

## D2n Relay V23105

- Standard DIL relay
- Dimensions 20x10x11mm (.795x.394x.433")
- Switching and continuous current 3A
- 2 form C contacts (2 CO, 2 changeover contacts)
- Immersion cleanable
- Four different coil sensitivities, 150mW, 200mW, 400mW, >500mW
- Surge voltage resistance meets FCC Part 68 requirement: 1.5kV (10/700µs) between coil and contacts

### Typical applications

Communications equipment, office equipment, measurement and control equipment, entertainment electronics, medical equipment, consumer electronics.



### Approvals

UL 508 File No. E 111441  
Technical data of approved types on request

### Contact Data

|                                     |                                    |
|-------------------------------------|------------------------------------|
| Contact arrangement                 | 2 form C (CO)                      |
| Max. switching voltage              | 220VDC, 250VAC                     |
| Rated current                       | 3A                                 |
| Limiting continuous current, 85°C   | 3A                                 |
| Contact material                    | AgNi, gold-covered                 |
| Min. recommended contact load       | 10mA at 20mV                       |
| Minimum switching voltage           | 100µV                              |
| Initial contact resistance          | <100mΩ at 10mA, 20mV               |
| Frequency of operation without load | max. 50 operations/s               |
| Operate / release time max.         | 6ms/4ms                            |
| Bounce time max.                    | 5 ms                               |
| Electrical endurance                |                                    |
| at 230VAC/0.5A                      | typ. 3x10 <sup>5</sup> operations  |
| at 6VDC/0.1A                        | typ. 2x10 <sup>6</sup> operations  |
| at 30VDC/1A                         | typ. 5x10 <sup>5</sup> operations  |
| at 30VDC/2A                         | typ. 1x10 <sup>5</sup> operations  |
| Contact ratings, UL                 | 30VDC/1.0A                         |
|                                     | 100VDC/0.3A                        |
| 150mW and 200mW coil                | 125VAC/0.5A                        |
| 400mW and 500mW coil                | 125VAC/1.0A                        |
| Mechanical endurance                | typ. 15x10 <sup>6</sup> operations |

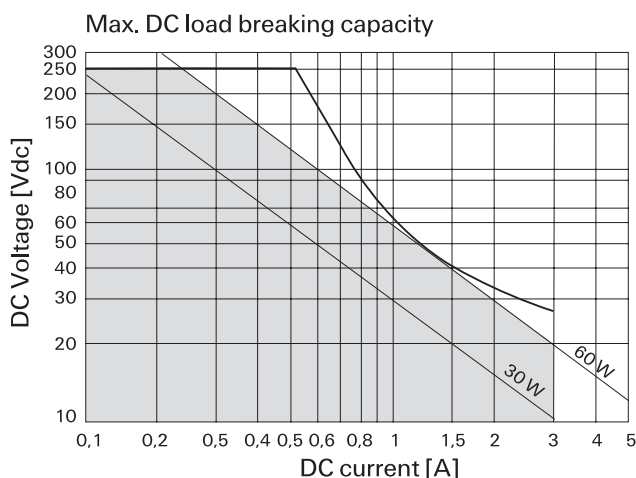
### Coil Data

|                       |            |
|-----------------------|------------|
| Magnetic system       | neutral    |
| Coil voltage range    | 3 to 48VDC |
| Max. coil temperature | 85 °C      |
| Thermal resistance    | < 85K/W    |

### Coil versions, monostable

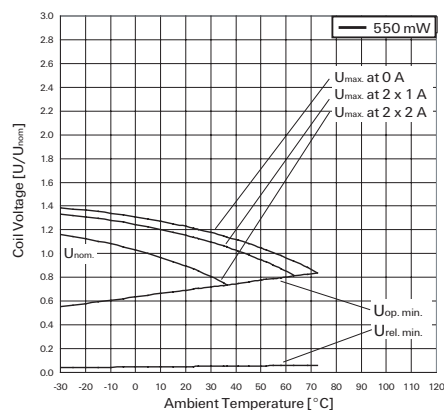
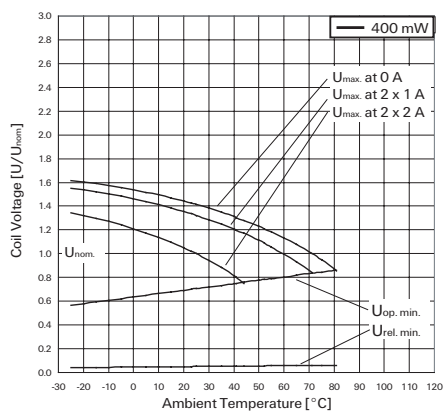
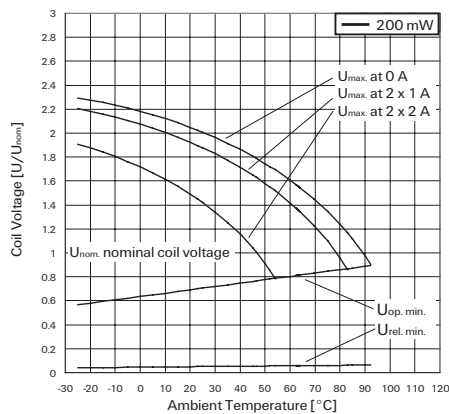
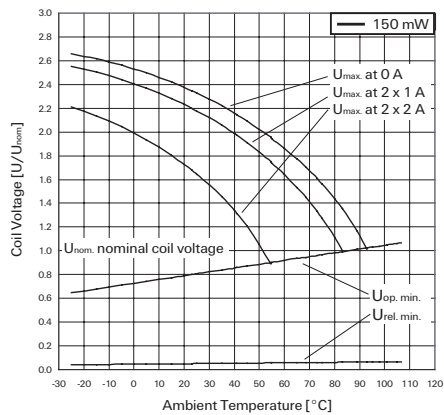
| Coil code                   | Rated voltage VDC | Operate voltage VDC <sub>min.</sub> | Limiting Voltage VDC <sub>max.</sub> | Release voltage VDC <sub>min.</sub> | Coil resistance Ω±10% | Rated coil power mW |
|-----------------------------|-------------------|-------------------------------------|--------------------------------------|-------------------------------------|-----------------------|---------------------|
| <b>150mW coil power</b>     |                   |                                     |                                      |                                     |                       |                     |
| 001                         | 5                 | 4.0                                 | 11.7                                 | 0.25                                | 167                   | 150                 |
| 002                         | 6                 | 4.8                                 | 14.0                                 | 0.30                                | 240                   | 150                 |
| 006                         | 9                 | 7.2                                 | 21.0                                 | 0.45                                | 540                   | 150                 |
| 003                         | 12                | 9.6                                 | 28.0                                 | 0.60                                | 960                   | 150                 |
| 005                         | 24                | 19.2                                | 56.0                                 | 1.20                                | 3840                  | 150                 |
| <b>200mW coil power</b>     |                   |                                     |                                      |                                     |                       |                     |
| 308                         | 3                 | 2.1                                 | 6.1                                  | 0.15                                | 45                    | 200                 |
| 301                         | 5                 | 3.5                                 | 10.1                                 | 0.25                                | 125                   | 200                 |
| 302                         | 6                 | 4.2                                 | 12.2                                 | 0.30                                | 180                   | 200                 |
| 306                         | 9                 | 6.3                                 | 18.2                                 | 0.45                                | 405                   | 200                 |
| 303                         | 12                | 8.4                                 | 24.3                                 | 0.60                                | 720                   | 200                 |
| 305                         | 24                | 16.8                                | 48.6                                 | 1.20                                | 2880                  | 200                 |
| 307                         | 48                | 33.6                                | 97.2                                 | 2.40                                | 11520                 | 200                 |
| <b>400mW coil power</b>     |                   |                                     |                                      |                                     |                       |                     |
| 401                         | 5                 | 3.5                                 | 7.2                                  | 0.25                                | 62                    | 400                 |
| 402                         | 6                 | 4.2                                 | 8.6                                  | 0.30                                | 90                    | 400                 |
| 406                         | 9                 | 6.3                                 | 12.9                                 | 0.42                                | 203                   | 400                 |
| 403                         | 12                | 8.4                                 | 17.2                                 | 0.60                                | 360                   | 400                 |
| 405                         | 24                | 16.8                                | 34.3                                 | 1.20                                | 1440                  | 400                 |
| 407                         | 48                | 33.6                                | 68.6                                 | 2.40                                | 5760                  | 400                 |
| <b>&gt;500mW coil power</b> |                   |                                     |                                      |                                     |                       |                     |
| 501                         | 5                 | 3.5                                 | 6.1                                  | 0.25                                | 36                    | 695                 |
| 502                         | 6                 | 4.2                                 | 7.3                                  | 0.30                                | 70                    | 515                 |
| 506                         | 9                 | 6.3                                 | 10.9                                 | 0.45                                | 140                   | 580                 |
| 503                         | 12                | 8.4                                 | 14.5                                 | 0.60                                | 280                   | 515                 |
| 505                         | 24                | 16.8                                | 29.1                                 | 1.20                                | 1050                  | 550                 |
| 507                         | 48                | 33.6                                | 58.1                                 | 2.40                                | 4000                  | 575                 |

All figures are given for coil without pre-energization, at ambient temperature +23°C.  
Other coil voltages on request.



## D2n Relay V23105 (Continued)

### Coil Data (continued)



### Coil Data (continued)

#### Coil operating range graphs

- $U_{nom}$  Nominal coil voltage
- $U_{max}$  Upper limit of the operative range of the coil voltage (limiting voltage) when coils are continuously energized
- $U_{op. min.}$  Lower limit of the operative range of the coil voltage (reliable operate voltage)
- $U_{rel. min.}$  Lower limit of the operative range of the coil voltage (reliable release voltage)

### Insulation Data

#### Initial dielectric strength

|                           |                      |
|---------------------------|----------------------|
| between open contacts     | 750V <sub>rms</sub>  |
| between contact and coil  | 1050V <sub>rms</sub> |
| between adjacent contacts | 750V <sub>rms</sub>  |

#### Initial surge withstand voltage

|                           |       |
|---------------------------|-------|
| between open contacts     | 1500V |
| between contact and coil  | 1500V |
| between adjacent contacts | 1500V |

#### Initial insulation resistance at 500 VDC

|  |                     |
|--|---------------------|
|  | > 10 <sup>9</sup> Ω |
|--|---------------------|

#### Capacitance

|                           |           |
|---------------------------|-----------|
| between open contacts     | max. 2pF  |
| between contact and coil  | max. 4pF  |
| between adjacent contacts | max. 2 pF |

### RF Data

|                                                     |                 |
|-----------------------------------------------------|-----------------|
| Isolation at 100MHz/900MHz                          | -39.0dB/-20.7dB |
| Insertion loss at 100MHz/900MHz                     | -0.02dB/-0.27dB |
| Voltage standing wave ratio (VSWR) at 100MHz/900MHz | 1.04/1.40       |

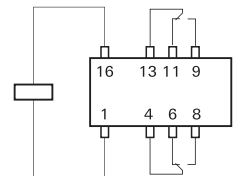
### Other Data

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at [www.te.com/customer-support/rohssupportcenter](http://www.te.com/customer-support/rohssupportcenter)

|                                                          |                                  |
|----------------------------------------------------------|----------------------------------|
| Ambient temperature                                      | -40 to +85°C                     |
| Category of environmental protection                     | RT III - immersion cleanable     |
| IEC 61810                                                | IP 67                            |
| Degree of protection, IEC 60529                          | 10g, 10 to 55Hz                  |
| Vibration resistance (functional)                        | 10g                              |
| Shock resistance (functional) IEC 60068-2-27 (half sine) | 50g                              |
| Shock resistance (destructive)                           | PCB-THT                          |
| Terminal type                                            | max. 6g                          |
| Weight                                                   | Resistance to soldering heat THT |
| Resistance to soldering heat THT IEC 60068-2-20          | 265°C/10s                        |
| Ultrasonic cleaning                                      | not recommended                  |
| Packaging unit                                           | 1000 pcs.                        |

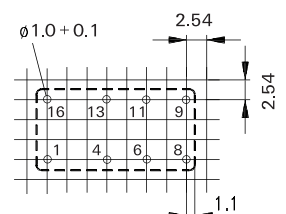
### Terminal assignment

TOP view on component side of PCB



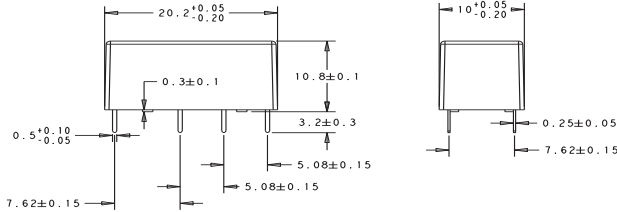
### PCB layout

TOP view on component side of PCB

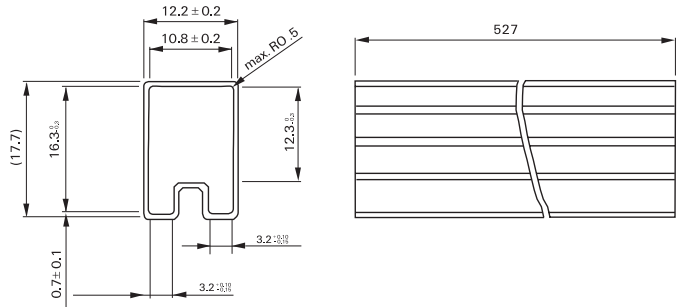


**D2n Relay V23105 (Continued)**

**Dimensions**



**Packing**



**Product code structure**

Typical product code **V23105-A5 001 A201**

| Type     | <b>V23105-A5</b>                                                                                                                           | D2n Series Signal Relay |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|
| Coil     | Coil code: please refer to coil versions table<br>Coil power<br><b>0xx</b> 150 mW <b>4xx</b> 400 mW<br><b>3xx</b> 300 mW <b>5xx</b> 550 mW |                         |
| Contacts | <b>A201</b> 2 form C, 2 CO, AgNi+Au contacts                                                                                               |                         |

| Product Code    | Version          | Coil power                              | Coil voltage | Part number |
|-----------------|------------------|-----------------------------------------|--------------|-------------|
| V23105A5001A201 | AgNi+Au contacts | 150mW                                   | 5VDC         | 8-1393792-5 |
| V23105A5002A201 |                  |                                         | 6VDC         | 8-1393792-7 |
| V23105A5006A201 |                  |                                         | 9VDC         | 9-1393792-1 |
| V23105A5003A201 |                  |                                         | 12VDC        | 8-1393792-8 |
| V23105A5005A201 |                  |                                         | 24VDC        | 9-1393792-0 |
| V23105A5308A201 |                  | 200mW                                   | 3VDC         | 1393793-5   |
| V23105A5301A201 |                  |                                         | 5VDC         | 9-1393792-3 |
| V23105A5302A201 |                  |                                         | 6VDC         | 9-1393792-5 |
| V23105A5306A201 |                  |                                         | 9VDC         | 1393793-2   |
| V23105A5303A201 |                  |                                         | 12VDC        | 9-1393792-7 |
| V23105A5305A201 |                  | 400mW                                   | 24VDC        | 9-1393792-9 |
| V23105A5307A201 |                  |                                         | 48VDC        | 1393793-3   |
| V23105A5401A201 |                  |                                         | 5VDC         | 1393793-6   |
| V23105A5402A201 |                  |                                         | 6VDC         | 1393793-7   |
| V23105A5406A201 |                  |                                         | 9VDC         | 1-1393793-0 |
| V23105A5403A201 |                  | >500mW                                  | 12VDC        | 1393793-8   |
| V23105A5405A201 |                  |                                         | 24VDC        | 1393793-9   |
| V23105A5407A201 |                  |                                         | 48VDC        | 1-1393793-1 |
| V23105A5501A201 |                  |                                         | 5VDC         | 1-1393793-6 |
| V23105A5502A201 |                  |                                         | 6VDC         | 1-1393793-8 |
| V23105A5506A201 |                  |                                         | 9VDC         | 2-1393793-3 |
| V23105A5503A201 |                  |                                         | 12VDC        | 1-1393793-9 |
| V23105A5505A201 |                  |                                         | 24VDC        | 2-1393793-1 |
| V23105A5507A201 |                  |                                         | 48VDC        | 2-1393793-4 |
| V23105A5475A201 |                  | BT 47 type spec T4563C (current tested) | 5VDC         | 1-1393793-2 |
| V23105A5479A201 |                  |                                         | 10VDC        | 3-1393794-0 |
| V23105A5476A201 |                  |                                         | 12VDC        | 1-1393793-3 |
| V23105A5477A201 |                  |                                         | 24VDC        | 1-1393793-4 |
| V23105A5478A201 |                  |                                         | 48VDC        | 1-1393793-5 |