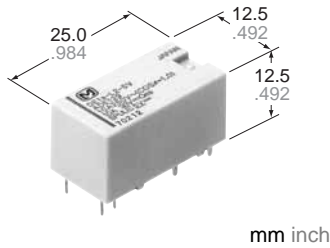




THE DATASHEET OF DE1A-5V





mm inch

FEATURES

- **Conforms to European safety standards (VDE0700 and VDE0631)**
Insulating distance between coil and contacts:
Clearance Min. 8mm .315 inch
Creepage distance Min. 8mm .315 inch
- **Low operating power**
Nominal operating power at 200 mW (Single side stable, 2 coil latching)
- **Compact body saves space**
Size: 12.5(W) × 25.0(L) × 12.5(H) mm .492(W) × .984(L) × .492(H) inch
- **Extensive product line-up**
- **Surge voltage between contact and coil 12 kV**
- **UL/CSA, VDE approved**

SPECIFICATIONS

Contact

| Arrangement | 1 Form A | 1 Form A 1 Form B | 2 Form A | |
|---|---|-------------------------|--|-----------------------|
| Contact material | AgSnO ₂ type | | | |
| Initial contact resistance, max. (By voltage drop 6V DC 1A) | 30mΩ | | | |
| Rating (resistive load) | Nominal switching capacity | 10A 250V AC, 10A 30V DC | 8A 250V AC, 8A 30V DC | 8A 250V AC, 8A 30V DC |
| | Max. switching power | 2,500 VA*, 300W | 2,000 VA*, 240W | 2,000 VA*, 240W |
| | Max. switching voltage | 440V AC, 230V DC | 440V AC, 230V DC | 440V AC, 230V DC |
| | Max. switching current | 10A (16A)* | 8A (16A)* | 8A (16A)* |
| | Min. switching capacity#1 | 100 mA, 5 V DC | | |
| Expected life (min. operations) | Mechanical (at 300cpm) | 10 ⁷ | | |
| | Electrical (at 20 cpm) (resistive load) | 10 ⁵ | 10 ⁵ (AC) 5 × 10 ⁴ (DC) | |
| | Electrical (16A / 230 V AC resistive)* | 25000 | 20000 | |

Coil (at 20°C, 68°F)

| | Nominal operating power |
|--------------------|-------------------------|
| Single side stable | 200 mW |
| 1 coil latching | 100 mW |
| 2 coil latching | 200 mW |

#1 This value can change due to the switching frequency, environmental conditions, and desired reliability level, therefore it is recommended to check this with the actual load.

Characteristics

| | | |
|--|---|--|
| Max. operating speed | 20 cpm (at rated load) | |
| Initial insulation resistance*1 | Min. 1,000 MΩ (at 500 V DC) | |
| Initial breakdown voltage*2 | Between open contacts | 1,000 Vrms |
| | Between contact sets | 4,000 Vrms (2 Form A, 1 Form A 1 Form B) |
| | Between contact and coil | 5,000 Vrms |
| Surge voltage between contact and coil*3 | Min. 12,000 V (initial) | |
| Operate time [Set time]*4 | Max. 10ms (typ. 5ms) [Max. 10ms (typ. 4ms)] (at 20°C 68°F) | |
| Release time (without diode) [Reset time]*4 | Max. 5ms (typ. 2ms) [Max. 10ms (typ. 4ms)] (at 20°C 68°F) | |
| Temperature rise (at 70°C)*5 | Max. 50°C | |
| Shock resistance | Functional*6 | Min. 196 m/s ² {20 G} |
| | Destructive*7 | Min. 980 m/s ² {100 G} |
| Vibration resistance | Functional*8 | 10 to 55 Hz at double amplitude of 2 mm |
| | Destructive | 10 to 55 Hz at double amplitude of 3 mm |
| Conditions for operation, transport and storage*9 (Not freezing and condensing at low temperature) | Ambient temp. | -40°C to 70°C -40°F to 158°F |
| | Humidity | 5 to 85% R.H. |
| Unit weight | Approx. 7 g .25 oz | |

Remarks

- * 16A possible for one contact set only with max. 4000 VA switching power.
- *1 Measurement at same location as "Initial breakdown voltage" section.
- *2 Detection current: 10mA
- *3 Wave is standard shock voltage of ±1.2 × 50μs according to JEC-212-1981
- *4 Nominal operating voltage applied to the coil, excluding contact bounce time.
- *5 By resistive method
- *6 Half-wave pulse of sine wave: 11ms, detection time: 10ms.
- *7 Half-wave pulse of sine wave: 6ms
- *8 Detection time: 10ms
- *9 Refer to "6. Usage, Storage and Transport Conditions" in [AMBIENT ENVIRONMENT](#) section in [Relay Technical Information](#).

DE (ADE)

TYPICAL APPLICATIONS

- Temperature controller
- Automatic meter reading
- OA equipment
- FA equipment

ORDERING INFORMATION

Ex. DE — 1a — L — 3 V

| Product name | Contact arrangement | Operating function | Coil voltage, V DC |
|--------------|---|--|---------------------------------------|
| DE | 1a: 1 Form A 1a1b: 1 Form A 1 Form B 2a: 2 Form A | Nil: Single side stable L: 1 coil latching L2: 2 coil latching | 1.5, 3, 4.5, 5, 6, 9, 12, 24, 48** |

Notes: 1) Standard packing: Carton (tube package)
20 pcs. Case 500 pcs.

**just for single side stable

2) UL/CSA, VDE approved type is standard.

TYPES AND COIL DATA (at 20°C 68°F)

• Single side stable type

1 Form A, 1 Form A 1 Form B, 2 Form A

| Part No. | Nominal voltage, V DC | Pick-up voltage, V DC (max.) (initial) | Drop-out voltage, V DC (min.) (initial) | Coil resistance, Ω ($\pm 10\%$) | Nominal operating current, mA ($\pm 10\%$) | Nominal operating power, mW | Max. allowable voltage, V DC |
|----------|-----------------------|--|---|--|--|-----------------------------|------------------------------|
| DE□-1.5V | 1.5 | 1.05 | 0.15 | 11.3 | 132.7 | 200 | 1.95 |
| DE□-3V | 3 | 2.1 | 0.3 | 45 | 66.6 | 200 | 3.9 |
| DE□-4.5V | 4.5 | 3.15 | 0.45 | 101 | 44.5 | 200 | 5.85 |
| DE□-5V | 5 | 3.5 | 0.5 | 125 | 40 | 200 | 6.5 |
| DE□-6V | 6 | 4.2 | 0.6 | 180 | 33.3 | 200 | 7.8 |
| DE□-9V | 9 | 6.3 | 0.9 | 405 | 22.2 | 200 | 11.7 |
| DE□-12V | 12 | 8.4 | 1.2 | 720 | 16.6 | 200 | 15.6 |
| DE□-24V | 24 | 16.8 | 2.4 | 2,880 | 8.3 | 200 | 31.2 |
| DE□-48V | 48 | 33.6 | 4.8 | 11,520 | 4.2 | 200 | 62.4 |

• 1 coil latching type

1 Form A

| Part No. | Nominal voltage, V DC | Set voltage, V DC (max.) (initial) | Reset voltage, V DC (min.) (initial) | Coil resistance, Ω ($\pm 10\%$) | Nominal operating current, mA ($\pm 10\%$) | Nominal operating power, mW | Max. allowable voltage, V DC |
|------------|-----------------------|------------------------------------|--------------------------------------|--|--|-----------------------------|------------------------------|
| DE□-L-1.5V | 1.5 | 1.05 | 1.05 | 22.5 | 66.6 | 100 | 1.95 |
| DE□-L-3V | 3 | 2.1 | 2.1 | 90 | 33.3 | 100 | 3.9 |
| DE□-L-4.5V | 4.5 | 3.15 | 3.15 | 202 | 22.3 | 100 | 5.85 |
| DE□-L-5V | 5 | 3.5 | 3.5 | 250 | 20 | 100 | 6.5 |
| DE□-L-6V | 6 | 4.2 | 4.2 | 360 | 16.7 | 100 | 7.8 |
| DE□-L-9V | 9 | 6.3 | 6.3 | 812 | 11.1 | 100 | 11.7 |
| DE□-L-12V | 12 | 8.4 | 8.4 | 1,440 | 8.3 | 100 | 15.6 |
| DE□-L-24V | 24 | 16.8 | 16.8 | 5,760 | 4.2 | 100 | 31.2 |

• 2 coil latching type

1 Form A

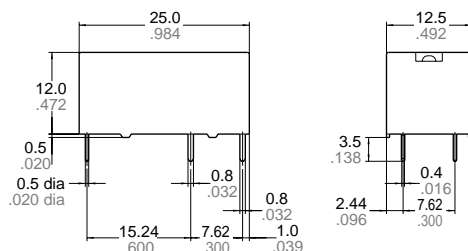
| Part No. | Nominal voltage, V DC | Set voltage, V DC (max.) (initial) | Reset voltage, V DC (min.) (initial) | Coil resistance, Ω ($\pm 10\%$) | | Nominal operating current, mA ($\pm 10\%$) | | Nominal operating power, mW | | Max. allowable voltage, V DC |
|-------------|-----------------------|------------------------------------|--------------------------------------|--|------------|--|------------|-----------------------------|------------|------------------------------|
| | | | | Set coil | Reset coil | Set coil | Reset coil | Set coil | Reset coil | |
| DE□-L2-1.5V | 1.5 | 1.05 | 1.05 | 11.3 | 11.3 | 66.6 | 66.6 | 200 | 200 | 1.95 |
| DE□-L2-3V | 3 | 2.1 | 2.1 | 45 | 45 | 66.6 | 66.6 | 200 | 200 | 3.9 |
| DE□-L2-4.5V | 4.5 | 3.15 | 3.15 | 101 | 101 | 44.5 | 44.5 | 200 | 200 | 5.85 |
| DE□-L2-5V | 5 | 3.5 | 3.5 | 125 | 125 | 40 | 40 | 200 | 200 | 6.5 |
| DE□-L2-6V | 6 | 4.2 | 4.2 | 180 | 180 | 33.3 | 33.3 | 200 | 200 | 7.8 |
| DE□-L2-9V | 9 | 6.3 | 6.3 | 405 | 405 | 22.2 | 22.2 | 200 | 200 | 11.7 |
| DE□-L2-12V | 12 | 8.4 | 8.4 | 720 | 720 | 16.6 | 16.6 | 200 | 200 | 15.6 |
| DE□-L2-24V | 24 | 16.8 | 16.8 | 2,880 | 2,880 | 8.3 | 8.3 | 200 | 200 | 31.2 |

Note: Insert contact arrangement, e.g. 1a, 1a1b, 2a, in □ for contact form required.

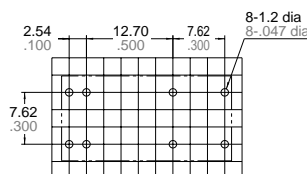
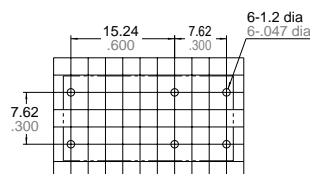
DIMENSIONS



Single side stable
1 coil latching type

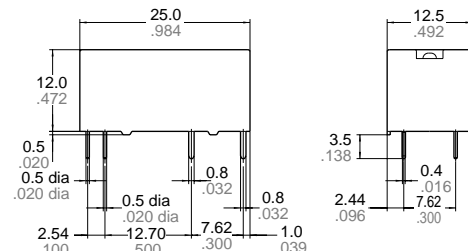


PC board pattern (Bottom view)
Single side stable
1 coil latching type



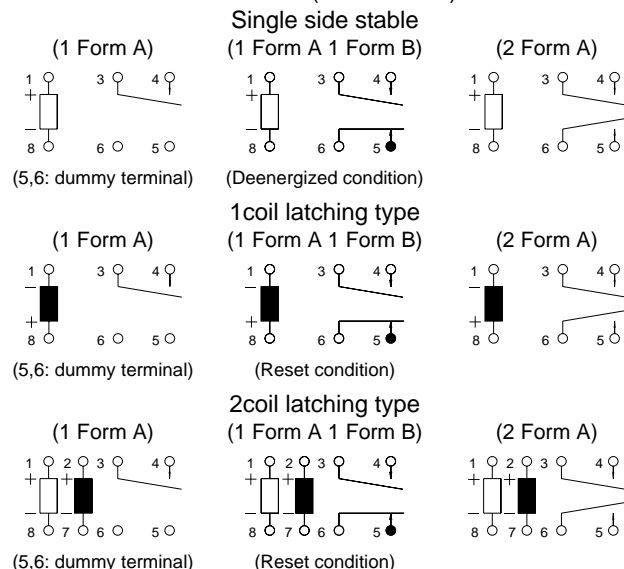
Tolerance : ±0.1 ±.004

2 coil latching type



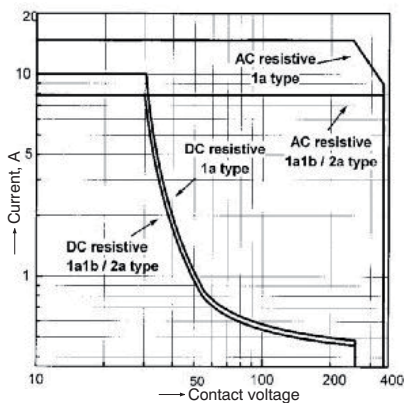
Tolerance: ±0.3 ±.012

Schematic (Bottom view)

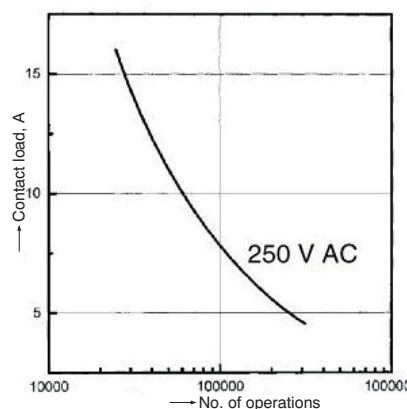


REFERENCE DATA

1. Max. switching power

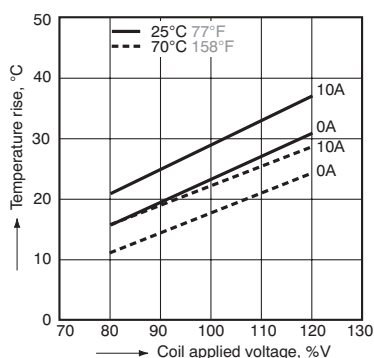


2. Life curve



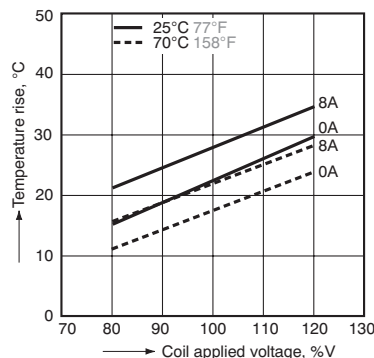
3.-(1) Coil temperature rise (1 Form A)

Tested sample: ADE109
 Quantity: n=6
 Ambient temperature: 25°C to 70°C 77°F to 158°F



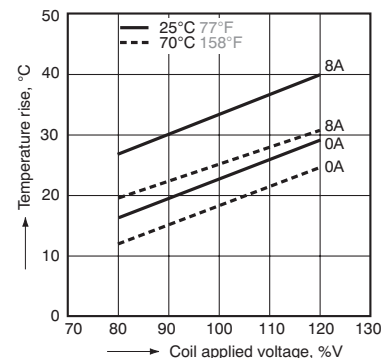
3.-(2) Coil temperature rise (1 Form A 1 Form B)

Tested sample: ADE309
 Quantity: n=6
 Ambient temperature: 25°C to 70°C 77°F to 158°F



3.-(3) Coil temperature rise (2 Form A)

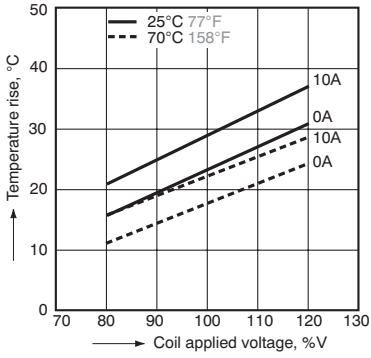
Tested sample: ADE209
 Quantity: n=6
 Ambient temperature: 25°C to 70°C 77°F to 158°F



DE (ADE)

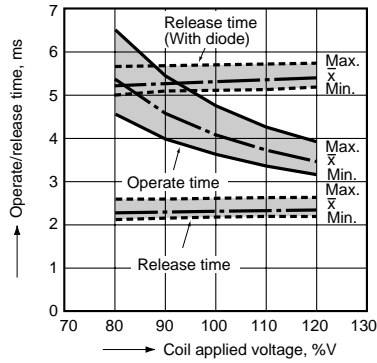
4-1. Operate/release time (1 Form A)

Tested sample: DE1a-5V
Quantity: n=5



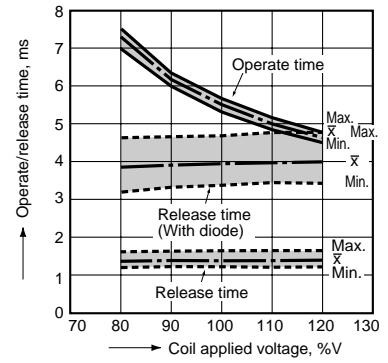
4-2. Operate/release time (1 Form A 1 Form B)

Tested sample: DE1a1b-5V, Quantity: n=5



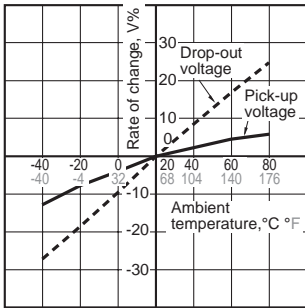
4-3. Operate/release time (2 Form A)

Tested sample: DE2a-5V, Quantity: n=5



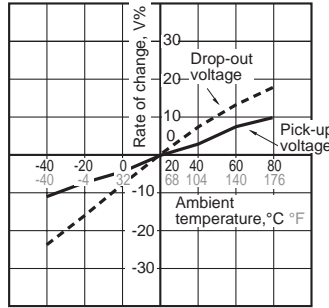
5-1. Ambient temperature characteristics (1 Form A)

Tested sample: DE1a-5V, Ambient temperature: -40°C to 80°C -40°F to 176°F, Quantity: n=6



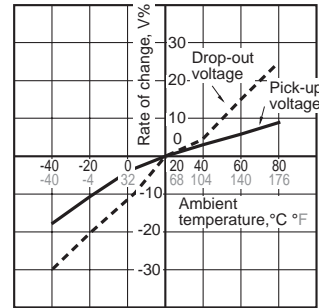
5-2. Ambient temperature characteristics (1 Form A 1 Form B)

Tested sample: DE1a1b-5V, Ambient temperature: -40°C to 80°C -40°F to 176°F, Quantity: n=6

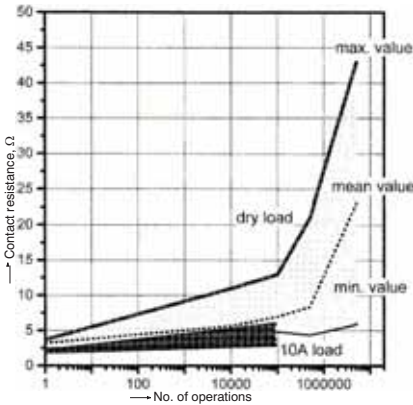


5-3. Ambient temperature characteristics (2 Form A)

Tested sample: DE2a-5V, Ambient temperature: -40°C to 80°C -40°F to 176°F, Quantity: n=6





6. Change of contact resistance



For Cautions for Use, see [Relay Technical Information](#).

Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

-  [View DE1A-5V on WIN SOURCE](#)
-  [Panasonic Information](#)

Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management