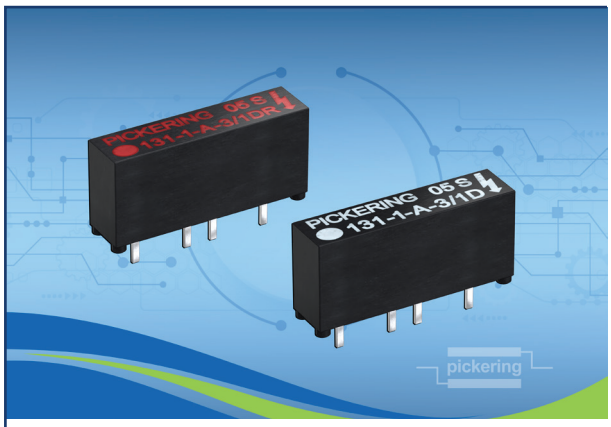
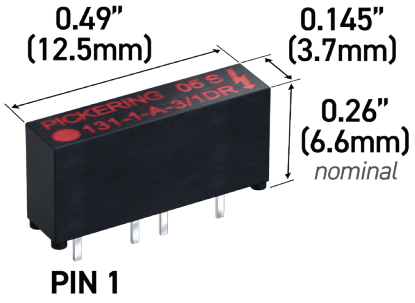
High Voltage Mini-SIL Single-in-Line SIL/SIP Reed Relays

Minimum 1500V Stand-off



Features

- Choice of 3, 5 or 12 Volt coils, with optional internal diode
- 1 Form A (energize to make) SPST N.O. configuration
- Smallest high voltage reed relay currently available
- Switching up to 0.7 Amps, 10 Watts
- Internal mu-metal magnetic screen allows side by side stacking without magnetic interaction
- 100% tested for dynamic contact resistance
- Unique *SoftCenter*® construction (see diagram below)
- Highest quality vacuumed, sputtered ruthenium reed switches
- Ideal for cable testers, mixed signal/semiconductor testers, backplane testers, high voltage instrumentation, in-circuit test equipment or other applications where high voltage capability is required.



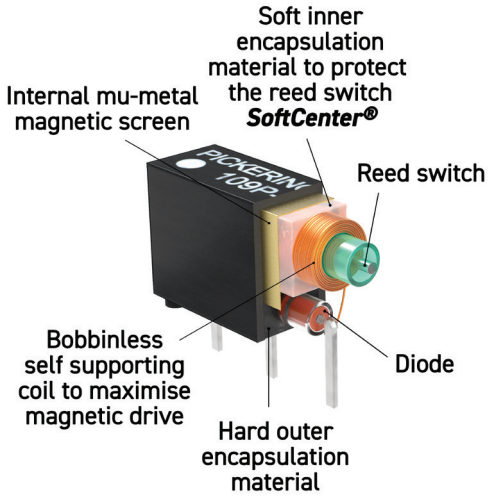
The Pickering Series 131 is a new range of very small Single-in-Line Reed Relays intended for voltages very much higher than standard small SIL relays. The vacuumed, sputtered ruthenium reed switches have a superb low level performance also, which makes them an ideal choice where a wide range of signals are involved.

The range is based on the long established Series 113 style of plastic package with an internal mu-metal magnetic screen which allows high packing density and are made using Pickering's *SoftCenter*® construction.

Application Note:

For stand-off voltages at the upper range of the specification; increases in the contact resistance at low signal levels may be observed. This is a characteristic of the switch. For new applications or for further information please contact our Technical department.

Typical Pickering *SoftCenter*® Construction



Series 131 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 (see Note[1])	Min. stand-off volts	Life expectancy ops typical (see Note[2] below)	Operate time inc bounce (max)	Release time	Special features
1	A	10 W	0.7 A	1.25 A	1000	1500	10^8	0.5 ms	0.2 ms	High voltage

Operating voltages

Coil voltage - nominal	Must operate voltage - maximum at 25°C	Must release voltage - minimum at 25°C
3 V	2.25 V	0.3 V
5 V	3.75 V	0.5 V
12 V	9 V	1.2 V

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 (1kV)	131-1-A-3/1DR 131-1-A-5/1DR 131-1-A-12/1DR	3 5 12	100 Ω 250 Ω 750 Ω	0.17 Ω	10^{12} Ω	10^{12} Ω	2.5 pF	0.1 pF

When an internal diode is required, the suffix D is added to the part number as shown in the table.
When red printing is required, the suffix R 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, even stray capacitance can generate very high current pulses, which can damage the contact plating causing welding of the reed switch. If there is capacitance in circuit, provision should be made to limit the surge, to within the current and power ratings 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 1 x 10^8 ops. At the maximum load (resistive), typical life is 1 x 10^7 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 all other component leads connected to the guard terminal of the measuring bridge.

Note[4] Contact Resistance

As part of our continuous product evaluation program Pickering have identified a characteristic with our Series 131. For stand-off voltages at the upper range of the specification increases in the contact resistance at low signal levels may be observed. This characteristic has always been present and if an application has used these parts and not been affected we do not believe any action needs to be taken.

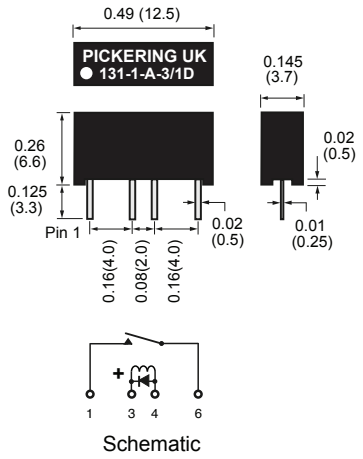
For new applications or for further information please contact our Technical department.

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

Pin Configuration and Dimensional Data

Dimensions in Inches (Millimeters in brackets)



Schematic

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

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

Order Code

131 - 1 - A - 3 / 1 D R

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

Please ask us for a FREE evaluation sample.

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ISO9001 Manufacture of Reed Relays FM 29036