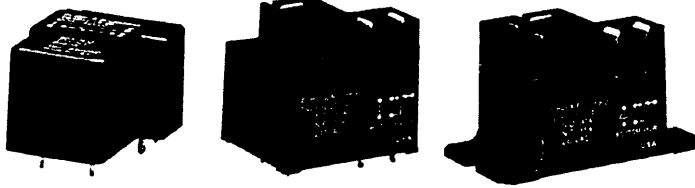


# POTTER & BRUMFIELD

619-723  
619-735  
619-747

619-759  
619-760  
619-772



## T9A series

LOW COST  
30 AMP PC BOARD OR  
PANEL MOUNT RELAY

File E22575

File LRA15734

### FEATURES

- Up to 30 amp switching in SPST and 20 amp in SPDT arrangements.
- Immersion cleanable<sup>(note 6)</sup>, plastic sealed case available.
- Meets UL 873 and UL 508 spacing - 1/8" through air, 1/4" over surface.
- Load connections made via 1/4" Q.C. terminals and safety wells accept insulated female Q.C. terminals (mounting codes 2 & 5).
- UL Class F insulation system standard.
- Well suited for various industrial, commercial and residential applications.

### CONTACT DATA @ 25°C

Arrangements: 1 Form A (SPST-NO) and 1 Form C (SPDT).

Material: Silver-cadmium oxide.

Mechanical Life: 10 million operations, typical.

### TYPICAL ELECTRICAL LOAD & LIFE

Operations	Contact Load	Type of Load	Contact Form
100,000	30A @ 240VAC	UL General Purpose	Form A
100,000	25A @ 240VAC	Resistive Heater	Form A
100,000	20A/10A @ 240VAC	UL General Purpose	NO/NC Form C
100,000	20A/10A @ 240VAC	UL Resistive	NO/NC Form C
100,000	20A/10A @ 28VDC	Resistive	NO/NC Form C

Minimum Contact Load: 1A @ 5VDC or 12VAC.

Initial Contact Resistance: 75 milliohms, max., @ min. rated current (switched).

### UL 508/873 & CSA CONTACT RATINGS

Voltage	Load Type	N.O. Contact	N.C. Contact
240VAC	General Purpose†	30A	15A
125VAC	Motor	1 HP	1/4 HP
120VAC	LRA/FLA	98A/22A	-
240VAC	Motor	2 HP	1/2 HP
240VAC	LRA/FLA**††	80A/30A	30A/12A
240VAC	Tungsten*	TV-5	-
240VAC	Pilot Duty	470VA	275VA
277VAC	Ballast	10A	3A
28VDC	Resistive	20A	10A

\* Rated 6,000 operations.

\*\* Higher UL & CSA ratings available.

† For Form C application, derate current to 20A (N.O.), 10A (N.C.).

†† For Form C application, derate current to 67%.

### INITIAL DIELECTRIC STRENGTH

Between Open Contacts: 1,500V rms.

Between Contacts and Coil: 1,500V rms (Mounting Code 1).

2,500V rms (Mounting Codes 2 and 5).

### INITIAL INSULATION RESISTANCE

Between Mutually Insulated Elements: 10<sup>9</sup> ohms, min., @ 500VDC, 25°C and 50% R.H.

### COIL DATA @ 25°C

Voltage: 5 to 110VDC.

Nominal Coil Power: 1.0W, approx.

Maximum Coil Power: 2.8 Watt.

Maximum Coil Temperature<sup>(note 5)</sup>: Class F: 140°C.

Duty Cycle: Continuous.

### COIL DATA

Nominal Voltage	DC Resistance ± 10% (Ohms)	Nominal Current (mA)	Nominal Voltage	DC Resistance ± 10% (Ohms)	Nominal Current (mA)
5	25	200	18	324	56
6	36	167	22	484	45
9	81	111	24	576	42
12	144	83	48	2,304	21
15	225	67	110	12,100	9

### OPERATE DATA @ 25°C

Must Operate Voltage: 75% of nominal voltage or less.

Must Release Voltage: 10% of nominal voltage or more.

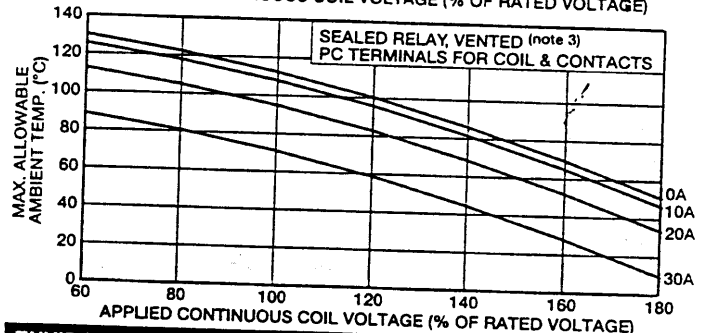
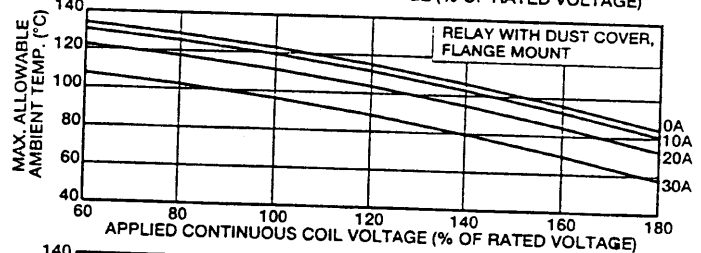
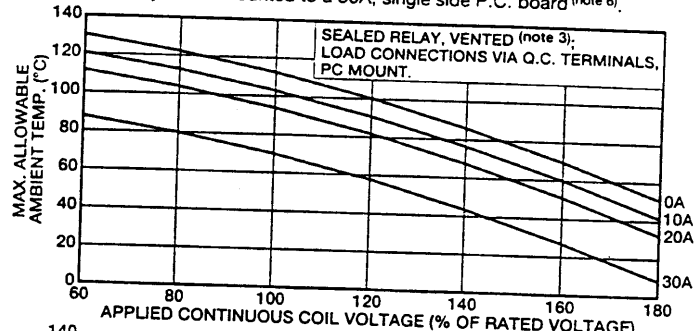
Operate Time (Including Bounce)§: 15 ms, max.

Release Time (Including Bounce)§: 15 ms, max.

§ At or From Nominal Coil Voltage

### AMBIENT TEMPERATURE VS. COIL VOLTAGE

Data below are average values and should be verified in application. Tests were conducted within a 2' (.6 m) cube (still air); at nominal coil power @ 25°C; with normally open contact loaded; and with 4' (1.22 m) long, #10 AWG load wires. P.C. board relays were mounted to a 30A, single side P.C. board<sup>(note 6)</sup>.



### ENVIRONMENTAL DATA

Storage Temperature Range: -55°C to 130°C.

Operating Temperature Range<sup>(note 1)</sup>: -55°C to +85°C.

Vibration, Operational: 0.065" (1.65 mm) max. excursions from 10-55 Hz. with no contact opening >100μs.

Shock, Operational: 10 g for 11 ms with no contact opening >100μs.

Shock, Mechanical: 100 g.

### MECHANICAL DATA

Termination: Printed circuit and quick connect terminals<sup>(note 4)</sup>.

Enclosures (all have 94V-O flammability rating):

T9AP: Unsealed, plastic dust cover.

T9AS: Immersion cleanable, sealed plastic case<sup>(notes 2 & 3)</sup>.

Weight: Q.C. version 1.2 oz. (33 g) approx. (mounting code 2 & 5).

Sealed Model T9AS: 0.9 oz. (26g) approx. (mounting code 1).

### NOTES

- Operating ambient temperature must consider "Must Operate Voltage Change Over Temperature," Contact Temperature Rise, Coil Temperature Rise (If coil is not allowed to cool) and Maximum Coil Temperature. Specification ambient considers 20A load with coil cooled to ambient.
- Sealed relay terminals should not be bent.
- Remove knock-off nib after cleaning process for optimum life of sealed relays.
- Maximum soldering temperature is 500°F for 4 seconds.
- Class F coils are UL systems approved for maximum coil temperature of 140°C, by change of resistance method.
- See application note 13C265 for proper relay mounting, termination, cleaning and PC board conductor width. Coil rise test performed with 30A PC board to maintain 20°C maximum rise @ 30A.

## ORDERING INFORMATION

Typical Part Number

T9A S 5 D 2 2 -12

### 1. BASIC SERIES:

T9A = Low cost, printed circuit board/panel power relay.

### 2. ENCLOSURE:

P = Unsealed, plastic dust cover.

S = Immersion cleanable, tape sealed plastic case.

### 3. CONTACT ARRANGEMENT:

1 = 1 Form A (SPST-NO).

5 = 1 Form C (SPDT).

### 4. COIL INPUT:

D = DC Voltage

### 5. MOUNTING & TERMINATION:

1 = Printed circuit board mounting; PC terminals for coil & contacts (a).

2 = Printed circuit board mounting; PC terminals for coil & contacts, and .250" (6.35 mm) quick connects for contacts (a).

5 = Flanged mounting; .187" (4.75 mm) quick connects for coil and .250" (6.35 mm) quick connects for contacts (b).

### 6. CONTACT MATERIAL:

2 = Silver-cadmium oxide.

### 7. COIL VOLTAGE:

5 = 5VDC 6 = 6VDC 9 = 9VDC 12 = 12VDC 15 = 15VDC 18 = 18VDC 22 = 22VDC 24 = 24VDC 48 = 48VDC 110 = 110VDC

a) Only available with enclosure code "S".

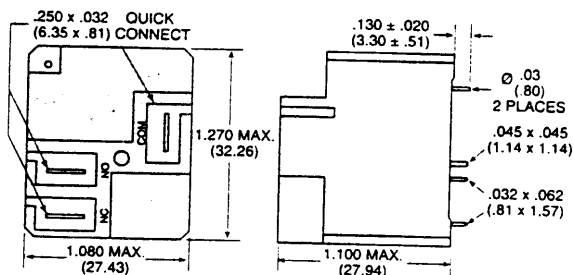
b) Only available with enclosure code "P".

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

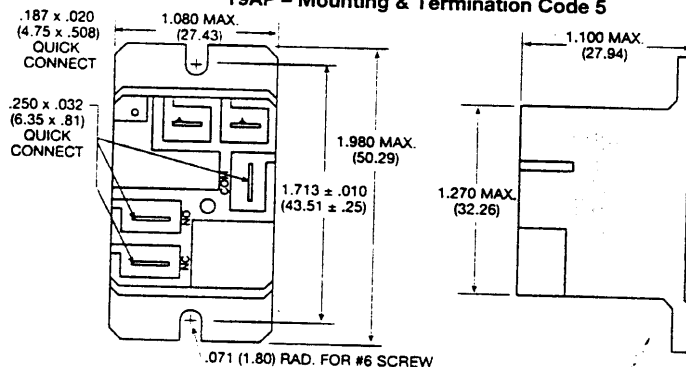
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T9AP5D52-24	T9AS1D12-18	T9AS1D12-24	T9AS1D22-24	T9AS5D12-18	T9AS5D12-24	T9AS5D12-48	T9AS5D22-24

## OUTLINE DIMENSIONS

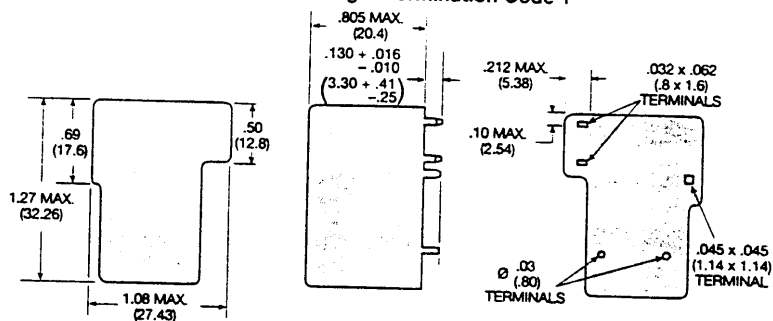
### T9AS - Mounting & Termination Code 2



### T9AP - Mounting & Termination Code 5

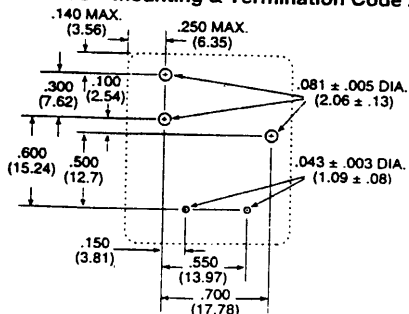


### T9AS - Mounting & Termination Code 1

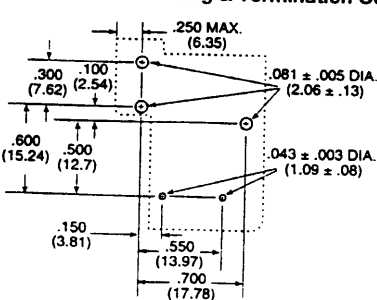


## PC BOARD LAYOUT (Bottom Views)

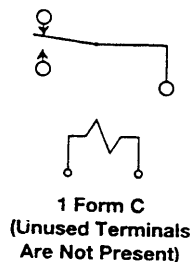
### T9AP/S - Mounting & Termination Code 2



### T9AS - Mounting & Termination Code 1



## WIRING DIAGRAM (Bottom View)



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Specifications and availability subject to change without notice.  
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