V23047 series

SR2M Safety Relay - PCB, neutral, monostable relay with two forcibly guided contacts.

File E48393
No. 116064
TUV-Rheinland, No. 945/EZ 116/99

Features

- 1 NO and 1 NC or 2 Form C contacts.
- High insulation spacing for the safe separation of the contact circuits.
- Sealed case.
- Ideal for emergency shut-off, machine control, elevator and escalator control, light barrier control.

Contact Data @ 23°C

Type: Single button contacts, forcibly guided.
Arrangements: 1 NO and 1 NC or 2 Form C.
Material: Silver-nickel alloy.
Max. Continuous Current at Max. Amb. Temp.: 6A, 1 contact loaded.
Max. Switched Current: See Expected Electrical Life chart.
Max. Switched Voltage: 250VDC.
Max. Switched Power: 1,500VA. (See Fig. 1, Limit Curve for DC Power Load).
Max. Switching Rate: 6 operations/min. at rated load.
300 operations/min. at minimum load.
Minimum Load: AgNi: >50mW.
Initial Contact Resistance: AgNi: ≤100 mΩ - 1A/24VDC.
Expected Mechanical Life: 10^7 operations.
Expected Electrical Life:

6A @ 250VAC, Resistive, 100,000 ops. @ 70°C amb. temp.;

10/0.5A @ 110VAC, Inductive, 2,000,000 ops. @ 23°C amb. temp.;

6A/230VAC, 100,000 ops. @ 70°C amb. temp.;

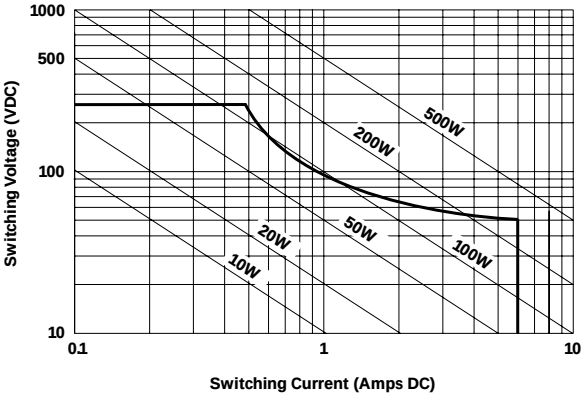
6A/24VDC, $T_{0.95}$ = 300ms, switchcycle 0.1 Hz., Standard IEC947-5-1 (DC-13), NO contact loaded;

Standard IEC947-5-1 (AC-15), power factor 0.3; switchcycle 0.1 Hz., NO contact: 3A/230VAC, inrush current 30A, 6,050 ops., NC contact: 1.5A/230VAC, inrush current 15A, 6,050 ops.;

3A/24VDC, $T_{0.95}$ = 300ms, switchcycle 0.33 Hz., Diode (1N4007) across the inductive load, Standard IEC947-5-1 (DC-13), NO contact loaded, 1,000,000 ops;

1A/24VDC, $T_{0.95}$ = 144ms, switchcycle 0.33 Hz., Diode (1N4007) across the inductive load, Standard IEC947-5-1 (DC-13), NO contact loaded, 1,500,000 ops.

Figure 1 - Limiting Curve for DC Power Load



Initial Dielectric Strength

Between Open Contacts: 1,000V rms.
Between Adjacent Contacts: 4,000V rms.
Between Coil and Contacts: 4,000V rms.

Initial Insulation Resistance

Between Mutually Insulated Elements: 10^6 ohms.

Coil Data @ 23°C

Voltage: 5 to 110VDC.
Nominal Power: 700mW.
Max. Coil Temperature: 105°C.
Duty Cycle: Continuous.

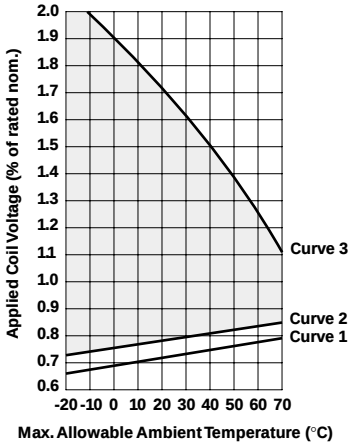
Coil Data @ 23°C

Rated Coil Voltage (VDC)	Coil Resistance (Ohms)	Must Operate Voltage (VDC)	Nominal Coil Current (mA)
5	35.7 ± 3.6	3.75	140
6	51 ± 5.1	4.5	118
9	116 ± 11.6	6.8	78
12	206 ± 20.6	9	60
21	630 ± 63.0	15.8	34
24	823 ± 82.3	18	30
36	1,851 ± 185	27	19.5
48	3,291 ± 494	36	14.6
60	5,142 ± 617	45	11.7
80	9,143 ± 1,097	60	8.8
110	17,285 ± 2,074	83	6.4

Operate Data @ 23°C

Operate Time: 10 ms (excluding bounce).
Release Time (w/o parallel diode, typ.): 4 ms (excluding bounce).
Bounce Time: 10 ms.
Must Release Voltage: 10% of nominal voltage.

Max. Allowed Ambient Temp. vs. Applied Coil Voltage



Operating

Curve 1 - Must operate voltage when the coil is not pre-energized.

Curve 2 - Operate voltage raises due to a pre-energizing with 1.1 x Vnom.

Curve 3 - Maximum allowable voltage.

Release

The must release voltage may fall to ≥ 5% of Vnom during operation life of the relay.

Denotes recommended operation area.

Environmental Data

Temperature Range: -25°C to +70°C.
Solder Bath Temp./Max. Duration: 260°C/5s.

Mechanical Data

Termination: Printed circuit terminals.
Enclosure (94V-0 Flammability Ratings): Sealed plastic case.
Weight: 0.6 oz. (18g).

Ordering Information

Typical Part Number ►	V23047	A1	012	A	5	01

1. Basic Series:
V23047 = SR2M safety relay.

2. Enclosure:
A1 = Sealed.

3. Coil Voltage:
005 = 5VDC 006 = 6VDC 009 = 9VDC 012 = 12VDC 021 = 21VDC 024 = 24VDC
036 = 36VDC 048 = 48VDC 060 = 60VDC 080 = 80VDC 110 = 110VDC

4. Contact Type:
A = Single button, forcibly guided.

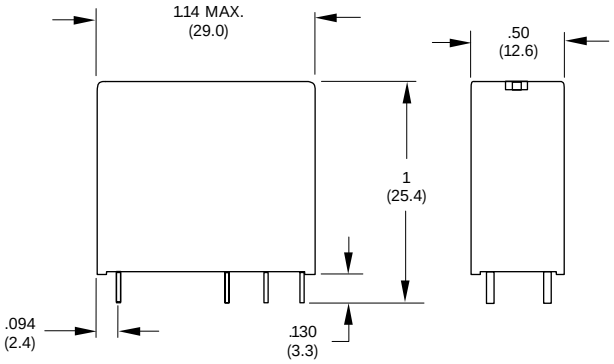
5. Contact Material:
5 = Silver nickel.

6. Contact Arrangement:
01 = 2 Form C.
11 = 1 NO and 1 NC.

Stock Items – The following items are maintained in stock.

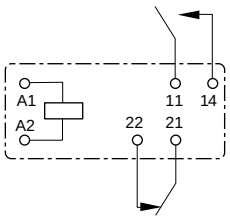
V23047A1012A501
V23047A1012A511

Outline Dimensions

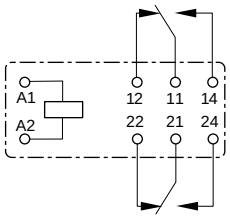


Wiring Diagrams (Bottom Views)

1 NO and 1 NC

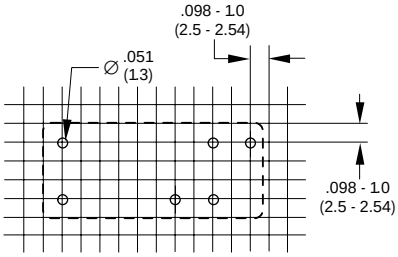


2 Form C

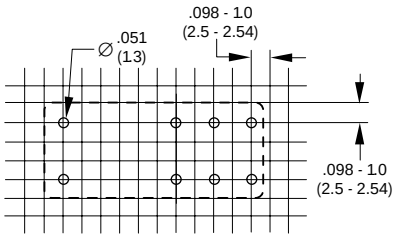


Suggested PC Board Layouts (Bottom Views)

1 NO and 1 NC

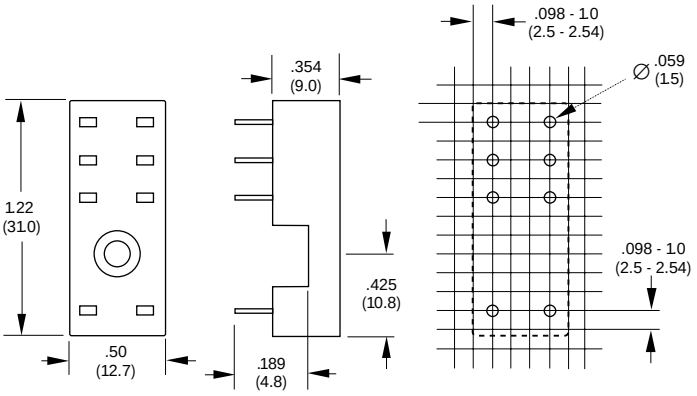


2 Form C

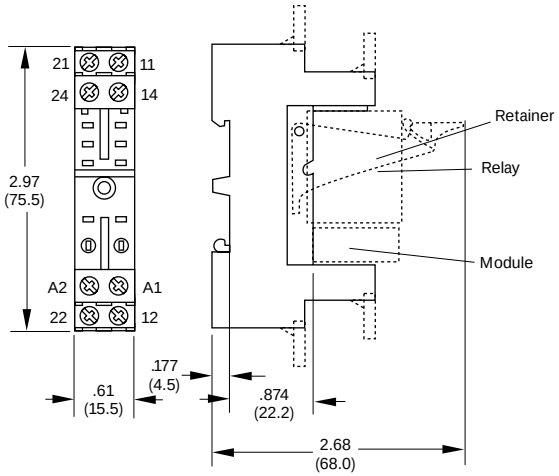


Sockets for V23047 Series Relays

RP78602
Socket with PCB Terminals

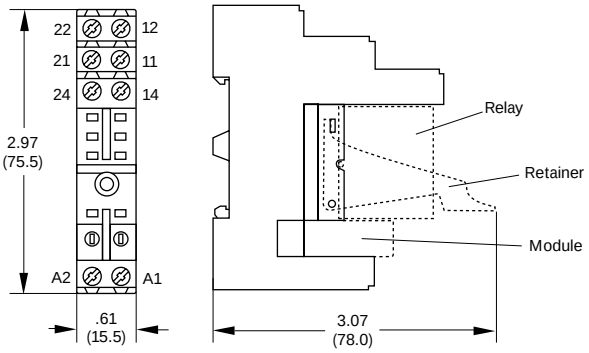


RT78625
DIN Rail Mount Socket with Screw-Type Terminals



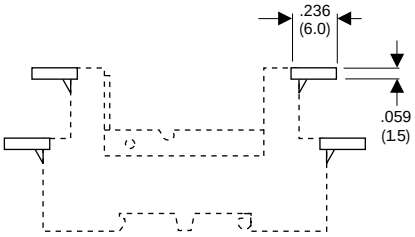
RP16104 Plastic Retaining Clip

RT78626
DIN Rail Mount Socket with Screw-Type Terminals



RP16104 Plastic Retaining Clip

RT16040 Marking Tags



- White
- Marking area .610 (15.5) x .236 (6.0).
- Snaps on socket in up to 4 positions.

Function and Protection Modules

- Easy insertion of module into the socket.
- Wiring in parallel to the coil.

Ordering Code	Type
RT16040	Marking Tags
RPMT00A0	Protection Diode 1N4007*
RPML0024	LED 12 - 24VDC*
RPML0524	LED 12 - 48VDC
RPML0110	LED 110VDC*

* Standard Polarity: A1:+, A2:-

Tyco Electronics Corporation - P&B, Winston-Salem, NC 27102
Technical Support Center: 1-800-522-6752, www.pandbrelays.com