

## Miniature PCB Relay OJ/OJE

- 3 to 10A rating
- Small size
- 4000V<sub>rms</sub> coil to contact dielectric strength (OJ type)
- Sensitive coil optional

Typical applications  
 Appliances, HVAC, industrial control



F0277-C


**Approvals**

VDE 40007630, TUV R 50139166, UL E82292, CQC03001007764

Technical data of approved types on request

**Contact Data**

|                               |                                    |
|-------------------------------|------------------------------------|
| Contact arrangement           | 1 form A, 1 NO                     |
| Rated voltage                 | 30VDC, 250VAC                      |
| Max. switching voltage        | 30VDC, 277VAC                      |
| Rated current                 | 3 to 10A                           |
| Contact material              | Ag, AgSnO, AgCdO                   |
| Min. recommended contact load | 100mA, 5VDC                        |
| Frequency of operation        | 360 ops./h                         |
| Operate time max.             | OJ/OJE-L: 15ms<br>OJ/OJE-D/H: 10ms |
| Release time max.             | 4ms                                |
| Electrical endurance          |                                    |
| LM                            | 3A, 250VAC, res., -30°C to +95°C   |
| DM                            | 5A, 250VAC, res., -30°C to +85°C   |
| LMH(2)                        | 8A, 250VAC, res., -30°C to +70°C   |
| LMH2                          | 8A, 250VAC, res., -30°C to +85°C   |
| HM                            | 10A, 250VAC, res., -30°C to +70°C  |
| HM2                           | 10A, 250VAC, res., -30°C to +85°C  |
| Contact ratings               |                                    |
| LM                            | 3A, 250VAC                         |
| DM                            | 5A 250VAC                          |
| LMH(2)                        | 8A 250VAC                          |
| HM(2)                         | 10A 250VAC                         |
| 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 E, F

**Coil versions, DC coil, OJ/OJE-L sensitive type**

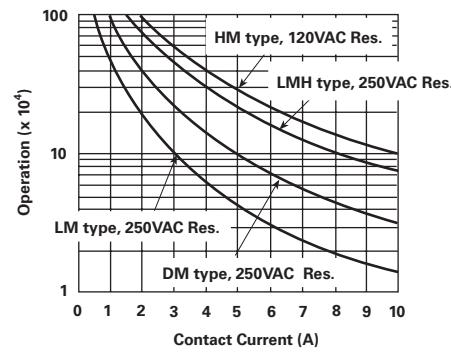
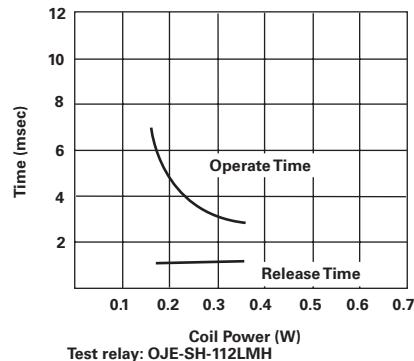
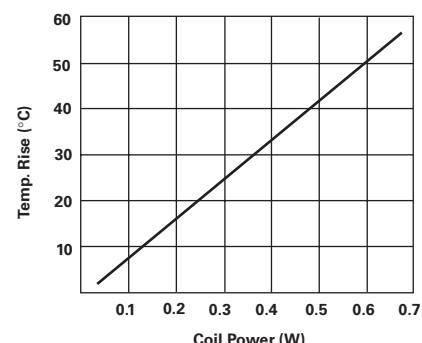
| Coil code | Rated voltage VDC | Operate voltage VDC | Release voltage VDC | Coil resistance $\Omega \pm 10\%$ | Rated coil power mW |
|-----------|-------------------|---------------------|---------------------|-----------------------------------|---------------------|
| 003       | 3                 | 2.25                | 0.15                | 45                                | 200                 |
| 005       | 5                 | 3.75                | 0.25                | 125                               | 200                 |
| 006       | 6                 | 4.5                 | 0.3                 | 180                               | 200                 |
| 009       | 9                 | 6.75                | 0.45                | 405                               | 200                 |
| 012       | 12                | 9                   | 0.6                 | 720                               | 200                 |
| 024       | 24                | 18                  | 1.2                 | 2880                              | 200                 |
| 048       | 48                | 36                  | 2.4                 | 11520                             | 200                 |

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

**Coil versions, DC coil, OJ/OJE-D and -H type**

| Coil code | Rated voltage VDC | Operate voltage VDC | Release voltage VDC | Coil resistance $\Omega \pm 10\%$ | Rated coil power mW |
|-----------|-------------------|---------------------|---------------------|-----------------------------------|---------------------|
| 003       | 3                 | 2.1                 | 0.15                | 20                                | 450                 |
| 005       | 5                 | 3.5                 | 0.25                | 55.6                              | 450                 |
| 006       | 6                 | 4.2                 | 0.3                 | 80                                | 450                 |
| 009       | 9                 | 6.3                 | 0.45                | 180                               | 450                 |
| 012       | 12                | 8.4                 | 0.6                 | 320                               | 450                 |
| 024       | 24                | 16.8                | 1.2                 | 1280                              | 450                 |
| 048       | 48                | 33.6                | 2.4                 | 5120                              | 450                 |

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

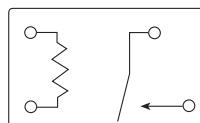
**Electrical endurance**

**Operate time**

**Coil temperature rise**


**Miniature PCB Relay OJ/OJE (Continued)**
**Insulation Data**

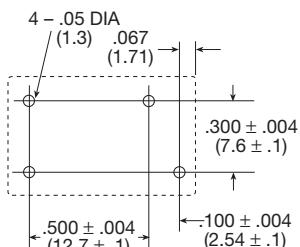
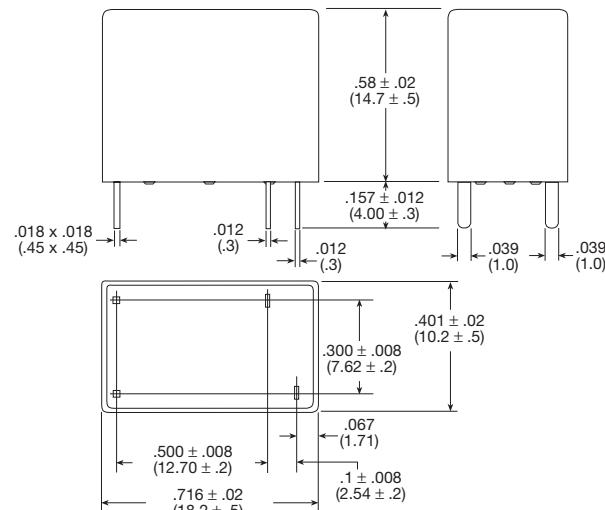
|                              |                           |
|------------------------------|---------------------------|
| Initial dielectric strength  | 750V <sub>rms</sub>       |
| between open contacts        | OJ: 4000V <sub>rms</sub>  |
| between contact and coil     | OJE: 3000V <sub>rms</sub> |
| Clearance/creepage           |                           |
| between contact and coil     | OJ: > 7.7mm / 9.4mm       |
| between contact and coil     | OJE: > 3.2mm / 3.6mm      |
| Tracking index of relay base | PTI 250                   |

**Terminal assignment**

Bottom view on solder pins


**PCB layout**

Bottom view on solder pins


**Dimensions**

**Other Data**

|   |
|---|
| Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at <a href="http://www.te.com/customersupport/rohssupportcenter">www.te.com/customersupport/rohssupportcenter</a> |
| Ambient temperature   |
| DM: -30°C to +85°C  |
| HM: -30°C to +70°C  |
| HM2: -30°C to +85°C   |
| LM: -30°C to +90°C  |
| LMH: -30°C to +70°C   |
| LMH2: -30°C to +85°C  |
| Category of environmental protection IEC 61810  |
| RTII - flux proof   |
| RTIII - wash tight  |
| Shock resistance (functional) 10g   |
| Shock resistance (destructive) 100g   |
| Weight 9g   |
| Resistance to soldering heat THT IEC 60068-2-20   |
| RTII: 270°C/10s   |
| RTIII: 260°C/5s   |
| Packaging unit tray/100, carton box/1000  |

**Product code structure**

|  |  |             |  |           |            |          |            |             |
|--|--|-------------|--|-----------|------------|----------|------------|-------------|
| Typical product code   | <b>OJ</b>  | <b>-SH</b>  | <b>-1</b>  | <b>12</b> | <b>LMH</b> | <b>F</b> | <b>-WG</b> | <b>,000</b> |
| <b>Type</b>  |  |             |  |           |            |          |            |             |
| <b>OJ</b>  | Miniature PCB Relay OJ, 4kV dielectric between coil and contacts |             |  |           |            |          |            |             |
| <b>Category of protection</b>                                    |  |             |  |           |            |          |            |             |
| <b>SS</b>  | Fux 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>Contact rating and coil power</b>                             |  |             |  |           |            |          |            |             |
| 450 mW coil power  |  |             |  |           |            |          |            |             |
| <b>DM</b>  | 5A type, coil power 450mW  | <b>LM</b>   | 200mW coil power                                 |           |            |          |            |             |
| <b>TM</b>  | TV-5 type, coil power 450mW                                      | <b>LMH</b>  | 3A type, coil power 200mW                        |           |            |          |            |             |
| <b>HM</b>  | 10A type, coil power 450mW                                       | <b>LMH2</b> | 8A type, coil power 200mW                        |           |            |          |            |             |
| <b>HM2</b>   | 10A type, coil power 450mW                                       |             |  |           |            |          |            |             |
| <b>Insulation system designation</b>                             |  |             |  |           |            |          |            |             |
| <b>Blank</b>   | Insulation Class E (standard)                                    | <b>F</b>    | Insulation Class F                               |           |            |          |            |             |
| <b>Special type</b>  |  |             |  |           |            |          |            |             |
| <b>Blank</b>   | Standard   | <b>WG</b>   | For domestic appliances (IEC 60335-1, 4 Edition) |           |            |          |            |             |
| <b>Suffix</b>  |  |             |  |           |            |          |            |             |
| <b>,000</b>  | Standard   |             |  |           |            |          |            |             |

## Miniature PCB Relay OJ/OJE (Continued)

| Product code      | Rating | Cont. mat. | Coil  | Coil power | Type     | Insulation | Enclosure  | Part Number |
|-------------------|--------|------------|-------|------------|----------|------------|------------|-------------|
| OJ-SH-105LM,000   | 3A     | Ag         | 5VDC  | 200mW      | Standard | Class E    | Wash tight | 1461404-1   |
| OJE-SH-112LM,000  |        |            | 12VDC |            |          |            | Flux proof | 1461401-5   |
| OJE-SS-112LM,000  |        |            |       |            |          |            | Wash tight | 4-1419128-6 |
| OJ-SH-112LM,000   |        |            |       |            |          |            | Flux proof | 1461404-6   |
| OJ-SS-112LM,000   |        |            |       |            |          |            | Wash tight | 2-1419129-1 |
| OJ-SS-124LM,000   |        |            |       |            |          |            | Flux proof | 3-1419129-1 |
| OJ-SH-124LM,000   |        |            | 24VDC |            |          |            | Wash tight | 1461404-4   |
| OJE-SH-105DM,000  | 5A     |            | 5VDC  | 450mW      |          |            | Flux proof | 1461400-1   |
| OJE-SS-105DM,000  |        |            | 12VDC |            |          |            | Wash tight | 2-1419128-8 |
| OJE-SH-112DM,000  |        |            |       |            |          |            | Flux proof | 1461400-4   |
| OJE-SS-112DM,000  |        |            |       |            |          |            | Wash tight | 4-1419128-2 |
| OJ-SH-112DM,000   |        |            |       |            |          |            | Flux proof | 1461406-4   |
| OJ-SS-112DM,000   |        |            |       |            |          |            | Wash tight | 1-1419129-8 |
| OJE-SH-124DM,000  |        |            | 24VDC |            |          |            | Flux proof | 1461400-5   |
| OJE-SS-124DM,000  |        |            |       |            |          |            | Wash tight | 6-1419128-2 |
| OJ-SS-124DM,000   |        |            |       |            |          |            | Flux proof | 2-1419129-9 |
| OJE-SH-105LMH,000 | 8A     | AgCdO      | 5VDC  | 200mW      |          |            | Wash tight | 1461403-3   |
| OJE-SH-105LMH-WG  |        |            |       |            |          |            | WG type    | 1721875-2   |
| OJE-SS-105LMH,000 |        |            |       |            |          |            | Flux proof | 1461034-2   |
| OJ-SH-105LMH,000  |        |            |       |            |          |            | Wash tight | 8-1419128-1 |
| OJ-SH-106LMH,000  |        |            | 6VDC  |            |          |            |            | 1461247-1   |
| OJE-SH-109LMH,000 |        |            | 9VDC  |            |          |            |            | 1461403-2   |
| OJE-SS-109LMH,000 |        |            |       |            |          |            | Flux proof | 5-1419144-3 |
| OJ-SH-109LMH,000  |        |            |       |            |          |            | Wash tight | 1461247-2   |
| OJ-SS-109LMH2-WG  |        | AgSnO      |       |            |          |            | Flux proof | 1721874-4   |
| OJ-SS-109LMHF,000 |        | AgCdO      |       |            |          |            |            | 1721083-5   |
| OJE-SH-112LMH,000 |        |            | 12VDC |            |          |            | WG type    | 1461403-4   |
| OJE-SH-112LMH-WG  |        |            |       |            |          |            | Standard   | 1721875-5   |
| OJE-SS-112LMH,000 |        |            |       |            |          |            |            | 5-1419128-0 |
| OJE-SS-112LMH2    |        | AgSnO      |       |            |          |            | Flux proof | 1721261-5   |
| OJ-SH-112LMH,000  |        | AgCdO      |       |            |          |            | Wash tight | 9-1419128-8 |
| OJ-SH-112LMH2     |        | AgSnO      |       |            |          |            |            | 1-1721260-1 |
| OJ-SS-112LMH,000  |        | AgCdO      |       |            |          |            | Flux proof | 2-1419129-5 |
| OJ-SS-112LMH2     |        | AgSnO      |       |            |          |            |            | 1721260-5   |
| OJ-SS-112LMHF,000 |        | AgCdO      |       |            |          |            | Class F    | 1721083-1   |
| OJE-SH-124LMH,000 |        |            | 24VDC |            |          |            | Class E    | 1461403-5   |
| OJE-SH-124LMH-WG  |        |            |       |            |          |            | WG type    | 1721875-6   |
| OJE-SS-124LMH,000 |        |            |       |            |          |            | Standard   | 7-1419128-1 |
| OJ-SH-124LMH,000  |        |            |       |            |          |            |            | 1461247-3   |
| OJ-SS-124LMH,000  |        |            |       |            |          |            | Flux proof | 4-1419144-4 |
| OJ-SS-124LMH2     |        | AgSnO      |       |            |          |            |            | 1721260-6   |
| OJ-SS-124LMH2-WG  |        |            |       |            |          |            | WG type    | 1721874-6   |
| OJ-SS-124LMHF,000 |        | AgCdO      |       |            |          |            | Standard   | 1461014-2   |
| OJ-SH-105HM,000   | 10A    | Ag         | 5VDC  | 450mW      |          |            | Class F    | 1461405-3   |
| OJE-SH-112HM,000  |        |            | 12VDC |            |          |            | Class E    | 1461402-6   |
| OJE-SS-112HM,000  |        |            |       |            |          |            | WG type    | 4-1419128-3 |
| OJE-SS-112HM2,000 |        | AgSnO      |       |            |          |            | Standard   | 1721539-5   |
| OJ-SH-112HM,000   |        | Ag         |       |            |          |            |            | Wash tight  |
| OJ-SS-112HM,000   |        |            |       |            |          |            |            | Flux proof  |
| OJ-SS-112HMF,000  |        |            |       |            |          |            |            | 1461405-5   |
| OJE-SS-124HM,000  |        |            | 24VDC |            |          |            |            | 1419135-3   |
| OJ-SS-124HM,000   |        |            |       |            |          |            |            | 1461078-5   |
| OJ-SS-124HM2,000  |        | AgSnO      |       |            |          |            |            | 6-1419128-4 |

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