



# 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:** 10<sup>9</sup> 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.

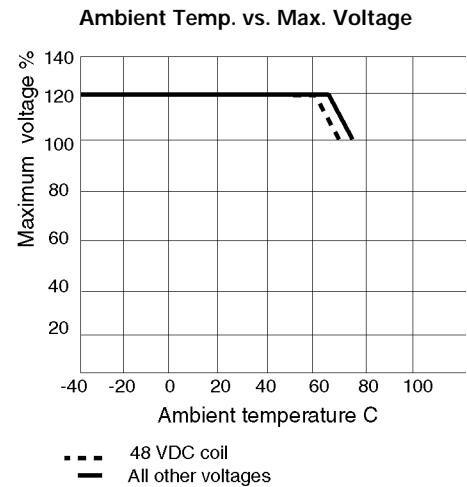
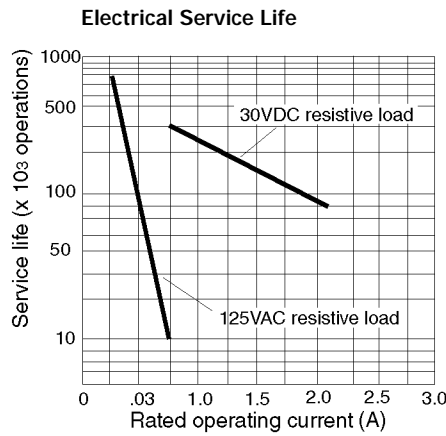
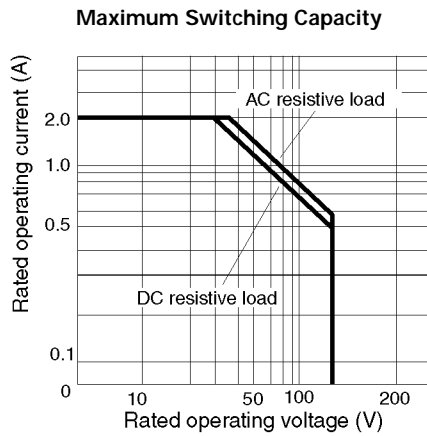
### Environmental Data

**Temperature Range:** -40°C to +70°C.  
**Relative Humidity Range:** 35% to 85%.  
**Shock: Functional:** 200m/s<sup>2</sup> (approx. 10g).  
**Destructive:** 1,000m/s<sup>2</sup> (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.

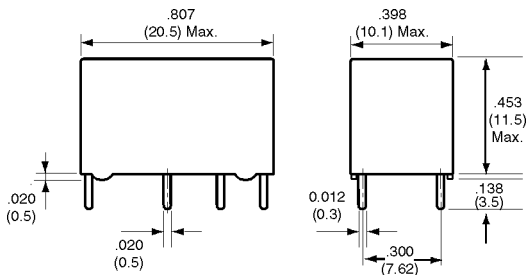
**6. Coil Sensitivity**

UO = Standard sensitivity (Approx. 500-580mW).      SO = High sensitivity. (Approx. 360mW)      US = Ultra high sensitivity. (Approx. 150-200mW)

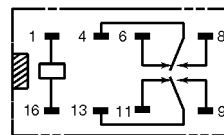
**Our authorized distributors are more likely to stock the following items for immediate delivery.**

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

**Outline Dimensions**



**Wiring Diagram (Bottom View)**



**PC Board Layout (Bottom View)**

