



190 series

2 Amp, DPDT, High Sensitivity, DIP PC Board Relay

File E55708

File LR73303

Users should thoroughly review the technical data before selecting a product part number. It is recommended that users also seek out the pertinent approvals files of the agencies/laboratories and review them to ensure the product meets the requirements for a given application.

Features

- Standard DIP configuration mates with 16-pin socket.
- Meets FCC Part 68 (10/160µs).
- For applications in telecommunications, office automation, security devices, measurement and control equipment.
- Immersion cleanable, plastic sealed case.
- Standard, high and ultra-sensitive coils.
- Ultrasonic cleaning not recommended.

Contact Data @ 23°C

Arrangement: Bifurcated 2 Form C (DPDT) contacts.
Material: Stationary: Silver, gold clad.
Ratings: Max. Switched Current: 2A.
 Max. Carry Current: 2A.
 Max. Switched Voltage (at nom. voltage): 125VDC, 125VAC.
 Max. Switched Power: 60W DC or 62.5VA AC.
 Min. Switching Load: 10µA, 10mVDC.
 Rated Load: 500mA at 125VAC.
Initial Contact Resistance: 50 milliohms.
Expected Mechanical Life: 15,000,000 ops at 36,000 ops/hr.

Initial Dielectric Strength

Between Open Contacts: 750VAC 50/60 Hz. for 1 minute.
Between Coil and Contacts: 1,000VAC 50/60 Hz. for 1 minute.
Between Poles: 1,000VAC 50/60 Hz. for 1 minute.
Surge Voltage Resistance per FCC 68 (10 / 160 µs):
 Between Open Contacts: 1,500V.
 Between Coil and Contacts: 1,500V.
 Between Poles: 1,500V.

Initial Insulation Resistance

Between Contact and Coil: 10⁹ ohms or more @ 500VDC.

Coil Data @ 23°C

Voltage: 3 to 48VDC.
Nominal Power: 150mW to 580mW. See Coil Data table for details.
Duty Cycle: Continuous.

Coil Data @ 23°C

| Nominal Voltage (VDC) | Current ±10% (mA) | Maximum Voltage (VDC) | Resistance ±10% (Ohms) | Approx. Power (mW) |
|--|-------------------|-----------------------|------------------------|--------------------|
| Standard sensitivity (Max. Voltage stated @ 65°C, except 48V @ 60°C) | | | | |
| 3 | 166.7 | 3.6 | 18 | 500 |
| 5 | 100.0 | 6.0 | 50 | 500 |
| 6 | 83.3 | 7.2 | 72 | 500 |
| 9 | 55.6 | 10.8 | 162 | 500 |
| 12 | 41.7 | 14.4 | 288 | 500 |
| 24 | 20.8 | 28.8 | 1,152 | 500 |
| 48 | 12.0 | 52.8 | 4,000 | 580 |
| High sensitivity (Max. Voltage stated @ 70°C) | | | | |
| 3 | 120.7 | 3.6 | 25 | 360 |
| 5 | 72.0 | 6.0 | 70 | 360 |
| 6 | 60.0 | 7.2 | 100 | 360 |
| 9 | 40.0 | 10.8 | 225 | 360 |
| 12 | 30.0 | 14.4 | 400 | 360 |
| 24 | 15.0 | 28.8 | 1,600 | 360 |
| 48 | 7.5 | 52.8 | 6,400 | 360 |
| Ultra high sensitivity (Max. Voltage stated @ 70°C) | | | | |
| 3 | 50.0 | 4.5 | 60 | 150 |
| 5 | 30.0 | 7.5 | 167 | 150 |
| 6 | 25.0 | 9.0 | 240 | 150 |
| 9 | 16.7 | 13.5 | 540 | 150 |
| 12 | 12.5 | 18.0 | 960 | 150 |
| 24 | 8.3 | 36.0 | 2,880 | 200 |
| 48 | 6.25 | 72.0 | 7,680 | 300Ap |

Operate Data @ 23°C

Operate Voltage: 75% of nominal voltage.
Release Voltage: 5% of nominal voltage.
Operate Time: 7 ms, max. (3.5 ms, mean).
Release Time: 3 ms, max. (0.8 ms, mean).
Bounce Time: Operate: 0.5 ms, approx.
 Release: 3.5 ms, approx.
Operating Frequency: Mechanical: 36,000 ops/hr.
 Electrical: 1,800 ops/hr at rated load.

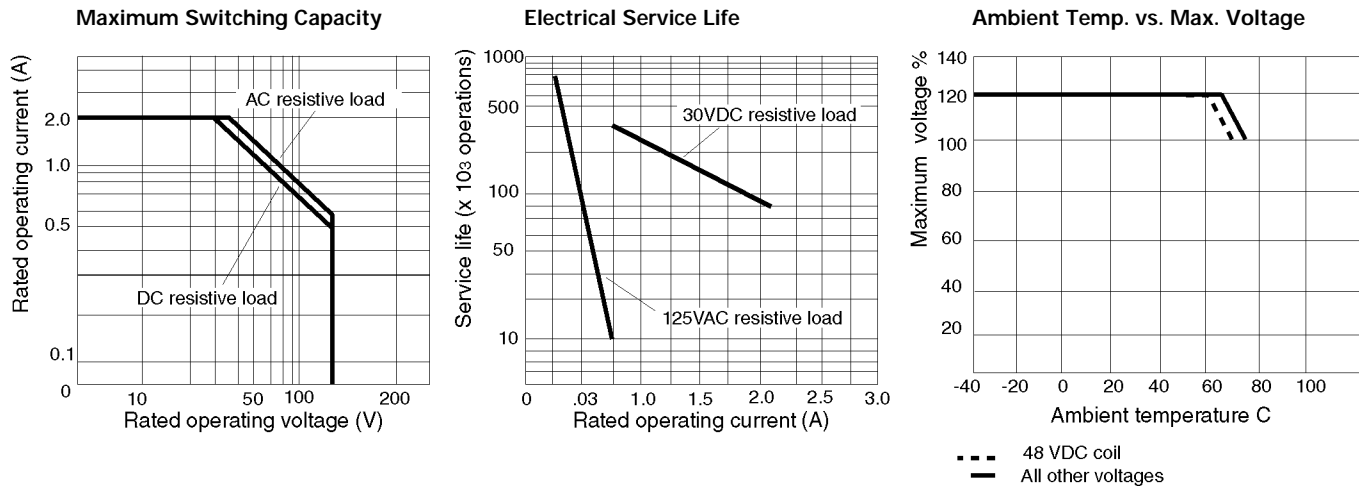
Environmental Data

Temperature Range: -40°C to +70°C.
Relative Humidity Range: 35% to 85%.
Shock: Functional: 200m/s² (approx. 10g).
Destructive: 1,000m/s² (approx. 100g).
Vibration: 10-55 Hz., .059 in (1.5 mm) double amplitude.

Mechanical Data

Termination: DIP compatible, printed circuit terminals.
Enclosure Type: Immersion cleanable plastic case.
Weight: 0.21 oz. (6g) approximately.

Operational Performance Curves



Ordering Information

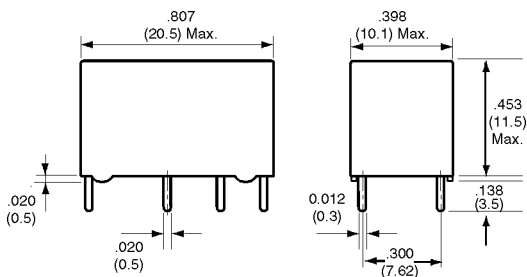
Typical Part Number ➤ **190 - 2 2 B 2 UO**

- 1. Basic Series:**
190 = Miniature PC board relay.
- 2. Enclosure and Terminals:**
2= DIP, 16-pin package, sealed.
- 3. Contact Arrangement:**
2= DPDT (2 form C).
- 4. Coil Voltage:**
J = 3VDC A = 6VDC B = 12VDC D = 48VDC
E = 5VDC G = 9VDC C = 24VDC
- 5. Contact Material and Type:**
2= Silver, gold clad. Bifurcated crossbar.
- 6. Coil Sensitivity**
UO = Standard sensitivity (Approx. 500-580mW). SO = High sensitivity. (Approx. 360mW) US = Ultra high sensitivity. (Approx. 150-200mW)

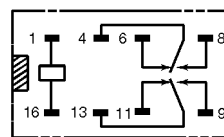
Our authorized distributors are more likely to stock the following items for immediate delivery.

- 190-22B2UO
- 190-22C2UO
- 190-22E2UO

Outline Dimensions



Wiring Diagram (Bottom View)



PC Board Layout (Bottom View)

