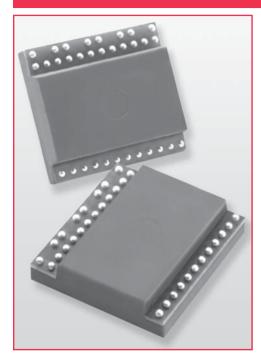
B40 4-Channel RF Relays



Ball Grid Array 4-Channel Relays

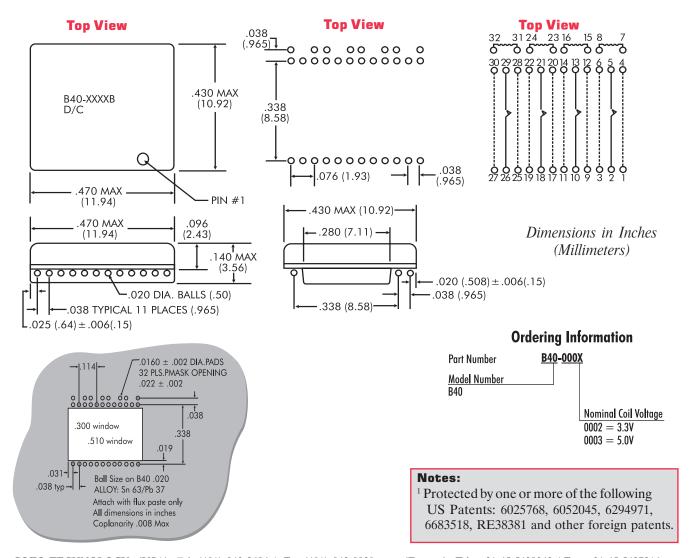
The B40 is four independent form A channels in one quad package. Coto's Ball Grid Array (BGA) construction offers a breakthrough in reed relay performance. This patented technology¹ allows for shorter RF paths in a controlled $50~\Omega$ environment to minimize signal attentuation. The designer is now 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. This four-inone 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 < 40 pSec
- ~50 Ω Characteristic Impedance
- ◆ Low Capacitance
- Patented Design¹

Applications

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



B40 4-Channel RF Relays

				B40		
Test Parameters		Conditions ^{1,2}	Min	Тур	Max	Units
Coil Resistance			49.5	55.0	60.5	Ω
Nominal Voltage		3.3V Coil		3.3	4.0	Volts DC
Must Operate Voltage					2.4	Volts DC
Must Release Voltage			0.4			Volts DC
Coil Resistance			144.0	160.0	176.0	Ω
Nominal Voltage		5V Coil		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			0.5	Amps
Contact Rating (Resistive Load)		Resistive Load			3.0	Watts
Life Expectancy	Signal Switching ³	1VDC / 10mA		1000		x 10 ⁶ Ops
	Resistive Load ³	12VDC / 10mA		1		x $10^6\mathrm{Ops}$
	Other Load Conditions ³	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	100VDC	10^{10}	10^{12}		Ω
Capacitance	Across Contacts	Shield Guarding		0.2		pF
Capacitance	Open Contact to Coil	Shield Guarding		0.3		pF
Capacitance	Closed Contact to Coil	Shield Guarding		0.5		pF
Dielectric Strength	Across Contacts	$100\mu\mathrm{A}$		150		V (DC/Pk AC)
	Contact to Coil	$100\mu\mathrm{A}$		1000		V (DC/Pk AC)
	Contact To Shield	$100\mu\mathrm{A}$		1000		V (DC/Pk AC)
	Between Contacts of	$100\mu\mathrm{A}$		1000		V (DC/Pk AC)
	Adjacent Channels					
Operate Time	(including bounce)	Nominal Voltage coil drive @ 30 Hz,		100	200	$\mu \mathrm{Sec}$
Release Time	(Si diode damped)	square wave		30	50	μSec
RF Insertion Loss ⁴		-3 dB roll-off frequency	11.0			GHz
RF Inter-Channel Isolation		Signal isolation between adjacent	40.0			dB
		closed channels, 1GHz test signal				
Signal Rise Time (10% - 90%)					40	pSec
Magnetic Interaction ⁵		Between adjacent channels			16	%

NOTES:

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

- ²Unless otherwise noted, all parameters are specified at 25°C and 40% RH.
- 3 Life expectancies based on characteristic life (63.2% failure) calculated from the 2-parameter Weibull distribution. Contact resistance >2.0 Ω defines end of life.
- ⁴Frequency at which the difference between output and input signal amplitude exceeds -3dB.
- ⁵Maximum increase in operate voltage for any channel when all channel coils are driven at nominal coil voltage and with the same drive polarity.

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 neither cause a closed channel activated at the nominal coil voltage to open, nor an open channel to close. Max Soldering Temperature: 438°F(226°C) max for 1 minute dwell time. Temperature measured at a relay ball termination.

Moisture sensitive component. Handle as J-STD-020B level 5a.