

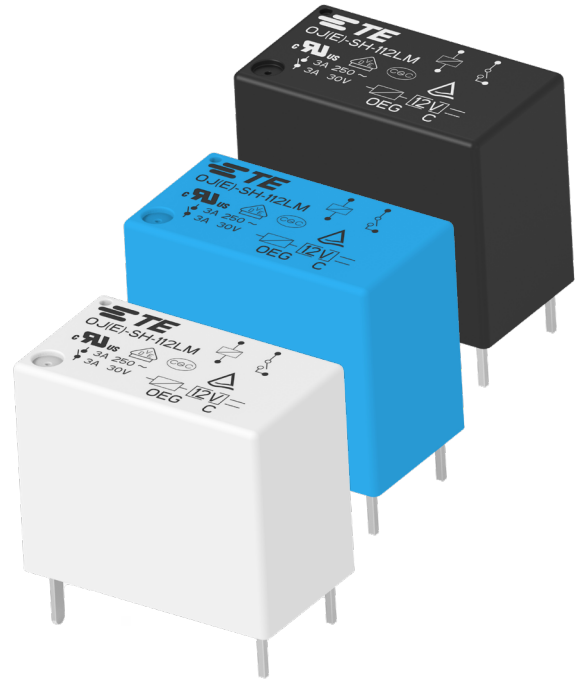
# MINIATURE PCB RELAY OJ/OJE

## INTRODUCTION

TE Connectivity (TE)'s Miniature Power PCB Relays OJ & OJE is general purpose relay designed for various types of loads (e.g., resistive, inductive) with compact size. The relay is designed as 1 form A contact arrangement with different contact rating current from 3A to 10A, also sensitive coil, WG version and Haz-Loc version are available.

## FEATURES

- 1 Pole, 1 Form A (NO) Contact
- 3-10A contact rating
- Small size with outline dimension of 18.2L\*10.2W\*14.7H(mm)
- 4000Vrms coil contact di-electric strength (OJ type)
- Sensitive coil optional (200mW type);
- WG version, Anti-Ex version (Haz-Loc version) optional



## APPLICATIONS

- Major home appliances
- Small appliances
- HVAC
- Industrial control

## APPROVALS

- VDE 40007630
- cULus E82292
- CQC03001007764
- TUV R 501391660014-0015



## MINIATURE PCB RELAY OJ/OJE

### 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                 | AgNi, AgSnO <sub>2</sub> , AgCdO |
| Initial contact resistance       | 100 milliohms @ 1A, 6VDC         |
| Minimum recommended contact load | 100mA, 5VDC                      |
| Operate time max.                | OJ/OJE-L: 15ms                   |
|                                  | OJ/OJE-D/H: 10ms                 |
| Release time max.                | 4ms                              |

### ELECTRICAL ENDURANCE

|                               |                                                                                                                         |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| <b>UL</b>                     |                                                                                                                         |
| OJ/OJE-LM                     | 3A 250VAC, general use, 100k ops                                                                                        |
| OJ/OJE-DM                     | 5A 250VAC 85°C 60k ops, 10 LRA / 1.5 FLA, 120VAC, 100k ops                                                              |
| OJ/OJE-LMH                    | 8A 277VAC res, 70°C 100k ops (SS), 6.6 LRA / 1.1 FLA, 120VAC, 105°C 100k ops                                            |
| OJ/OJE-LMH2                   | 8A 250VAC res, 85°C 30k ops, 12 LRA / 2 FLA 250VAC, 85°C 100k ops                                                       |
| OJ/OJE-HM                     | 10A 250VAC, general use, 30k ops (SH type), 18 LRA / 4 FLA, 240VAC, 85°C 100k ops, 7.5A 240VAC res, 105°C 100k ops (SS) |
| OJ/OJE-HM2                    | 10A 250VAC res, 100k ops (SS type), 7.5A 240VAC res, 105°C 100k ops (SS type)                                           |
| OJ/OJE-HM6                    | 10A 250VAC res, 85°C 50k ops (OJ WG type only), 7.5A 240VAC res, 105°C 100k ops                                         |
| <b>VDE</b>                    |                                                                                                                         |
| OJ/OJE-LM                     | 3A 250VAC res, 55°C 100k ops                                                                                            |
| OJE-DM                        | 5A 250VAC res, 85°C 50k ops                                                                                             |
| OJ/OJE-LMH                    | 8A 250VAC res, 85°C 10k ops                                                                                             |
| OJ-LMH2                       | 8A 250VAC res, 85°C 25k ops                                                                                             |
| OJ-LMH2                       | 5A 250VAC res, 105°C 50k ops                                                                                            |
| OJE-HM                        | 10A 250VAC res, 85°C 30k ops                                                                                            |
| OJ-HM                         | 10A 250VAC res, 85°C 10k ops                                                                                            |
| OJ-HM2                        | 10A 250VAC res, 85°C 50k ops                                                                                            |
| Mechanical endurance, DC coil | 10x10 <sup>6</sup> operations                                                                                           |

## MINIATURE PCB RELAY OJ/OJE

### COIL DATA

|                                     |            |
|-------------------------------------|------------|
| Coil voltage range                  | 3 to 48VDC |
| Operative range, IEC 61810          | 2          |
| Coil insulation system according UL | Class 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                | 0.3                 | 45                                | 200                 |
| 005       | 5                 | 3.75                | 0.5                 | 125                               | 200                 |
| 006       | 6                 | 4.5                 | 0.6                 | 180                               | 200                 |
| 009       | 9                 | 6.75                | 0.9                 | 405                               | 200                 |
| 012       | 12                | 9                   | 1.2                 | 720                               | 200                 |
| 024       | 24                | 18                  | 2.4                 | 2880                              | 200                 |
| 036       | 36                | 27                  | 3.6                 | 6480                              | 200                 |
| 048       | 48                | 36                  | 4.8                 | 11520                             | 200                 |

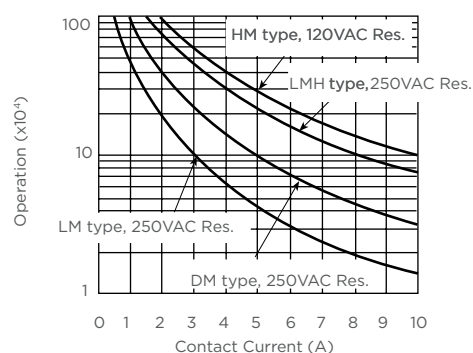
All figures are given for coil without pre-energization, at ambient temperature +23°C

### COIL VERSIONS, DC COIL, OJ/OJE-D&H SENSITIVE TYPE

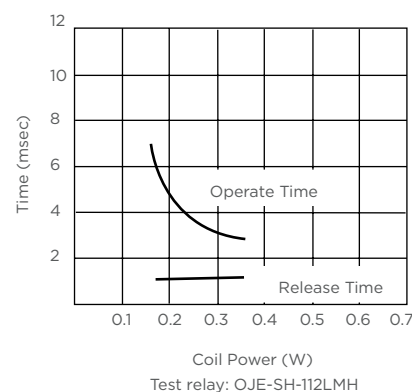
| Coil code | Rated voltage VDC | Operate voltage VDC | Release voltage VDC | Coil resistance $\Omega \pm 10\%$ | Rated coil power mW |
|-----------|-------------------|---------------------|---------------------|-----------------------------------|---------------------|
| 003       | 3                 | 2.25                | 0.3                 | 20                                | 450                 |
| 005       | 5                 | 3.75                | 0.5                 | 55.5                              | 450                 |
| 006       | 6                 | 4.5                 | 0.6                 | 80                                | 450                 |
| 009       | 9                 | 6.75                | 0.9                 | 180                               | 450                 |
| 012       | 12                | 9                   | 1.2                 | 320                               | 450                 |
| 024       | 24                | 18                  | 2.4                 | 1280                              | 450                 |
| 036       | 36                | 27                  | 3.6                 | 2880                              | 450                 |
| 048       | 48                | 36                  | 4.8                 | 5120                              | 450                 |

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

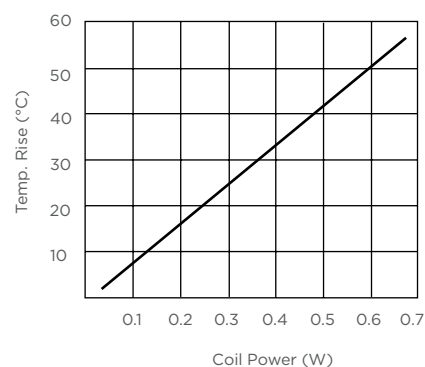
### Electrical endurance



### Operate time



### Coil temperature rise



# MINIATURE PCB RELAY OJ/OJE

## INSULATION DATA

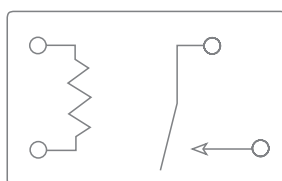
|                              |                      |
|------------------------------|----------------------|
| Initial dielectric strength  |                      |
| Between open contacts        | 750Vrms              |
| Between contact and coil     | OJ: 4000Vrms         |
|                              | OJE: 3000Vrms        |
| 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 <a href="http://www.te.com/customer-support/rohssupportcenter">www.te.com/customer-support/rohssupportcenter</a> |
| Ambient temperature                  |                                                                                                                                                                                                                    |
| LM                                   | -40 ~ +105C                                                                                                                                                                                                        |
| DM                                   | -40 ~ +85C                                                                                                                                                                                                         |
| LMH(2)                               | -40 ~ +105C                                                                                                                                                                                                        |
| HM(2)/HM6                            | -40 ~ +105C                                                                                                                                                                                                        |
| Category of environmental protection |                                                                                                                                                                                                                    |
| IEC 61810                            | RTII - flux proof                                                                                                                                                                                                  |
|                                      | RTIII - wash tight                                                                                                                                                                                                 |
| Shock resistance (functional)        | 10g                                                                                                                                                                                                                |
| Shock resistance (destructive)       | 100g                                                                                                                                                                                                               |
| Weight                               | 6g                                                                                                                                                                                                                 |
| Resistance to soldering heat THT     |                                                                                                                                                                                                                    |
| IEC 60068-2-20                       | RTII: 270°C/10s                                                                                                                                                                                                    |
|                                      | RTIII: 260°C/5s                                                                                                                                                                                                    |
| Packaging unit                       | Tray/100, Carton box/1000                                                                                                                                                                                          |

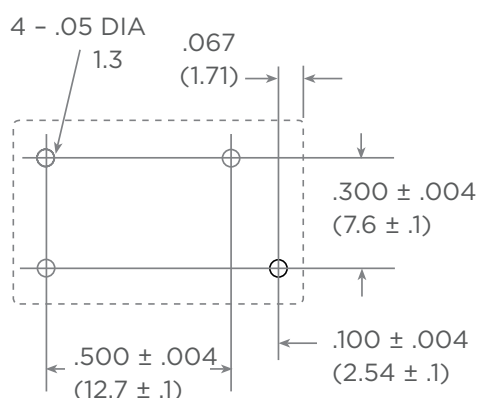
## TERMINAL ASSIGNMENT

Bottom view on solder pins

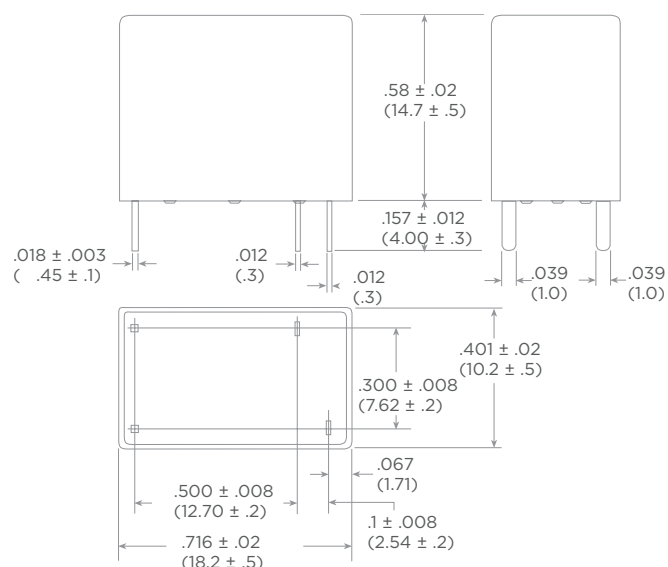


## PCB LAYOUT

Bottom view on solder pins



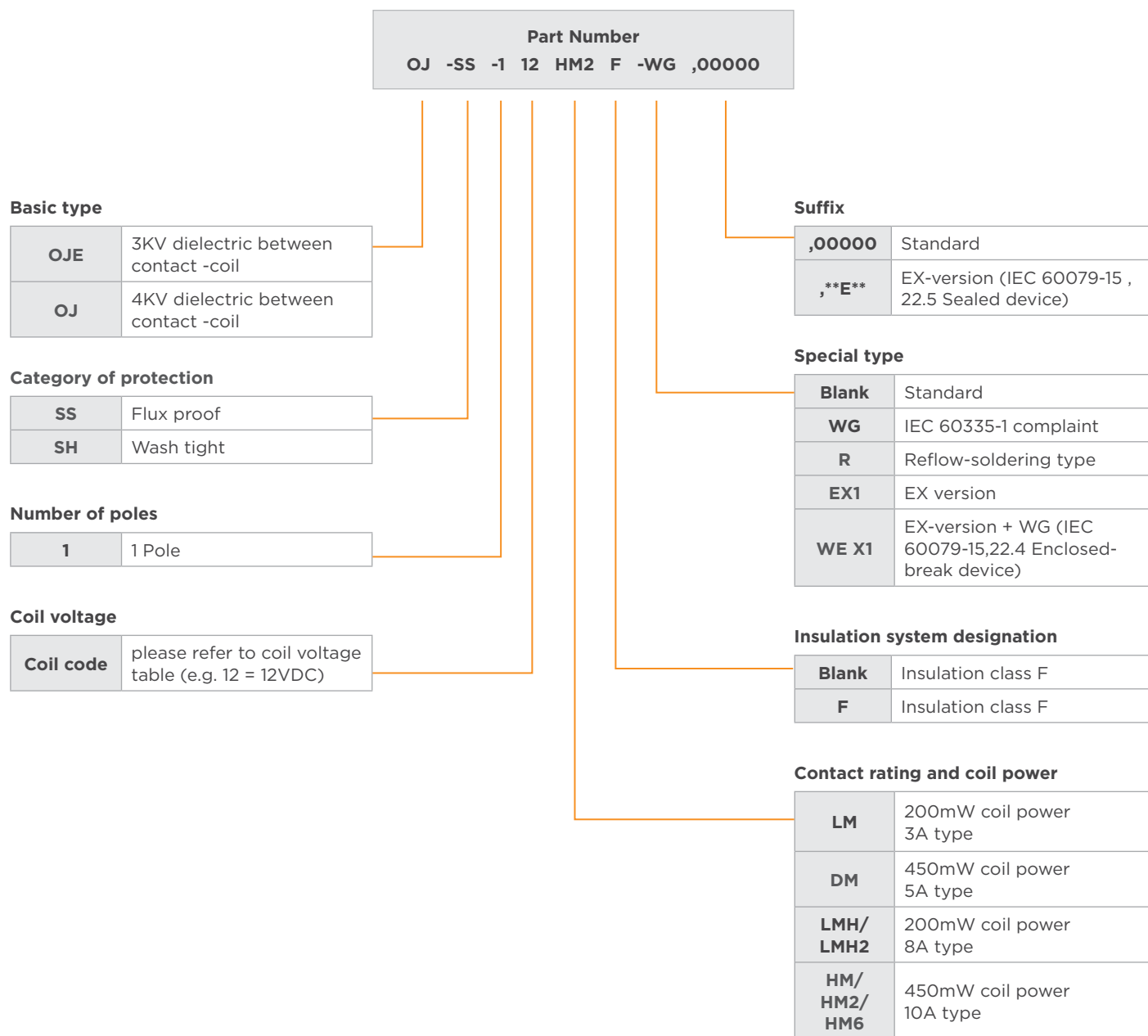
## DIMENSIONS (Unit: mm)



| Diagram dimension | Tolerance |
|-------------------|-----------|
| 0.99mm max.       | ±0.1 mm   |
| 1-2.9mm           | ±0.2 mm   |
| 3mm min.          | ±0.3 mm   |

## MINIATURE PCB RELAY OJ/OJE

### ORDERING INFORMATION



## MINIATURE PCB RELAY OJ/OJE

### PRODUCT INFORMATION

| Product Code             | Rating                    | Contact Material | Coil voltage | Coil powder                 | Type                      | Insulation | Enclosure                   | Part Number                 |            |                             |
|--------------------------|---------------------------|------------------|--------------|-----------------------------|---------------------------|------------|-----------------------------|-----------------------------|------------|-----------------------------|
| OJE-SH-112LM,000         | 3 A                       | AgNi             | 12 VDC       | 200 mW                      | Standard                  | Class F    | Wash tight                  | <a href="#">1461401-5</a>   |            |                             |
| OJ-SS-112LM,000          |                           |                  | Flux proof   |                             |                           |            | <a href="#">2-1419129-1</a> |                             |            |                             |
| OJ-SS-124LM,000          |                           |                  |              |                             |                           |            | <a href="#">3-1419129-1</a> |                             |            |                             |
| OJE-SS-112LM,000         |                           |                  |              |                             |                           |            | <a href="#">4-1419128-6</a> |                             |            |                             |
| OJ-SH-105LM,000          |                           |                  | Wash tight   |                             |                           |            | <a href="#">1461404-1</a>   |                             |            |                             |
| OJ-SH-112LM,000          | <a href="#">1461404-6</a> |                  |              |                             |                           |            |                             |                             |            |                             |
| OJE-SH-112DM,00E0W       | <a href="#">2071369-1</a> |                  |              |                             |                           |            |                             |                             |            |                             |
| OJE-SH-105DM,000         | 5 A                       |                  | 5 VDC        | 450 mW                      | EX-version                |            | <a href="#">1461400-1</a>   |                             |            |                             |
| OJE-SS-112DM,000         |                           |                  | 12 VDC       |                             |                           |            | Flux proof                  | <a href="#">4-1419128-2</a> |            |                             |
| OJE-SH-124DM,000         |                           |                  | 24 VDC       |                             |                           |            | Wash tight                  | <a href="#">1461400-5</a>   |            |                             |
| OJ-SH-112DM,000          |                           |                  | 12 VDC       |                             |                           |            |                             | <a href="#">1461406-4</a>   |            |                             |
| OJ-SH-105LMH,000         |                           | 8 A              | AgCdO        |                             |                           |            |                             | 5 VDC                       | 200 mW     | WG version                  |
| OJ-SH-112LMH,000         | 12 VDC                    |                  |              | <a href="#">9-1419128-8</a> |                           |            |                             |                             |            |                             |
| OJ-SS-112LMH2            | AgSnO2                    |                  | 24 VDC       | Standard                    | Flux proof                |            | <a href="#">1721260-5</a>   |                             |            |                             |
| OJ-SS-112LMH2-WG         |                           |                  | 5 VDC        |                             |                           |            | <a href="#">1721874-5</a>   |                             |            |                             |
| OJ-SS-124LMH2            | AgCdO                     |                  | 12 VDC       | WG version                  | Wash tight                |            | <a href="#">1721260-6</a>   |                             |            |                             |
| OJE-SH-105LMH,000        |                           |                  | 24 VDC       |                             |                           |            | <a href="#">1461403-3</a>   |                             |            |                             |
| OJE-SH-112LMH,000        | AgSnO2                    |                  | 5 VDC        | Standard                    | Flux proof                |            | <a href="#">1461403-4</a>   |                             |            |                             |
| OJE-SS-112LMH2           |                           |                  | 12 VDC       |                             |                           |            | <a href="#">1721261-5</a>   |                             |            |                             |
| OJE-SH-105HM,000         | 10 A                      | AgCdO            | 5 VDC        | 450 mW                      | Standard                  |            | Wash tight                  | <a href="#">1461402-4</a>   |            |                             |
| OJE-SH-112HMF,000M0      |                           |                  | AgSnO2       |                             |                           |            |                             | 12 VDC                      | Flux proof | <a href="#">1-1461402-1</a> |
| OJE-SH-112HM,000         |                           |                  |              |                             |                           |            |                             | 24 VDC                      |            | <a href="#">1461402-6</a>   |
| OJE-SS-112HM2,000        |                           | AgCdO            |              |                             |                           |            | 12 VDC                      | <a href="#">1721539-5</a>   |            |                             |
| OJE-SS-112HM2.000T0      |                           |                  | 24 VDC       |                             |                           |            | <a href="#">1-1721539-7</a> |                             |            |                             |
| OJE-SS-112HMF,F000       |                           |                  | AgSnO2       |                             |                           |            | 5 VDC                       | <a href="#">4-1419128-4</a> |            |                             |
| OJE-SS-124HMF,F000       |                           | 12 VDC           |              |                             |                           |            | <a href="#">6-1419128-6</a> |                             |            |                             |
| OJ-SS-112HM6-WG,00000    |                           | 24 VDC           |              |                             |                           |            | <a href="#">2071398-1</a>   |                             |            |                             |
| OJ-SS-124HM2,000         |                           | AgCdO            | 12 VDC       |                             |                           |            | 200 mW                      | EX-version                  | WG version | Standard                    |
| OJE-SH-112HMF,00E0W      | 24 VDC                    |                  | EX-version   | Wash tight                  | <a href="#">2071370-1</a> |            |                             |                             |            |                             |
| OJ-SS-112LMH2-WEX1,00000 | 8 A                       |                  | AgSnO2       | 12 VDC                      | Flux proof                |            |                             |                             |            |                             |
| OJ-SH-112HM2-WG,00000    | 10 A                      | 12 V             |              | 450 mW                      | WG version                |            | Wash tight                  | <a href="#">2071505-1</a>   |            |                             |

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