

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: 10^9 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

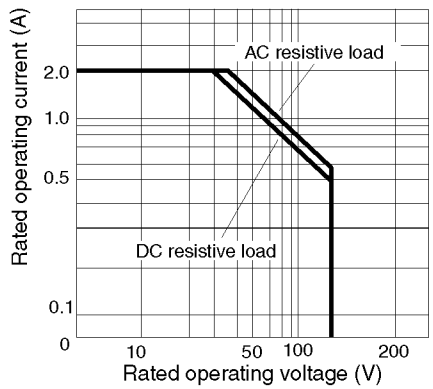
Temperature Range: -40°C to +70°C.
Relative Humidity Range: 35% to 85%.
Shock: Functional: 200m/s² (approx. 10g).
Destructive: 1,000m/s² (approx. 100g).
Vibration: 10-55 Hz., .059 in (1.5 mm) double amplitude.

Mechanical Data

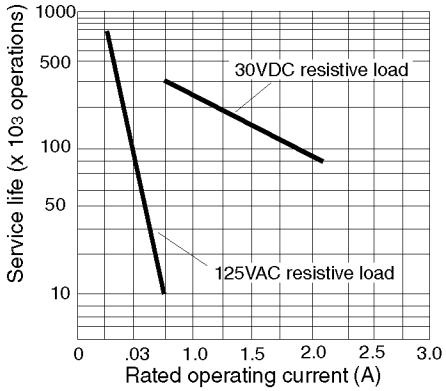
Termination: DIP compatible, printed circuit terminals.
Enclosure Type: Immersion cleanable plastic case.
Weight: 0.21 oz. (6g) approximately.

Operational Performance Curves

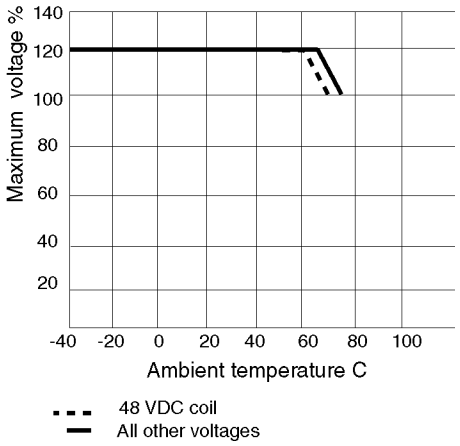
Maximum Switching Capacity



Electrical Service Life



Ambient Temp. vs. Max. Voltage



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	

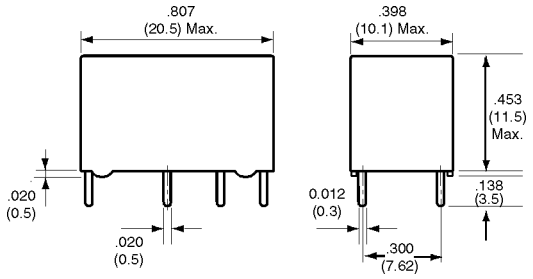
5. Contact Material and Type:
2= Silver, gold clad. Bifurcated crossbar.

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

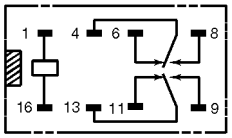
Our authorized distributors are more likely to stock the following items for immediate delivery.

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

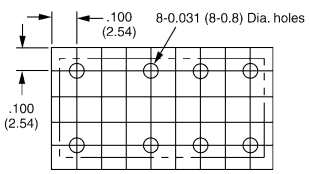
Outline Dimensions



Wiring Diagram (Bottom View)



PC Board Layout (Bottom View)



Dimensions are shown for reference purposes only.

Dimensions are in inches over (millimeters) unless otherwise specified.

Specifications and availability subject to change.

www.tycoelectronics.com
Technical support:
Refer to inside back cover.

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