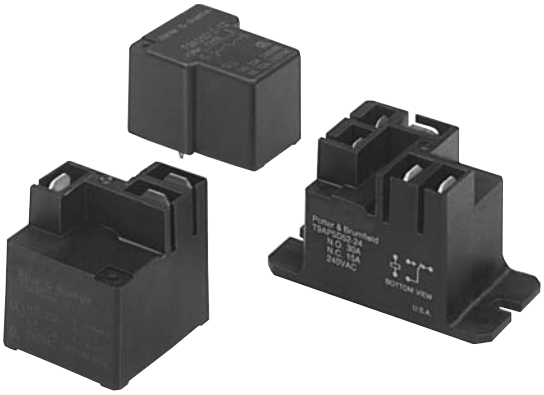


T9A series

DC Coil 30 Amp PC Board or Panel Mount Relay

File E22575
File LR15734

RoHS Ready

Users should thoroughly review the technical data before selecting a product part number. It is recommended that user 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

- Up to 30 amp switching in SPST and 20 amp in SPDT arrangements.
- Wash-tight (washable)(6), plastic 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 Ratings @ 25°C

Arrangements: 1 Form A (SPST-NO), and 1 Form C (SPDT).
Material: Silver-cadmium oxide.
Mechanical Life: 10 million operations, typical.
Minimum Contact Load: 1A @ 5VDC or 12VAC.
Initial Contact Resistance: 75 milliohms, max., @ min. rated current (switched).

Contact Ratings @ 25°C (unless otherwise noted) with relay properly vented. Remove vent nib after soldering and cleaning.

Typical Electrical Load & Life - 1 Watt Coil

Contact Arrangement	Contact Load	Type of Load	Operations
1	30A @ 240VAC	UL General Purpose	100,000
	25A @ 240VAC	Resistive Heater	100,000
5	20A/10A @ 240VAC	UL General Purpose	100,000
	20A/10A @ 240VAC	UL Resistive	100,000
	20A/10A @ 28VDC	Resistive	100,000

UL 508/873 & CSA Contact Ratings - 900mW Coil

Voltage	Load Type	N.O. Contact	N.C. Contact	Operations
240VAC	General Purpose	30A	–	100,000
240VAC	Resistive	18A	–	100,000 @ 105°C
240VAC	Resistive	–	15A	6,000
240VAC	LRA/FLA	30A/15A	–	100,000
120VAC	LRA/FLA	50A/16A	–	100,000
120VAC	LRA/FLA	30A/11A	–	200,000

Note: Consult factory for other 900mW version contact ratings.

UL 508/873 & CSA Contact Ratings - 1 Watt Coil

Voltage	Load Type	N.O. Contact	N.C. Contact
277VAC	Tungsten *	5.4A	–
277VAC	Ballast	10A	3A
240VAC	Motor	2 HP	1/2 HP
240VAC	Resistive *†	25A	20A
240VAC	General Purpose†	30A	15A
240VAC	LRA/FLA **††	80A/30A	30A/12A
240VAC	Pilot Duty *	470VA	275VA
125VAC	Motor	1 HP	1/4 HP
120VAC	LRA/FLA	98A/22A	–
120VAC	Tungsten *	8.3A	–
120VAC	Pilot Duty	470VA	–
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: 2,500V rms.
6 kV surge using 1.2µs/50µs Impulse Wave or .5µs – 100kHz Ring Wave

Initial Insulation Resistance

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

Coil Data @ 25°C

Voltage: 5 to 110VDC.
Nominal Coil Power: 1.0W, (approx.) and 900mW (approx.) versions.
Maximum Coil Power: 2.8 Watt.
Maximum Coil Temperature(5): Class F: 155°C.
Duty Cycle: Continuous.

Coil Data - 1 Watt

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

Coil Data - 900mW

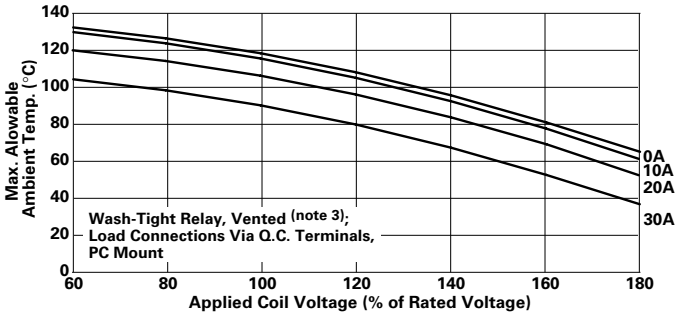
Nominal Voltage	DC Resistance ±10% (Ohms)	Nominal Current (mA)
5	27	185
6	40	150
9	97	93
12	155	77
15	256	59
18	380	47
20	450	44
22	545	40
24	660	36
28	890	31
36	1,450	25
48	2,560	19
110	13,450	8

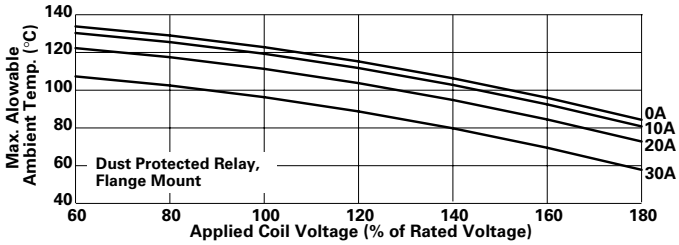
Operate Data @ 25°C

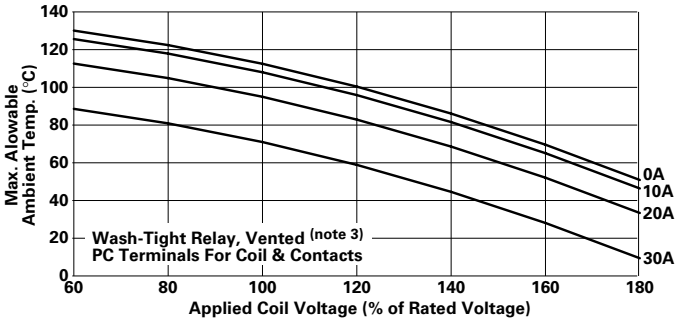
Must Operate Voltage: 75% of nominal voltage or less.
Must Release Voltage: 10% of nominal voltage or more.
Operate Time (Including Bounce)§: 15 ms, max.
Release Time (Including Bounce)§: 15 ms, max.
§ At or From Nominal Coil Voltage

Ambient Temperature vs. Coil Voltage - 1 Watt Coil

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 (6).







Environmental Data

Storage Temperature Range: -55°C to 130°C.
Operating Temperature Range(1): -55°C to +85°C.
Vibration, Operational: 0.065" (1.65mm) max. excursions from 10-55 Hz. with no contact opening >100µs.
Shock, Operational: 10g for 11 ms with no contact opening >100µs.
Shock, Mechanical: 100g.

Mechanical Data

Termination: Printed circuit and quick connect terminals (4).
Enclosures (all have 94V-0 flammability rating):
T9AP: Dust protected plastic case
T9AS: Wash-tight plastic case (washable) (2 & 3).
T9AV: Flux-proof plastic case.
Weight: Q.C. version: 1.2 oz. (33g) approx. (mounting code 2 & 5).
Wash-tight Model T9AS: 0.9 oz. (26g) approx. (mounting code 1).

Notes

(1) 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.
(2) Wash-tight relay terminals should not be bent.
(3) Remove knock-off nib after cleaning process for optimum life of wash-tight relays.
(4) Maximum soldering temperature is 500°F for 4 seconds.
(5) Class F coils are UL systems approved for maximum coil temperature of 140°C, by change of resistance method.
(6) 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 = Dust protected plastic case (mounting code 5).
S = Wash-tight (washable) plastic case with knock off nib (mounting codes 1 & 2).
V = Flux-proof plastic case (mounting code 1).

3. Contact Arrangement:
1 = 1 Form A (SPST-NO). 5 = 1 Form C (SPDT).

4. Coil Input:
D = DC voltage (1 Watt) L = DC voltage (900mW)

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

6. Contact Material:
2 = Silver-cadmium oxide.

7. Coil Voltage:

5 = 5VDC	9 = 9VDC	15 = 15VDC	20 = 20VDC	24 = 24VDC	36 = 36VDC	110 = 110VDC
6 = 6VDC	12 = 12VDC	18 = 18VDC	22 = 22VDC	28 = 28VDC	48 = 48VDC	

a) Only available with enclosure code "S" & "V". b) Only available with enclosure code "S". c) Only available with enclosure code "P".

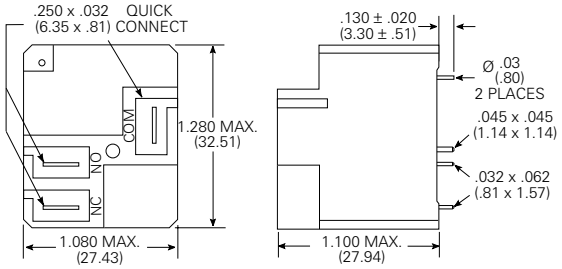
NOTE: All part numbers are RoHS compliant.

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

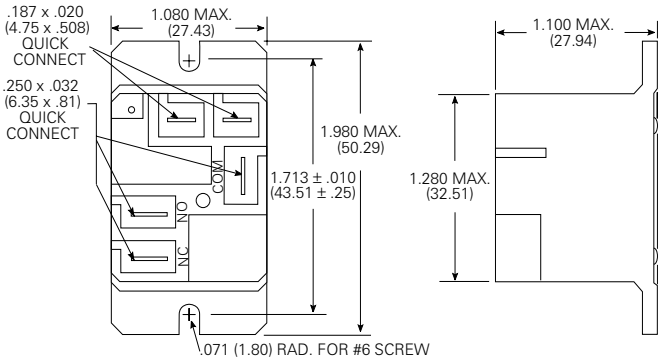
T9AP1D52-9	T9AS1D12-18	T9AS5D12-12
T9AP1D52-12	T9AS1D12-24	T9AS5D12-24
T9AP5D52-12	T9AS1D12-48	T9AS5D22-12
T9AP5D52-24	T9AS1D22-12	T9AS5D22-24
T9AS1D12-12	T9AS1D22-24	T9AV1L22-24

Outline Dimensions

T9AS – Mounting & Termination Code 2

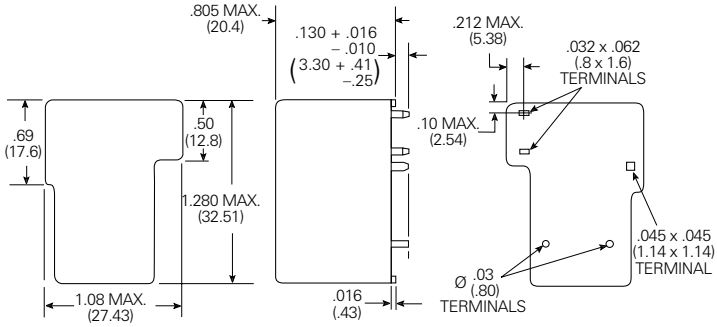


T9AP – Mounting & Termination Code 5



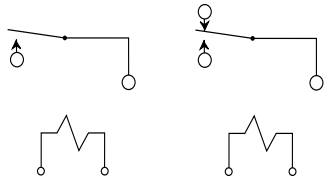
Note: Recommended mounting screw torque is 4.0-5.0 lbs.in when #6 screw is used.

T9AS/V – Mounting & Termination Code 1



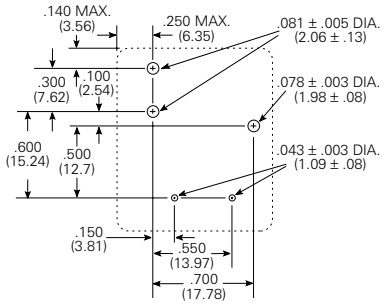
Wiring Diagrams (Bottom Views)

1 Form A **1 Form C**



PC Board Layouts (Bottom Views)

T9AP/S – Mounting & Termination Code 2



T9AS/V – Mounting & Termination Code 1