TBO ELECTRONICS TRA3 Power Relay


# TBO ELECTRONICS TRA3 Power Relay User Guide



Contents



## TBO ELECTRONICS TRA3 Power Relay


## Product Usage Instructions

### Coil Data

The relay coil has various rated voltages and currents for different operating conditions:

| Rated Voltage (VDC) | Rated Current (mA) | Max. Operate Voltage (VDC) | Min. Release Voltage (VDC) |
|---|---|---|---|

### Safety Approved Ratings

The safety approved ratings include various parameters like coiling rating, contact rating, and more.

### Ordering Information

To order the correct relay, refer to the following information:

- Type: TRA3
- Coil Power: D(0.72W) L(0.54W) M(0.24W)
- Coil Voltage: Various options from 03VDC to 48VDC
- Construction: Plastic sealed or flux proofed
- Contact Arrangement: Special Code (2H, 2Z, 2D)

### POWER RELAY

- Creepage distance:8.0mm Min
- Au-clad contact available
- Transparent sealed available
- Class B/F available
- Conform to RoHS,ELV directive

**CONTACT DATA**

| | |
|---|---|
| Contact Arrangement | 2H/2Z |
| Contact Material | Silver Alloy |
| Load | Resistive load (cosΦ=1) |
| Contact Ratings | 5A240VAC<br>5A 30VDC |
| Min. Contact Load | 100mA 5VDC |
| Max. Switching Voltage | 250VAC/30VDC |
| Max. Switching Current | 8A |
| Max. Switching Power | 1250VA/240W |
| Contact Resistance | ≤100mΩ (6VDC 1A) |
| Electrical Endurance | 1×105 OPS(at 6 OPS/min)  1×105 ( 6) |
| Mechanical Endurance | 5×106 OPS(at 300 OPS/min)  5×106 ( 300) |

## CHARACTERISTICS

| | | |
|---|---|---|
| Insulation Resistance | | 100MΩ Min. at 500VDC |
| Dielectric Strength | Between Open Contacts | 1000VAC (50/60Hz 1 min) |
| | Between Contacts and Coil | 5000VAC (50/60Hz 1 min) |
| Operate Time | | ≤20ms |
| Release Time | | ≤10ms |
| Ambient Temperature | | -40℃to+85℃ |
| Shock Resistance | | Functional : 10G |
| | | Destructive : 100G |
| Vibration Resistance | | 10~55Hz, 1.5mm DA |
| Humidity | | 40~85% |
| Unit Weight | | Approx. 14g 14 |

**COIL DATA  (at 23℃)**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Rated Voltage (VDC) | 3 | 5 | 6 | 9 | 12 | 24 | 48 | |
| Coil Resistance (Ω±10%) | 38 | 104 | 150 | 338 | 600 | 2400 | 9600 | |
| Rated Current (mA) | 80 | 48 | 40 | 26.7 | 20 | 10 | 5 | 0.24W |
| Max. Operate Voltage (VDC) | 2.4 | 4 | 4.8 | 7.2 | 9.6 | 19.2 | 38.4 | |
| Min. Release Voltage (VDC) | 0.15 | 0.25 | 0.3 | 0.45 | 0.6 | 1.2 | 2.4 | |
| Coil Resistance (Ω±10%) | 17 | 46 | 67 | 150 | 270 | 1050 | 4250 | |
| Rated Current (mA) | 180 | 108 | 90 | 60 | 45 | 22.5 | 11.3 | 0.54W |
| Max. Operate Voltage (VDC) | 2.4 | 4 | 4.8 | 7.2 | 9.6 | 19.2 | 38.4 | |
| Min. Release Voltage (VDC) | 0.15 | 0.25 | 0.3 | 0.45 | 0.6 | 1.2 | 2.4 | |
| Coil Resistance (Ω±10%) | 13 | 35 | 50 | 110 | 200 | 800 | 3200 | |
| Rated Current (mA) | 240 | 144 | 120 | 80 | 60 | 30 | 15 | |
| Max. Operate Voltage (VDC) | 2.4 | 4 | 4.8 | 7.2 | 9.6 | 19.2 | 38.4 | 0.72W |
| Min. Release Voltage (VDC) | 0.15 | 0.25 | 0.3 | 0.45 | 0.6 | 1.2 | 2.4 | |
| Max. Voltage | 3.9 | 6.5 | 7.8 | 11.7 | 15.6 | 31.2 | 62.4 | |

**Remark:** Max. Voltage refers to the maximum voltage which relay coil could endure in a period of time.

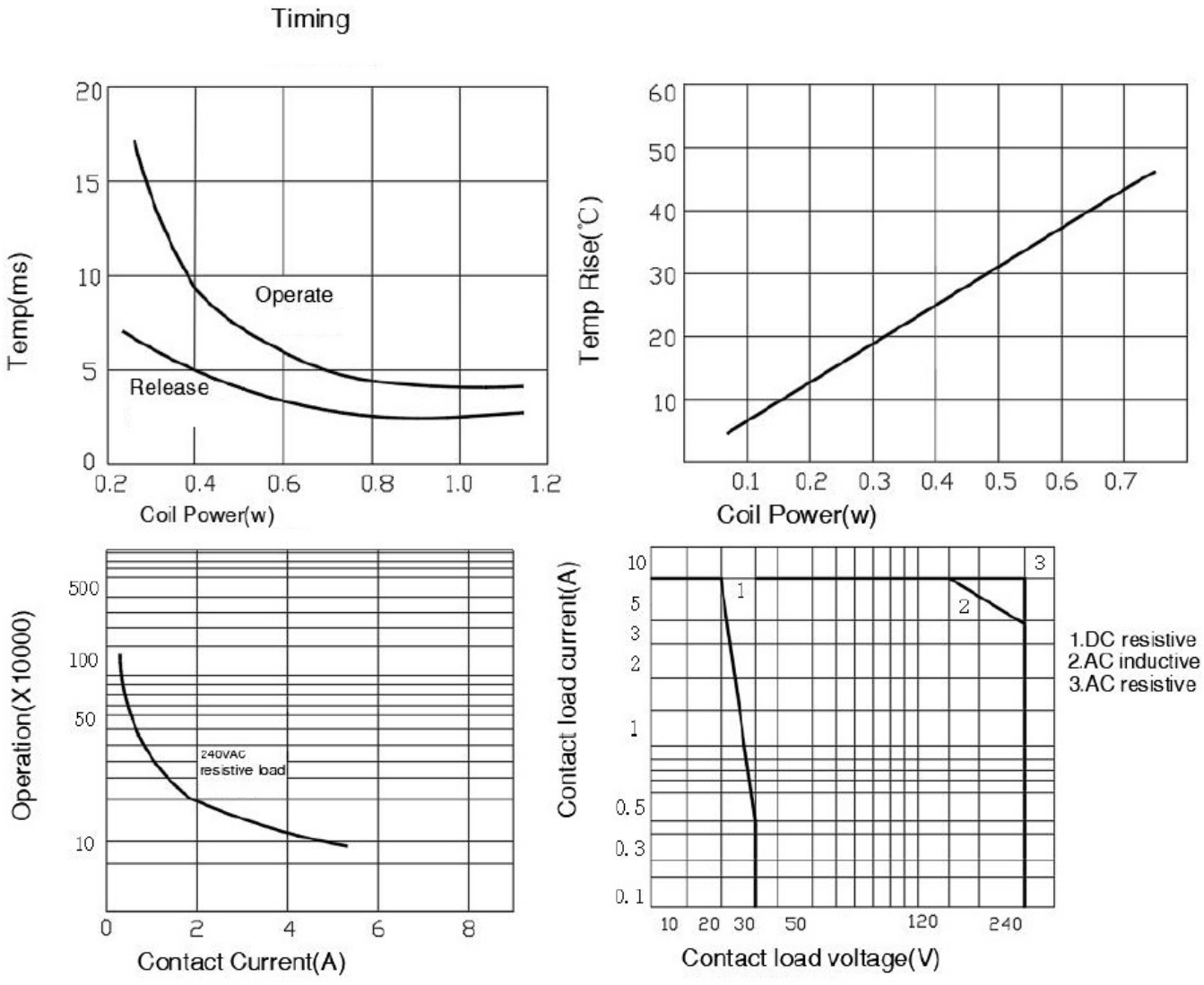
**SAFETY APPROVED RATINGS**

| Model | Coiling rating | Safety Standard | Contact rating |
|---|---|---|---|
| TRA3 | 3 to 48VDC | TÜV | 5A 240VAC<br>5A 30VDC |
| | | UL/cUL | 5A 240VAC<br>5A 30VDC |
| | | CQC | 5A 240VAC |

**ORDERING INFORMATION**

| | TRA3 | D | -12VDC | -S | -2Z | XX |
|---|---|---|---|---|---|---|
| **Type** | | | | | | |
| **Coil Power** | **D**:0.72W **L**:0.54W **M**:0.24W | | | | | |
| **Coil Voltage** | 03, 05, 06, 09, 12, 18, 24, 48VDC | | | | | |
| **Construction** | Plastic sealed or flux proofed | | | | | |
| **Contact Arrangement** | **2H**: 2 Form A **2Z**: 2 Form C 2D: 2 Form B | | | | | |
| **Special Code** | **XX**: Customer Special Requirement<br>(2) : Transparent Casing **Nil**: Standard Type<br>**IT**: Compliant with IEC 60335-1 (GWT) | | | | | |

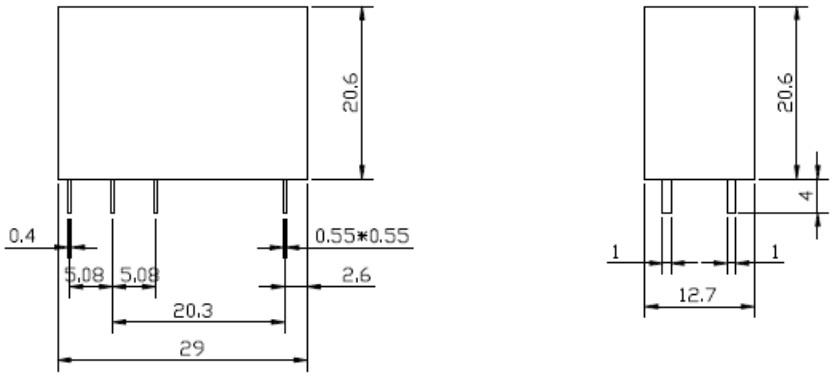
## CHARACTERISTIC CURVES



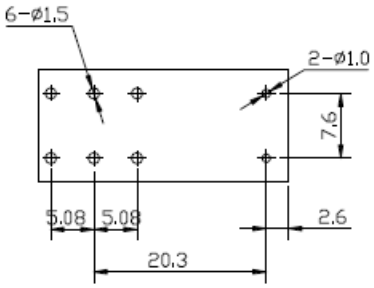

## DIMENSIONS

## OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

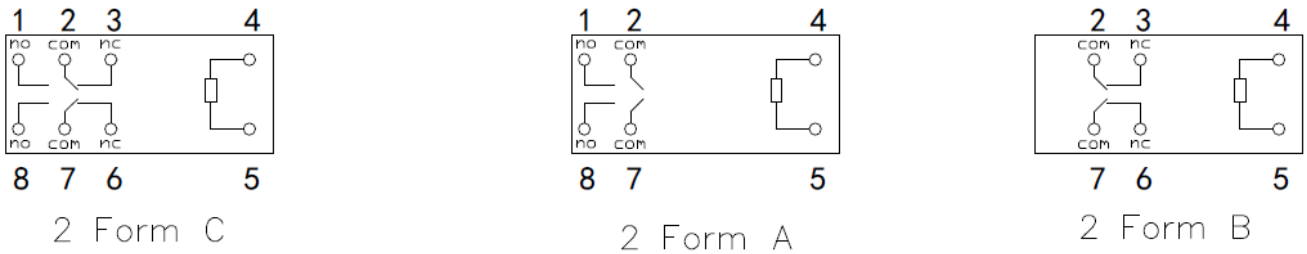
### OUTLINE DIMENSIONS




### PC BOARD LAYOUT




### WIRING DIAGRAM




**Remark**

1. In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.
2. The additional tin top is max. 1mm.
3. The tolerance without indicating for PCB layout is always ±0.1mm.

**Disclaimer**
The specification is for reference only. Specification subject to change without notice.

### FAQs

What is the maximum switching power of the relay?

The relay has a maximum switching power of 600W.

What is the electrical endurance of the relay?

The relay has electrical endurance specifications provided in the manual.

Can the relay operate in high humidity environments?

The relay can operate in humidity levels ranging from 40% to 85%.

How do I select the appropriate coil voltage for my application?

Refer to the ordering information section in the manual for guidance on selecting the correct coil voltage.

Is the relay compliant with RoHS and ELV directives?

Yes, the relay conforms to RoHS and ELV directives as stated in the manual.

What is the creepage distance of the relay?

The creepage distance of the relay is specified as 8.0mm minimum.

## Documents / Resources

| | |
|---|---|
|  | TBO ELECTRONICS TRA3 Power Relay [pdf] User Guide<br>TRA3, TRA3 Power Relay, TRA3, Power Relay, Relay |

## References

- **User Manual**