

7000 Series/High Reliability Reed Relays

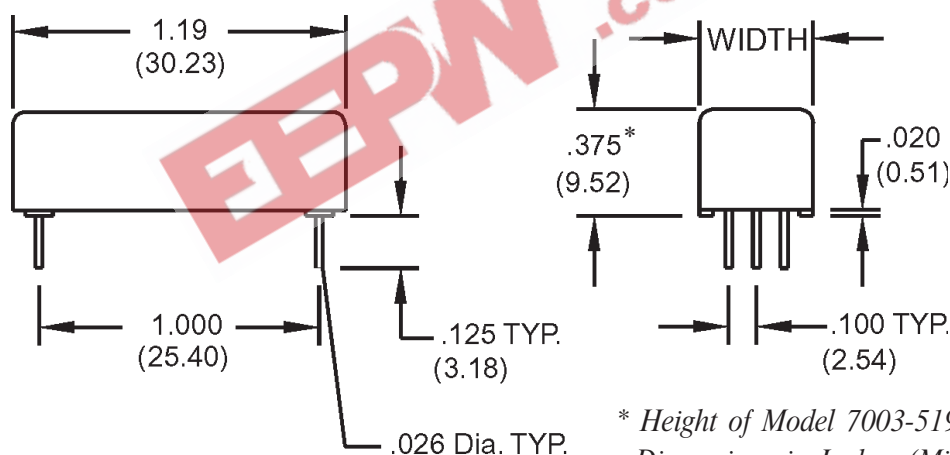


High Reliability Reed Relays

The 7000 Series is ideally suited to the needs of Instrumentation, Data Acquisition, Process Control, Telecommunications and General Purpose requirements. The specification tables allow you to select the appropriate relay for your particular application. These models are specifically designed for high quality and reliability with versatile switching capabilities and contact forms. If your requirements differ, please consult your local representative or Coto's Factory to discuss a custom reed relay.

7000 Series Features

- ◆ Multi-pole contact forms (Form A, B, and C)
- ◆ Wide range of switching capabilities; Low level, High Voltage, Hg wet
- ◆ Hermetically sealed contacts for long life and high reliability
- ◆ High speed switching compared to electromechanical relays
- ◆ Potted in metal shell - Magnetic Shield
- ◆ Optional Electrostatic Shield for reducing capacitive coupling
- ◆ PCB mounting versatility - 1.0" x 0.100" grid
- ◆ Optional coil suppression diode offered to protect coil drivers



WIDTH	A	B	C	D
DIMENSION	.410 (10.41)	.500 (12.70)	.660 (16.76)	.760 (19.30)

Table #1

Ordering Information

Part Number	XXXX-XX-1XXX
Model Number	See Tables (7000 Series)
Coil Voltage	05=5 volts 12=12 volts 24=24 volts
Coil Termination	0=End to End 1=Same End
Diode Options ²	0=No Diode 1=Diode Included
Electrostatic Shield Options	0=No Electrostatic Shield 1=Electrostatic Shield

Note:

Model #7003-5193 represents a complete part number.

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Parameters	Test Conditions	Units	Form A, B, Latch	Form C	Form A ⁴ Hg Wet	Form C ⁴ Hg Wet	Form A High Voltage	Form A Sensor (7003-5193)
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CONTACT RATINGS								
Switching Voltage	Max DC/Peak AC Resist.	Volts	200	150	500	500	500	50
Switching Current	Max DC/Peak AC Resist.	Amps	0.5	0.25	1.0	1.0	0.5	0.05
Carry Current	Max DC/Peak AC Resist.	Amps	2.0	0.5	2.0	2.0	2.0	0.5
Contact Rating	Max DC/Peak AC Resist.	Watts	10	3	50	50	10	3
Life Expectancy-Typical ¹	Signal Level 1.0V,10mA	x 10 ⁶ Ops.	1000	100	1000	1000	100	100
Static Contact Resistance (max. init.)	50mV, 10mA	Ω	0.100	0.150	0.075	0.100	0.100	0.200
Dynamic Contact Resistance (max. init.)	0.5V, 50mA at 100 Hz, 1.5 msec	Ω	0.150	0.200	0.100	0.150	0.150	N/A
RELAY SPECIFICATIONS								
Insulating Resistance (minimum)	Between all Isolated Pins at 100V, 25°C, 40% RH	Ω	10 ¹²	10 ¹⁰	10 ¹²	10 ⁹	10 ¹²	10 ¹⁰
Capacitance - Typical Across Open Contacts	No Shield	pF	1.0	2.0	1.0	2.0	1.0	1.0
	Shield Guarding	pF	0.2	1.0	0.2	1.0	0.2	0.2
Dielectric Strength (minimum)	Between Contacts	VDC/peak AC	250	200	1000	1000	1200	200
	Contacts to Shield	VDC/peak AC	1000	1000	1000	1000	1000	N/A
	Contacts/Shield to Coil	VDC/peak AC	1500	1500	1500	1500	1500	2850
Operate Time - including bounce - Typical	At Nominal Coil Voltage, 30 Hz Square Wave	msec.	1.0	2.0	2.0	2.0	1.0	0.35
Release Time - Typical	Zener-Diode Suppression ³	msec.	0.1	2.5	1.0	1.5	0.1	0.25

Dot stamped on top of relay refers to pin #1 location

(See following pages for schematic diagrams and coil data.)

Notes:

¹ Consult factory for life expectancy at other switching loads.

² Optional coil suppression diode Pin #1 is +.

³ Consists of 56V Zener diode and 1N4148 diode in series, connected in parallel with coil.

⁴ Hg Content: Form A, 0.04 grams per capsule; Form C, 0.072 grams per capsule.

Environmental Ratings:

Storage Temp: -35°C to +100°C;

Operating Temp: -20°C to +85°C

Solder Temp: 270°C max; 10 sec. max

The operate and release voltage and the coil resistance are specified at 25°C. These values vary by approximately 0.4% / °C as the ambient temperature varies.

Vibration: 20 G's to 2000 Hz; Shock: 50 G's

Contact Form	Model Number	Nominal Coil Voltage VDC	Must Operate Voltage VDC max.	Must Release Voltage VDC min.	Coil Resistance $\pm 10\%$ @25°C	Width (See Table #1)	Schematic Top View ^{2,8}	
							End to End Coil	Same End Coil
1A	7101	5	3.75	0.4	300	A		
		12	9.0	1.0	1600			
		24	18.0	2.0	4200			
2A	7102	5	3.75	0.4	150	B		
		12	9.0	1.0	1000			
		24	18.0	2.0	3500			
3A	7103	5	3.75	0.4	100	C		
		12	9.0	1.0	800			
		24	18.0	2.0	2400			
4A	7104	5	3.75	0.4	80	D		
		12	9.0	1.0	550			
		24	18.0	2.0	2000			
1B ⁵	7121	5	3.75	0.4	150	B		
		12	9.0	1.0	1000			
		24	18.0	2.0	3500			
2B ⁵	7122	5	3.75	0.4	100	C		
		12	9.0	1.0	800			
		24	18.0	2.0	2400			
1C	7141	5	3.75	0.4	175	A		
		12	9.0	1.0	1100			
		24	18.0	2.0	4200			
2C	7142	5	3.75	0.4	65	C		
		12	9.0	1.0	490			
		24	18.0	2.0	1550			
3C	7143	5	3.75	0.4	55	D		
		12	9.0	1.0	300			
		24	18.0	2.0	1350			
1A Latch ^{5,6}	7150	5	3.75	0.4	550/550	B		
		12	9.0	1.0	1750/1750			
1A1B ^{5,7}	7160	5	3.75	0.4	80	D		
		12	9.0	1.0	550			
		24	18.0	2.0	2000			

Contact Form	Model Number	Nominal Coil Voltage VDC	Must Operate Voltage VDC max.	Must Release Voltage VDC min.	Coil Resistance $\pm 10\%$ @25°C	Width (See Table #1)	Schematic Top View ^{2,8}	
							End to End Coil	Same End Coil
1A Hg wet ⁹	7201	5	3.75	0.4	70	A		
		12	9.0	1.0	450			
		24	18.0	2.0	1785			
2A Hg wet ⁹	7202	5	3.75	0.4	60	B		
		12	9.0	1.0	340			
		24	18.0	2.0	1330			
3A Hg wet ⁹	7203	5	3.75	0.4	50	C		
		12	9.0	1.0	300			
		24	18.0	2.0	1200			
4A Hg wet ⁹	7204	5	3.75	0.4	40	D		
		12	9.0	1.0	250			
		24	18.0	2.0	960			
1C Hg wet ⁹	7241	5	3.75	0.4	50	C		
		12	9.0	1.0	300			
		24	18.0	2.0	1200			
1A High Voltage	7301	5	3.75	0.4	175	A		
		12	9.0	1.0	1100			
		24	18.0	2.0	4200			
2A High Voltage	7302	5	3.75	0.4	100	B		
		12	9.0	1.0	640			
		24	18.0	2.0	2450			
3A High Voltage	7303	5	3.75	0.4	65	C		
		12	9.0	1.0	490			
		24	18.0	2.0	1550			
4A High Voltage	7304	5	3.75	0.4	55	D		
		12	9.0	1.0	300			
		24	18.0	2.0	1350			
1A Current Sensor	7003-5193	N/A	13.0 (mA Max)	5.0 (mA Min)	8	C		

Notes:

⁵ These relays contain bias magnets. Correct coil polarity must be observed.

⁶ Coil suppression diode is recommended for proper operation. Correct coil polarity must be observed.

⁷ Break before make not guaranteed.

⁸ Dot stamped on top of relay refers to pin #1 location. E-pin indicates Electrostatic shield pin. Unused pins omitted. Pin numbers for reference only.

⁹ All models with Hg wet contacts are position sensitive, must be mounted within 30° of vertical plane. See schematic.