

## MINIATURE PC BOARD RELAY

### FEATURES

- Subminiature size
- High sensitivity, 110 mW pickup
- Coils to 48 VDC
- Hermetically sealed version available
- Epoxy sealed for automatic wave soldering
- Contacts rated at 3, 6 or 10 Amps
- Withstands 6 kV IEEE Lightning Surge (special order)
- Class B insulation (130°C) standard
- Class F insulation (155°C) version available
- UL, CUR file E44211
- VDE approved versions available (Class A Insulation only)



### CONTACTS

|                    |                                                                                                                                                                             |
|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Arrangement</b> | SPDT (1 Form C)<br>SPST (1 Form A) 10 A version only                                                                                                                        |
| <b>Ratings</b>     | Resistive load:<br>Max. switched power: 100 W or 600 VA<br>Max. switched current: 3 A<br>Max. switched voltage: 150 VDC or 300 VAC<br><b>UL Rating:</b> See chart on Page 3 |
| <b>Light Duty</b>  |                                                                                                                                                                             |
| <b>Medium Duty</b> | Max. switched power: 180 W or 1800 VA<br>Max. switched current: 6 A<br>Max. switched voltage: 150 VDC or 300 VAC<br><b>UL Rating:</b> See chart on Page 3                   |
| <b>Heavy Duty</b>  | Max. switched power: 300 W or 2400 VA<br>Max. switched current: 10 A<br>Max. switched voltage: 150 VDC or 300 VAC<br><b>UL Rating:</b> See chart on Page 3                  |
| <b>Material</b>    | Light duty: Silver<br>Medium duty: Silver nickel<br>Heavy duty: Silver cadmium oxide                                                                                        |
| <b>Resistance</b>  | < 100 milliohms initially                                                                                                                                                   |

### COIL

|                                          |                                                                                                                                      |
|------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|
| <b>Power At Pickup Voltage (typical)</b> | Standard coil: 210 mW<br>Sensitive coil: 140 mW<br>Heavy duty: 228 mW<br>(110 mW available)                                          |
| <b>Max. Continuous Dissipation</b>       | Class B: 2.0 W 20°C (68°F) ambient<br>1.6 W 40°C (104°F) ambient<br>Class F: 2.5 W 20°C (68°F) ambient<br>2.1 W 40°C (104°F) ambient |
| <b>Temperature Rise</b>                  | At nominal coil voltage<br>Standard coil: 38°C (68°F)<br>Sensitive coil: 28°C (50°F)                                                 |
| <b>Temperature</b>                       | Max. 105°C (221°F) Class A<br>Max. 130°C (266°F) Class B<br>Max. 155°C (311°F) Class F                                               |

### GENERAL DATA

|                                                      |                                                                                                                |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| <b>Life Expectancy</b>                               | Minimum operations                                                                                             |
| <b>Mechanical</b>                                    | 100 million operations                                                                                         |
| <b>Electrical</b>                                    | 3 x 10 <sup>5</sup> at 3 A, 120 VAC                                                                            |
| <b>Light Duty</b>                                    | 1.8 x 10 <sup>5</sup> at 6 A, 120 VAC                                                                          |
| <b>Medium Duty</b>                                   | 1 x 10 <sup>5</sup> at 10 A, 120 VAC                                                                           |
| <b>Heavy Duty</b>                                    |                                                                                                                |
| <b>Operate Time (typical)</b>                        | 5 ms at nominal coil voltage                                                                                   |
| <b>Release Time (typical)</b>                        | 2 ms at nominal coil voltage<br>(with no coil suppression)                                                     |
| <b>Dielectric Strength (at sea level for 1 min.)</b> | 750 Vrms contact to contact<br>2500 Vrms contact to coil except hermetically sealed version which is 1600 Vrms |
| <b>Insulation Resistance</b>                         | 1000 megohms min. at 20°C, 500 VDC, 50% RH                                                                     |
| <b>Dropout</b>                                       | Greater than 5% of nominal coil voltage                                                                        |
| <b>Ambient Temperature Operating</b>                 | At nominal coil voltage<br>-55°C (-67°F) to 90°C (194°F) Class B<br>-55°C (-67°F) to 115°C (239°F) Class F     |
| <b>Storage</b>                                       | -55°C (-67°F) to 130°C (266°F) Class B<br>-55°C (-67°F) to 155°C (311°F) Class F                               |
| <b>Vibration</b>                                     | 0.062" DA at 10–55 Hz, 10 g at 55–110 Hz                                                                       |
| <b>Shock</b>                                         | 10 g                                                                                                           |
| <b>Enclosure</b>                                     | P.E.T. polyester                                                                                               |
| <b>Terminals</b>                                     | Tinned copper alloy, P.C.                                                                                      |
| <b>Max. Solder Temp.</b>                             | 270°C (518°F)                                                                                                  |
| <b>Max. Solder Time</b>                              | 5 seconds                                                                                                      |
| <b>Max. Solvent Temp.</b>                            | 80°C (176°F)                                                                                                   |
| <b>Max. Immersion Time</b>                           | 30 seconds                                                                                                     |
| <b>Weight</b>                                        | 8 grams                                                                                                        |

### NOTES

1. All values at 20°C (68°F).
2. Relay may pull in with less than "Must Operate" value.
3. Other coil resistances and sensitivities available upon request.
4. Unsealed relays should not be dip cleaned.
5. Specifications subject to change without notice.



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## RELAY ORDERING DATA

| COIL SPECIFICATIONS               |                     |                       |                  | ORDER NUMBER*               |              |                             |               |
|-----------------------------------|---------------------|-----------------------|------------------|-----------------------------|--------------|-----------------------------|---------------|
| STANDARD RELAYS: 1 Form C (SPDT)  |                     |                       |                  | LIGHT DUTY (3 Amp contact)  |              | MEDIUM DUTY (6 Amp contact) |               |
| Nominal Coil VDC                  | Max. VDC Continuous | Resistance $\pm 10\%$ | Must Operate VDC | Unsealed                    | Epoxy Sealed | Unsealed                    | Epoxy Sealed  |
| 5                                 | 10.6                | 56                    | 3.25             | AZ8-1C-5D                   | AZ8-1C-5DE   | AZ8-1CH-5D                  | AZ8-1CH-5DE   |
| 6                                 | 12.6                | 80                    | 3.90             | AZ8-1C-6D                   | AZ8-1C-6DE   | AZ8-1CH-6D                  | AZ8-1CH-6DE   |
| 9                                 | 19.0                | 180                   | 5.85             | AZ8-1C-9D                   | AZ8-1C-9DE   | AZ8-1CH-9D                  | AZ8-1CH-9DE   |
| 12                                | 25.0                | 320                   | 7.80             | AZ8-1C-12D                  | AZ8-1C-12DE  | AZ8-1CH-12D                 | AZ8-1CH-12DE  |
| 18                                | 37.8                | 720                   | 11.7             | AZ8-1C-18D                  | AZ8-1C-18DE  | AZ8-1CH-18D                 | AZ8-1CH-18DE  |
| 24                                | 50.0                | 1,280                 | 15.60            | AZ8-1C-24D                  | AZ8-1C-24DE  | AZ8-1CH-24D                 | AZ8-1CH-24DE  |
| 48                                | 87.0                | 3,800                 | 31.20            | AZ8-1C-48D                  | AZ8-1C-48DE  | AZ8-1CH-48D                 | AZ8-1CH-48DE  |
| SENSITIVE RELAYS: 1 Form C (SPDT) |                     |                       |                  | LIGHT DUTY (3 Amp contact)  |              | MEDIUM DUTY (6 Amp contact) |               |
| Nominal Coil VDC                  | Max. VDC Continuous | Resistance $\pm 10\%$ | Must Operate VDC | Unsealed                    | Epoxy Sealed | Unsealed                    | Epoxy Sealed  |
| 5                                 | 12.6                | 80                    | 3.25             | AZ8-1C-5DS                  | AZ8-1C-5DSE  | AZ8-1CH-5DS                 | AZ8-1CH-5DSE  |
| 6                                 | 14.8                | 110                   | 3.90             | AZ8-1C-6DS                  | AZ8-1C-6DSE  | AZ8-1CH-6DS                 | AZ8-1CH-6DSE  |
| 9                                 | 22.4                | 250                   | 5.85             | AZ8-1C-9DS                  | AZ8-1C-9DSE  | AZ8-1CH-9DS                 | AZ8-1CH-9DSE  |
| 12                                | 30.0                | 440                   | 7.80             | AZ8-1C-12DS                 | AZ8-1C-12DSE | AZ8-1CH-12DS                | AZ8-1CH-12DSE |
| 24                                | 60.0                | 1,780                 | 15.60            | AZ8-1C-24DS                 | AZ8-1C-24DSE | AZ8-1CH-24DS                | AZ8-1CH-24DSE |
| 48                                | 120.0               | 7,120                 | 31.20            | AZ8-1C-48DS                 | AZ8-1C-48DSE | AZ8-1CH-48DS                | AZ8-1CH-48DSE |
| STANDARD RELAYS: 1 Form C (SPDT)  |                     |                       |                  | HEAVY DUTY (10 Amp contact) |              |                             |               |
| Nominal Coil VDC                  | Max. VDC Continuous | Resistance $\pm 10\%$ | Must Operate VDC | Unsealed                    |              | Epoxy Sealed                |               |
| 5                                 | 10.6                | 56                    | 4.0              | AZ8-1CT-5D                  |              | AZ8-1CT-5DE                 |               |
| 6                                 | 12.6                | 80                    | 4.8              | AZ8-1CT-6D                  |              | AZ8-1CT-6DE                 |               |
| 9                                 | 19.0                | 180                   | 7.2              | AZ8-1CT-9D                  |              | AZ8-1CT-9DE                 |               |
| 12                                | 25.0                | 320                   | 9.6              | AZ8-1CT-12D                 |              | AZ8-1CT-12DE                |               |
| 24                                | 50.0                | 1,280                 | 19.2             | AZ8-1CT-24D                 |              | AZ8-1CT-24DE                |               |
| 48                                | 87.0                | 3,800                 | 38.4             | AZ8-1CT-48D                 |              | AZ8-1CT-48DE                |               |

\*To indicate Class F version, add suffix "F". Other coil resistances and sensitivities available. Please contact the factory. Substitute "1AT" in place of "1CT" to indicate 1 Form A. For Hermetically sealed version, substitute "H" for "E".

## RELAY ORDERING DATA - VDE APPROVED VERSIONS

| COIL SPECIFICATIONS                     |                     |                       |                  | ORDER NUMBER   |                    |
|-----------------------------------------|---------------------|-----------------------|------------------|----------------|--------------------|
| STANDARD RELAYS: 1 Form C (SPDT) – VDE  |                     |                       |                  | MEDIUM DUTY    |                    |
| Nominal Coil VDC                        | Max. VDC Continuous | Resistance $\pm 10\%$ | Must Operate VDC | Unsealed 6 Amp | Epoxy Sealed 5 Amp |
| 5                                       | 10.6                | 56                    | 3.25             | AZ8-1CH-5DA    | AZ8-1CH-5DEA       |
| 6                                       | 12.6                | 80                    | 3.90             | AZ8-1CH-6DA    | AZ8-1CH-6DEA       |
| 9                                       | 19.0                | 180                   | 5.85             | AZ8-1CH-9DA    | AZ8-1CH-9DEA       |
| 12                                      | 25.0                | 320                   | 7.80             | AZ8-1CH-12DA   | AZ8-1CH-12DEA      |
| 24                                      | 50.0                | 1,280                 | 15.60            | AZ8-1CH-24DA   | AZ8-1CH-24DEA      |
| 48                                      | 87.0                | 3,800                 | 31.20            | AZ8-1CH-48DA   | AZ8-1CH-48DEA      |
| SENSITIVE RELAYS: 1 Form C (SPDT) – VDE |                     |                       |                  | MEDIUM DUTY    |                    |
| Nominal Coil VDC                        | Max. VDC Continuous | Resistance $\pm 10\%$ | Must Operate VDC | Unsealed 6 Amp | Epoxy Sealed 5 Amp |
| 5                                       | 12.6                | 80                    | 3.25             | AZ8-1CH-5DSA   | AZ8-1CH-5DSEA      |
| 6                                       | 14.8                | 110                   | 3.90             | AZ8-1CH-6DSA   | AZ8-1CH-6DSEA      |
| 9                                       | 22.4                | 250                   | 5.85             | AZ8-1CH-9DSA   | AZ8-1CH-9DSEA      |
| 12                                      | 30.0                | 440                   | 7.80             | AZ8-1CH-12DSA  | AZ8-1CH-12DSEA     |
| 24                                      | 60.0                | 1,780                 | 15.60            | AZ8-1CH-24DSA  | AZ8-1CH-24DSEA     |
| 48                                      | 120.0               | 7,120                 | 31.20            | AZ8-1CH-48DSA  | AZ8-1CH-48DSEA     |



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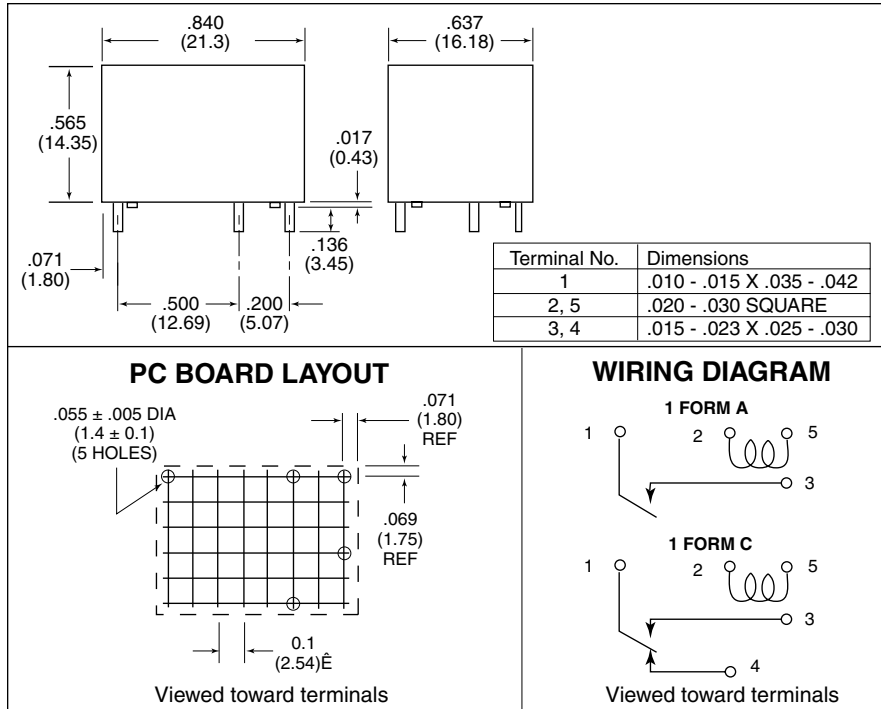
## UL, CUR RATINGS

|                    |                                                                                                                                                                                                                                                 |
|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Light Duty</b>  | 2 A at 28 VDC or 300 VAC<br>1/8 HP at 120 VAC<br>1/10 HP at 120/240 VAC (100,000 cyc)<br>1.2/0.6 A at 120/240 VAC, Pilot Duty 100,000 cyc<br>3.0/1.5 A at 120/240 VAC General Use 100,000 cyc                                                   |
| <b>Medium Duty</b> | 6 A at 28 VDC or 300 VAC<br>1/8 HP at 120/240 VAC (100,000 cyc)<br>1.5/0.8 A at 120/240 VAC, Pilot Duty 100,000 cyc<br>3.8/1.9 A at 120/240 VAC General Use 100,000 cyc                                                                         |
| <b>Heavy Duty</b>  | SPST:<br>10 A at 24 VDC / 125 VAC Resistive<br>1/4 HP at 120 / 125 VAC<br>1/2 HP at 250 VAC<br>7 A at 277 VAC Resistive<br><br>SPDT:<br>10 A at 250 VAC General Use<br>7 A at 277 VAC Resistive<br>6 A at 24 VDC Resistive<br>1/4 HP at 125 VAC |

## VDE RATINGS

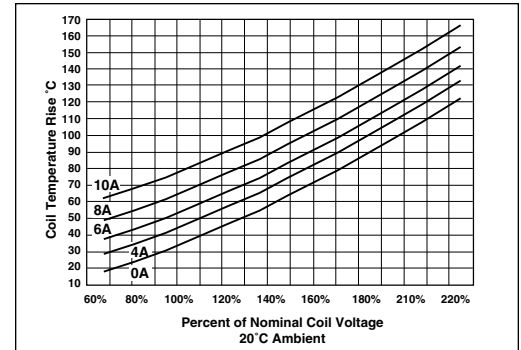
|                 |                                         |
|-----------------|-----------------------------------------|
| <b>Sealed</b>   | 5 A at 250 VAC resistive, 10,000 cycles |
| <b>Unsealed</b> | 6 A at 250 VAC resistive, 50,000 cycles |

## MECHANICAL DATA

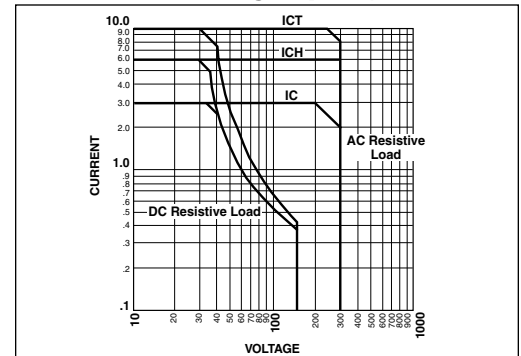


Dimensions in inches with metric equivalents in parentheses. Tolerance: ± .010"

## Coil Temperature Rise



## Maximum Switching Capacity



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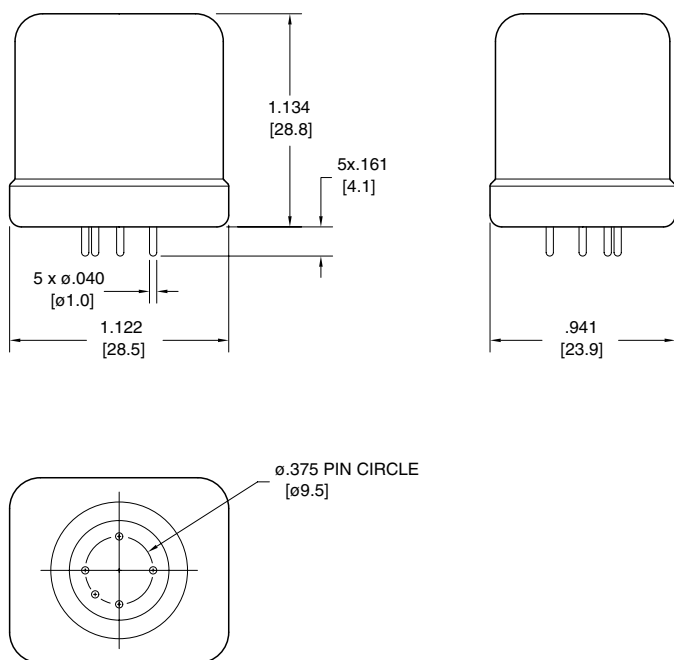
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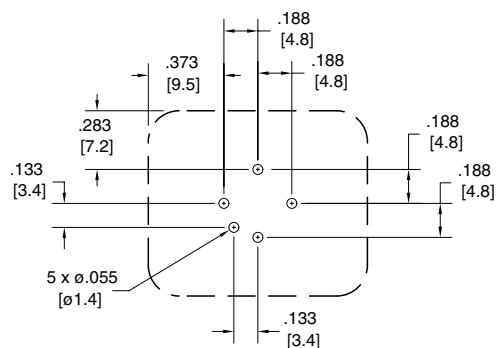
## HERMETICALLY SEALED VERSION



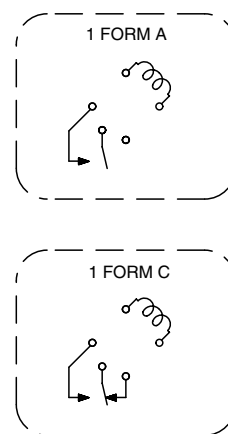
### MECHANICAL DATA



### PC BOARD LAYOUT



### WIRING DIAGRAMS



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