

## All Purpose Reed Relays



## FEATURES

- Up to 5 switches in a package (Consult factory)
- Normally closed option
- Insulation resistance up to  $10^{14} \Omega$  available
- Metal and Plastic casings available
- Latching version available
- 4.5 kVDC (3.0 kVRMS) contact to coil option
- High contact to coil voltage

## DESCRIPTION

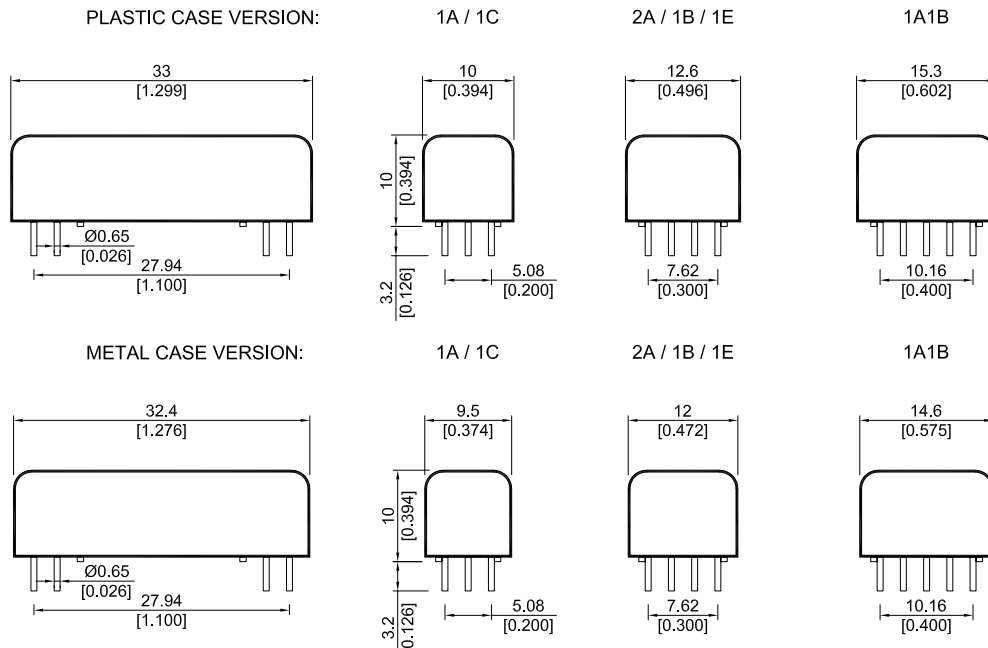
With the extensive BE Series you have the choice between a metal and a plastic casing. The globally current pinnings assure the availability of widely pin-compatible Reed Relays. This series' range of applications is very wide-spread due to the variety of possible contact combinations:

## APPLICATIONS

- Telecommunications
- Medical equipment
- Test and Measurement
- General applications

## DIMENSIONS

All dimensions in mm [inch]



### ORDER INFORMATION

#### Part Number Example

BE05 - 1A85 - P

**05** is the nominal voltage  
**1A** is the contact form  
**85** is the switch model  
**P** is the casing

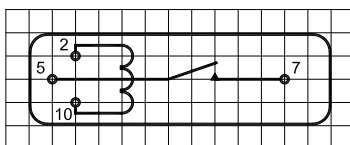
Series	Nominal Voltage	Contact Form	Switch Model	Pin Out	Casing option (p, m, v) *	High ** Insulation resistance
<b>BE</b>	<b>XX -</b>	<b>XX</b>	<b>XX -</b>	<b>XX</b>	<b>X</b>	<b>XX</b>
<b>Options</b>	05, 12, 24	1A	31, 66, 79, 85	10	P, M	HI
			66	11	V	
	05, 12, 24	1B	66	10	M	
			66	11	V	
	05, 12, 24	1C	90	15	P, M	
	05, 12	1E	66	14	M	
05, 12, 24	2A	66, 79, 85	20	P, M		
05, 12, 24	1A1B	66	23	M		

\* P = plastic, M = metal, V = High isolation voltage  
 Please note: Selecting option V offers 4,5 kV breakdown voltage contact to coil, but only for pin out 11.  
 \*\* Selects the  $10^{14} \Omega$  option between contact to coil and plastic case.

### PIN OUT

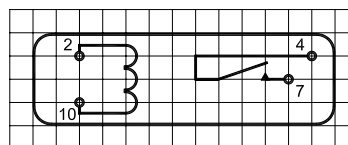
View from top of component  
 2.54mm [0.10"] pitch grid

10



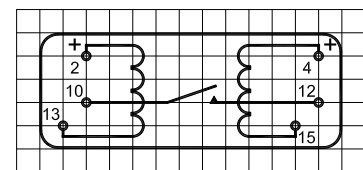
→ **UP**  
 ONLY WHEN USING THE  
 MERCURY WETTED (88) SWITCH

11



4.5 kVDC

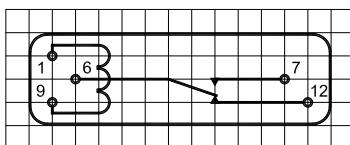
14



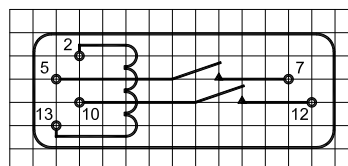
Coil 1

Coil 2

15

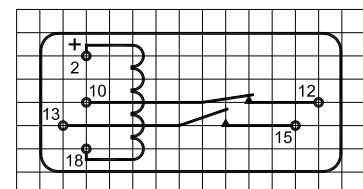


20



→ **UP**  
 ONLY WHEN USING THE  
 MERCURY WETTED (88) SWITCH

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## All Purpose Reed Relays

### RELAY DATA

All Data at 20° C	Switch Model → Contact Form →	Switch 31 Form A			Switch 66 Form A / B			Switch 79 Form A			
Contact Ratings	Conditions	Min.	Typ.	Max.	Min.	Typ.	Max.	Min.	Typ.	Max.	Units
Switching Power	Any DC combination of V & A not to exceed their individual max.'s			50			10			25	W
Switching Voltage	DC or peak AC			500			200			1000	V
Switching Current	DC or peak AC			2			0.5			1.0	A
Carry Current	DC or peak AC			2			1.25			2	A
Static Contact Resistance	w/ 0.5 V & 10 mA			80			150			150	mΩ
Dynamic Contact Resistance	Measured w/ 0.5 V & 50 mA , 1.5 ms after closure						200			200	mΩ
Insulation Resistance (100 Volts applied)	Across contacts Contact to coil	10 <sup>10</sup> 10 <sup>11</sup>			10 <sup>10</sup> 10 <sup>12</sup>			10 <sup>12</sup> 10 <sup>12</sup>		10 <sup>14</sup> 10 <sup>14</sup>	Ω
Breakdown Voltage	Across contacts Contact to coil	1500 4500			225 2.0 *			4000 2.0		2000 4500	VDC kVDC
Operate Time incl. Bounce	Measured w/ 100 % overdrive			1.2			0.5			0.8	ms
Reset Time	Measured w/ no coil suppression			1			0.1			0.4	ms
Capacitance	Across contacts Contact to coil		0.2 5.0			0.2 5.0			0.2 5.0	0.4 /	pF
<b>Life Expectancies</b>											
Switching 5V & 10 mA	DC only & <10 pF stray cap.		100			1000				1000	10 <sup>6</sup> Cy- cles
For other load requirements, see the life test section on P. 120.											
<b>Environmental Data</b>											
Shock Resistance	1/2 Sine wave duration 11ms			50			50			50	g
Vibration Resistance	10 - 2000 Hz			20			20			20	g
Ambient Temperature	10°C/minute max. allowable	-20		70	-20		70	-20		70	°C
Storage Temperature	10°C/minute max. allowable	-35		85	-40		105	-40		105	°C
Soldering Temperature	5 sec. dwell			260			260			260	°C

\* 4.5 kVDC / 3.0 kVRMS when the V option is selected.

**RELAY DATA**

All Data at 20° C	Switch Model → Contact Form →	Switch 85 Form A			Switch 90 Form C			Units
		Min.	Typ.	Max.	Min.	Typ.	Max.	
<b>Contact Ratings</b>	<b>Conditions</b>							
Switching Power	Any DC combination of V & A not to exceed their individual max.'s			100			10	W
Switching Voltage	DC or peak AC			1000			175	V
Switching Current	DC or peak AC			1.0			0.25	A
Carry Current	DC or peak AC			2.5			1.2	A
Static Contact Resistance	w/ 0.5 V & 50 mA			150			150	mΩ
Dynamic Contact Resistance	Measured w/ 0.5 V & 50 mA , 1.5 ms after closure			200			250	mΩ
Insulation Resistance (100 Volts applied)	Across contacts Contact to coil	10 <sup>12</sup> 10 <sup>12</sup>			10 <sup>9</sup> 10 <sup>12</sup>			Ω
Breakdown Voltage	Across contacts Contact to coil	4000 2.0			200 2000			VDC
Operate Time incl. Bounce	Measured w/ 100 % overdrive			1.0			0.7	ms
Reset Time	Measured w/ no coil suppression			0.1			1.5	ms
Capacitance	Across contacts Contact to coil		0.2 5.0			1.0 5.0		pF
<b>Life Expectancies</b>								
Switching 5V & 10 mA	DC only & <10 pF stray cap.		500			100		10 <sup>6</sup> Cycles
For other load requirements, see the life test section on P. 120.								
<b>Environmental Data</b>								
Shock Resistance	1/2 Sine wave duration 11ms			50			50	g
Vibration Resistance	10 - 2000 Hz			20			20	g
Ambient Temperature	10°C/minute max. allowable	-20		70	-20		70	°C
Storage Temperature	10°C/minute max. allowable	-40		105	-40		105	°C
Soldering Temperature	5 sec. dwell			260			260	°C

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### COIL DATA

Contact Form	Switch Model	Coil Voltage		Coil Resistance	Pull-In Voltage	Drop-Out Voltage	Nominal Coil Power	
All Data at 20 °C *		VDC		Ω	VDC	VDC	mW	
		Nom.	Max.	Typ. **** Tolerance ± 10%	Max.	Min.	Typ.****	
1A	31	5	7.5	105	3.5	0.5	238	
		12	16	620	8.4	1.2	232	
	66	5	7.5	140 (345)	3.5	0.75	179 (72)	
		12	16	855 (2145)	8.4	1.8	168 (67)	
		24	30	3285 (7845)	16.8	3.6	175 (73)	
	79	5	7.5	105	3.5	0.3	238	
		12	16	620	8.4	1.2	232	
	85	5	7.5	105 (140)	3.5	0.75	238 (179)	
		12	16	620 (1000)	8.4	1.8	232 (144)	
		24	30	1400 (2300)	16.8	3.6	411 (250)	
	1B **	66	5	7.5	(180)	3.5	0.75	139
			12	16	(1100)	8.4	1.8	131
24			30	(4240)	16.8	3.6	136	
1C	90	5	7.5	345	3.5	0.75	72	
		12	16	2145	8.4	1.8	67	
		24	30	7845	16.8	3.6	73	
1E ***	66	5	7.5	2 x 850	3.5	0.75	29	
		12	16	2x 5060	8.4	1.8	28	
2A	66	5	7.5	70 (180)	3.5	0.75	357 (139)	
		12	16	445 (1100)	8.4	1.8	324 (131)	
		24	30	1700 (4240)	16.8	3.6	339 (136)	
	85	5	7.5	70 (110)	3.5	0.75	357 (227)	
		12	16	420 (600)	8.4	1.8	343 (240)	
		24	30	1080 (1600)	16.8	3.6	533 (360)	
1A1B**	66	5	7.5	(55)	3.5	0.75	455	
		12	16	(370)	8.4	1.8	424	
		24	30	(1350)	16.8	3.6	427	

\* The pull-in / drop-out voltage and coil resistance will change at the rate of 0,4 % per degrees C.  
\*\* Reclosure of Form B may occur if the max. voltage is exceeded. Coil polarity on Form B must be observed. Pin 2 is positive.  
\*\*\* Coil polarity must be observed. Applying a 2 ms pulse to Coil No. 1 with nominal voltage will latch the contacts.  
Applying a 2 ms pulse to Coil No. 2 will unlatch the contacts.  
\*\*\*\* The figures in brackets are for relays in metal casing.