

## Miniature PCB Relay ORWH

- Compact relay with 1 form A and 1 form C contact arrangement
- 15A switching capacity
- Flux proof or sealed type available
- 6kV dielectric strength type available

### Typical applications

Appliances, HVAC, emergency lighting.



### Approvals

UL E82292, TUV R50138967

Technical data of approved types on request.

### Contact Data

|                                                            |                                                   |
|------------------------------------------------------------|---------------------------------------------------|
| Contact arrangement                                        | 1 form A, 1 NO<br>1 form C, 1 CO                  |
| Rated voltage                                              | 28VDC, 277VAC                                     |
| Max. switching voltage                                     | 28VDC, 277VAC                                     |
| Rated current                                              | 10A                                               |
| Contact material                                           | AgZnO, AgCdO, AgNi                                |
| Min. recommended contact load                              | 100mA, 5VDC                                       |
| Frequency of operation                                     | 600 ops./h                                        |
| Operate/release time max.                                  | 10ms/5ms                                          |
| Electrical endurance                                       |                                                   |
| AgZnO: form A, 10A, 250VAC, res., +85°C, Class B or F only | 100x10 <sup>3</sup> ops.                          |
| AgNi: 15A, 125VAC, res., +23°C                             | 6x10 <sup>3</sup> ops.                            |
| AgCdO: form A, 10A, 250VAC, res., +85°C, Class B or F only | 50x10 <sup>3</sup> ops.                           |
| AgNi: form A, 10A, 250VAC, res., +85°C, Class B or F only  | 50x10 <sup>3</sup> ops.                           |
| AgZnO: 15A, 125VAC, res., +23°C                            | 6x10 <sup>3</sup> ops.                            |
| Contact ratings, form A/form B                             | 10A/6A 250VAC resistive<br>10A/6A 28VDC resistive |
| Mechanical endurance, DC coil                              | 10x10 <sup>6</sup> operations                     |

### Coil Data

|                                     |               |
|-------------------------------------|---------------|
| Coil voltage range                  | 3 to 48VDC    |
| Operative range, IEC 61810          | 2             |
| Coil insulation system according UL | Class A, B, F |

### Coil versions, DC coil

| Coil code | Rated voltage VDC | Operate voltage VDC | Release voltage VDC | Coil resistance $\Omega \pm 10\%$ | Rated coil power mW |
|-----------|-------------------|---------------------|---------------------|-----------------------------------|---------------------|
| 003       | 3                 | 2.1                 | 0.3                 | 25                                | 360                 |
| 005       | 5                 | 3.5                 | 0.5                 | 70.0                              | 360                 |
| 006       | 6                 | 4.2                 | 0.6                 | 100                               | 360                 |
| 009       | 9                 | 6.3                 | 0.9                 | 225                               | 360                 |
| 012       | 12                | 8.4                 | 1.2                 | 400                               | 360                 |
| 024       | 24                | 16.8                | 2.4                 | 1600                              | 360                 |
| 048       | 48                | 33.6                | 4.8                 | 6400                              | 360                 |

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

### Insulation Data

|                                         |                      |
|-----------------------------------------|----------------------|
| Initial dielectric strength             |                      |
| between open contacts                   | 750V <sub>rms</sub>  |
| between contact and coil                | 1500V <sub>rms</sub> |
| Clearance/creepage                      |                      |
| between open contacts                   | >1.6mm               |
| between contact and coil                | >3.2mm               |
| Clearance/creepage                      |                      |
| between open contacts, standard type    | >1.6mm               |
| for 6kV dielectric strength type        | >4mm                 |
| between contact and coil, standard type | >3.2mm               |
| for 6kV dielectric strength type        | >4mm                 |

### 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                  | -30°C to 85°C                           |
| Category of environmental protection |                                         |
| IEC 61810                            | RTII - flux proof<br>RTIII - wash tight |
| Vibration resistance (functional)    | 1.5mm, 10-55 Hz                         |
| Shock resistance (functional)        | 10g for 11msec                          |
| Shock resistance (destructive)       | 100g                                    |
| Weight                               | 9.5g                                    |
| Resistance to soldering heat THT     |                                         |
| IEC 60068-2-20                       | RTII: 270°C/10s<br>RTIII: 260°C/5s      |
| Packaging/unit                       | tube/25, carton box/1000                |

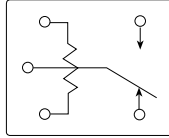
### Accessories

| Product Code | Description                                                                                                         |
|--------------|---------------------------------------------------------------------------------------------------------------------|
| 27E1064      | Socket, rated 10A at 300VAC. UL Recognized for US and Canada. Designed to fit same suggested board layout as relay. |

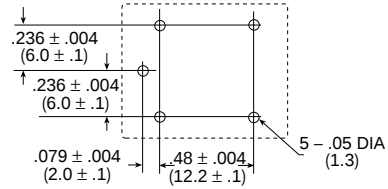
**Miniature PCB Relay ORWH (Continued)**

**Terminal assignment**

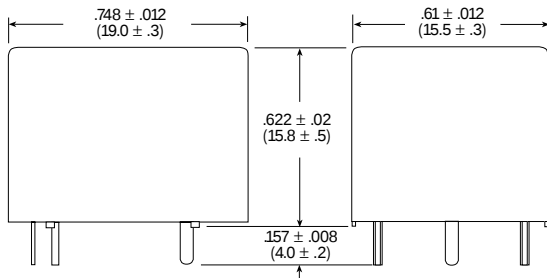
Bottom view on solder pins



**PCB layout**



**Dimensions**



TERMINAL DIMENSIONS:  
COIL: 0.024 (0.6) DIA.  
LOAD: 0.12 x 0.35 (0.3 x 0.9)

| Product code structure               | Typical product code <b>ORWH -SH -1 12 D M 1 F WG ,000</b>                                                              |  |  |  |  |  |  |  |  |  |
|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------|--|--|--|--|--|--|--|--|--|
| <b>Type</b>                          | <b>ORWH</b> Miniature PCB Relay ORWH                                                                                    |  |  |  |  |  |  |  |  |  |
| <b>Category of protection</b>        | <b>SS</b> Flux proof <b>SH</b> Wash tight                                                                               |  |  |  |  |  |  |  |  |  |
| <b>Number of poles</b>               | <b>1</b> 1 pole                                                                                                         |  |  |  |  |  |  |  |  |  |
| <b>Coil voltage</b>                  | Coil code: please refer to coil versions table (e.g. 12 = 12VDC)                                                        |  |  |  |  |  |  |  |  |  |
| <b>Coil version</b>                  | <b>D</b> Standard <b>H</b> High temperature type                                                                        |  |  |  |  |  |  |  |  |  |
| <b>Contact arrangement</b>           | <b>Blank</b> 1 form C, 1 CO <b>M</b> 1 form A, 1 NO                                                                     |  |  |  |  |  |  |  |  |  |
| <b>Contact material</b>              | <b>Blank</b> AgCdo <b>5</b> AgZnO + Au plating<br><b>1</b> AgZnO <b>7</b> AgNi + Au plating<br><b>3</b> AgNi            |  |  |  |  |  |  |  |  |  |
| <b>Insulation system designation</b> | <b>Blank</b> Class 105 (A) <b>B</b> Class 120 (B) <b>F</b> F = Class 155 (F)                                            |  |  |  |  |  |  |  |  |  |
| <b>Option material</b>               | <b>Blank</b> Standard <b>H</b> Insulation plate use type<br><b>WG</b> For domestic appliances (IEC 60335-1, 4 Edition); |  |  |  |  |  |  |  |  |  |
| <b>Suffix</b>                        | <b>,000</b> Standard                                                                                                    |  |  |  |  |  |  |  |  |  |

**Miniature PCB Relay ORWH** (Continued)

| Product code        | Enclosure  | Coil  | Coil      | Arrangement   | Cont.mat. | Insulation | Option         | Part number |
|---------------------|------------|-------|-----------|---------------|-----------|------------|----------------|-------------|
| ORWH-SH-105D1F,000  | Wash tight | 5VDC  | Standard  | 1 From C, 1CO | AgZnO     | Class F    | Standard Type  | 1-1721150-0 |
| ORWH-SS-105D1F,000  | Flux proof |       |           | 1 From C, 1CO |           |            |                | 2071448-5   |
| ORWH-SH-105DM1F,000 | Wash tight |       |           | 1 From A, 1NO |           |            |                | 2071448-3   |
| ORWH-SS-109D1F,000  | Flux proof | 9VDC  |           | 1 From C, 1CO |           |            |                | 2071448-4   |
| ORWH-SH-112D1F,000  | Wash tight | 12VDC |           | 1 From C, 1CO |           |            |                | 1-1721150-3 |
| ORWH-SS-112D1F,000  | Flux proof |       |           | 1 From C, 1CO |           |            |                | 1721150-5   |
| ORWH-SH-112DM1F,000 | Wash tight |       |           | 1 From A, 1NO |           |            |                | 2071448-8   |
| ORWH-SS-112DM1F,000 | Flux proof |       |           | 1 From A, 1NO |           |            |                | 2071448-2   |
| ORWH-SH-124D1F,000  | Wash tight | 24VDC |           | 1 From C, 1CO |           |            |                | 1-1721150-5 |
| ORWH-SS-124D1F,000  | Flux proof |       |           | 1 From C, 1CO |           |            |                | 2-2071448-0 |
| ORWH-SH-124DM1F,000 | Wash tight |       |           | 1 From A, 1NO |           |            |                | 1-2071448-5 |
| ORWH-SS-124DM1F,000 | Flux proof |       |           | 1 From A, 1NO |           |            |                | 1-2071448-8 |
| ORWH-SH-105H3F,000  | Wash tight | 5VDC  | High temp | 1 From C, 1CO | AgNi      |            | Standard Type  | 2071448-6   |
| ORWH-SS-105H3F,000  | Flux proof |       |           | 1 From C, 1CO |           |            |                | 2071448-7   |
| ORWH-SH-112H3F,000  | Wash tight | 12VDC |           | 1 From C, 1CO |           |            |                | 2071448-9   |
| ORWH-SS-112H3F,000  | Flux proof |       |           | 1 From C, 1CO |           |            |                | 1-2071448-2 |
| ORWH-SH-112HM3F,000 | Wash tight |       |           | 1 From A, 1NO |           |            |                | 1-2071448-0 |
| ORWH-SS-112HM3F,000 | Flux proof |       |           | 1 From A, 1NO |           |            |                | 1-2071448-3 |
| ORWH-SS-118H3FH,000 | Flux proof | 18VDC |           | 1 From C, 1CO |           |            | Insulation pl. | 1721948-6   |
| ORWH-SH-124H3F,000  | Wash tight | 24VDC |           | 1 From C, 1CO |           |            | Standard Type  | 1-2071448-6 |
| ORWH-SS-124H3F,000  | Flux proof |       |           | 1 From C, 1CO |           |            |                | 1-2071448-9 |
| ORWH-SH-124HM3F,000 | Wash tight |       |           | 1 From A, 1NO |           |            |                | 1-2071448-4 |
| ORWH-SS-124HM3F,000 | Flux proof |       |           | 1 From A, 1NO |           |            |                | 1-2071448-7 |