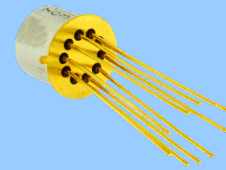




TO-5 MAGNETIC-LATCHING COMMERCIAL RELAYS DPDT



SERIES	RELAY TYPE
722	DPDT, Magnetic-Latching, TO-5 commercial relay

DESCRIPTION

The magnetic-latching TO-5 relay, originally conceived and developed by Teledyne, has become one of the industry standards for low-level switching from dry circuit to 1 ampere. Designed for high-density PC board mounting, the 722 relay has become one of the most versatile ultraminiature relays available because of its small size and low coil power dissipation.

Unique construction features and manufacturing techniques provide excellent resistance to environmental extremes and overall high reliability.

The 722 feature:

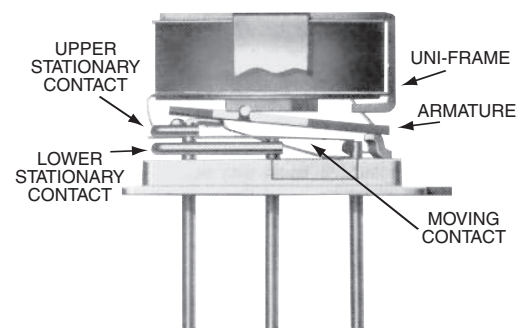
- All welded construction.
- Unique uni-frame design providing high magnetic efficiency and mechanical rigidity.
- High force/mass ratios for resistance to shock and vibration.
- Advanced cleaning techniques provide maximum assurance of internal cleanliness.
- Precious metal alloy contact material with gold plating assures excellent high current and dry circuit switching capabilities.

The Series 722 magnetic-latching relays are ideally suited for applications where coil power dissipation must be minimized. The relays can be operated with a short duration pulse and after the contacts have transferred, no external coil power is required. The magnetic-latching feature of the Series 722 provides a "memory" capability, since the relays will not reset upon removal of coil power.

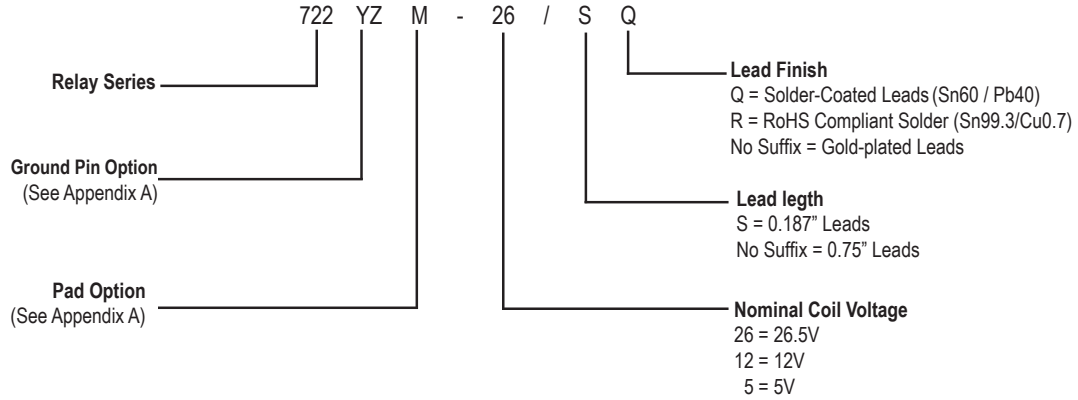
By virtue of its inherently low intercontact capacitance and contact circuit losses, the 722 relay has proven to be an excellent ultraminiature RF switch for frequency ranges well into the UHF spectrum. A typical RF application for the TO-5 relay is in handheld radio transceivers, wherein the combined features of good RF performance, small size, low coil power dissipation and high reliability make it a preferred method of Transmitter-Receive switching.

ENVIRONMENTAL AND PHYSICAL SPECIFICATIONS	
Temperature (Ambient)	-65°C to +125°C
Vibration (Note 1)	10 g's to 500 Hz
Shock (Note 1)	30 g's, 6ms half sine
Enclosure	Hermetically sealed
Weight	0.1 oz. (2.9g) max.
Reflow Temperature	260°C max. temp. 1 min. max

INTERNAL CONSTRUCTION



Part Numbering System (Notes 4 & 5)



NOTES:

1. Relay contacts will exhibit no chatter in excess of 10 μ s or transfer in excess of 1 μ s.
2. "Typical" characteristics are based on available data and are best estimates. No on-going verification tests are performed.
3. Unless otherwise specified, parameters are initial values.
4. Unless otherwise specified, relays will be supplied with gold-plated leads.
5. The slash and characters appearing after the slash are not marked on the relay.

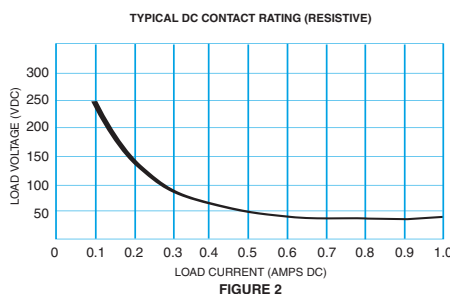
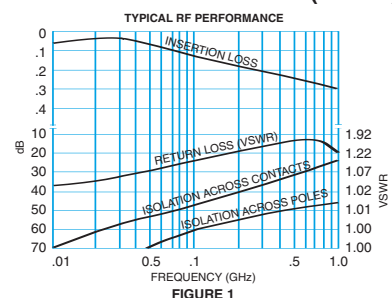
GENERAL ELECTRICAL SPECIFICATIONS (-65 °C to 125 °C unless otherwise noted. See notes 2 & 3.)

Contact Arrangement	2 Form C (DPDT)
Rated Duty	Continuous
Contact Resistance	0.15 Ω max.; 0.25 Ω max. afterlife at A / 28 Vdc
Contact Load Rating (DC)	Resistive: 1 A / 28 Vdc Inductive: 200 mA / 28 Vdc (320mH) Lamp: 100 mA / 28 Vdc (320mH) Low level: 10 to 50 μA @ 10 to 50 mV
Contact Load Rating (AC)	Resistive: 250 mA / 115Vac, 60 and 400 Hz (Case not grounded) 100 mA / 115 Vac, 60 and 400 Hz (Case grounded)
Contact Life Ratings	10,000,000 cycles (typical) at low level 1,000,000 cycles (typical) at 0.5 A / 28 Vdc resistive 100,000 cycles min. at all other loads specified above
Contact Overload Rating	2 A / 28 Vdc Resistive (100 cycles min.)
Coil Operating Power	290 mW typical @ nominal rated voltage
Contact Carry Rating	Contact Factory
Operate Time	2.0 ms max. @ nominal rated coil voltage
Minimum Operatue Pulse	6.0 ms width @ rated voltage
Intercontact Capacitance	0.4 pf typical
Insulation Resistance	1,000 MΩ min. between mutually isolated terminals
Dielectric Strength	350 Vrms (60 Hz) @ atmospheric pressure
Negative Coil Transient (Vdc)	2.0 Vdc Max.
Diode P.I.V. (Vdc)	60 Vdc Min.

DETAILED ELECTRICAL SPECIFICATIONS (-65 °C to 125 °C unless otherwise noted. See note 3.)

BASE PART NUMBERS (722, 722D)		722-5 722D-5	722-12 722D-12	722-26 722D-26
Coil Voltage (Vdc)	Nom.	5.0	12.0	26.5
	Max.	6.0	16.0	32.0
Coil Resistance (Ohms ±20%)		61	500	2000
Latch and Reset Voltage (Vdc)	Max.	3.5	9.0	18.0

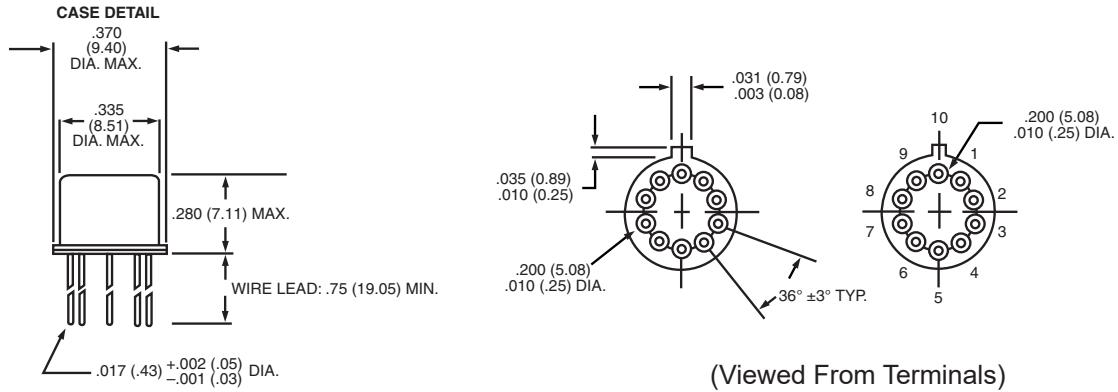
PERFORMANCE CURVES (Note 2)



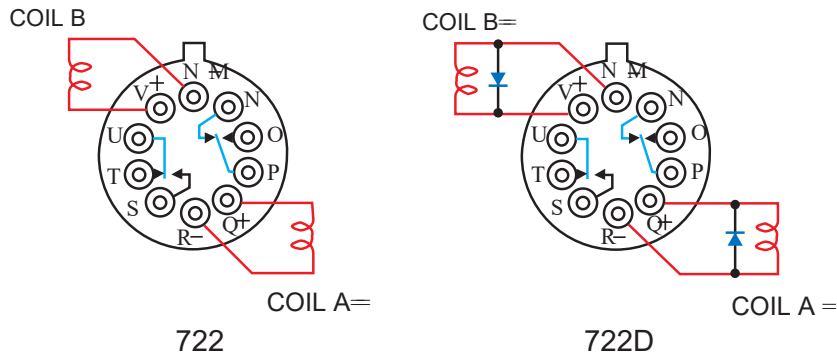
GENERAL NOTES

1. Relay contacts will exhibit no chatter in excess of 10 μsec or transfer in excess of 1 μsec.
2. "Typical" characteristics are based on available data and are best estimates. No on-going verification tests are performed.
3. Unless otherwise specified, parameters are initial values.
4. Relays can be supplied with a spacer pad. See appendix.

OUTLINE DIMENSIONS



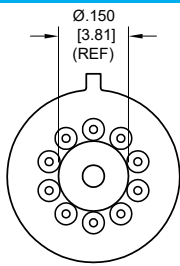
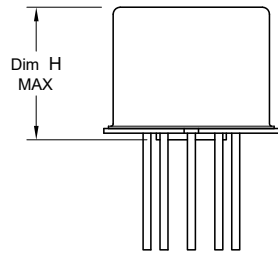
SCHEMATIC DIAGRAMS



NOTES:

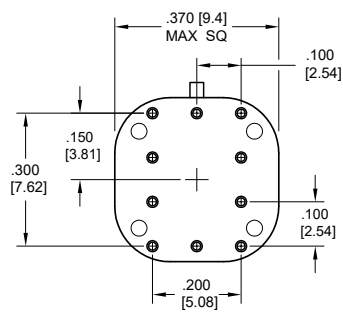
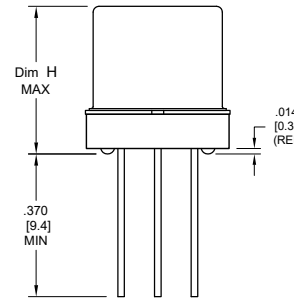
1. DIMENSIONS ARE IN INCHES, METRIC EQUIVALENTS SHOWN IN [].
2. POSITIONS 5 AND 10 ARE FOR UNINSULATED CASE GROUND OPTIONS.
3. NO PROTRUSION BELOW BOTTOM OF HEADER WHEN GROUND PINS ARE INSTALLED
4. TO ORDER THE CASE GROUND OPTION, AFTER THE SERIES DESIGNATOR, ADD "Y" TO THE PART NUMBER FOR POSITION 5 OR "Z" TO THE PART NUMBER FOR POSITION 10.
5. UNLESS OTHERWISE SPECIFIED, TOLERANCES ON DIMENSIONS ARE ± .010 INCH (0.025 MM)

APPENDIX A : Spacer Pads, Spreader Pads, and Ground Pin Positions

Pad designation and bottom view dimensions	Height	For use with the following:	Dim. H Max.
 <p>“M4” Spacer Pad for TO-5</p>		722	.305 (7.75)

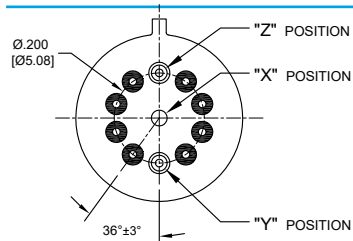
Notes:

1. Spacer pad material: Polyester film.
2. To specify an “M4” spacer pad, refer to the mounting variants portion of the part numbering example in the applicable datasheet.
3. Dimensions are in inches (mm).
4. Unless otherwise specified, tolerance is $\pm .010$ ” (.25 mm).
5. Add 10 m Ω to the contact resistance shown in the datasheet.
6. Add 0.01 oz. (0.25 g) to the weight of the relay assembly shown in the datasheet.

Pad designation and bottom view dimensions	Height	For use with the following:	Dim. H Max.
 <p>“M” Spreader Pad <u>5/</u> <u>6/</u></p>		722	.398 (10.11)

Notes:

1. Spreader pad material: Diallyl Phthalate.
2. To specify an “M” spreader pad, refer to the mounting variants portion of the part number example in the applicable datasheet.
3. Dimensions are in inches (mm).
4. Unless otherwise specified, tolerance is $\pm .010$ ” (0.25 mm).
- 5/. Add 25 m Ω to the contact resistance shown in the datasheet.
- 6/. Add .01 oz. (0.25 g) to the weight of the relay assembly shown in the datasheet.



TO-5 Relays:
ER411T, ER412, ER412T, ER420, ER421, ER422, ER431T,
ER432, ER432T, 712, 712TN, 400H, 400K, 400V, RF300,
RF303, RF341, RF312, RF332, RF310, RF313, RF320,
RF323, SI800, SI803, RF700, RF703

- Indicates ground pin position
- Indicates glass insulated lead position
- ⊙ Indicates ground pin or lead position depending on relay type

NOTES

1. Terminal views shown
2. Dimensions are in inches (mm)
3. Tolerances: $\pm .010$ ($\pm .25$) unless otherwise specified
4. Ground pin positions are within .015 (0.38) dia. of true position
5. Ground pin head dia., 0.035 (0.89) ref; height 0.010 (0.25) ref.
6. Lead dia. 0.017 (0.43) nom.