Pickering Series 200

Surface Mount Reed Relays
Including coaxial types for up to 5GHz

Features

- **SoftCenter®** construction
- Highest quality instrumentation grade switches
- Encapsulated in plastic package with internal mu-metal screen for side-by-side mounting without magnetic interaction
- Insulation resistance greater than $10^{12}$ ohms for Form A devices
- Dry and mercury wetted switches available
- Wide range of switch configurations - 1 Form A, 1 Form B, 2 Form A and 1 Form C
- For R.F. or high speed digital applications, 50 or 75 ohms coaxial devices are available in the same small package
- 3, 5, and 12 volt coils are standard, with or without internal diode
- 100% tested for dynamic contact resistance

The Series 200 is a complete range of surface mount reed relays. Both dry and mercury wetted switches are available in a wide range of configurations including coaxial types for RF up to 5GHz, or high speed digital switching with a step response time of less than 30ps. Please contact our technical department for supplementary RF data.

The special high temperature plastic package will withstand the temperatures associated with Infra-red or vapor phase reflow soldering processes. A flexible inner encapsulant protects the sensitive glass/metal reed switch seals - this is a very big advantage over the more usual hard moulded package.

Switch Ratings - Dry switches

- 1 Form A (energize to make), 10 watts at 200V
- 1 Form A (energize to make), 15 watts at 200V
- 1 Form A (energize to make), 10 watts at 500V
- Coaxial 50Ω (energize to make), 10 watts at 200V
- Coaxial 75Ω (energize to make), 10 watts at 200V
- 1 Form B (energize to break), 10 watts at 200V
- 1 Form C (change-over), 3 watts at 200V
- 2 Form A (energize to make), 10 watts at 200V

Switch Ratings - Mercury Wetted Switches

- 1 Form A (energize to make), 50 watts at 500V
- 1 Form A (Position insensitive), 50 watts at 500V
**Dry Reed - Series 200 switch ratings** - The contact ratings for each switch type are shown below:

<table>
<thead>
<tr>
<th>Switch No</th>
<th>Switch form</th>
<th>Power rating</th>
<th>Max. switch current</th>
<th>Max. carry current</th>
<th>Max. switching voltage</th>
<th>Life expectancy (ops typical) (see Note 1) below</th>
<th>Switch to coil</th>
<th>Across switch</th>
<th>Closed switch to coil</th>
<th>Across open switch</th>
<th>Insulation resistance (minimum)</th>
<th>Capacitance (typical) (see Note 2) below</th>
<th>Special features</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 A</td>
<td>15 W</td>
<td>1.0 A</td>
<td>1.2 A</td>
<td>200</td>
<td>0.05 A</td>
<td>200</td>
<td>10</td>
<td>10</td>
<td>0.5 ms</td>
<td>0.2 ms</td>
<td>102 Ω</td>
<td>102 Ω</td>
<td>General purpose</td>
</tr>
<tr>
<td>2 A or B</td>
<td>10 W</td>
<td>0.5 A</td>
<td>1.2 A</td>
<td>200</td>
<td>102 Ω</td>
<td>102 Ω</td>
<td>0.5 ms</td>
<td>0.2 ms</td>
<td>0.5 ms</td>
<td>0.2 ms</td>
<td>Low level</td>
<td>Change-over</td>
<td></td>
</tr>
<tr>
<td>3 C</td>
<td>3 W</td>
<td>0.25 A</td>
<td>1.2 A</td>
<td>200</td>
<td>102 Ω</td>
<td>102 Ω</td>
<td>1.0 ms</td>
<td>0.5 ms</td>
<td>Change-over</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4 A</td>
<td>10 W</td>
<td>0.5 A</td>
<td>1.2 A</td>
<td>500</td>
<td>104</td>
<td>104</td>
<td>0.5 ms</td>
<td>0.2 ms</td>
<td>High voltage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Dry Relay - coil data and type numbers**

<table>
<thead>
<tr>
<th>Device type</th>
<th>Package Number</th>
<th>Type Number</th>
<th>Coil (V)</th>
<th>Coil resistance</th>
<th>Max. contact resistance (initial)</th>
<th>Insulation resistance (minimum)</th>
<th>Capacitance (typical) (see Note 2) below</th>
<th>Special features</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Form A (energy to make) Switch No. 1</td>
<td>200-1-A-5/2D</td>
<td>5 12 500 Ω 1000 Ω 0.15 Ω 102 Ω 102 Ω 2.5 pF 0.1 pF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Form A (energy to make) Switch No. 2</td>
<td>200-1-A-6/2D</td>
<td>5 12 500 Ω 1000 Ω 0.12 Ω 102 Ω 102 Ω 2.5 pF 0.1 pF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Form A (energy to make) Switch No. 3</td>
<td>200-1-A-12/2D</td>
<td>5 12 500 Ω 1000 Ω 0.27 Ω 102 Ω 102 Ω 2.5 pF 0.1 pF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Mercury Reed: Series 200 switch ratings** - The contact ratings for each switch type are shown below:

<table>
<thead>
<tr>
<th>Switch No</th>
<th>Switch form</th>
<th>Power rating</th>
<th>Max. switch current</th>
<th>Max. carry current</th>
<th>Max. switching voltage</th>
<th>Life expectancy (ops typical) (see Note 1) below</th>
<th>Switch to coil</th>
<th>Across switch</th>
<th>Closed switch to coil</th>
<th>Across open switch</th>
<th>Insulation resistance (minimum)</th>
<th>Capacitance (typical) (see Note 2) below</th>
<th>Special features</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 A</td>
<td>50 W</td>
<td>2 A</td>
<td>3 A</td>
<td>500</td>
<td>100</td>
<td>200</td>
<td>2.0 ms</td>
<td>1.25 ms</td>
<td>Standard Mercury</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8 A</td>
<td>50 W</td>
<td>2 A</td>
<td>3 A</td>
<td>500</td>
<td>100</td>
<td>200</td>
<td>2.0 ms</td>
<td>1.25 ms</td>
<td>Position insensitive</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Mercury Relay: coil data and type numbers**

<table>
<thead>
<tr>
<th>Device type</th>
<th>Type Number</th>
<th>Coil (V)</th>
<th>Coil resistance</th>
<th>Max. contact resistance (initial)</th>
<th>Insulation resistance (minimum)</th>
<th>Capacitance (typical) (see Note 2) below</th>
<th>Special features</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Form A (energy to make) Switch No. 6</td>
<td>200-1-A-5/6D</td>
<td>5 12 140 D 500 D 0.075 Ω 1012 Ω 1012 Ω 4 Ω 0.1 pF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Form A (energy to make) Switch No. 8</td>
<td>200-1-A-12/8D</td>
<td>5 12 140 D 500 D 0.100 Ω 1012 Ω 1012 Ω 4 Ω 0.1 pF</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

**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 10⁶ ops. At the maximum load (resistive), typical life is 1 x 10⁵ 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 2** Capacitance across open switch

This is measured with all other component leads connected to the guard terminal of the measuring bridge.

**Note 3** Capacitance values

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

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**Pin Configuration and Dimensional Data**

Dimensions in inches (Millimeters in brackets)

**Mercury Relays**

With the exception of the position insensitive type, mercury relays should be mounted vertically in the direction of the arrow.

**Order Code**

Series Number of relays 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.