

High Voltage Dry Reed Relays

for up to 10kV

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

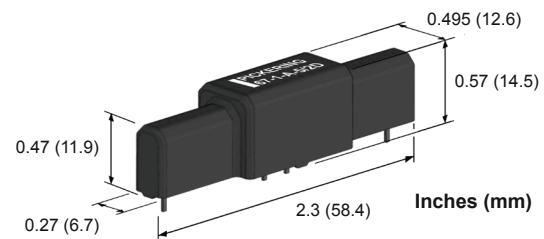
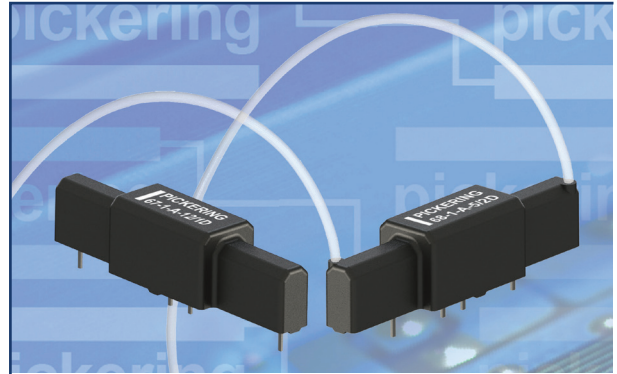
Series 68 - PCB connections to coil and flying leads to the switch which keeps the high voltage away from the PCB

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.

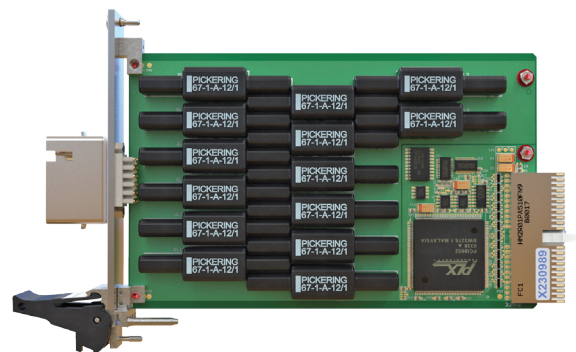
They are available for up to 10kV stand-off, 7.5kV switching at 50 Watts maximum. The tungsten plated contacts ensure a long and reliable life.

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



Example of Series 67 Packing Possibility

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	5	40 Ω	0.12 Ω	10 ¹² Ω	10 ¹² Ω	3 pF	0.15 pF
	67-1-A-12/1D	12	150 Ω					
	67-1-A-24/1D	24	600 Ω					
1 Form A (energize to make) Switch No. 2	67-1-A-5/2D	5	40 Ω	0.12 Ω	10 ¹² Ω	10 ¹² Ω	3 pF	0.15 pF
	67-1-A-12/2D	12	150 Ω					
	67-1-A-24/2D	24	600 Ω					

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	5	40 Ω	0.12 Ω	10 ¹² Ω	10 ¹² Ω	3 pF	0.15 pF
	68-1-A-12/1D	12	150 Ω					
	68-1-A-24/1D	24	600 Ω					
1 Form A (energize to make) Switch No. 2	68-1-A-5/2D	5	40 Ω	0.12 Ω	10 ¹² Ω	10 ¹² Ω	3 pF	0.15 pF
	68-1-A-12/2D	12	150 Ω					
	68-1-A-24/2D	24	600 Ω					

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

Note¹ 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.

Note² 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 10⁶ ops. At the maximum load (resistive), typical life is 1 x 10⁶ 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.

Note³ Capacitance across open switch

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

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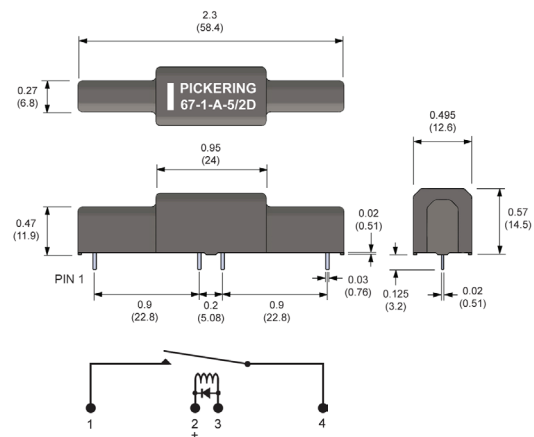
For a full list of agents and representatives visit: pickeringrelay.com/agents



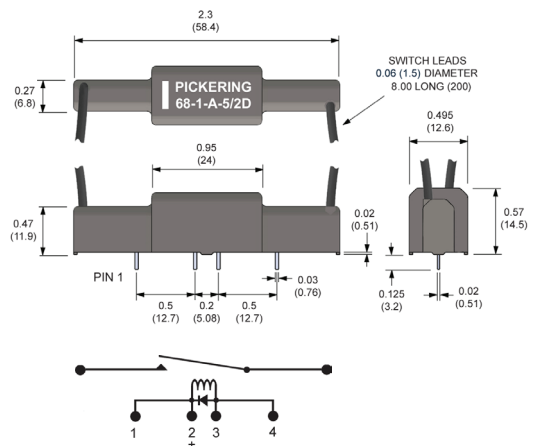
Pin Configuration and Dimensional Data

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 Pickering relay products can be downloaded here: pickeringrelay.com/3d-models

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

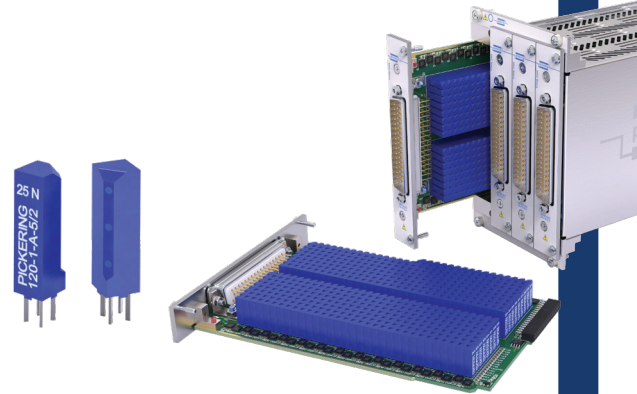
Please ask us for a FREE evaluation sample.

Why Pickering Electronics?

Because Quality Matters

Pickering Electronics continue to lead the high-end reed relay market through innovative product design, high performance components and exceptional quality control.

Part of the privately-owned Pickering Group, company operations employ around 200 staff across quality accredited factories in the UK and Czech Republic, supplying demanding Aerospace, Infrastructure, Test & Measurement and ATE applications worldwide.



Reliability through quality – 50 Year reputation for exceptional product life longevity derived from continuous staged manufacturing inspection, strenuous full range thermal cycling and 100% testing for all operating parameters.



Reliability through design – Environmentally compliant designs and unique Softcenter® technology combine to create an optimised assembly that minimises internal lifetime stresses, extending working life and contact stability.



Switching Performance – Compared with common bobbin based products, our formerless coil constructions maximise magnetic efficiency resulting in faster switching speeds, optimal switching action and several orders of extended lifetime at operational extremes.



Cost & Size Performance – Industry leading mu-metal magnetically screened packages deliver ultra-high PCB packing densities, saving significant cost and space.



Designers toolkit – Free samples, worldwide tech support and an unrivalled range of specialist and custom devices, Pickering engineers work alongside customers to deliver problem solving solutions for complex and challenging applications.



Quality Assurance and compliance - certified to ISO 9001-2015 and audited by the British Standards Institution. Committed to RoHS & REACH compliance.



Distribution – An established global network of group sales offices supported by local agents and distributors, Pickering operate an established logistical supply chain worldwide.



The Pickering Group – Employing around 400 staff across 8 sites in the UK and CZ, Pickering Electronics are a key technology partner for Pickering Interfaces and Pickering Connect, supporting the design and manufacture of high performance modular signal switching and simulation systems.