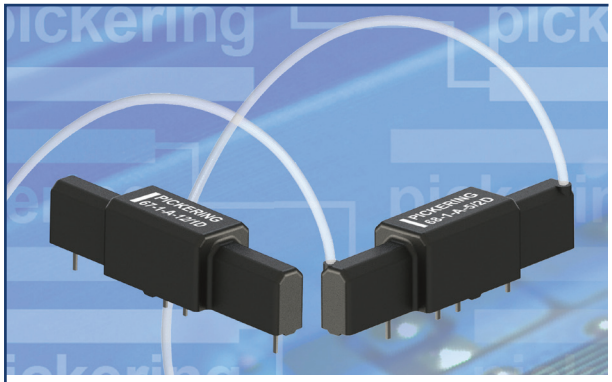
High Voltage Dry Reed Relays

for up to 10kV

Products highlighted are available from Rapid Electronics www.rapidonline.com



Features

- *SoftCenter*® construction
- Option of PCB or flying lead switch connections
- Small size
- Up to 10 kV stand-off, 7.5 kV switching
- Long life
- Fully encapsulated

Series 67 - PCB connections to switch and coil

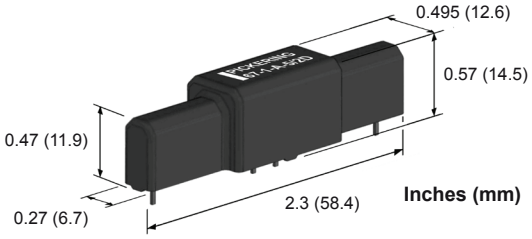
Series 68 - PCB connections to coil and flying leads to the switch which keeps the high voltage away from the PCB

The Series 67 and 68 ranges of high voltage reed relays have similar specifications to the established Series 60/65 and 62/63 but are constructed using a leadframe in a Single-in-Line format and feature former-less coils which enables a smaller package than is usual for this type of device.

The unusual package style allows some interesting stacking possibilities (see adjacent photo) when used to construct high density multiplexers or matrices. The parts feature an internal mu-metal magnetic screen.

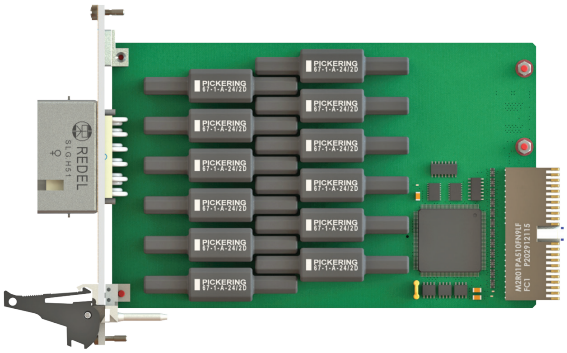
They are available for up to 10kV stand-off, 7.5kV switching at 50 Watts maximum. The tungsten plated contacts ensure a long and reliable life.

5, 12, and 24 volt coils are available as standard. Other voltages can be supplied to special order as can variations in the lead length of the Series 68 type.



Switch Ratings

- **1 Form A (energize to make)** Switch Number 1, 5kV stand-off. 3.5kV switching at up to 50 Watts
- **1 Form A (energize to make)** Switch Number 2, 10kV stand-off. 7.5kV switching at up to 50 Watts



Our Series 67 relays mounted on a 3U PXI 12-Way High Voltage Multiplexer Module, illustrates interesting stacking possibilities.

Highlighted parts are available from Rapid Electronics Ltd

Series 67, 68 switch ratings - The contact ratings for each switch type are shown below:

Switch No	Switch form	Power rating	Max. switch current	Max. carry current	Max. switching volts	Max stand-off voltage	Life expectancy ops typical (see Note[2] below)	Operate time inc bounce (max)	Release time
1	A	50 W	3 A	3 A	3500 (Note[1])	5000	10^7	3 ms	2 ms
2	A	50 W	3 A	3 A	7500 (Note[1])	10000	10^7	3 ms	2 ms

Operating voltages

Coil voltage - nominal	Must operate voltage - maximum at 25°C	Must release voltage - minimum at 25°C
5 V	3.75 V	0.5 V
12 V	9 V	1.2 V
24 V	18 V	2.4 V

Series 67 Coil data and type numbers

Device type	Type Number	Coil (V)	Coil resistance	Max. contact resistance (initial)	Insulation resistance (minimum)		Capacitance (typical) (see Note[3] below)	
					Switch to coil	Across switch	Closed switch to coil	Across open switch
1 Form A (energize to make) Switch No. 1	67-1-A-5/1D 67-1-A-12/1D 67-1-A-24/1D	5 12 24	40 Ω 150 Ω 600 Ω	0.12 Ω	10^{12} Ω	10^{12} Ω	3 pF	0.15 pF
1 Form A (energize to make) Switch No. 2	67-1-A-5/2D 67-1-A-12/2D 67-1-A-24/2D	5 12 24	40 Ω 150 Ω 600 Ω	0.12 Ω	10^{12} Ω	10^{12} Ω	3 pF	0.15 pF

When an internal diode is required, the suffix D is added to the part number as shown in the table.

Series 68 Coil data and type numbers

Device type	Type Number	Coil (V)	Coil resistance	Max. contact resistance (initial)	Insulation resistance (minimum)		Capacitance (typical) (see Note[3] below)	
					Switch to coil	Across switch	Closed switch to coil	Across open switch
1 Form A (energize to make) Switch No. 1	68-1-A-5/1D 68-1-A-12/1D 68-1-A-24/1D	5 12 24	40 Ω 150 Ω 600 Ω	0.12 Ω	10^{12} Ω	10^{12} Ω	3 pF	0.15 pF
1 Form A (energize to make) Switch No. 2	68-1-A-5/2D 68-1-A-12/2D 68-1-A-24/2D	5 12 24	40 Ω 150 Ω 600 Ω	0.12 Ω	10^{12} Ω	10^{12} Ω	3 pF	0.15 pF

When an internal diode is required, the suffix D is added to the part number as shown in the table.

Environmental specification

Standard operating temperature range: -20 to +85 °C.

Note: The upper temperature limit can be extended to +125 °C if the coil drive voltage is increased to accommodate the resistance/temperature coefficient of the copper coil winding. This is approximately 0.4% per °C. This means that at 125 °C the coil drive voltage will need to be increased by approximately 40 x 0.4 =16% to maintain the required magnetic drive level. Please contact sales@pickeringrelay.com for assistance if necessary.

Vibration: Maximum 20 G

Shock: Maximum 50 G

Note[1] Switching Voltage

This high voltage rating is for RESISTIVE loads only. At these high voltages, circuit capacitance can generate very high current pulses which can damage the contact plating. If there is capacitance in circuit, provision should be made to limit the surge to within the current and power ratings of the relay. The product of open circuit switch voltage and instantaneous current at the point of switch-on should not exceed the 50 Watts power rating of the contact. Exceeding this level will reduce the operational life of the relay.

Note[2] Life expectancy

The life of a reed relay depends upon the switch load and end of life criteria. For example, for an 'end of life' contact resistance specification of 1 Ω, switching low loads (10 V at 10 mA resistive) or when 'cold' switching, typical life is approx 10 x 10^6 ops. At the maximum load (resistive), typical life is 1 x 10^6 ops. In the event of abusive conditions, e.g. high currents due to capacitive inrushes, this figure reduces considerably. Pickering will be pleased to perform life testing with any particular load condition.

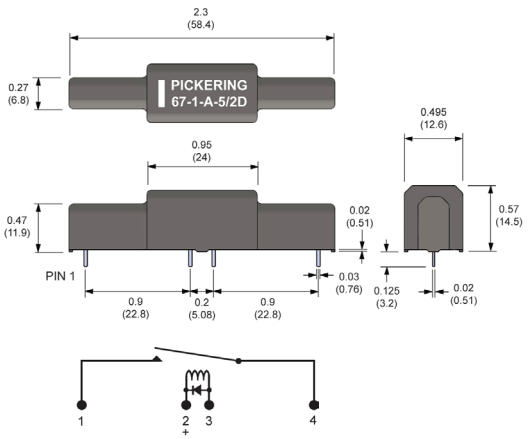
Note[3] Capacitance across open switch

This is measured with the coil connected to the guard terminal of the measuring bridge.

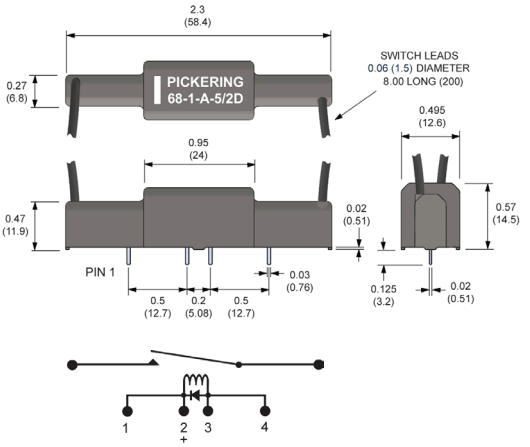
Pin Configuration and Dimensional Data

Dimensions in Inches (Millimeters in brackets)

Series 67



Series 68



Important: Where the optional internal diode is fitted, the correct coil polarity must be observed, as shown by the + symbol on the schematics.

3D Models: Interactive models of the complete range of Pickering relay products can be downloaded from the web site.

Order Code

67 - 1 - A - 5 / 2 D

- Series
- Number of reeds
- Switch form
- Coil voltage
- Switch number (See table adjacent)
- Diode if fitted (Omit if not required)

Help

If you need any technical advice or other help, for example, any special tests that you would like carried out, please do not hesitate to contact our Technical Sales Department. We will always be pleased to discuss Pickering relays with you.
email: techsales@pickeringrelay.com

Please ask us for a FREE evaluation sample.

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For a full list of agents and representatives visit: **pickeringrelay.com/agents**

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