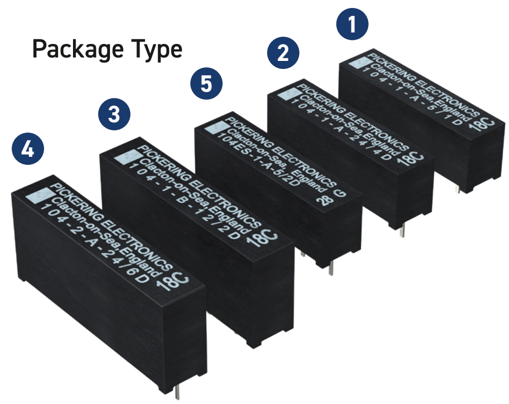
High Voltage SIL/SIP Reed Relays

Series 104

- Up to **4 kV** stand-off NEW
- Small size. Stacking on **0.25 Inches** pitch
- Internal mu-metal magnetic screen
- Optional electrostatic screen NEW
- **104HT** High temperature versions available NEW
- One or two switches in a single package
- **1 Form A, 2 Form A** & **1 Form B** configurations
- Dry and mercury wetted switches available
- **5 V, 12 V** or **24 V** Coils with optional internal diode
- Ideal for mixed semiconductor testers, renewable energies and much more (see below)
- Additional build options are available including many pin configurations
- Many benefits compared to industry standard relays (see last page)



The Series 104 reed relays are ideal for mixed signal semiconductor testers, cable testing, monitoring photovoltaic efficiency, EVs & charge point testing, mining gas analysis, medical electronics, in-circuit test equipment, high voltage instrumentation, and much more.

Where mains voltages are switched, for example to control and isolate S.C.R. or triac gates, they are an ideal choice.

The range features an internal mu-metal screen to eliminate problems that would otherwise be experienced due to magnetic interaction when they are closely stacked.

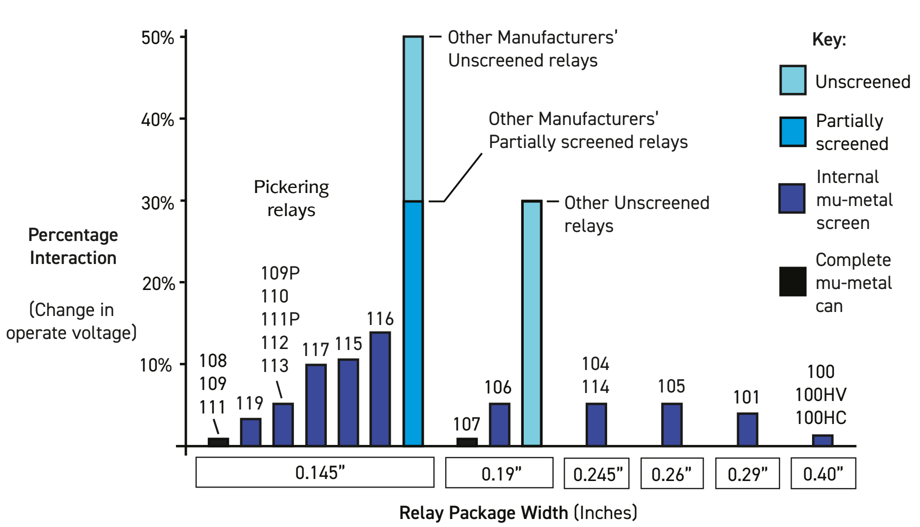
There is an option for an electrostatic shield between the switch and the coil to help minimise noise between the coil drive and high voltage circuits.

Where extended operating temperature ranges are required, options are designed to work from -40 °C to +125 °C, or custom versions up to +150 °C.

Four types of dry switches are available, capable of standing-off 1.5, 2, 3 or 4 kV d.c. The 3 kV & 4 kV versions have an increased clearance between the switch and coil pins to accommodate the higher voltage. Even higher voltage ratings are available to special order, please contact our sales office for further information.

Mercury wetted devices are also available for applications where bounce free switching is required. These are rated at 1500 volts d.c. minimum stand-off, 500 volts d.c. switching at up to 50 watts.

Magnetic Interaction



This chart demonstrates the percentage changes in operate voltage due to magnetic interaction depending on the level of magnetic screening offered from the relay package. For more information on magnetic interaction **click here**.

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Switch Ratings - Dry Switches

1 Form A (energize to make)	1 Form B (energize to break)	2 Form A (energize to make)
1500 V d.c. min stand-off 1000 V d.c. switching at 25 W	1500 V d.c. min stand-off 1000 V d.c. switching at 25 W	1500 V d.c. min stand-off 1000 V d.c. switching at 25 W
2000 V d.c. min stand-off 1000 V d.c. switching at 25 W	2000 V d.c. min stand-off 1000 V d.c. switching at 25 W	2000 V d.c. min stand-off 1000 V d.c. switching at 25 W
3000 V d.c. min stand-off 1000 V d.c. switching at 25 W	–	–
4000 V d.c. min stand-off 1000 V d.c. switching at 25 W	–	–

Switch Ratings - Mercury Wetted Switches

1 Form A (energize to make)	2 Form A (energize to make)
1500 V d.c. min stand-off 500 V d.c. switching at 50 W	1500 V d.c. min stand-off 500 V d.c. switching at 50 W

Dry Reed: Series 104 switch ratings - contact ratings for each switch type

Switch No	Switch form	Power rating	Max. switch current	Max. carry current	Max. switching volts	Min. stand-off volts	Life expectancy ops typical (see Note[1])	Operate time inc bounce (max)	Release time	Special features
1	A or B	25 W	1.0 A	1.5 A	1000	1500	10^8	1.0 ms	0.3 ms	High voltage
2	A or B	25W	1.0 A	1.5 A	1000	2000	10^8	1.0 ms	0.3 ms	High voltage
3	A	25W	1.0 A	1.5 A	1000	3000	10^8	1.0 ms	0.3 ms	High voltage
4	A	25W	1.0 A	1.5 A	1000	4000	10^8	1.0 ms	0.3 ms	High voltage

Note[1]: 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 10^9 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.

Operating Voltages - Standard

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

Operating Voltages - HT (High Temperature) Versions

Coil voltage - nominal	Must operate voltage		Must release voltage	
	maximum at 25°C	maximum at 125°C	minimum at 25°C	minimum at 125°C
5 V	2.75 V	3.75 V	0.5 V	0.5 V
12 V	6 V	9 V	1.2 V	1.2 V
24 V	12 V	18 V	2.4 V	2.4 V

Environmental Specification/Mechanical Characteristics

In applications where a higher or lower operating temperature range is required, the 104HT range has been designed to maintain optimum performance from -40 °C to +125 °C.

Standard Operating Temperature Range	-20 °C to +85 °C
Standard Storage Temperature Range	-35 °C to +100 °C
104HT Operating Temperature Range	-40 °C to +125 °C
104HT Storage Temperature Range	-40 °C to +150 °C
Shock Resistance	50 g
Vibration Resistance (10 - 2000 Hz)	20 g
Soldering Temperature (max) (10 s max)	270 °C
Washability (Proper drying process is recommended)	Fully Sealed

Extended Operating Temperature Range

With the copper coil winding wire having a resistance/temperature coefficient of approximately 0.4% per °C, changes in temperature will result in changes in operating voltage. A standard reed relay is designed to have optimum performance up to the maximum operating temperature of +85 °C, the 104HT range has increased coil drive to ensure the same performance up to 125 °C, and with certain considerations, up to +150 °C. For more information, see our Temperature guide or contact techsales@pickeringrelay.com

Dry Relay: Series 104 Coil Data and Type Numbers

Device Type	Type Number	Coil (V)	Coil resistance	Max. contact resistance (initial)	Insulation resistance (minimum at 25 °C) (see Note[4])		Capacitance (typical) (see Note[2])	
					Switch to coil	Across switch	Closed switch to coil	Across open switch
1 Form A Switch No. 1 (1.5 kV) Package Type 1 *	104-1-A-5/1D	5	375 Ω	0.15 Ω	10^{12} Ω	10^{12} Ω	2.5 pF	0.1 pF
	104-1-A-12/1D	12	1000 Ω					
	104-1-A-24/1D	24	3000 Ω					
1 Form A Switch No. 2 (2 kV) Package Type 1 *	104-1-A-5/2D	5	375 Ω	0.15 Ω	10^{12} Ω	10^{12} Ω	2.5 pF	0.1 pF
	104-1-A-12/2D	12	1000 Ω					
	104-1-A-24/2D	24	3000 Ω					
1 Form A Switch No. 3 (3 kV) Package Type 2	104-1-A-5/3D	5	220 Ω	0.15 Ω	10^{12} Ω	10^{12} Ω	2.5 pF	0.1 pF
	104-1-A-12/3D	12	500 Ω					
	104-1-A-24/3D	24	3000 Ω					
1 Form A Switch No. 4 (4 kV) Package Type 2	104-1-A-5/4D	5	220 Ω	0.15 Ω	10^{12} Ω	10^{12} Ω	2.5 pF	0.1 pF
	104-1-A-12/4D	12	500 Ω					
	104-1-A-24/4D	24	3000 Ω					
1 Form B Switch No. 1 (1.5 kV) Package Type 3	104-1-B-5/1D	5	750 Ω	0.20 Ω	10^{12} Ω	10^{12} Ω	2.5 pF	0.1 pF
	104-1-B-12/1D	12	2000 Ω					
	104-1-B-24/1D	24	3000 Ω					
1 Form B Switch No. 2 (2 kV) Package Type 3	104-1-B-5/2D	5	750 Ω	0.20 Ω	10^{12} Ω	10^{12} Ω	2.5 pF	0.1 pF
	104-1-B-12/2D	12	2000 Ω					
	104-1-B-24/2D	24	3000 Ω					
2 Form A Switch No. 1 (1.5 kV) Package Type 4	104-2-A-5/1D	5	250 Ω	0.20 Ω	10^{12} Ω	10^{12} Ω	See Note[3]	See Note[3]
	104-2-A-12/1D	12	750 Ω					
	104-2-A-24/1D	24	2000 Ω					
2 Form A Switch No. 2 (2 kV) Package Type 4	104-2-A-5/2D	5	250 Ω	0.20 Ω	10^{12} Ω	10^{12} Ω	See Note[3]	See Note[3]
	104-2-A-12/2D	12	750 Ω					
	104-2-A-24/2D	24	2000 Ω					

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

* Package Type 2 available, contact Pickering for more details.

Note[2]: Capacitance across open switch

The capacitance across the open switch was measured with other connections guarded.

Note[3]: Capacitance values

The value will depend upon on the mode of connection/guarding of unused terminals. Please contact technical sales for details.

Note[4]: Insulation resistance

Insulation resistance will reduce at higher temperatures. For more information on temperature effects **click here**, or **contact Pickering** for more in depth guidance.

Dry Relay: Series 104 (Electrostatic Shield) Coil Data and Type Numbers

Device Type	Type Number	Coil (V)	Coil resistance	Max. contact resistance (initial)	Insulation resistance (minimum at 25 °C) (see Note[3])		Capacitance (typical) (see Note[2])	
					Switch to coil	Across switch	Closed switch to coil	Across open switch
1 Form A (ES Shielded) Switch No. 1 (1.5 kV) Package Type 5	104ES-1-A-5/1D	5	150 Ω	0.15 Ω	10^{12} Ω	10^{12} Ω	2.5 pF	0.1 pF
	104ES-1-A-12/1D	12	600 Ω					
	104ES-1-A-24/1D	24	2000 Ω					
1 Form A (ES Shielded) Switch No. 2 (2 kV) Package Type 5	104ES-1-A-5/2D	5	150 Ω	0.15 Ω	10^{12} Ω	10^{12} Ω	2.5 pF	0.1 pF
	104ES-1-A-12/2D	12	600 Ω					
	104ES-1-A-24/2D	24	2000 Ω					
1 Form A (ES Shielded) Switch No. 3 (3 kV) Package Type 5	104ES-1-A-5/3D	5	50 Ω	0.15 Ω	10^{12} Ω	10^{12} Ω	2.5 pF	0.1 pF
	104ES-1-A-12/3D	12	400 Ω					
	104ES-1-A-24/3D	24	1200 Ω					

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

Dry Relay: Series 104 (High Temperature) Coil Data and Type Numbers

Device Type	Type Number	Coil (V)	Coil resistance	Max. contact resistance (initial)	Insulation resistance (minimum at 25 °C) (see Note[3])		Capacitance (typical) (see Note[2])	
					Switch to coil	Across switch	Closed switch to coil	Across open switch
1 Form A (HT High Temp) Switch No. 1 (1.5 kV) Package Type 1	104HT-1-A-5/1D	5	300 Ω	0.15 Ω	10^{12} Ω	10^{12} Ω	2.5 pF	0.1 pF
	104HT-1-A-12/1D	12	750 Ω					
	104HT-1-A-24/1D	24	3000 Ω					
1 Form A (HT High Temp) Switch No. 2 (2 kV) Package Type 1	104HT-1-A-5/2D	5	300 Ω	0.15 Ω	10^{12} Ω	10^{12} Ω	2.5 pF	0.1 pF
	104HT-1-A-12/2D	12	750 Ω					
	104HT-1-A-24/2D	24	3000 Ω					
1 Form A (HT High Temp) Switch No. 3 (3 kV) Package Type 2	104HT-1-A-5/3D	5	125 Ω	0.15 Ω	10^{12} Ω	10^{12} Ω	2.5 pF	0.1 pF
	104HT-1-A-12/3D	12	500 Ω					
	104HT-1-A-24/3D	24	2500 Ω					
1 Form A (HT High Temp) Switch No. 4 (4 kV) Package Type 2	104HT-1-A-5/4D	5	125 Ω	0.15 Ω	10^{12} Ω	10^{12} Ω	2.5 pF	0.1 pF
	104HT-1-A-12/4D	12	500 Ω					
	104HT-1-A-24/4D	24	2500 Ω					

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

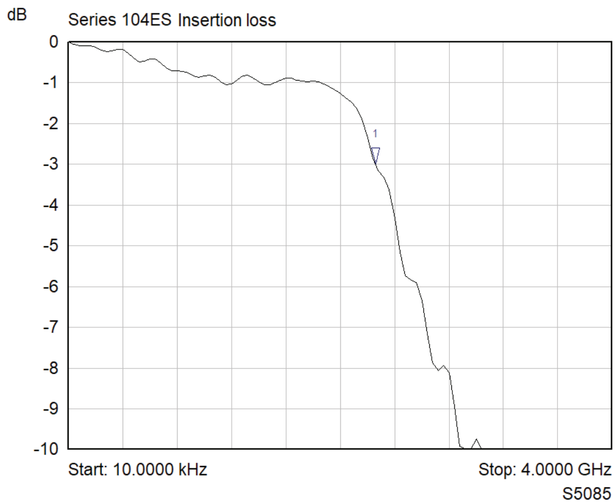
Note[2]: Capacitance across open switch

The capacitance across the open switch was measured with other connections guarded.

Note[3]: Insulation resistance

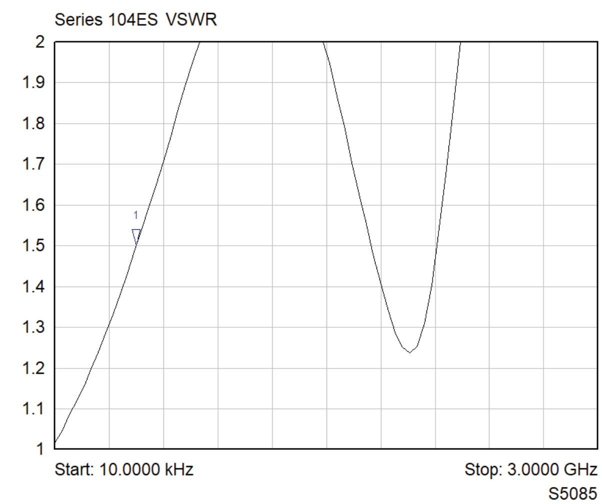
Insulation resistance will reduce at higher temperatures. For more information on temperature effects **click here**, or **contact Pickering** for more in depth guidance.

RF Plots for the 104ES Reed Relay



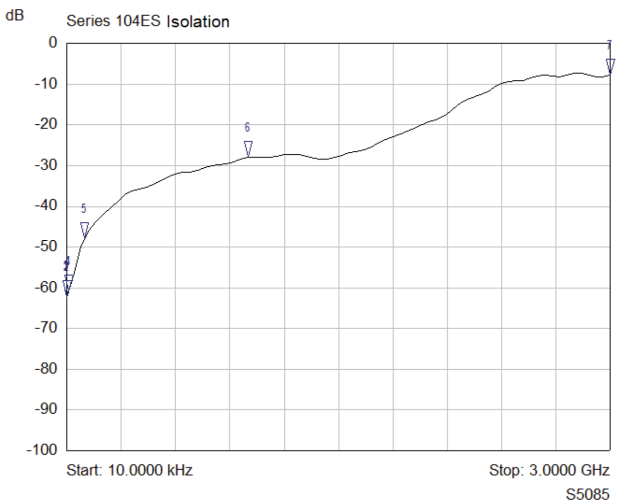
Mkr	Trace	X-Axis	Value
1 ▽	Series 104ES	2.2594 GHz	-3.00 dB

104ES Typical Insertion Loss Plot



Mkr	Trace	X-Axis	Value
1 ▽	Series 104ES	450.1271 MHz	1.50

104ES Typical VSWR Plot



Mkr	Trace	X-Axis	Value
1 ▽	Series 104ES	10.0000 kHz	-62.29 dB
2 ▽	Series 104ES	100.0000 kHz	-62.28 dB
3 ▽	Series 104ES	1.0000 MHz	-62.15 dB
4 ▽	Series 104ES	10.0000 MHz	-60.86 dB
5 ▽	Series 104ES	100.0000 MHz	-47.95 dB
6 ▽	Series 104ES	1.0000 GHz	-28.04 dB
7 ▽	Series 104ES	3.0000 GHz	-7.83 dB

104ES Typical Isolation Plot

Mercury Reed Relays

Mercury relays should be mounted vertically with **pin 1 uppermost**. Pin 1 is marked with a bar on the top face of the relay.

UP

Mercury Reed: Series 104 switch ratings - contact ratings for each switch type

Switch No	Switch form	Power rating	Max. switch current	Max. carry current	Max. switching volts	Min. stand-off volts	Life expectancy ops typical (see Note[1])	Operate time inc bounce (max)	Release time	Special features
6	A	50 W	2 A	3 A	500	1500	10^8	1.5 ms	1.0 ms	Standard mercury

Note[1]: 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 10^9 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.

Mercury Relay: Series 104 Coil data and type numbers

Device Type	Type Number	Coil (V)	Coil resistance	Max. contact resistance (initial)	Insulation resistance (minimum at 25 °C) (see Note[4])		Capacitance (typical) (see Note[2])	
					Switch to coil	Across switch	Closed switch to coil	Across open switch
1 Form A Switch No. 6 (1.5 kV) Package Type 1 *	104-1-A-5/6D	5	100 Ω	0.12 Ω	10^{12} Ω	10^{11} Ω	3 pF	3 pF
	104-1-A-12/6D	12	500 Ω					
	104-1-A-24/6D	24	1500 Ω					
2 Form A Switch No. 6 (1.5 kV) Package Type 4	104-2-A-5/6D	5	50 Ω	0.15 Ω	10^{12} Ω	10^{11} Ω	See Note[3]	See Note[3]
	104-2-A-12/6D	12	275 Ω					
	104-2-A-24/6D	24	1000 Ω					

When an internal diode is required, the suffix D is added to the part number as shown in the table.
* Package Type 2 available, contact Pickering for more details.

Note[2]: Capacitance across open switch
The capacitance across the open switch was measured with other connections guarded.

Note[3]: Capacitance values
The value will depend upon on the mode of connection/guarding of unused terminals. Please contact technical sales for details.

Note[4]: Insulation resistance
Insulation resistance will reduce at higher temperatures. For more information on temperature effects **click here**, or **contact Pickering** for more in depth guidance.

The technical information shown in this data sheet could contain inaccuracies or typographical errors. This information may be periodically changed or updated and these changes will be included in future versions of this data sheet.

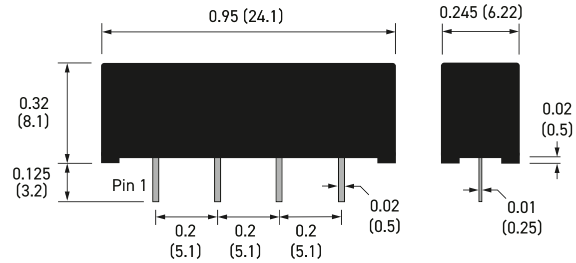
For different values, latest specifications and product details, please contact your local Pickering sales office.

For FREE evaluation samples go to: pickeringrelay.com/samples

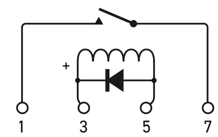
Pin Configuration, Weights and Dimensional Data (dimensions in inches, millimeters in brackets)

Package Type 1

Weight: Typical 2.06 g



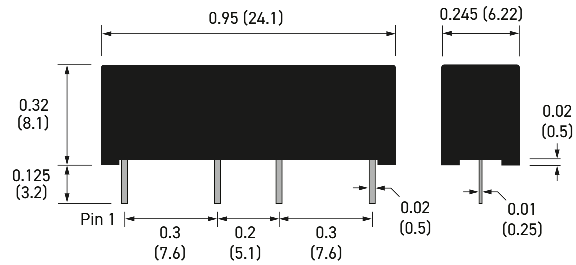
1 Form A



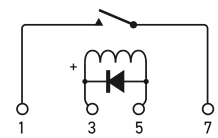
Switch No. 1 (1.5 kV stand-off)
Switch No. 2 (2 kV stand-off)
Switch No. 6 (Mercury Wetted)

Package Type 2

Weight: Typical 2.06 g



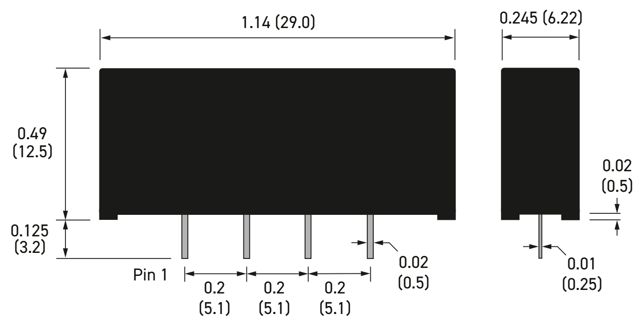
1 Form A



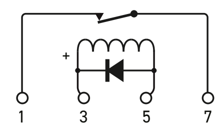
Switch No. 3 (3 kV stand-off)
Switch No. 4 (4 kV stand-off)
Non-standard parts:
Switch No. 1 (1.5 kV stand-off)
Switch No. 2 (2 kV stand-off)
Switch No. 6 (Mercury Wetted)

Package Type 3

Weight: Typical 3.75 g



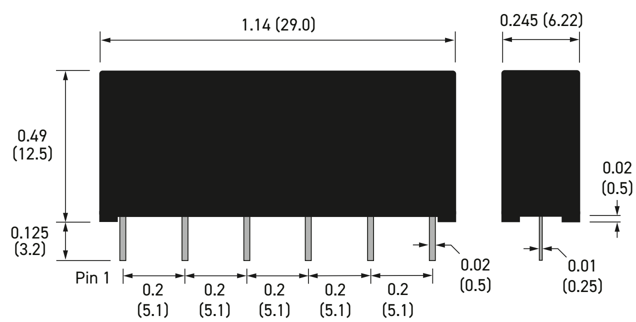
1 Form B (see Note)



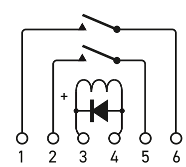
Switch No. 1 (1.5 kV stand-off)
Switch No. 2 (2 kV stand-off)

Package Type 4

Weight: Typical 3.70 g



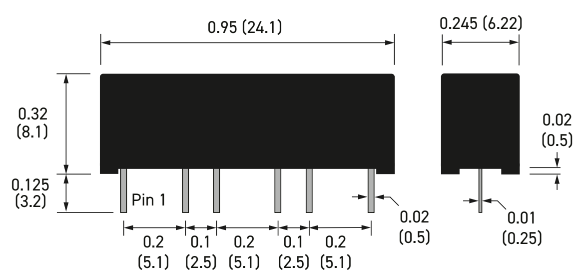
2 Form A



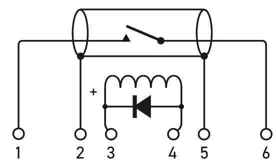
Switch No. 1 (1.5 kV stand-off)
Switch No. 2 (2 kV stand-off)
Switch No. 6 (Mercury Wetted)

Package Type 5

Weight: Typical 1.94 g



1 Form A Coaxial

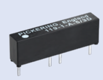
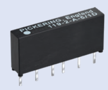
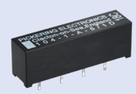
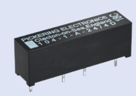
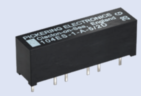


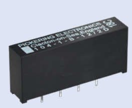
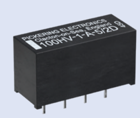
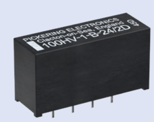
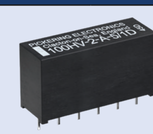
Switch No. 1 (1.5 kV stand-off)
Switch No. 2 (2 kV stand-off)
Switch No. 3 (3 kV stand-off)

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

Similar Relays Comparison

If the Series 104 is unsuitable for your application, Pickering also manufactures three other series of reed relays with similar characteristics, but in different package sizes.

Series Name		131-1-A	119-1-A			119-2-A	119-1-B		104-1-A & 104HT-1-A					104ES-1-A		
Physical Outline																
Depth	mm (inches)	3.7 (0.145)	3.7 (0.145)						6.3 (0.245)							
Width		12.5 (0.49)	15.1 (0.595)		20.1 (0.79)		15.1 (0.595)		24.1 (0.95)							
Height		6.6 (0.26)	6.6 (0.26)			8.9 (0.35)	8.9 (0.35)		8.2 (0.32)							
Package Volume (mm^3)		306	369		491	662	498		1 & 2 1245			2 1245		5 1245		
Typical Weights (g)		0.58	0.67		0.74	1.06	0.89		2.06			2.06		1.94		
Contact Configuration		1-A (SPST)	1-A (SPST)			2-A (DPST)	1-B (SPNC)		1-A (SPST)					1-A (SPST)		
Reed Switch Type		Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Mercury Wetted	Dry	Dry	Dry	Dry	Dry
Stand-off Voltage (V)		1500	1500	2000	3000	1500	1500	2000	1500	2000	1500	3000	4000	1500	2000	3000
Switching Voltage (V)		1000	1000						1000		500	1000		1000	1000	1000
Switching Current (A)		0.7	0.7						1		2	1		1	1	1
Carry Current (A)		1.25	1.25						1.5		3	1.5		1.5	1.5	1.5
Switch Power (W)		10	10						25		50	25		25	25	25

Series Name		104-1-B		104-2-A			100HV-1-A			100HV-1-B		100HV-2-A	
Physical Outline													
Depth	mm (inches)	6.3 (0.245)					10.2 (0.40)			10.2 (0.40)		10.2 (0.40)	
Width		29 (1.14)					24.1 (0.95)			29 (1.14)		29 (1.14)	
Height		12.5 (0.49)					12.7 (0.50)			15.2 (0.60)		15.2 (0.60)	
Package Volume (mm^3)		3 2284		4 2284			3122		3122	4496		4496	
Typical Weights (g)		3.75		3.7			6.99			8.75		8.75	
Contact Configuration		1-B (SPNC)		2-A (DPST)			1-A (SPST)			1-B (SPNC)		2-A (DPST)	
Reed Switch Type		Dry	Dry	Dry	Dry	Mercury Wetted	Dry	Dry	Dry	Dry	Dry	Dry	Dry
Stand-off Voltage (V)		1500	2000	1500	2000	1500	1500	2000	3000	1500	2000	1500	2000
Switching Voltage (V)		1000		1000		500	1000			1000		1000	
Switching Current (A)		1		1		2	1			1		1	
Carry Current (A)		1.5		1.5		3	1.5			1.5		1.5	
Switch Power (W)		25		25		50	25			25		25	

Reed Relay Selection Tool

Because Pickering offer the largest range of high-quality reed relays, sometimes it can be difficult to find the right reed relay you require. That is why we created the Reed Relay Selector, this tool will help you narrow down our offering to get you the correct reed relay for your application. To try the tool today go to: pickeringrelay.com/reed-relay-selector-tool

Standard Build Options

The Series 104 Reed Relays are available with a number of standard build options to tailor them to your specific application. These options are detailed in the table below. If you decide to go ahead and specify one, or more, of these options you will be allocated a unique part number suffix.

Mechanical Build Options	Electrical Build Options
Special pin configurations or pin lengths	Different coil resistance
Special print with customer's own part number or logo	Different stand-off or switching voltage
Custom packaging possibility	Operate or de-operate time
Equivalents to competitors discontinued parts	Pulse capability
	Enhanced specifications
	Equivalents to competitors discontinued parts
	Non-standard coil voltages and resistance figures
	Special Life testing under customer's specific load conditions
	Specific environmental requirements
	Controlled thermal EMF possibility

Customization

If your specific requirements are not met by standard relay, or any of the standard build options, please speak to us to discuss producing a customized reed relay to service your specific application: pickeringrelay.com/contact

3D Models

Interactive 3D models of the complete range of Pickering relay products in STEP, IGS and SLDPRT formats can be downloaded from the website: pickeringrelay.com/3d-models

Part Number Description: 104 ES - 1 - A - 5 / 2 D - xxx

- Series
- ES Shielded or HT (High Temp) (omit if not required)
- Number of reeds
- Switch form
- Coil voltage
- Switch number (see tables on pages 2 & 7)
- Diode if fitted (omit if not required)
- Unique suffix (if standard build option selected)

Help

If you need any technical advice or other help, 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

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Czech Republic: czsales@pickeringtest.com | Tel. +420 558-987-613
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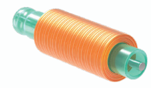
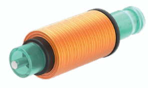
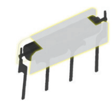
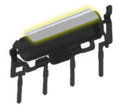
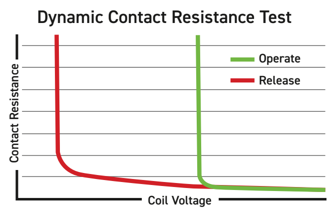
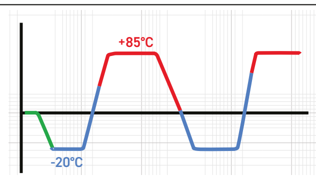
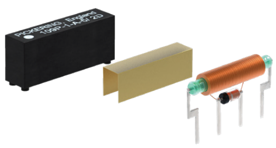
For a full list of agents, distributors and representatives visit: pickeringrelay.com/agents

10 Key Benefits of Pickering Reed Relays

Key Benefit	Pickering Reed Relays	Typical Industry Reed Relays	
1 **Instrumentation Grade Reed Switches**	Instrumentation Grade Reed Switches with vacuum sputtered Ruthenium plating to ensure stable, long life up to 5x10E9 operations.	Often low grade Reed Switches with electroplated Rhodium plating resulting in higher, less stable contact resistance.	
2 **Formerless Coil Construction**	Formerless coil construction increases the coil winding volume, maximizing magnetic efficiency, allowing the use of less sensitive reed switches resulting in optimal switching action and extended lifetime at operational extremes.	Use of bobbins decreases the coil winding volume, resulting in having less magnetic drive and a need to use more sensitive reed switches which are inherently less stable with greatly reduced restoring forces.	 Pickering former-less coil  Typical industry coil wound on bobbin
3 **Magnetic Screening**	Mu-metal magnetic screening (either external or internal), enables ultra-high PCB side-by-side packing densities with minimal magnetic interaction, saving significant cost and space. **Pickering Mu-Metal magnetic screen - interaction approx. 5%**	Lower cost reed relays have minimal or no magnetic screening, resulting in magnetic interaction issues causing changes in operating and release voltages, timing and contact resistance, causing switches to not operate at their nominal voltages. **Typical industry screen - interaction approx. 30%**	 X-Ray of Pickering mu-metal magnetic screen  X-Ray of typical industry magnetic screen
4 ***SoftCenter*™ Technology**	***SoftCenter*™** technology, provides maximum cushioned protection of the reed switch, minimising internal lifetime stresses and extending the working life and contact stability.	Transfer moulded reed relays (produced using high temperature/pressure), result in significant stresses to the glass reed switch which can cause the switch blades to deflect or misalign leading to changes in the operating characteristics, contact resistance stability and operating lifetime.	 Pickering soft center protection of the reed switch  Typical industry thermo-setting hard moulded protection of the reed switch
5 **100% Dynamic Testing**	100% testing for all operating parameters including dynamic contact wave-shape analysis with full data scrutiny to maintain consistency.	Simple dc testing or just batch testing which may result in non-operational devices being supplied.	
6 **100% Inspection at Every Stage of Manufacturing**	Inspection at every stage of manufacturing maintaining high levels of quality.	Often limited batch inspection.	
7 **100% Thermal Cycling**	Stress testing of the manufacturing processes, from -20°C to +85°C to -20°C, repeated 3 times.	Rarely included resulting in field failures.	
8 **Flexible Manufacturing Process**	Flexible manufacturing processes allow quick-turn manufacturing of small batches.	Mass production: Usually large batch sizes and with no quick-turn manufacturing.	
9 **Custom Reed Relays**	Our reed relays can be customized easily, e.g. special pin configurations, enhanced specifications, non-standard coil or resistance figures, special life testing, low capacitance, and more.	Limited ability to customize.	
10 **Product Longevity**	Pickering are committed to product longevity; our reed relays are manufactured and supported for more than 25 years from introduction, typically much longer.	Most other manufacturers discontinue parts when they reach a low sales threshold; costing purchasing and R&D a great deal of unnecessary time and money to redesign and maintain supply.	

For more information go to: pickeringrelay.com/10-key-benefits