

# LAUBE TECHNOLOGY AUTOMOTIVE RELAYS

<u>CONTACT FORM</u>	<u>CURRENT</u>	<u>PART SERIES</u>	<u>PAGE #'S</u>
(1A) SPST-NO	15	TRKF	92~93 <a href="#">(Link)</a>
(1A) SPST-NO	20	TRB1	Contact Factory <a href="#">(Link)</a>
(1A) SPST-NO	20	TRKM	80~82 <a href="#">(Link)</a>
(1A) SPST-NO	40	TRKP	83~85 <a href="#">(Link)</a>
(1A) SPST-NO	40	TRV3	86~83 <a href="#">(Link)</a>
(1A) SPST-NO	40	TRV4	89~91 <a href="#">(Link)</a>
(1B) SPST-NC	12	TRKM	80~82 <a href="#">(Link)</a>
(1C) SPDT	15	TRKF	92~93 <a href="#">(Link)</a>
(1C) SPDT	20	TRB1	Contact Factory <a href="#">(Link)</a>
(1C) SPDT	25	TRKM	80~82 <a href="#">(Link)</a>
(1C) SPDT	30	TRKP	83~85 <a href="#">(Link)</a>
(1C) SPDT	30	TRV3	86~83 <a href="#">(Link)</a>
(1C) SPDT	30	TRV4	89~91 <a href="#">(Link)</a>
(1U) 2 SPDT	20	TRV4	89~91 <a href="#">(Link)</a>
2-(1C) SPDT	25	TRB2	Contact Factory <a href="#">(Link)</a>

TRKM(78F)

SPECIFICATION

FILE NUMBER: P-08KE201A

DATE: 2001/11/02



■ Features

20A switching capability

Small size auto relay

■ CONTACT DATA

Contact Form	1A/1C/1B	
Contact Material	AgNi, AgSnO	
Contact Ratings	NC:20A/14VDC	NC:12A/14VDC
Max Switching Voltage	16VDC	
Max Switching Current	25A	
Max Switching Power	840VA/400W	
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

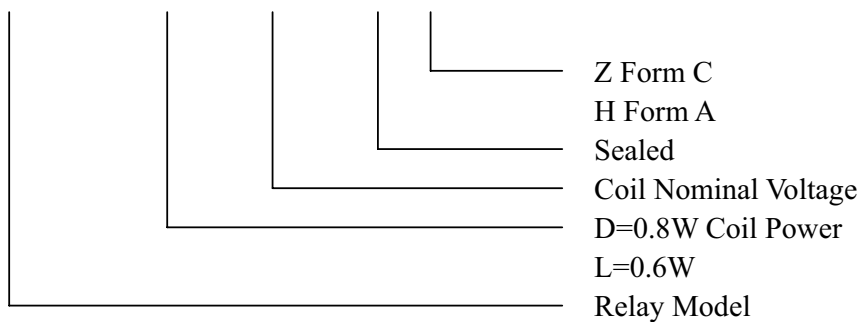
Insulation Resistance	100M Ω Min at 500VDC	
Dielectric Strength Between Open Contacts	500VAC(for one minute)	
Between Contacts and coil	500VAC(for one minute)	
Operate Time	10ms	
Release Time	5ms	
Temperature Range	-40°C to+85 °C	
Shock Resistance	Operating Extremes	10G
	Damage Limits	100G
Vibration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

■ COIL DATA

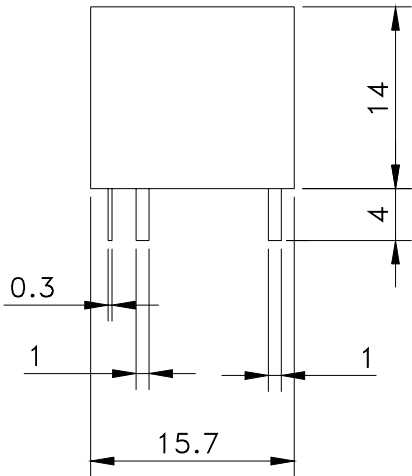
Nominal Voltage (VDC)	Coil Resistance at 20±10%(Ω)		Max Operate Voltage (VDC)	Min Release Voltage (VDC)	Max Applicable Voltage (VDC)
	0.6W	0.8W			
6	60	45	3.9	0.48	7.8
9	135	100	5.85	0.72	11.7
12	240	180	7.8	0.96	15.6
24	960	720	15.6	1.92	31.2

■ ORDERING CODE

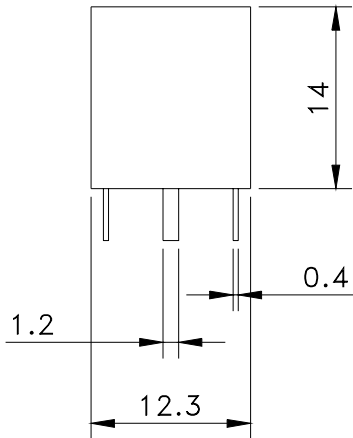
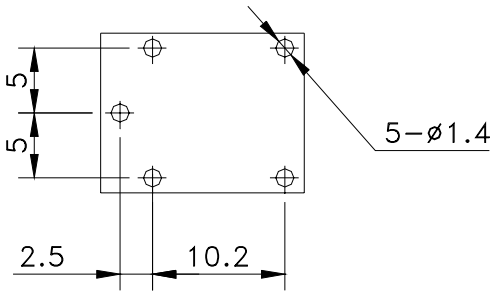
TRKM(78F) D--12VDC--S--Z



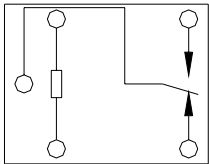
■ OVERALL AND MOUNTING DIMENSIONS



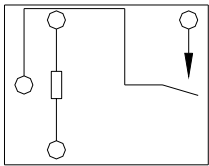
Dimensions



Terminal Arrangement/  
Internal Connections  
(Bottom view)



Form C



Form A

## TRKP

## SPECIFICATION

FILE NUMBER: P-08KE101A

DATE: 2001/11/02



### ■ Features

40A continuous rating 85 °C  
 PC board terminals  
 Inrush current 100A  
 Open & sealed version available

### ■ CONTACT DATA

Contact Form	1A/1C	
Contact Material	AgNi/AgSnO	
Contact Ratings	NO:40A 14VDC	NC:30A 14VDC
Max Switching Voltage	30VDC	
Max Switching Current	40A	
Max Switching Power	560W	
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

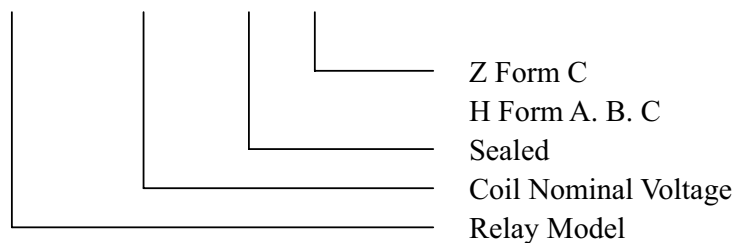
Insulation Resistance	100M Ω Min at 500VDC
Dielectric Strength Between Open Contacts	500VAC(for one minute)
Between Contacts and coil	750VACfor one minute)
Operate Time	5ms
Release Time	4ms
Temperature Range	-40 °C to+70 °C
Shock Resistance	20G,11ms half sine wave pulse
Vibration Resistance	10-55Hz,1.5mm
Humidity	40-85%
Weight	Approx 21g
Safety Standard	

■ COIL DATA

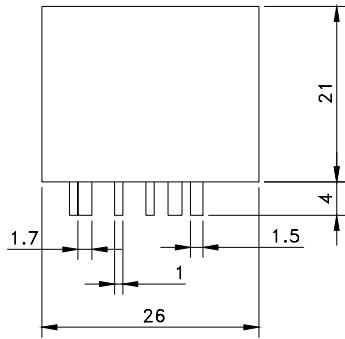
Nominal Voltage (VDC)	Coil Resistance at 20±10%(Ω)		Max Operate Voltage VDC	Min Release Voltage VDC	Max Applicable Voltage VDC
	1.6W	1.9W			
3	5.7	4.8	2.25	0.3	3.9
5	15.7	13.2	3.75	0.5	6.5
6	22.5	19	4.5	0.6	7.8
9	50.7	42.7	6.75	0.9	11.7
12	90	75.8	9	1.2	15.6
24	360	303.2	18	2.4	31.2

■ ORDERING CODE

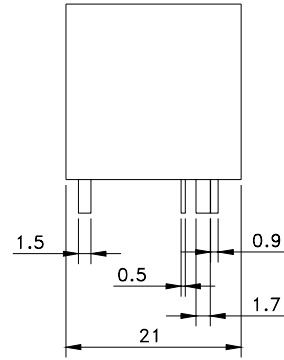
TRKP---12VDC---S---Z



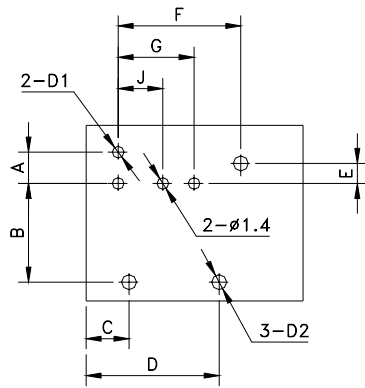
OVERALL AND MOUNTING DIMENSIONS



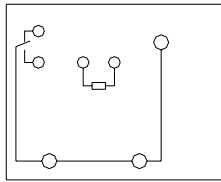
Dimensions



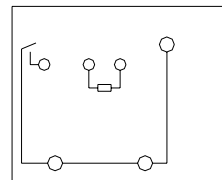
Terminal Arrangement/  
Internal Connections  
(Bottom view)



	European Footprint	American Footprint
A	3.3	3.78
B	12.1	11.89
C	2.2	4
D	13.2	12.2
E	2.2	2.28
F	15.9	14.8
G	10.1	9.09
J	5.9	5.53
D1	ø2.1	ø1.5
D2	ø2	



Form C



Form A

## TRV3

## SPECIFICATION

FILE NUMBER: P-08KF201A

DATE: 2001/11/02

### ■ Features

40A continuous rating 85 °C  
 1A & 1C arrangements  
 Plug-in or PC board terminals  
 Optional mounting bracket



### ■ CONTACT DATA

Contact Form	1A/1C	
Contact Material	AgNi/AgSnO	
Contact Ratings	1A:40A 14VDC	1C:30A 14VDC
Max Switching Voltage	30VDC	
Max Switching Current	40A	
Max Switching Power	560W	
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

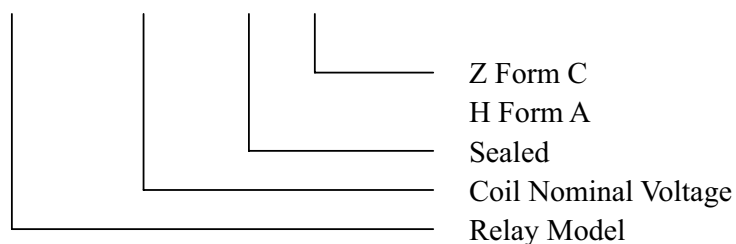
Insulation Resistance	100M Ω Min at 500VDC
Dielectric Strength Between Open Contacts	500VAC(for one minute)
Between Contacts and coil	750VAC(for one minute)
Operate Time	10ms
Release Time	10ms
Temperature Range	-40°Cto+70 °C
Shock Resistance	20G 11ms
Vibration Resistance	10-55Hz,1.5mm
Humidity	40-85%
Weight	Approx 40g
Safety Standard	

■ COIL DATA

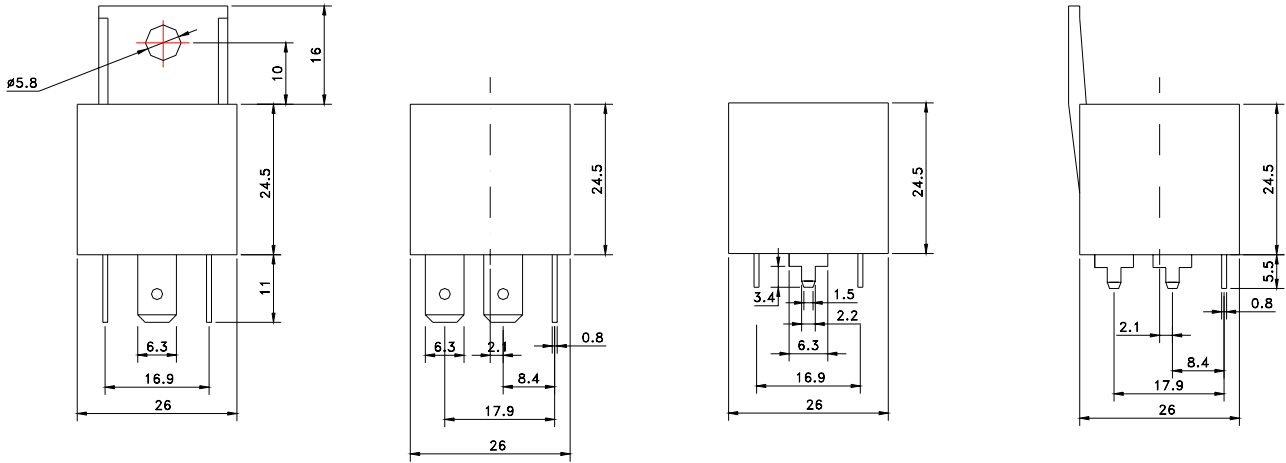
Nominal Voltage (VDC)	Coil Resistance at 20±10%(Ω)		Max Operate Voltage (VDC)	Min Release Voltage (VDC)	Max Applicable Voltage (VDC)
	1.6W	1.9W			
6	22.5	19	3.9	0.6	7.8
12	90	75.8	7.8	1.2	15.6
24	360	303.2	15.6	2.4	31.2

■ ORDERING CODE

TRV3--12VDC--S--Z

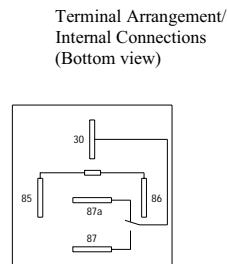
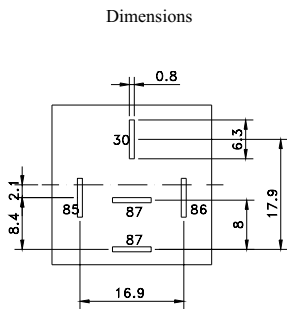


OVERALL AND MOUNTING DIMENSIONS

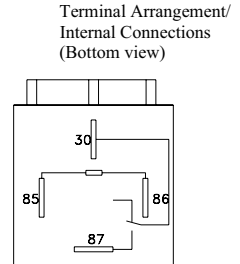
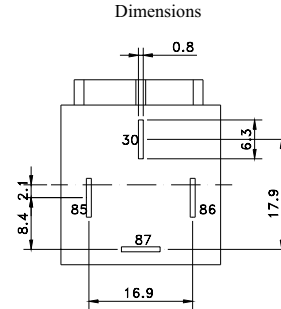


I

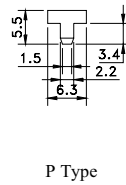
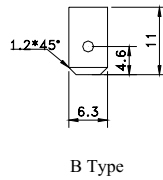
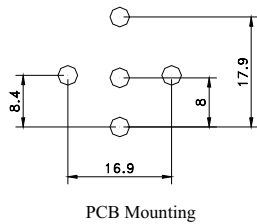
II



(1)Form C



(2)Form A



## TRV4

## SPECIFICATION

FILE NUMBER: P-08KF101A

DATE: 2001/11/02



### ■ Features

40A continuous rating 85 °C  
 1A & 1C arrangements  
 Plug-in or PC board terminals  
 Optional mounting bracket

### ■ CONTACT DATA

Contact Form	1A/1C	1U
Contact Material	AgNi,AgSnO	
Contact Ratings	NO:40A 14VDC NC:30A 14VDC	2*20A 14VDC
Max Switching Voltage	30VDC	
Max Switching Current	40A	
Max Switching Power	560W	
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

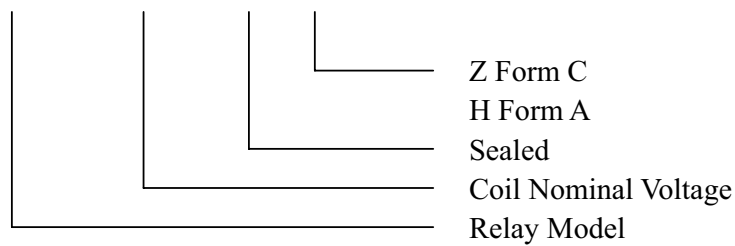
Insulation Resistance	100M Ω Min at 500VDC
Dielectric Strength Between Open Contacts	500VAC(for one minute)
Between Contacts and coil	750VAC(for one minute)
Operate Time	10ms
Release Time	10ms
Temperature Range	-40°C to+70 °C
Shock Resistance	20G 11ms
Vibration Resistance	10-55Hz,1.5mm
Humidity	40-85%
Weight	Approx 40g
Safety Standard	

■ COIL DATA

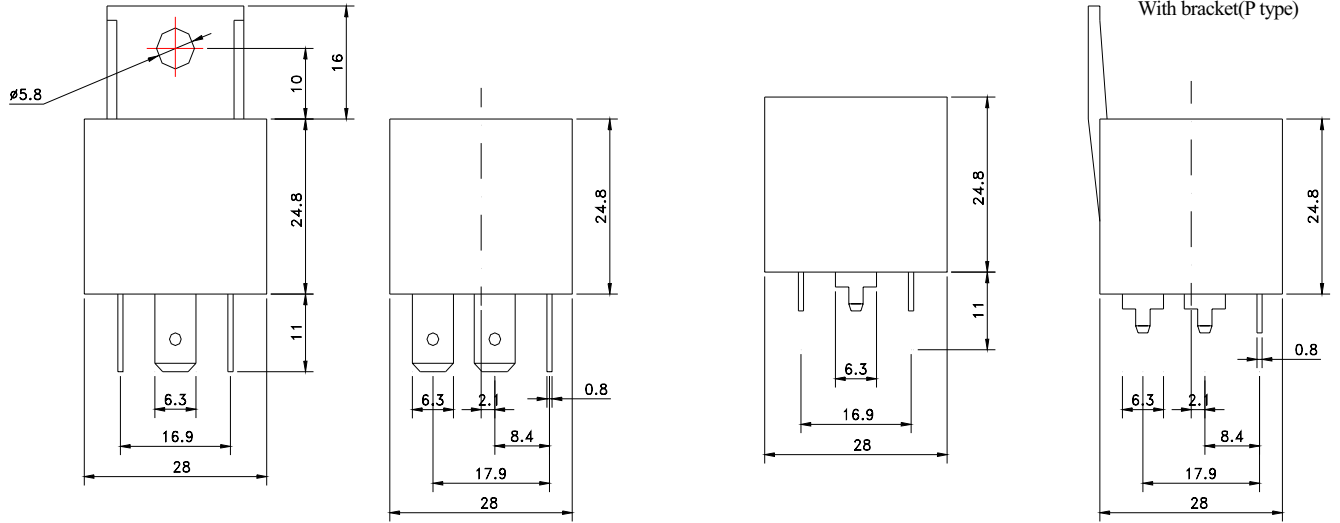
Nominal Voltage (VDC)	Coil Resistance at 20±10%(Ω)		Max Operate Voltage (VDC)	Min Release Voltage (VDC)	Max Applicable Voltage (VDC)
	1.6W	1.9W			
6	22.5	19	3.9	0.6	7.8
12	90	75.8	7.8	1.2	15.6
24	360	303.2	15.6	2.4	31.2

■ ORDERING CODE

TRV4--12VDC--S--Z



OVERALL AND MOUNTING DIMENSIONS



Dimensions

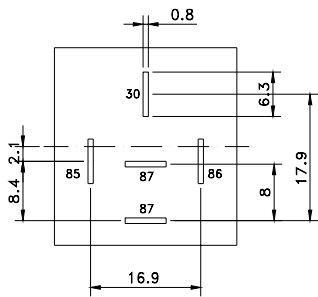
I

Terminal Arrangement/  
Internal Connections  
(Bottom view)

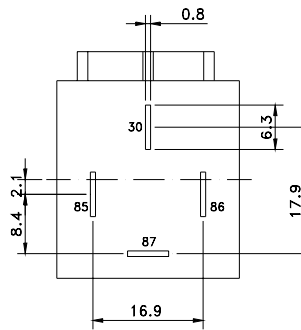
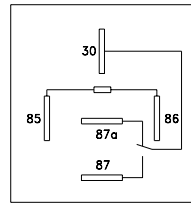
Dimensions

II

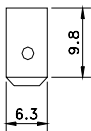
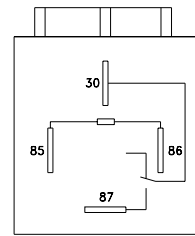
Terminal Arrangement/  
Internal Connections  
(Bottom view)



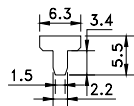
(1)Form C



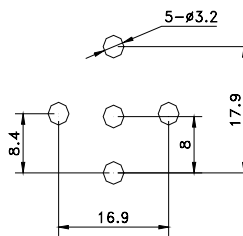
(2)Form A



B Type



P Type



PCB Mounting

SPECIFICATION

FILE NUMBER: P-08KA501A

DATE: 2001/11/02

■ CONTACT DATA

Contact Form	1A(SPNO), 1C(SPDT)
Contact Material	AgSnO
Contact Ratings	15A 14VDC
Max Switching Voltage	16VDC
Max Switching Current	Motor load 5A 14VDC Inrush 25A
Max Switching Power	840W
Contact Resistance	100mΩ Max (initial value)
Life Expectancy Electrical	100,000 (Frequency 12,000 operations/hr)
Mechanical	10,000,000 (Frequency 18,000 operations/hr)

■ GENERAL DATA

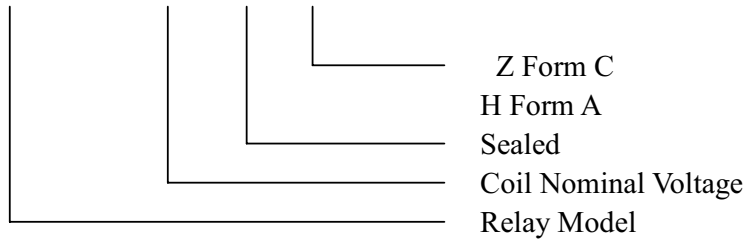
Insulation Resistance	100MΩ Min at 500VDC	
Dielectric Strength Between Open Contacts	500VAC (for one minute)	
Between Contacts and coil	1500VAC (for one minute)	
Operate Time	15ms	
Release Time	10ms	
Temperature Range	-40°C to +80°C	
Shock Resistance	Operating Extremes	10G
	Damage Limits	100G
Vibration Resistance	10-50Hz 1.5mm	
Humidity	40—85%	
Weight	Approx 10g	
Safety Standard		

■ COIL DATA

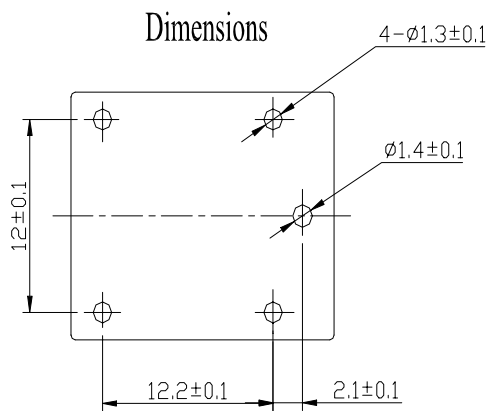
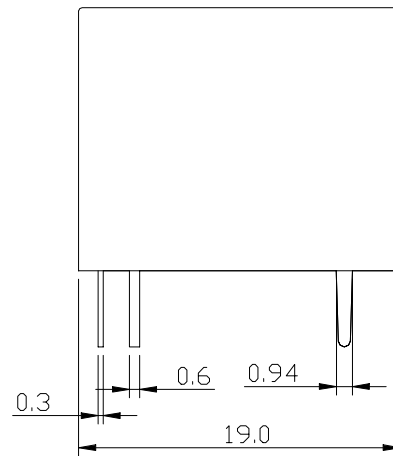
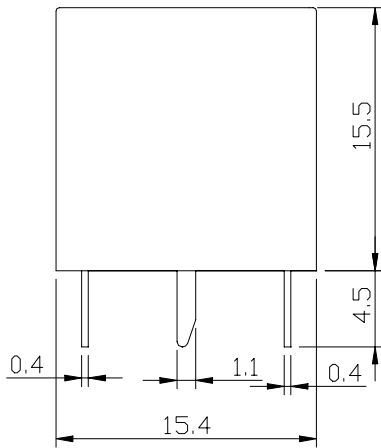
Rated voltage (V)	Rated current ±10% at 25°C (mA)	Coil resistance ±10% at 25°C (Ω)	Max. continuous Voltage at 25°C	Pick up Voltage (Max) at 25°C	Drop out Voltage (Min) at 25°C	Power consumption At rated Voltage
9	71.4	126	120% of Rated Voltage	65% of Rated Voltage	5% of Rated Voltage	Approx. 0.64W
12	53.3	225				
24	26.7	900				

**ORDERING CODE**

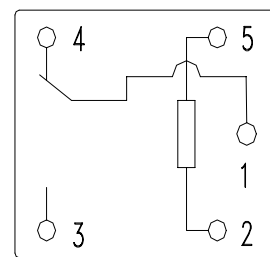
TRKF—12VDC—S—Z



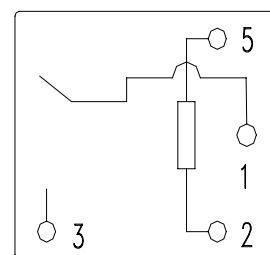
**OVERALL AND MOUNTING DIMENSIONS**



Terminal Arrangement/  
Internal Connections  
(Bottoms view)



Form C



Form A

# LAUBE TECHNOLOGY

## COMPONENTS DIVISION

### CONTACT INFORMATION

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