Approx 13g	
Safety Standard	TUV R9859574 UL:E173485, CH0062182-2001	

■ COIL DATA

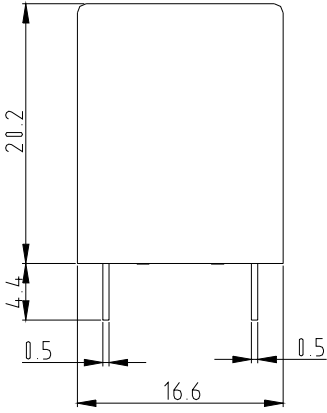
Nominal Voltage (VDC)	Coil Resistance at 20±10% (Ω)		Max Operate Voltage VDC	Min Release Voltage VDC	Max Applicable Voltage VDC
	0.36W	0.45W			
3	25		2.25	0.3	3.9
5	70		3.75	0.5	6.5
6	100		4.5	0.6	7.8
9	225		6.75	0.9	11.7
12	400		9	1.2	15.6
24	1600		18	2.4	31.2
48	6400±15%	5100±15%	36	4.8	62.4

■ ORDERING CODE

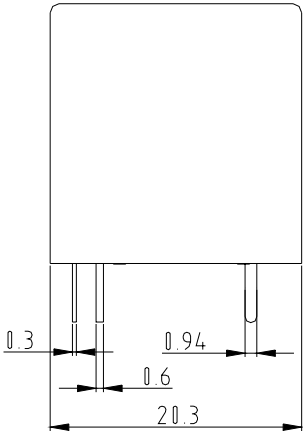
HJR-21FF---12VDC--S--H



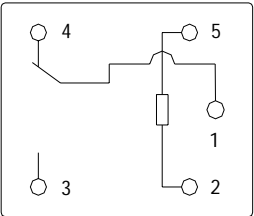
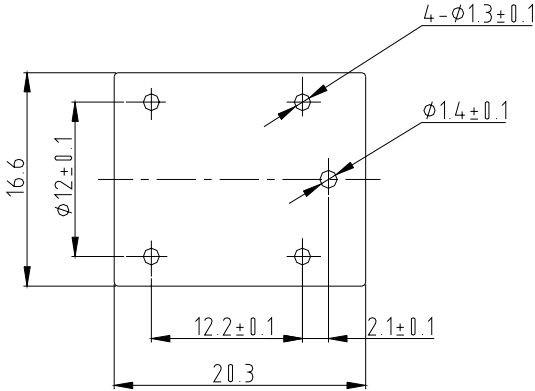
OVERALL AND MOUNTING DIMENSIONS



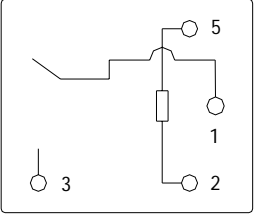
Dimensions



Terminal Arrangement/
Internal Connections
(Bottom view)



Form C



Form A

HJR-78F(TRKM)

SPECIFICATION

FILE NUMBER: P-08KE201A

DATE: 2001/11/02



■ Features

20A switching capability

Small size auto relay

■ CONTACT DATA

Contact Form	1A/1C	
Contact Material	AgNi, AgSnO	
Contact Ratings	NC:20A14VDC	NC:12A/14VDC 1C:7A 120VAC
Max Switching Voltage	16VDC	
Max Switching Current	25A	
Max Switching Power	400W,840VA	
Contact Resistance	100m Ω Max	at 6VDC 1A
Life Expectancy Electrical	100,000	Operations(at 30 Operations/min.)
Mechanical	10,000,000	Operations

■ GENERAL DATA

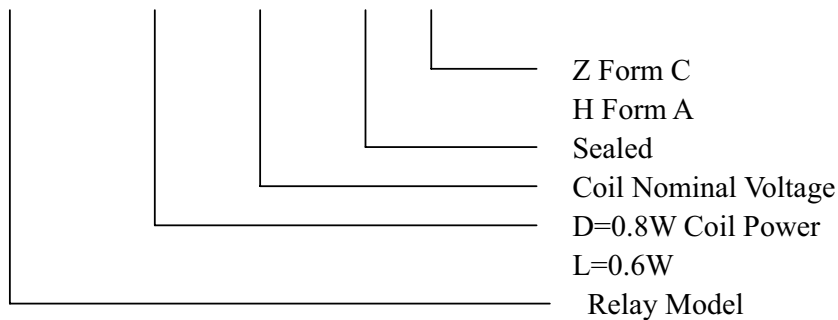
Insulation Resistance	100M Ω Min at 500VDC	
Dielectric Strength Between Open Contacts	500VAC(for one minute)	
Between Contacts and coil	500VAC(for one minute)	
Operate Time	10ms	
Release Time	5ms	
Temperature Range	-40°C to+85°C	
Shock Resistance	Operating Extremes	10G
	Damage Limits	100G
Vibration Resistance	10-55Hz,2.0mm	
Humidity	35-85%	
Weight	Approx. 6g	
Safety Standard	UL:E173485	

■ COIL DATA

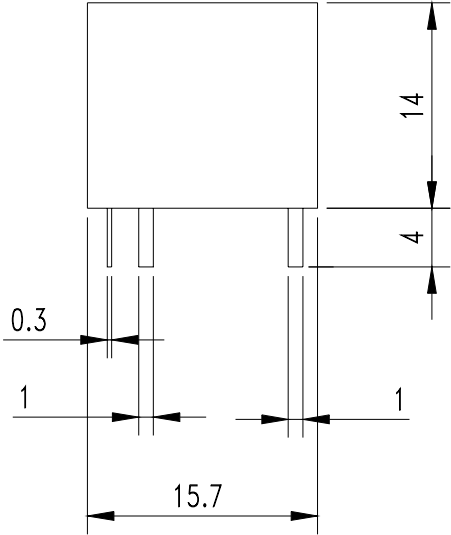
Nominal Voltage (VDC)	Coil Resistance at 20±10%(Ω)		Max Operate Voltage (VDC)	Min Release Voltage (VDC)	Max Applicable Voltage (VDC)
	0.6W	0.8W			
6	60	45	3.9	0.48	7.8
9	135	100	5.85	0.72	11.7
12	240	180	7.8	0.96	15.6
24	960	720	15.6	1.92	31.2

■ ORDERING CODE

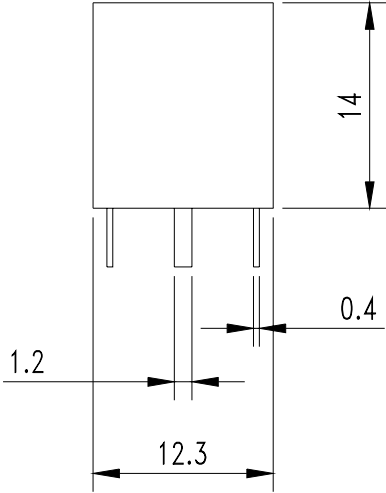
HJR-78F(TRKM) D--12VDC--S--Z



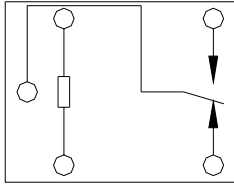
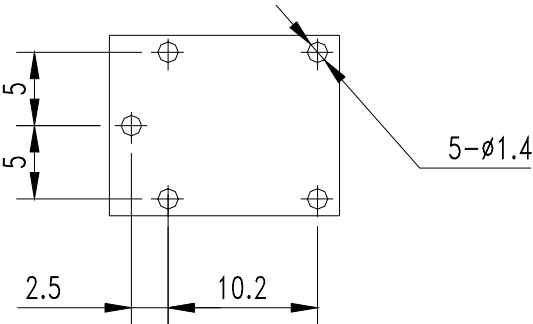
OVERALL AND MOUNTING DIMENSIONS



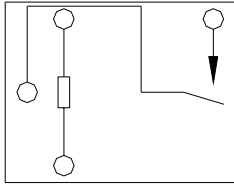
Dimensions



Terminal Arrangement/
Internal connections
(Bottom view)



Form C



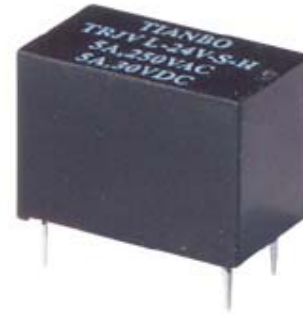
Form A

TRJV

SPECIFICATION

FILE NUMBER: P-08KF201A

DATE: 2002/1/28



■ Features

Low profile and space saving
 High sensitivity in small package
 Nominal power:0.2 to 0.3W
 High insulation with reinforced insulation system
 Plastic sealed type

■ CONTACT DATA

Contact Form	1A(SPST-NO)	
Contact Material	SILVER ALLOY	
Contact Ratings	5A 250VAC / 5A30VDC	
Max Switching Voltage	250VAC / 150VDC	
Max Switching Current	5A	
Max Switching Power	1250VA / 150W	
Contact Resistance	100m Ω Max	at 6VDC 1A
Life Expectancy Electrical	100,000	Operations(at 30 Operations/min.)
Mechanical	5,000,000	Operations

■ GENERAL DATA

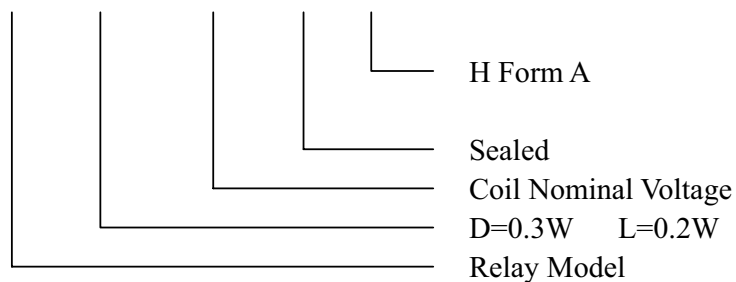
Insulation Resistance	1000M Ω Min at 500VDC
Dielectric Strength Between Open Contacts	750VAC(for one minute)
Between Contacts and coil	5000VAC(for one minute)
Operate Time	8ms
Release Time	4ms
Temperature Range	-40°C to+70°C
Shock Resistance	10G 11ms
Vibration Resistance	10-55Hz,1.5mm
Humidity	40-85%
Weight	Approx 4.5g
Safety Standard	

■ COIL DATA

Nominal Voltage (VDC)	Coil Resistance at 20±10%(Ω)		Max Operate Voltage (VDC)	Min Release Voltage (VDC)	Max Applicable Voltage (VDC)
	0.2W	0.3W			
3	45	30	2.25	0.15	3.9
5	125	83	3.75	0.25	6.5
6	180	120	4.5	0.3	7.8
9	405	270	6.75	0.45	11.7
12	720	480	9	0.6	15.6
18	1620	1080	13.5	0.9	23.4
24	2880	1920	18	1.2	31.2
48	0.36W 6400±15%(Ω)		36	2.4	62.4

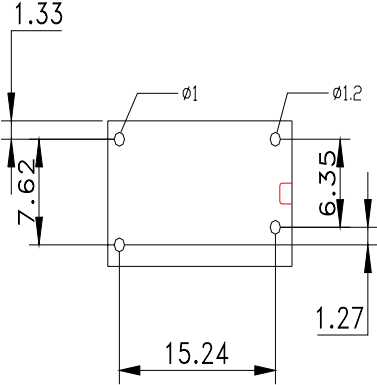
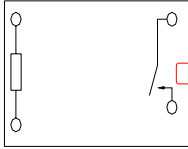
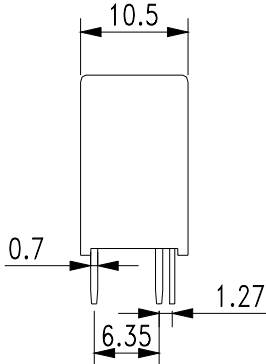
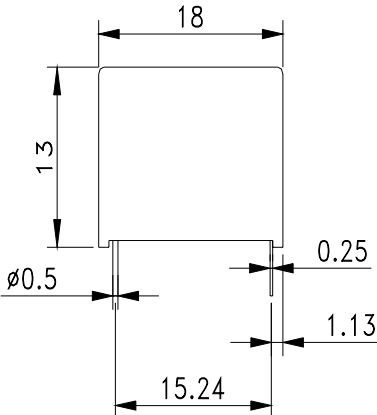
■ ORDERING CODE

TRJV D--12VDC--S--H



OVERALL AND MOUNTING DIMENSIONS

DIMENSIONS



BOTTOM VIEW

PCB BOTTOM VIEW

TRG1

SPECIFICATION

FILE NUMBER: P-08KB101A

DATE: 2001/11/02



■ Features

- 10A switching capability
- SPST-NO & SPDP configuration
- Standard PC layout
- Sealed type available

■ CONTACT DATA

Contact Form	1A/1C	
Contact Material	AgCdO	AgSnO
Contact Ratings	1A:10A/120VAC 5A/240VAC/30VDC 1A-L,1C:3A 240VAC/30VDC	
Max Switching Voltage	250VAC/30VDC	
Max Switching Current	10A	
Max Switching Power	1200VA/150W	
Contact Resistance	100M Ω max	at 6VDC 1A
Life Expectancy Electrical	100,000	Operations(at 30 Operations/min.)
Mechanical	10,000,000	Operations

■ GENERAL DATA

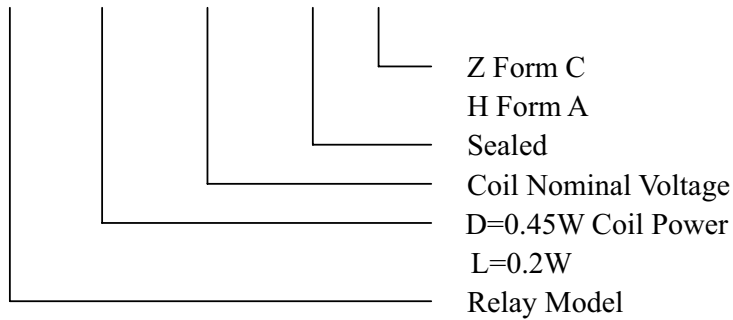
Insulation Resistance	100M Ω Min at 500VDC	
Dielectric Strength Between Open Contacts	750VAC(for one minute)	
Between Contacts and coil	2500VAC(for one minute)	
Operate Time	8ms	
Release Time	5ms	
Temperature Range	-40°C to+70°C	
Shock Resistance	Operating Extremes	10G
	Damage Limits	100G
Vibration Resistance	10-55Hz,1.5mm	
Humidity	40-85%	
Weight	Approx 6g	
Safety Standard	UL: E173485, CH0062183-2001	

■ COIL DATA

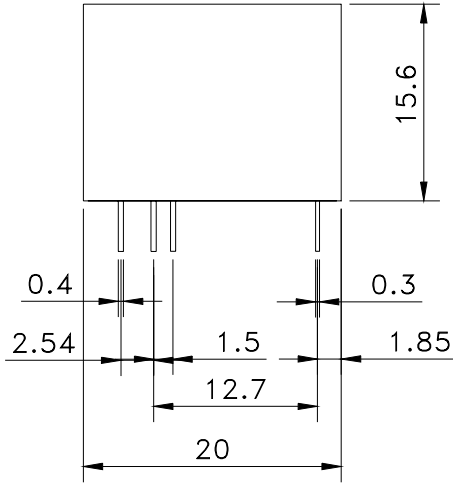
Nominal Voltage (VDC)	Coil Resistance at 20±10%(Ω)		Max Operate Voltage VDC	Min Release Voltage VDC	Max Applicable Voltage VDC
	0.2W	0.45W			
3	45	20	2.25	0.3	3.9
5	125	56	3.75	0.5	6.5
6	180	80	4.5	0.6	7.8
9	405	180	6.75	0.9	11.7
12	720	320	9	1.2	15.6
24	2880	1280	18	2.4	31.2
48		5100±15%	36	4.8	62.4

■ ORDERING CODE

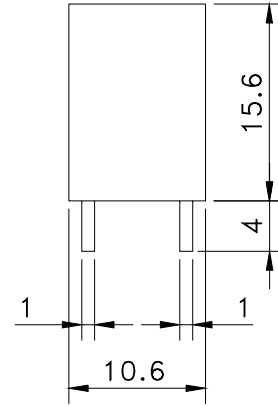
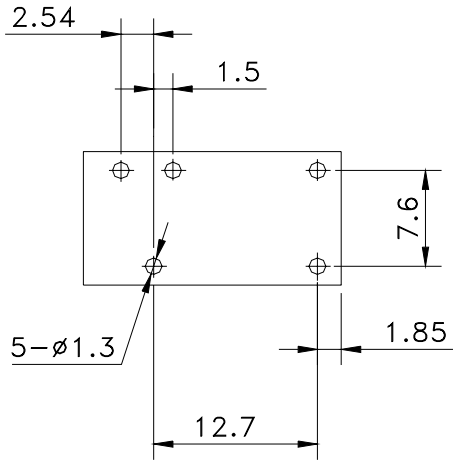
TRG1 D--12VDC--S--Z



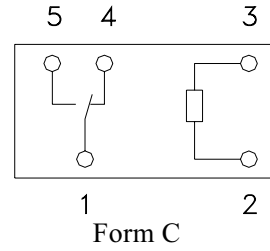
OVERALL AND MOUNTING DIMENSIONS



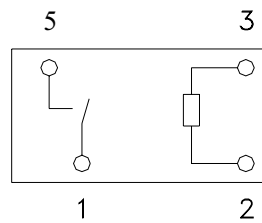
Dimensions



Terminal Arrangement/
Internal Connections
(Bottom view)



Form C



Form A

TRA1

SPECIFICATION

FILE NUMBER: P-08KC101A

DATE: 2001/11/02



■ Features

- 10A switching capability
- SPST-NO & SPDP configuration
- Small footprint
- Sealed version available

■ CONTACT DATA

Contact Form	1A/1C	
Contact Material	AgCdO	AgSnO
Contact Ratings	10A 240VAC	10A 30VDC
Max Switching Voltage	250VAC/30VDC	
Max Switching Current	12A	
Max Switching Power	2500VA/300W	
Contact Resistance	100m Ω Max	at 6VDC 1A
Life Expectancy Electrical	100,000	Operations(at 30 Operations/min.)
Mechanical	10,000,000	Operations

■ GENERAL DATA

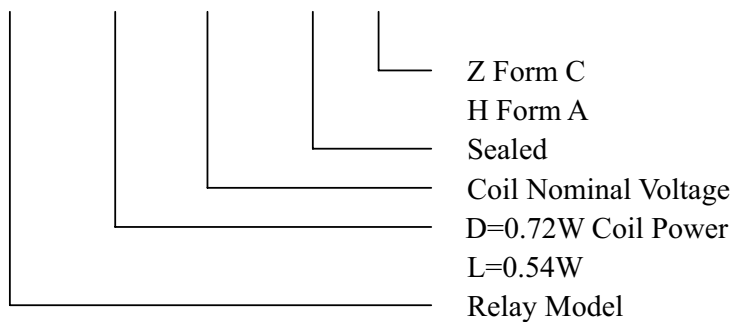
Insulation Resistance	100M Ω Min at 500VDC	
Dielectric Strength Between Open Contacts	1000VAC(for one minute)	
Between Contacts and coil	5000VAC(for one minute)	
Operate Time	20ms	
Release Time	10ms	
Temperature Range	-30°C to+70°C	
Shock Resistance	Operating Extremes	10G
	Damage Limits	100G
Vibration Resistance	10-55Hz,1.5mm	
Humidity	40-85%	
Weight	Approx 14g	
Safety Standard	UL:E173485	

■ COIL DATA

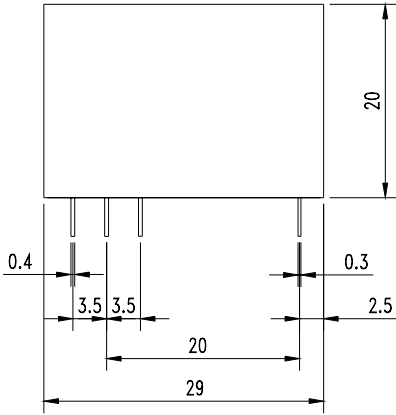
Nominal Voltage (VDC)	Coil Resistance at 20±10% (Ω)		Max Operate Voltage VDC	Min Release Voltage VDC	Max Applicable Voltage VDC
	0.54W	0.72W			
3	17	13	2.4	0.15	3.9
5	46	35	4	0.25	6.5
6	67	50	4.8	0.3	7.8
9	150	110	7.2	0.45	11.7
12	270	200	9.6	0.6	15.6
24	1050	800	19.2	1.2	31.2
48	4250±15%	3200	38.4	2.4	62.4

■ ORDERING CODE

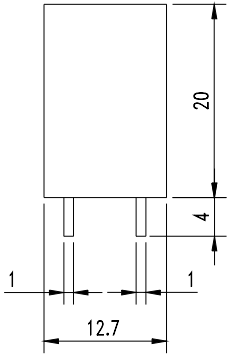
TRA1 D--12VDC S--Z



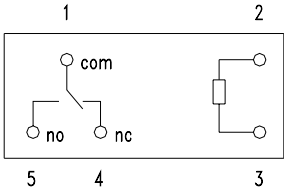
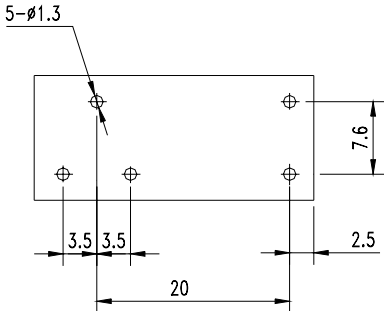
OVERALL AND MOUNTING DIMENSIONS



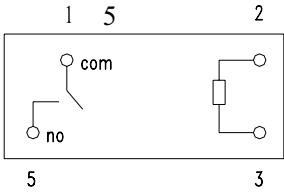
Dimensions



Terminal Arrangement/
Internal Connections
(Bottom view)



Form C



Form A

TRA2

SPECIFICATION

FILE NUMBER: P-08KC201A

DATE: 2001/11/02



■ Features

- 16 switching capability
- SPST-NO & SPDP configuration
- 5KV dielectric between coil and contacts

■ CONTACT DATA

Contact Form	1A/1C	
Contact Material	AgCdO	AgSnO
Contact Ratings	16A 240VAC	16A 30VDC
Max Switching Voltage	250VAC/30VDC	
Max Switching Current	20A	
Max Switching Power	4800VA/480W	
Contact Resistance	100m Ω Max	at 6VDC 1A
Life Expectancy Electrical	100,000	Operations(at 30 Operations/min.)
Mechanical	10,000,000	Operations

■ GENERAL DATA

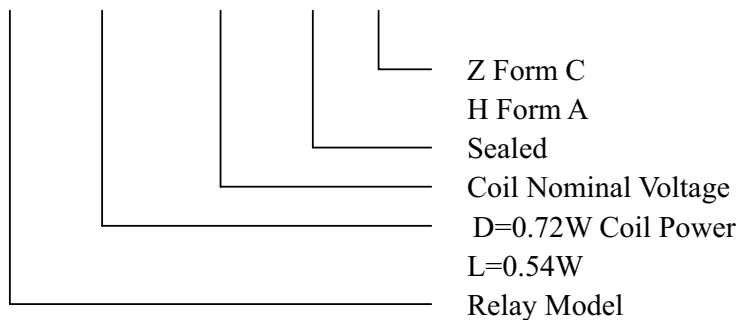
Insulation Resistance	100M Ω Min at 500VDC	
Dielectric Strength Between Open Contacts	1000VAC(for one minute)	
Between Contacts and coil	5000VAC(for one minute)	
Operate Time	20ms	
Release Time	10ms	
Temperature Range	-40°C to+70°C	
Shock Resistance	Operating Extremes	10G
	Damage Limits	100G
Vibration Resistance	10-55Hz,1.5mm	
Humidity	40-85%	
Weight	Approx 14g	
Safety Standard	UL:E173485	

■ COIL DATA

Nominal Voltage (VDC)	Coil Resistance at 20±10%(Ω)		Max Operate Voltage VDC	Min Release Voltage VDC	Max Applicable Voltage VDC
	0.54W	0.72W			
3	17	13	2.4	0.15	3.9
5	46	35	4	0.25	6.5
6	67	50	4.8	0.3	7.8
9	150	110	7.2	0.45	11.7
12	270	200	9.6	0.6	15.6
24	1050	800	19.2	1.2	31.2
48	4250±15%	3200	38.4	2.4	62.4

■ ORDERING CODE

TRA2 D--12VDC--S--Z



TRA3

SPECIFICATION

FILE NUMBER: P-08KC301A

DATE: 2001/11/02



■ Features

Creepage distance: 8.0mm Min

Au-clad contact available

■ CONTACT DATA

Contact Form	2A/2C	
Contact Material	AgCdO	AgSnO
Contact Ratings	5A 240VAC	5A 30VDC
Max Switching Voltage	250VAC/30VDC	
Max Switching Current	8A	
Max Switching Power	1250VA/240W	
Contact Resistance	100m Ω Max	at 6VDC 1A
Life Expectancy Electrical	100,000	Operations(at 30 Operations/min.)
Mechanical	10,000,000	Operations

■ GENERAL DATA

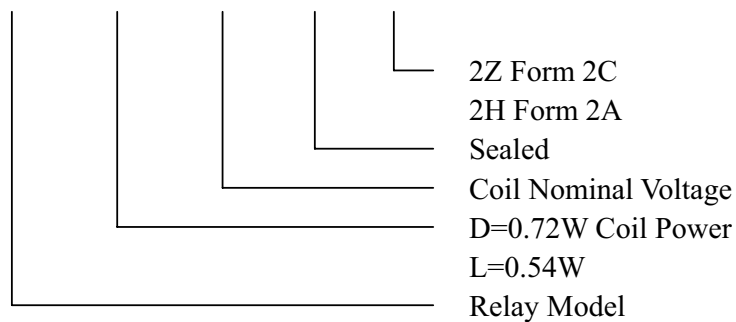
Insulation Resistance	100M Ω Min at 500VDC	
Dielectric Strength Between Open Contacts	1000VAC(for one minute)	
Between Contacts and coil	5000VAC(for one minute)	
Operate Time	20ms	
Release Time	10ms	
Temperature Range	-30°Cto+70 °C	
Shock Resistance	Operating Extremes	10G
	Damage Limits	100G
Vibration Resistance	10-55Hz,1.5mm	
Humidity	40-85%	
Weight	Approx 14g	
Safety Standard	UL:E173485	

■ COIL DATA(2Z)

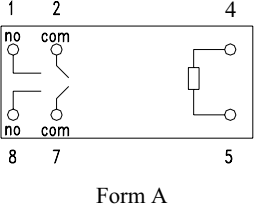
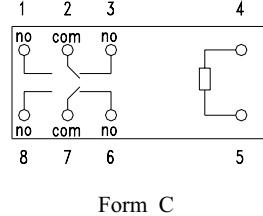
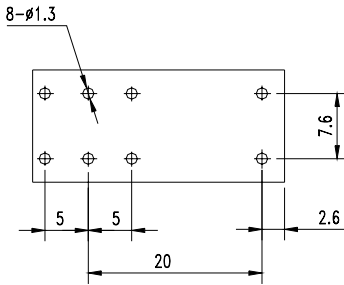
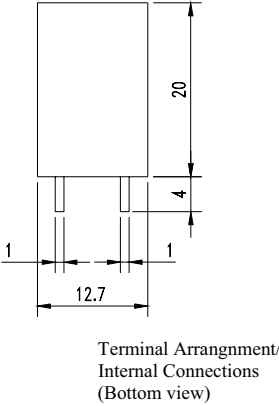
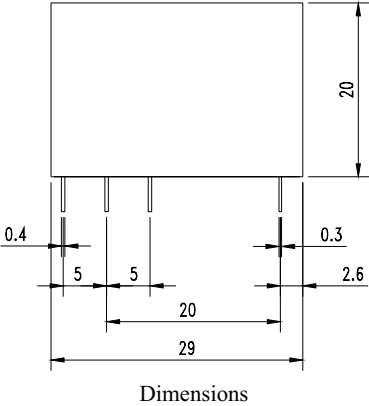
Nominal Voltage (VDC)	Coil Resistance at 20±10%(Ω)		Max Operate Voltage VDC	Min Release Voltage VDC	Max Applicable Voltage VDC
	0.54W	0.72W			
3	17	13	2.4	0.15	3.9
5	46	35	4	0.25	6.5
6	67	50	4.8	0.3	7.8
9	150	110	7.2	0.45	11.7
12	270	200	9.6	0.6	15.6
24	1050	800	19.2	1.2	31.2
48	4250±15%	3200	38.4	2.4	62.4

■ ORDERING CODE

TRA3 D--12VDC--S---2Z



OVERALL AND MOUNTING DIMENSIONS



TRA4

SPECIFICATION

FILE NUMBER: P-08KB201A

DATE: 2001/7/19



■ Features

- 1 form A contact arrangement
- Immersion cleanable, sealed version available
- Applications include appliance, HVAC, CTV, Monitor, Emergency lighting

■ CONTACT DATA

Contact Form	1A	
Contact Material	AgSnO	
Contact Ratings	10A 250VAC/30VDC	
Max Switching Voltage	250VAC/110VDC	
Max Switching Current	12A	
Max Switching Power	2500VA/300W	
Contact Resistance	100m Ω Max	at 6VDC 1A
Life Expectancy Electrical	100,000	Operations(at 30 Operations/min.)
Mechanical	10,000,000	Operations

■ GENERAL DATA

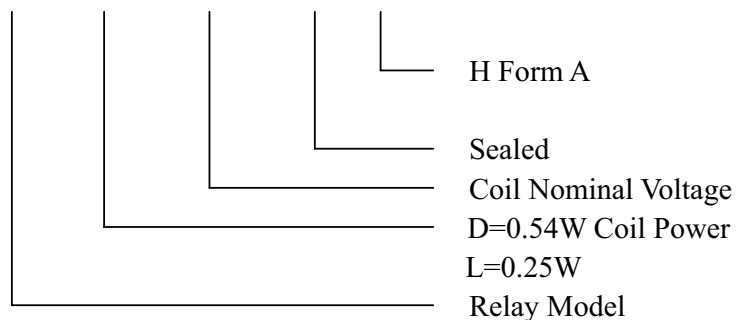
Insulation Resistance	100M Ω Min at 500VDC	
Dielectric Strength Between Open Contacts	1000VAC(for one minute)	
Between Contacts and coil	4000VAC(for one minute)	
Operate Time	20ms	
Release Time	10ms	
Temperature Range	-40°C to+70°C	
Shock Resistance	Operating Extremes	10G
	Damage Limits	100G
Vibration Resistance	10-55Hz,1.5mm	
Humidity	20-85%	
Weight	Approx 11g	
Safety Standard		

■ COIL DATA

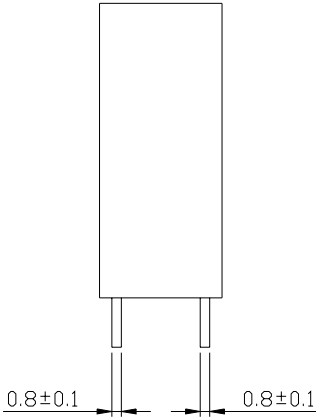
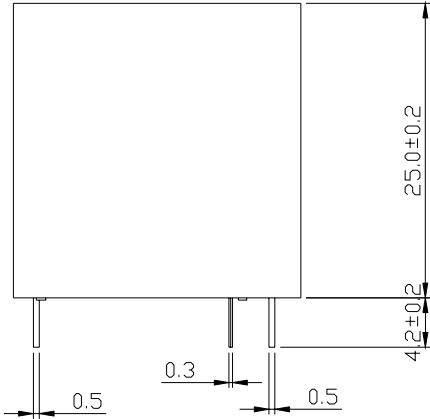
Nominal Voltage (VDC)	Coil Resistance at 20±10%(Ω)		Max Operate Voltage VDC	Min Release Voltage VDC	Max Applicable Voltage VDC
	0.25W	0.54W			
3	36	16.7	2.25	0.3	3.9
5	100	46.3	3.75	0.5	6.5
6	144	66.7	4.5	0.6	7.8
9	324	150	6.75	0.9	11.7
12	576	266.7	9	1.2	15.6
24	2304	1066.7	18	2.4	31.2
48	9216±15%	4266.7±15%	36	4.8	62.4

■ ORDERING CODE

TRA4 D--12VDC--S--H

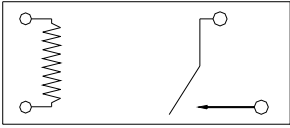
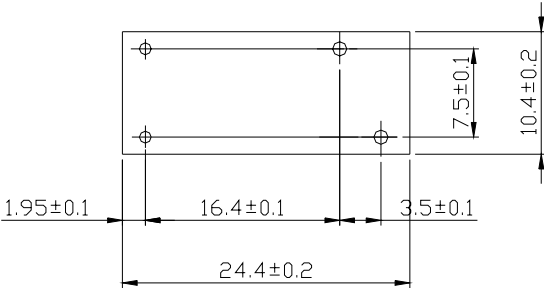


OVERALL AND MOUNTING DIMENSIONS



Dimensions

Terminal Arrangement/
Internal Connections
(Bottom view)



TRA5

SPECIFICATION

FILE NUMBER: P-08KB301A

DATE: 2001/7/19



■ Features

- 2 form A contact arrangement
- Immersion cleanable, sealed version available
- Meet 3000V dielectric voltage between coil and contacts (1.2/50us)

■ CONTACT DATA

Contact Form	2A	
Contact Material	AgSnO	
Contact Ratings	3A 125VAC/24VDC	5A 250VAC/30VDC
Max Switching Voltage	250VAC/30VDC	
Max Switching Current	7A	
Max Switching Power	1250VA/150W	
Contact Resistance	100m Ω Max	at 6VDC 1A
Life Expectancy Electrical	100,000	Operations(at 30 Operations/min.)
Mechanical	10,000,000	Operations

■ GENERAL DATA

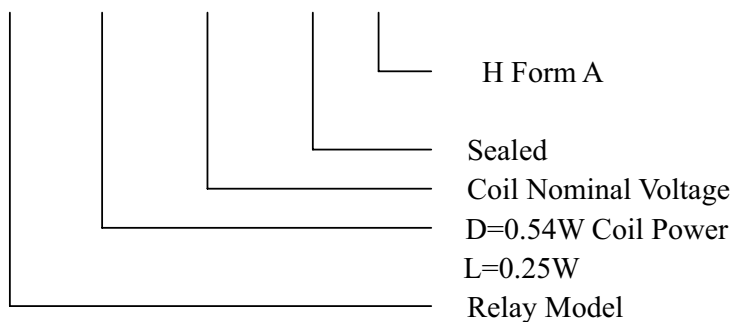
Insulation Resistance	100M Ω Min at 500VDC	
Dielectric Strength Between Open Contacts	1000VAC(for one minute)	
Between Contacts and coil	4000VAC(for one minute)	
Operate Time	20ms	
Release Time	10ms	
Temperature Range	-40°C to+70°C	
Shock Resistance	Operating Extremes	10G
	Damage Limits	100G
Vibration Resistance	10-55Hz,1.5mm	
Humidity	20-85%	
Weight	Approx 13g	
Safety Standard		

■ COIL DATA

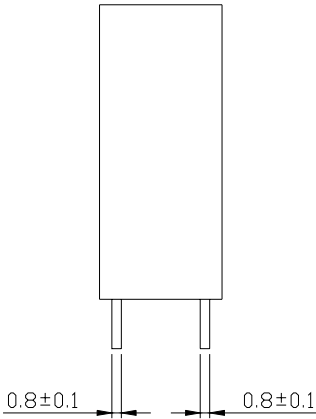
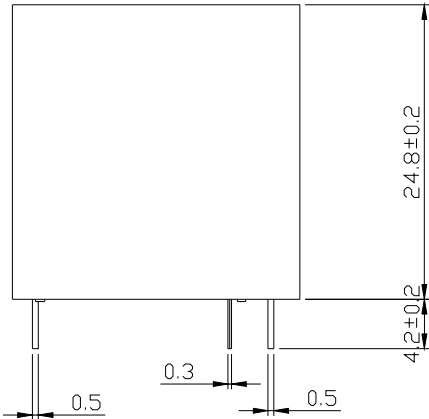
Nominal Voltage (VDC)	Coil Resistance at 20±10%(Ω)		Max Operate Voltage VDC	Min Release Voltage VDC	Max Applicable Voltage VDC
	0.25W	0.54W			
3	36	16.7	2.25	0.3	3.9
5	100	46.3	3.75	0.5	6.5
6	144	66.7	4.5	0.6	7.8
9	324	150	6.75	0.9	11.7
12	576	266.7	9	1.2	15.6
24	2304	1066.7	18	2.4	31.2
48	9216±15%	4266.7±15%	36	4.8	62.4

■ ORDERING CODE

TRA5 D--12VDC--S---H



OVERALL AND MOUNTING DIMENSIONS



Dimensions

Terminal Arrangement/
Internal Connections
(Bottom view)

