

Miniature PCB Relay OJ/OJE

- 3 to 10A rating
- Small size
- 4000V_{rms} coil to contact dielectric strength (OJ type)
- Sensitive coil optional



F0277-C

Typical applications
Appliances, HVAC, industrial control



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 OJ/OJE-D/H: 10ms | |
| Release time max. | 4ms | |
| Electrical endurance | | |
| LM | 3A, 250VAC, res., -30°C to +95°C | 100x10 ³ ops. |
| DM | 5A, 250VAC, res., -30°C to +85°C | 60x10 ³ ops. |
| LMH(2) | 8A, 250VAC, res., -30°C to +70°C | 100x10 ³ ops. |
| LMH2 | 8A, 250VAC, res., -30°C to +85°C | 30x10 ³ ops. |
| HM | 10A, 250VAC, res., -30°C to +70°C | 100x10 ³ ops. |
| HM2 | 10A, 250VAC, res., -30°C to +85°C | 10x10 ³ ops. |
| Contact ratings | | |
| LM | 3A, 250VAC | |
| DM | 5A 250VAC | |
| LMH(2) | 8A 250VAC | |
| HM(2) | 10A 250VAC | |
| Mechanical endurance, DC coil | 10x10 ⁶ 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 Ω±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 |

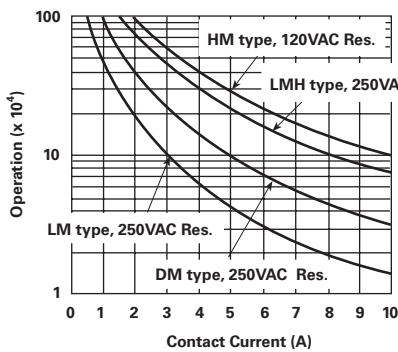
All figures are given for coil without pre-energization, at ambient temperature +23°C

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

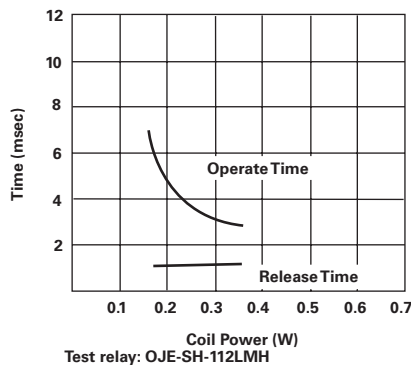
| Coil code | Rated voltage VDC | Operate voltage VDC | Release voltage VDC | Coil resistance Ω±10% | Rated coil power mW |
|-----------|-------------------|---------------------|---------------------|-----------------------|---------------------|
| 003 | 3 | 2.1 | 0.15 | 20 | 450 |
| 005 | 5 | 3.5 | 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

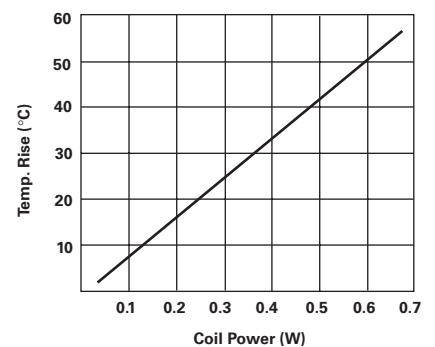
Electrical endurance



Operate time



Coil temperature rise



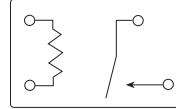
Miniature PCB Relay OJ/OJE (Continued)

| Insulation Data | |
|--|---|
| Initial dielectric strength between open contacts | 750V _{rms} |
| between contact and coil | OJ: 4000V _{rms} OJE: 3000V _{rms} |
| 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 |

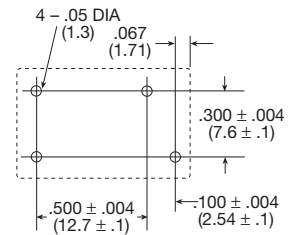
Other Data
Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content refer to the Product Compliance Support Center at www.te.com/customersupport/rohssupportcenter

| | |
|--|---|
| 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 - dust protected 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 |

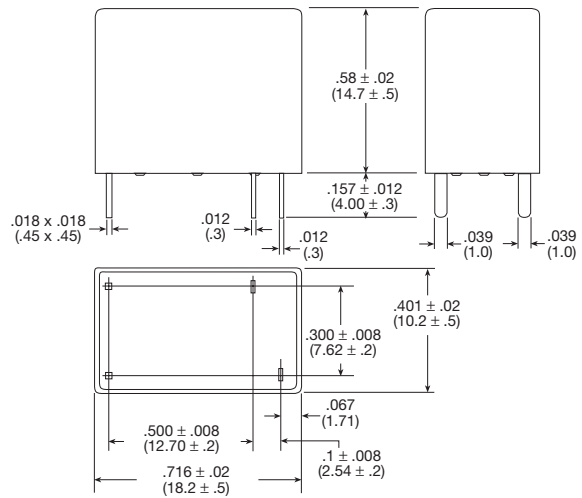
Terminal assignment
Bottom view on solder pins



PCB layout
Bottom view on solder pins



Dimensions



| Product code structure | Typical product code | | | | | | | | | |
|--------------------------------------|---|------------|-----------|-----------|---|----------|------------|-------------|--|--|
| | OJ | -SH | -1 | 12 | LMH | F | -WG | ,000 | | |
| Type | | | | | | | | | | |
| OJ | Miniature PCB Relay OJ, 4kV dielectric between coil and contacts | | | | | | | | | |
| OJE | Miniature PCB Relay OJE, 3kV dielectric between coil and contacts | | | | | | | | | |
| Category of protection | | | | | | | | | | |
| SS | Fux proof | | | | | | | | | |
| SH | Wash tight | | | | | | | | | |
| Number of poles | | | | | | | | | | |
| 1 | 1 pole | | | | | | | | | |
| Coil voltage | Coil code: please refer to coil versions table (e.g. 12 = 12VDC) | | | | | | | | | |
| Contact rating and coil power | | | | | | | | | | |
| DM | 450 mWcoil power 5A type, coil power 450mW | | | | 200mW coil power LM 3A type, coil power 200mW | | | | | |
| TM | TV-5 type, coil power 450mW | | | | LMH 8A type, coil power 200mW | | | | | |
| HM | 10A type, coil power 450mW | | | | LMH2 8A type, coil power 200mW | | | | | |
| HM2 | 10A type, coil power 450mW | | | | | | | | | |
| Insulation system designation | | | | | | | | | | |
| Blank | Insulation Class E (standard) | | | | F Insulation Class F | | | | | |
| Special type | | | | | | | | | | |
| Blank | Standard | | | | WG For domestic appliances (IEC 60335-1, 4 Edition) | | | | | |
| Suffix | | | | | | | | | | |
| ,000 | 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 | | | | 1461401-5 | |
| OJE-SS-112LM,000 | | | | | | | Flux proof | 4-1419128-6 |
| OJ-SH-112LM,000 | | | | | | | Wash tight | 1461404-6 |
| OJ-SS-112LM,000 | | | | | | | Flux proof | 2-1419129-1 |
| OJ-SH-124LM,000 | | | | | | | | 3-1419129-1 |
| OJ-SH-124LM,000 | | | 24VDC | | | | Wash tight | 1461404-4 |
| OJE-SH-105DM,000 | 5A | | 5VDC | 450mW | | | | 1461400-1 |
| OJE-SS-105DM,000 | | | | | | | 2-1419128-8 | |
| OJE-SH-112DM,000 | | | 12VDC | | | | Wash tight | 1461400-4 |
| OJE-SS-112DM,000 | | | | | | | Flux proof | 4-1419128-2 |
| OJ-SH-112DM,000 | | | | | | | Wash tight | 1461406-4 |
| OJ-SS-112DM,000 | | | | | | | Flux proof | 1-1419129-8 |
| OJE-SH-124DM,000 | | | 24VDC | | | | Wash tight | 1461400-5 |
| OJE-SS-124DM,000 | | | | | | | Flux proof | 6-1419128-2 |
| OJ-SS-124DM,000 | | | | | | | | 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 | | | | | Standard | | 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 | | | WG type | | Flux proof | 1721874-4 |
| OJ-SS-109LMHF,000 | | AgCdO | | | Standard | Class F | | 1721083-5 |
| OJE-SH-112LMH,000 | | | 12VDC | | | Class E | Wash tight | 1461403-4 |
| OJE-SH-112LMH-WG | | | | | WG type | | | 1721875-5 |
| OJE-SS-112LMH,000 | | | | | Standard | | Flux proof | 5-1419128-0 |
| OJE-SS-112LMH2 | | AgSnO | | | | | | 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 | Wash tight | 1461403-5 |
| OJE-SH-124LMH-WG | | | | | WG type | | | 1721875-6 |
| OJE-SS-124LMH,000 | | | | | Standard | | Flux proof | 7-1419128-1 |
| OJ-SH-124LMH,000 | | | | | | | Wash tight | 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 | Class F | | 1461014-2 |
| OJ-SH-105HM,000 | 10A | Ag | 5VDC | 450mW | | | Wash tight | 1461405-3 |
| OJE-SH-112HM,000 | | | 12VDC | | | | 1461402-6 | |
| OJE-SS-112HM,000 | | | | | | | Flux proof | 4-1419128-3 |
| OJE-SS-112HM2,000 | | AgSnO | | | | | | 1721539-5 |
| OJ-SH-112HM,000 | | Ag | | | | | Wash tight | 1461405-5 |
| OJ-SS-112HM,000 | | | | | | | Flux proof | 1419135-3 |
| OJ-SS-112HMF,000 | | | | | | Class F | | 1461078-5 |
| OJE-SS-124HM,000 | | | 24VDC | | | Class E | | 6-1419128-4 |
| OJ-SS-124HM,000 | | | | | | | | 1440007-2 |
| OJ-SS-124HM2,000 | | AgSnO | | | | | | 1721538-7 |