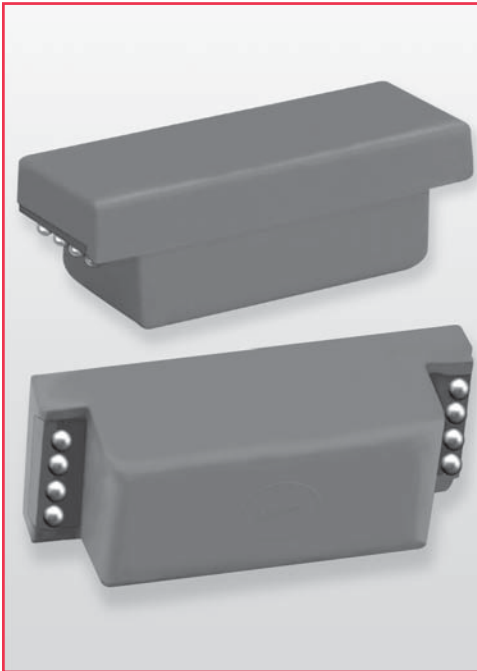


# B10 RF Relays



## Ball Grid Array Relays

Coto's Ball Grid Array (BGA) construction offers a breakthrough in reed relay performance. This patented technology<sup>1</sup> allows for shorter RF paths in a controlled 50 Ω environment to minimize signal attenuation. The designer is now able to switch or pass signals with wider bandwidth and faster rise time than alternative technologies. This is particularly important in Mixed Signal IC testers. BGA packaging allows relays to be integrated easily on boards designed for surface mount processing.

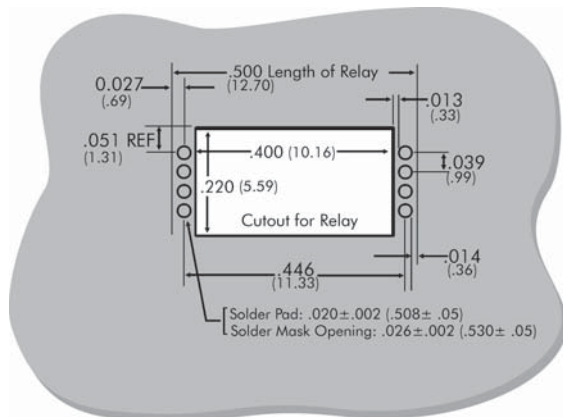
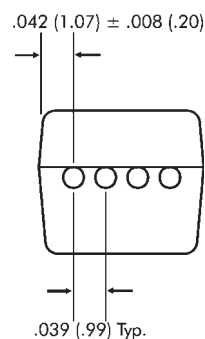
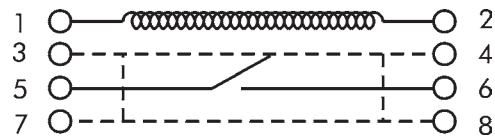
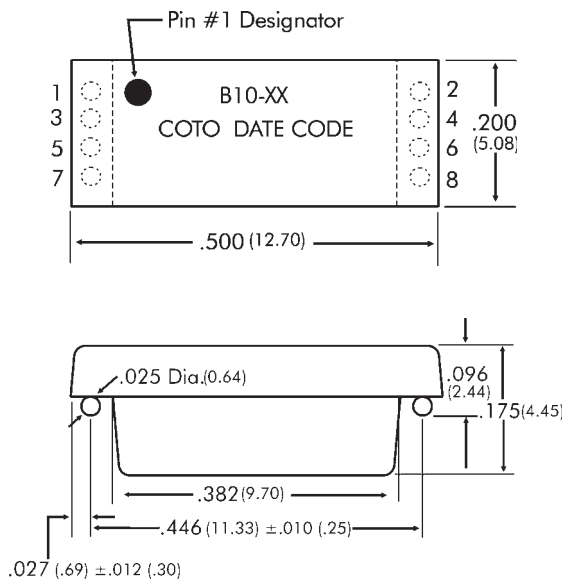
## Series Features

- ◆ BGA Surface Mount
- ◆ Ability to pass GHz signals
- ◆ Rise time < 40pSec
- ◆ 50Ω Characteristic Impedance
- ◆ Low Capacitance
- ◆ Patented Design<sup>1</sup>

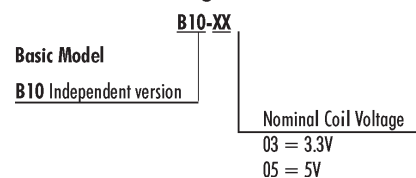
## Applications

- ◆ IC Testers
- ◆ In-Line Relay Testers
- ◆ Memory Testers
- ◆ Mixed Signal Testers
- ◆ High Bandpass Applications

*Dimensions in Inches  
(Millimeters)*



## Ordering Information



## Notes:

<sup>1</sup> Protected by one or more of the following US Patents: 6025768, 6052045, 6294971, 6683518, RE38381 and other foreign patents.

# B10 RF Relays

Test Parameters	Conditions <sup>1,2</sup>	Min	B10	Max	Units
			Typ		
Coil Resistance	3.3V Coil	49.5	55.0	60.5	Ω
Nominal Voltage			5.0	4.0	Volts DC
Must Operate Voltage				2.4	Volts DC
Must Release Voltage		0.4			Volts DC
Coil Resistance	5V Coil	135.0	150.0	165.0	Ω
Nominal Voltage			5.0	6.0	Volts DC
Must Operate Voltage				3.8	Volts DC
Must Release Voltage		0.4			Volts DC
Switching Voltage	Max DC/Peak AC			125	Volts
Switching Current				0.25	Amps
Carry Current (Continuous)	Switch and Shield Resistive Load			0.5	Amps
Contact Rating (Resistive Load)				3.0	Watts
Life Expectancy	Signal Switching <sup>3</sup>		1000		x 10 <sup>6</sup> Ops
	Resistive Load <sup>3</sup>		1		x 10 <sup>6</sup> Ops
	Other Load Conditions <sup>3</sup>	Consult Factory			
Static Contact Resistance (initial)	0.05VDC / 10mA			0.125	Ω
Dynamic Contact Resistance (initial)	0.5V / 50mA 100 Hz, 1.5 mSec			0.150	Ω
Insulation Res	All Isolated Pins	10 <sup>10</sup>	10 <sup>12</sup>		Ω
Capacitance	Across Contacts		0.2		pF
Capacitance	Open Contact to Coil		0.5		pF
Capacitance	Closed Contact to Coil		1		pF
Dielectric Strength	Across Contacts	150			V (DC/Pk AC)
	Contact to Coil	1500			V (DC/Pk AC)
	Contact to Shield	1500			V (DC/Pk AC)
Operate Time (including bounce)	Nominal Voltage coil drive @ 30 Hz, square wave		100	200	μSec
Release Time (Si diode damped)			30	50	μSec
RF Insertion Loss <sup>4</sup>	-3 dB roll-off frequency	10.0			GHz
Signal Rise Time (10% - 90%)	Corrected for measurement system response time			40	pSec

## NOTES:

<sup>1</sup>All parameters specified per EIA/NARM standards for dry reed relays, # RS-421 and RS-436, if a suitable parametric standard exists.

<sup>2</sup>Unless otherwise noted, all parameters are specified at 25°C and 40% RH.

<sup>3</sup>Life expectancies based on characteristic life (63.2% failure) calculated from the 2-parameter Weibull distribution. Contact resistance >2.0Ω defines end of life.

<sup>4</sup>Frequency at which the difference between output and input signal amplitude exceeds -3dB. (Direct wired using 50Ω coaxial cable.)

## ENVIRONMENTAL RATINGS:

Storage Temperature: -35°C to +100°C.

Operating Temperature: -20°C to +85°C.

Vibration: sinusoidal vibration with an amplitude of 10G over a 10Hz to 2000Hz frequency range shall not cause a closed channel activated at the nominal coil voltage to open, not an open channel to close.  
Max Soldering Temperature: 226°C (438°F) max for 1 minute dwell time. Temperature measured at a relay ball termination.