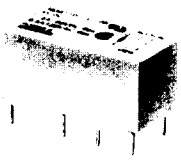


T83 series

2 POLE, HIGH DIELECTRIC POLARIZED PC BOARD RELAY

File E29244

File LR72171

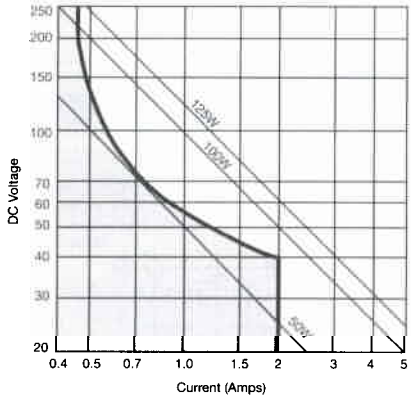
FEATURES

- Meets FCC Part 68 isolation.
- Temperature compensated over operating range.
- No magnetic interference between adjacent relays.
- 2 Form C contact arrangement.
- Standard 0.1" x 0.3" grid spacing in a DIP configuration.
- Standard or sensitive DC coils through 48 volts.
- Well suited for audio communications circuits, logic and process control, vending machines and office automation applications.
- Immersion cleanable, plastic sealed case.

CONTACT DATA

Arrangement: Bifurcated cross bar in 2 Form C (DPDT).
Material: Stationary contacts: Gold overlay on silver.
Movable contacts: 60% palladium, 40% silver alloy.
Ratings: Max. Switching Voltage: 250VDC, 220VAC.
Max. Switching Power:
DC (resistive load): 50-150W (see Figure 1 – Limiting Curve).
AC (resistive load): 250VA.
Max. Switching Current: 2A, DC or AC.
Min. Switching Current: .01mA, 10 mVDC
Max. Carrying Current: 3A, DC or AC.
Expected Mechanical Life: 20 million operations.
Expected Electrical Life: 300,000 ops. @ 1.5A, 24VDC, resistive.
1 million ops. @ 1.0A, 24VDC, resistive.
100,000 ops. @ 1.0A, 120VAC, resistive.
Initial Contact Resistance: 100 milliohms, max., @ 100mA, 6VDC.
Note: Verify in application for suitability to environmental and expected reliability levels.

FIGURE 1 – LIMITING CURVE FOR DC POWER LOAD



Safe breaking, arc extinguished. Maximum 10 operations/sec.

INITIAL DIELECTRIC STRENGTH

Between Open Contacts: 1,000V rms, 60 Hz.
1,500V FCC Part 68 surge test.
Between Contact Sets: 1,500V rms, 60 Hz.
1,500V FCC Part 68 surge test.
Contact to Coil: 1,000V rms, 60 Hz.; 1,500V FCC Part 68 surge test.
Between Dual Coils: 400V rms, 60 Hz.

INITIAL INSULATION RESISTANCE

Between Mutually Insulated Terminals: 10^9 ohms @ 500VDC.

COIL DATA @ 20 C

Voltage: 5 through 48VDC.
Maximum Continuous Coil Power: 810 milliwatts.
Temperature Rise: 105°C per watt, typ.
Maximum Coil Temperature: 105°C.

COIL DATA @ 20°C

Ultra-Sensitive ("150mW")

Nom. Coil Voltage	Non-Latching Coil Res. ± 10% (ohms)	Non-Latching Nom. Coil Power (mW)	Single Coil Latching Coil Res. ± 10% (ohms)	Single Coil Latching Nom. Coil Power (mW)	Dual Coil Latching Coil Res. ± 10% (ohms)	Dual Coil Latching Nom. Coil Power (mW)
5	165	150	330	75	167	150
12	960	150	1,920	75	960	150
15	1,500	150	3,000	75	1,500	150
24	3,840	150	7,680	75	3,840	150
48	15,360	150	N/A	N/A	N/A	N/A

Sensitive ("200mW")

Nom. Coil Voltage	Non-Latching Coil Res. ± 10% (ohms)	Non-Latching Nom. Coil Power (mW)	Single Coil Latching Coil Res. ± 10% (ohms)	Single Coil Latching Nom. Coil Power (mW)	Dual Coil Latching Coil Res. ± 10% (ohms)	Dual Coil Latching Nom. Coil Power (mW)
5	125	200	250	100	125	200
12	720	200	1,440	100	720	200
15	1,125	200	2,200	100	1,125	200
24	2,880	200	4,000	144	2,040	280
48	11,520	200	N/A	N/A	N/A	N/A

Intermediate Sensitivity ("260mW")

Nom. Coil Voltage	Non-Latching Coil Res. ± 10% (ohms)	Non-Latching Nom. Coil Power (mW)	Single Coil Latching Coil Res. ± 10% (ohms)	Single Coil Latching Nom. Coil Power (mW)	Dual Coil Latching Coil Res. ± 10% (ohms)	Dual Coil Latching Nom. Coil Power (mW)
5	95	260	N/A	N/A	N/A	N/A
12	600	240	N/A	N/A	N/A	N/A
15	860	260	N/A	N/A	N/A	N/A
24	2,210	260	N/A	N/A	N/A	N/A
48	6,330	360	N/A	N/A	N/A	N/A

Standard Sensitivity ("400mW")

Nom. Coil Voltage	Non-Latching Coil Res. ± 10% (ohms)	Non-Latching Nom. Coil Power (mW)	Single Coil Latching Coil Res. ± 10% (ohms)	Single Coil Latching Nom. Coil Power (mW)	Dual Coil Latching Coil Res. ± 10% (ohms)	Dual Coil Latching Nom. Coil Power (mW)
5	62.5	400	125	200	62.5	400
12	360	400	720	200	360	400
15	562	400	1,125	200	562	400
24	1,440	400	2,880	200	1,440	400
48	5,760	400	N/A	N/A	5,760	400

OPERATE DATA @ 20 C

Must Operate Voltage:
Standard sensitivity: 68% of nominal voltage or less.
Intermediate sensitivity: 75% of nominal voltage or less.
Sensitive: 80% of nominal voltage or less.
Ultra-sensitive: 85% of nominal coil voltage or less.
Must Release Voltage (non-latching): 10% of nominal voltage or more.
Operate Time (Excluding Bounce)†: 5 ms, max.
Release Time (Excluding Bounce)†: 3 ms, max.
Reset Time (Latching)†: 5 ms, max.
Bounce Time†: 1.5 ms, approximately.

† At or from Nominal Coil Voltage

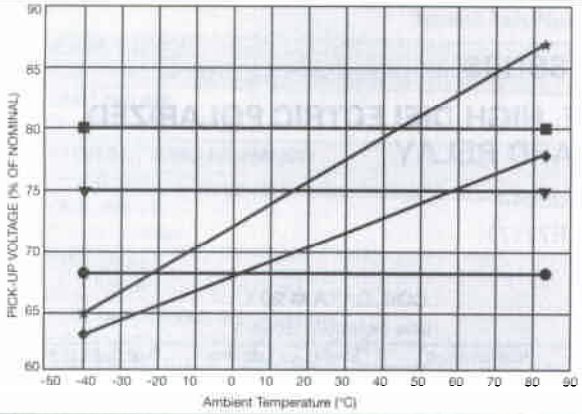
ENVIRONMENTAL DATA

Temperature Range: -40°C to +85°C (see Figure 2 – Temp. vs. Voltage).
Vibration: Operational: 50 g from 10-500 Hz.; 10 g from 500-2,000 Hz.
Shock: Operational: 50 g at 11 ms 1/2 sinusoidal impulse.

MECHANICAL DATA

Termination: Printed circuit terminals on 0.1" (2.54 mm) centers.
Enclosure: Sealed plastic case.
Weight: 0.18 oz. (5 g) approximately.

FIGURE 2 – TEMPERATURE VS. PICK-UP VOLTAGE COMPARISON



★ Typical non-polarized specification.
■ P&B sensitive T83 specification.
◆ Typical competitive polarized relay specification.
▼ P&B intermediate sensitivity T83 specification.
● P&B standard sensitivity T83 specification.

The purpose of a pick-up specification is to ensure that the relay will operate over the high end of the temperature range. To simplify specification, maximum or guaranteed pick-up voltage is generally specified at 20°C or 23°C.

The unique balanced design of the T83 results in a totally temperature-compensated relay with essentially constant pick-up voltage throughout the ambient temperature range. The guaranteed pick-up voltage of the T83 may be higher than that specified for other relays at 20°C; however, the pick-up voltage of the T83 at 85°C is generally lower than that of competitive units. For example, the pick-up of the sensitive version of the T83 is 80% of nominal voltage or less, while that of a typical competitive polarized model may be 77% of nominal voltage at 85°C.

ORDERING INFORMATION

Typical Part Number➤	T83	S	11	D	2	1	2	-24

1. BASIC SERIES:
T83 = High dielectric, PC board relay

2. CONSTRUCTION:
S = Sealed

3. CONTACT ARRANGEMENT:
11 = 2 Form C (DPDT)

4. COIL INPUT:
D = DC Voltage

5. COIL SENSITIVITY:
1 = Ultra-sensitive 3 = Intermediate sensitivity (non-latching types only)
2 = Sensitive 4 = Standard sensitivity

6. FUNCTIONAL TYPE:
1 = Single coil non-latching 2 = Single coil latching 3 = Dual coil latching

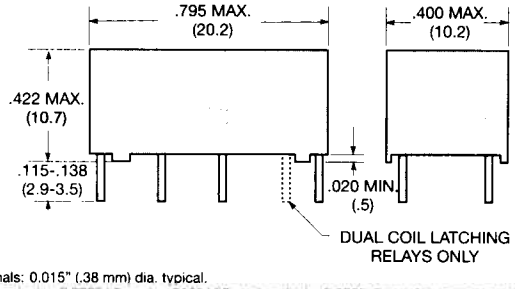
7. CONTACT MATERIAL:
2 = Bifurcated

8. COIL VOLTAGE:
05 = 5VDC 12 = 12VDC 15 = 15VDC 24 = 24VDC 48 = 48VDC (not available on all types. See Coil Data tables.)

STOCK ITEMS – The following items are normally maintained in stock for immediate delivery.

T83S11D112-05	T83S11D132-12	T83S11D212-48	T83S11D312-05	T83S11D412-12
T83S11D112-12	T83S11D132-24	T83S11D222-05	T83S11D312-12	T83S11D412-24
T83S11D112-24	T83S11D212-05	T83S11D232-05	T83S11D312-24	T83S11D422-12
T83S11D122-05	T83S11D212-12	T83S11D232-12	T83S11D312-48	T83S11D432-12
T83S11D132-05	T83S11D212-24	T83S11D232-24	T83S11D412-05	T83S11D432-24

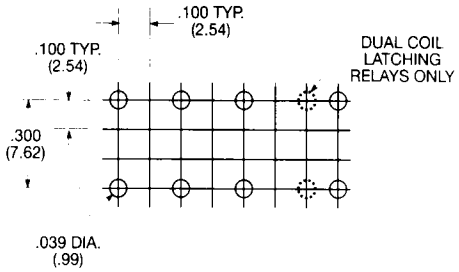
OUTLINE DIMENSIONS



Coil terminals: 0.015" (.38 mm) dia. typical.
Contact terminals: 0.020" (.5 mm) x .010" (.25 mm) typical. (0.020" dimension is measured in the direction of the .795" dimension of the relay.

PC BOARD LAYOUT (Bottom View)

TOLERANCE: ±.004 (.10)



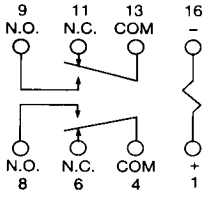
WIRING DIAGRAMS (Bottom View)

Single Coil Non-Latching & Single Coil Latching

For non-latching versions, coil polarity must be observed.

For single coil latching versions, polarity shown results in "set" condition. Reverse polarity results in "reset" condition.

Diagram indicates de-energized position for non-latching and "reset" position for single coil latch.



Dual Coil Latching

Diagram indicates relay in the "reset" position, with terminals 2 and 15 most recently energized. Energizing terminals 1 and 16 will transfer the contacts.