

Slim line AND low profile

2 pole telecom/signal relay, polarized

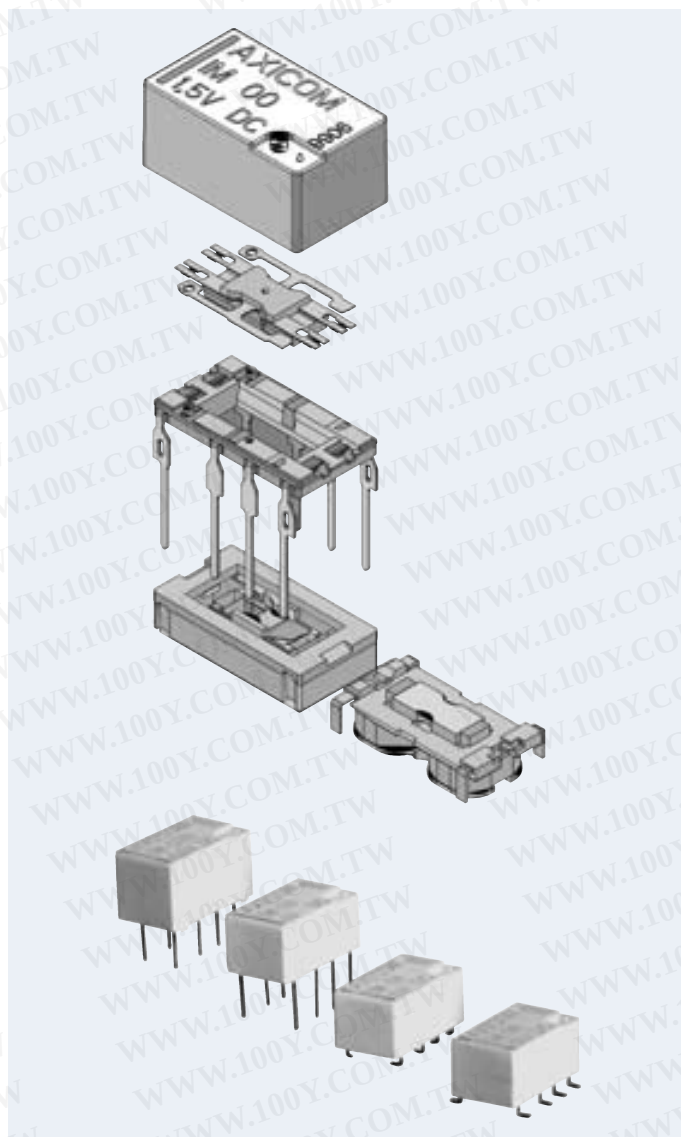
Through Hole Types (THT), standard version  
with 5.08 mm, narrow version with 3.2 mm between  
the terminal rows or Surface Mount Type (SMT)

Relay types: non-latching with 1 coil  
latching with 1 coil

ROHS compliant (Directive 2002/95/EC) as per  
product date code 0438.

## Features

- Telecom/signal relay (dry circuit, test access, ringing)
- Slim line 10 x 6 mm, 0.39 x 0.24 inch
- Low profile 5.65 mm, 0.222 inch
- Minimum board-space 60 mm<sup>2</sup>
- Switching current 2 A
- 2 changeover contacts (2 form C / DPDT)
- Bifurcated contacts, gold plated
- High sensitivity results in low nominal power consumption  
140 mW for non latching standard  
100 mW for latching version and non latching high sensitive version
- Ultra high sensitive type 50 mW for non latching
- High surge capability (1.2/50  $\mu$ s and 10/700  $\mu$ s)  
meets Telcordia GR 1089, FCC Part 68 and ITU-T K20, 21, 45  
 $\geq 1500$  V between open contacts  
 $\geq 2500$  V between coil and contacts
- High mechanical shock resistance  
up to 300 G functional, up to 500 G survival
- Hermetically sealed (RT V)



## Typical applications

- Communications equipment  
Linecard application – analog, ISDN, xDSL, PABX  
Voice over IP
- Office and business equipment
- Measurement and control equipment
- Consumer electronics, Set top boxes, HiFi
- Medical equipment

## Options

- Surge capability  $\geq 2500$  V between open contacts

## Insulation category

|                                    |                            |
|------------------------------------|----------------------------|
| Supplementary insulation according | IEC / EN 60950             |
| Working voltage                    | $\leq 300$ Vrms            |
| Mains supply voltage               | $\leq 250$ Vrms            |
| Repetitive peak voltage            | 2500 V                     |
| Pollution degree                   | Internal: 1<br>External: 2 |
| Flammability classification        | V-0                        |
| Maximum operating temperature      | 85 °C                      |

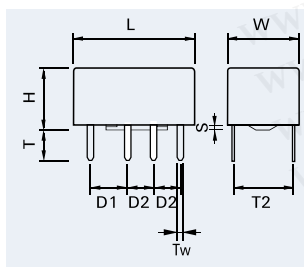
## Dimensions

Dimensions in mm

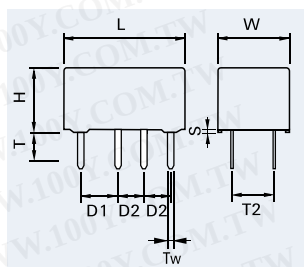
|    | IM THT Standard |               | IM THT Narrow |               | IM SMT Gull Wings |               | IM SMT J-Legs |               |
|----|-----------------|---------------|---------------|---------------|-------------------|---------------|---------------|---------------|
|    | mm              | inch          | mm            | inch          | mm                | inch          | mm            | inch          |
| L  | 10.00 ± 0.08    | 0.393 ± 0.003 | 10.00 ± 0.08  | 0.393 ± 0.003 | 10.00 ± 0.08      | 0.393 ± 0.003 | 10.00 ± 0.08  | 0.393 ± 0.003 |
| W  | 6.00 ± 0.08     | 0.236 ± 0.003 | 5.70 ± 0.30   | 0.224 ± 0.012 | 6.00 ± 0.08       | 0.236 ± 0.003 | 6.00 ± 0.08   | 0.236 ± 0.003 |
| H  | 5.65 ± 0.20     | 0.222 ± 0.008 | 5.80 ± 0.08   | 0.230 ± 0.003 | 5.65 ± 0.20       | 0.222 ± 0.008 | 5.65 ± 0.02   | 0.222 ± 0.008 |
| T  | 3.2             | 0.125         | 3.2           | 0.125         | N/A               | N/A           | N/A           | N/A           |
| T1 | N/A             | N/A           | N/A           | N/A           | 7.50 ± 0.30       | 0.295 ± 0.011 | 2.80 ± 0.20   | 0.110 ± 0.007 |
| T2 | 5.08 ± 0.10     | 0.200 ± 0.004 | 3.20 ± 0.10   | 0.126 ± 0.004 | 5.08 ± 0.10       | 0.200 ± 0.004 | 5.08 ± 0.10   | 0.200 ± 0.004 |
| D1 | 3.20 ± 0.15     | 0.126 ± 0.006 | 3.20 ± 0.15   | 0.126 ± 0.006 | 3.20 ± 0.15       | 0.126 ± 0.006 | 3.20 ± 0.15   | 0.126 ± 0.006 |
| D2 | 2.20 ± 0.15     | 0.087 ± 0.006 | 2.20 ± 0.15   | 0.087 ± 0.006 | 2.20 ± 0.15       | 0.087 ± 0.006 | 2.20 ± 0.15   | 0.087 ± 0.006 |
| Tw | 0.40            | 0.015         | 0.4           | 0.015         | 0.4               | 0.015         | 0.4           | 0.015         |
| S  | 0.30 ± 0.05     | 0.011 ± 0.002 | 0.30 ± 0.05   | 0.011 ± 0.002 | N/A               | N/A           | N/A           | N/A           |

## THT Version

### Standard version

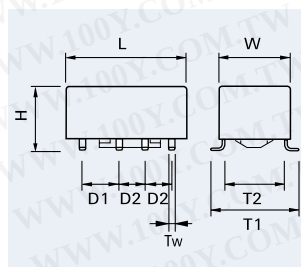


### Narrow version

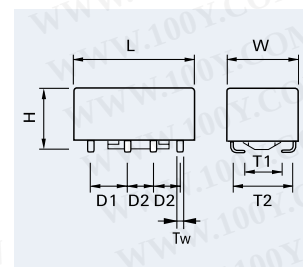


## SMT Version

### Gull Wings



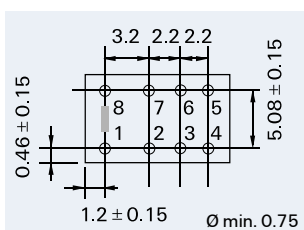
### J-Legs



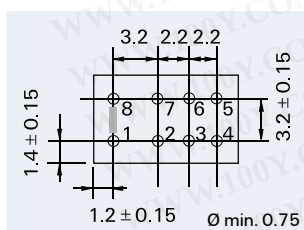
## Mounting hole layout

View onto the component side of the PCB (top view)

### Standard version



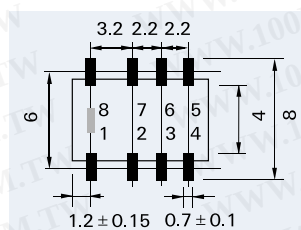
### Narrow version



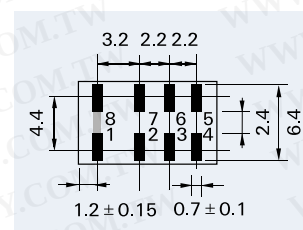
## Solder pad layout

View onto the component side of the PCB (top view)

### Gull Wings



### J-Legs

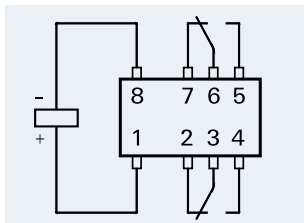


## Terminal assignment

Relay – top view

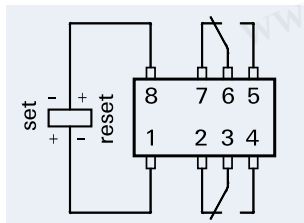
### Non-latching type

not energized condition

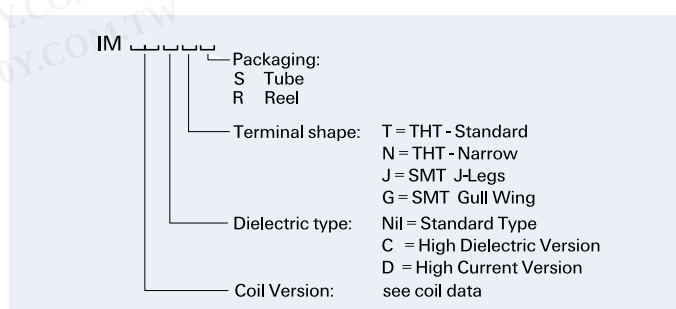


### Latching type, 1 coil

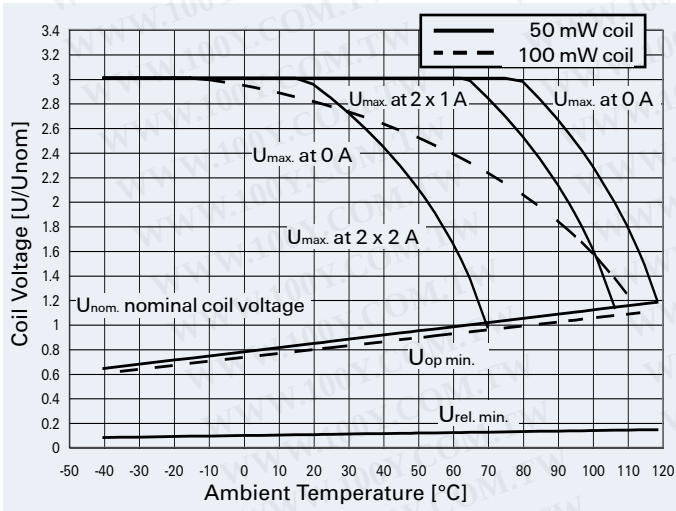
reset condition



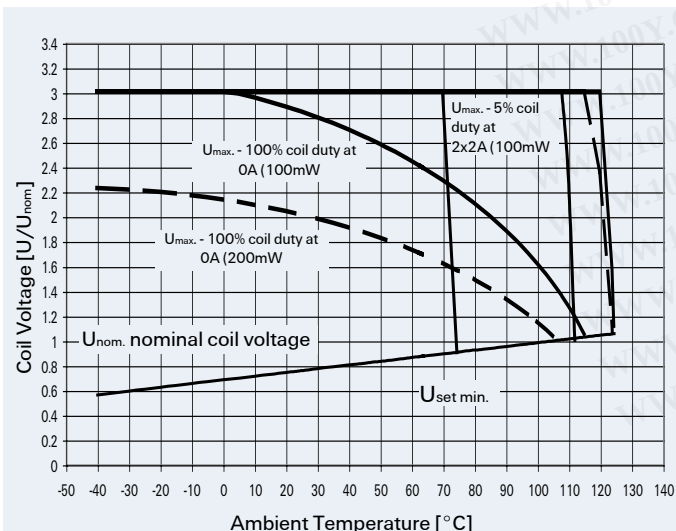
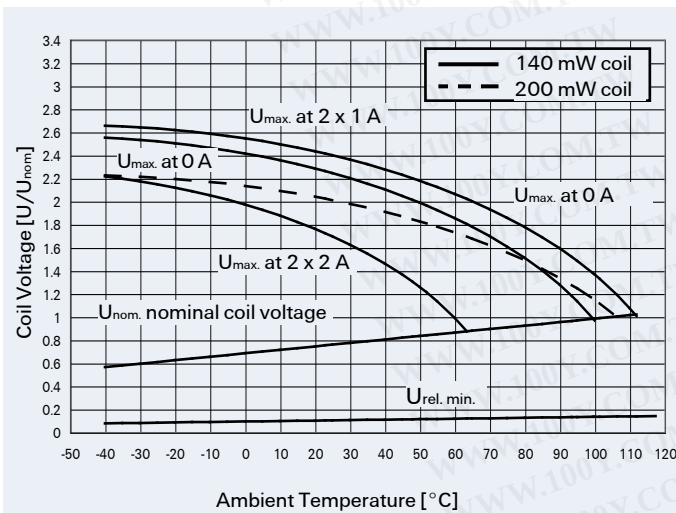
## Relay Code



## Coil Operating Range



- U<sub>nom</sub> = Nominal coil voltage
- U<sub>max.</sub> = Upper limit of the operative range of the coil voltage (limiting voltage) when coils are continuously energized
- U<sub>op. min.</sub> = Lower limit of the operative range of the coil voltage (reliable operate voltage)  
For latching relays U<sub>set min.</sub> resp. U<sub>reset min.</sub>
- U<sub>rel. min.</sub> = Lower limit of the operative range of the coil voltage (reliable release voltage)



## Coil Data (values at 23 °C)

## Ordering Information

| Nominal voltage<br>$U_{nom}$ | Operate/set voltage range    |                              | Release/<br>reset voltage<br>Minimum | Coil<br>power | Coil<br>Resistance   | Relay<br>code | Tyco part<br>number |
|------------------------------|------------------------------|------------------------------|--------------------------------------|---------------|----------------------|---------------|---------------------|
|                              | Minimum<br>voltage $U_{min}$ | Maximum<br>voltage $U_{max}$ |                                      |               |                      |               |                     |
| Vdc                          | Vdc                          | Vdc                          | Vdc                                  | mW            | $\Omega / \pm 10 \%$ |               |                     |

## Standard Version

### THT Standard non-latching 1 coil

|     |       |       |      |     |      |        |             |
|-----|-------|-------|------|-----|------|--------|-------------|
| 1.5 | 1.13  | 3.60  | 0.15 | 140 | 16   | IM00TS | 3-1462037-5 |
| 3   | 2.25  | 7.20  | 0.30 | 140 | 64   | IM01TS | 1462037-4   |
| 4.5 | 3.38  | 10.80 | 0.45 | 140 | 145  | IM02TS | 1-1462037-3 |
| 5   | 3.75  | 12.10 | 0.50 | 140 | 178  | IM03TS | 1-1462037-8 |
| 6   | 4.50  | 14.50 | 0.60 | 140 | 257  | IM04TS | 4-1462037-1 |
| 9   | 6.75  | 21.70 | 0.90 | 140 | 579  | IM05TS | 2-1462037-2 |
| 12  | 9.00  | 28.90 | 1.20 | 140 | 1029 | IM06TS | 2-1462037-7 |
| 24  | 18.00 | 48.50 | 2.40 | 200 | 2880 | IM07TS | 3-1462037-0 |

### THT Narrow non-latching 1 coil

|     |       |       |      |     |      |        |             |
|-----|-------|-------|------|-----|------|--------|-------------|
| 1.5 | 1.13  | 3.60  | 0.15 | 140 | 16   | IM00NS | 1-1462038-0 |
| 3   | 2.25  | 7.20  | 0.30 | 140 | 64   | IM01NS | 1-1462038-1 |
| 4.5 | 3.38  | 10.80 | 0.45 | 140 | 145  | IM02NS | 1-1462038-2 |
| 5   | 3.75  | 12.10 | 0.50 | 140 | 178  | IM03NS | 1-1462038-3 |
| 6   | 4.50  | 14.50 | 0.60 | 140 | 257  | IM04NS | 1-1462038-4 |
| 9   | 6.75  | 21.70 | 0.90 | 140 | 579  | IM05NS | 1-1462038-5 |
| 12  | 9.00  | 28.90 | 1.20 | 140 | 1029 | IM06NS | 1-1462038-6 |
| 24  | 18.00 | 48.50 | 2.40 | 200 | 2880 | IM07NS | 1-1462038-7 |

### SMT J-Legs non-latching 1 coil

|     |       |       |      |     |      |        |             |
|-----|-------|-------|------|-----|------|--------|-------------|
| 1.5 | 1.13  | 3.60  | 0.15 | 140 | 16   | IM00JR | 3-1462037-9 |
| 3   | 2.25  | 7.20  | 0.30 | 140 | 64   | IM01JR | 4-1462037-0 |
| 4.5 | 3.38  | 10.80 | 0.45 | 140 | 145  | IM02JR | 1-1462037-1 |
| 5   | 3.75  | 12.10 | 0.50 | 140 | 178  | IM03JR | 1-1462037-6 |
| 6   | 4.50  | 14.50 | 0.60 | 140 | 257  | IM04JR | 4-1462037-4 |
| 9   | 6.75  | 21.70 | 0.90 | 140 | 579  | IM05JR | 4-1462037-5 |
| 12  | 9.00  | 28.90 | 1.20 | 140 | 1029 | IM06JR | 4-1462037-6 |
| 24  | 18.00 | 48.50 | 2.40 | 200 | 2880 | IM07JR | 4-1462037-8 |

### SMT Gull Wings non-latching 1 coil

|     |       |       |      |     |      |        |             |
|-----|-------|-------|------|-----|------|--------|-------------|
| 1.5 | 1.13  | 3.60  | 0.15 | 140 | 16   | IM00GR | 3-1462037-7 |
| 3   | 2.25  | 7.20  | 0.30 | 140 | 64   | IM01GR | 1462037-1   |
| 4.5 | 3.38  | 10.80 | 0.45 | 140 | 145  | IM02GR | 1462037-9   |
| 5   | 3.75  | 12.10 | 0.50 | 140 | 178  | IM03GR | 1-1462037-4 |
| 6   | 4.50  | 14.50 | 0.60 | 140 | 257  | IM04GR | 4-1462037-2 |
| 9   | 6.75  | 21.70 | 0.90 | 140 | 579  | IM05GR | 3-1462037-4 |
| 12  | 9.00  | 28.90 | 1.20 | 140 | 1029 | IM06GR | 2-1462037-3 |
| 24  | 18.00 | 48.50 | 2.40 | 200 | 2880 | IM07GR | 4-1462037-7 |

Further coil versions are available on request.

## Coil Data (values at 23 °C)

## Ordering Information

| Nominal voltage<br>$U_{nom}$ | Operate/set voltage range           |                                     | Release/<br>reset voltage<br>Minimum | Coil<br>power | Coil<br>Resistance   | Relay<br>code | Tyco part<br>number |
|------------------------------|-------------------------------------|-------------------------------------|--------------------------------------|---------------|----------------------|---------------|---------------------|
| Vdc                          | Minimum<br>voltage $U_{min}$<br>Vdc | Maximum<br>voltage $U_{max}$<br>Vdc | Vdc                                  | mW            | $\Omega / \pm 10 \%$ |               |                     |

## Latching Version

### THT Standard latching 1 coil

|     |       |       |        |     |      |        |             |
|-----|-------|-------|--------|-----|------|--------|-------------|
| 1.5 | 1.13  | 4.30  | -1.13  | 100 | 23   | IM40TS | 5-1462037-0 |
| 3   | 2.25  | 8.40  | -2.25  | 100 | 90   | IM41TS | 5-1462037-3 |
| 4.5 | 3.38  | 12.90 | -3.38  | 100 | 203  | IM42TS | 5-1462037-6 |
| 5   | 3.75  | 14.30 | -3.75  | 100 | 250  | IM43TS | 5-1462037-8 |
| 6   | 4.50  | 17.10 | -4.50  | 100 | 360  | IM44TS | 6-1462037-1 |
| 9   | 6.75  | 25.70 | -6.75  | 100 | 810  | IM45TS | 3-1462037-2 |
| 12  | 9.00  | 34.30 | -9.00  | 100 | 1440 | IM46TS | 6-1462037-6 |
| 24  | 18.00 | 48.50 | -18.00 | 200 | 2880 | IM47TS | 6-1462037-9 |

### THT Narrow latching 1 coil

|     |       |       |        |     |      |        |             |
|-----|-------|-------|--------|-----|------|--------|-------------|
| 1.5 | 1.13  | 4.30  | -1.13  | 100 | 23   | IM40NS | 1-1462038-8 |
| 3   | 2.25  | 8.40  | -2.25  | 100 | 90   | IM41NS | 1-1462038-9 |
| 4.5 | 3.38  | 12.90 | -3.38  | 100 | 203  | IM42NS | 2-1462038-0 |
| 5   | 3.75  | 14.30 | -3.75  | 100 | 250  | IM43NS | 2-1462038-1 |
| 6   | 4.50  | 17.10 | -4.50  | 100 | 360  | IM44NS | 2-1462038-2 |
| 9   | 6.75  | 25.70 | -6.75  | 100 | 810  | IM45NS | 2-1462038-3 |
| 12  | 9.00  | 34.30 | -9.00  | 100 | 1440 | IM46NS | 2-1462038-4 |
| 24  | 18.00 | 48.50 | -18.00 | 200 | 2880 | IM47NS | 2-1462038-5 |

### SMT J-Legs latching 1 coil

|     |       |       |        |     |      |        |             |
|-----|-------|-------|--------|-----|------|--------|-------------|
| 1.5 | 1.13  | 4.30  | -1.13  | 100 | 23   | IM40JR | 5-1462037-2 |
| 3   | 2.25  | 8.40  | -2.25  | 100 | 90   | IM41JR | 5-1462037-5 |
| 4.5 | 3.38  | 12.90 | -3.38  | 100 | 203  | IM42JR | 5-1462037-7 |
| 5   | 3.75  | 14.30 | -3.75  | 100 | 250  | IM43JR | 6-1462037-0 |
| 6   | 4.50  | 17.10 | -4.50  | 100 | 360  | IM44JR | 6-1462037-3 |
| 9   | 6.75  | 25.70 | -6.75  | 100 | 810  | IM45JR | 6-1462037-5 |
| 12  | 9.00  | 34.30 | -9.00  | 100 | 1440 | IM46JR | 6-1462037-8 |
| 24  | 18.00 | 48.50 | -18.00 | 200 | 2880 | IM47JR | 7-1462037-1 |

### SMT Gull Wings latching 1 coil

|     |       |       |        |     |      |        |             |
|-----|-------|-------|--------|-----|------|--------|-------------|
| 1.5 | 1.13  | 4.30  | -1.13  | 100 | 23   | IM40GR | 5-1462037-1 |
| 3   | 2.25  | 8.40  | -2.25  | 100 | 90   | IM41GR | 5-1462037-4 |
| 4.5 | 3.38  | 12.90 | -3.38  | 100 | 203  | IM42GR | 3-1462037-1 |
| 5   | 3.75  | 14.30 | -3.75  | 100 | 250  | IM43GR | 5-1462037-9 |
| 6   | 4.50  | 17.10 | -4.50  | 100 | 360  | IM44GR | 6-1462037-2 |
| 9   | 6.75  | 25.70 | -6.75  | 100 | 810  | IM45GR | 6-1462037-4 |
| 12  | 9.00  | 34.30 | -9.00  | 100 | 1440 | IM46GR | 6-1462037-7 |
| 24  | 18.00 | 48.50 | -18.00 | 200 | 2880 | IM47GR | 7-1462037-0 |

Further coil versions are available on request.

## Coil Data (values at 23 °C)

## Ordering Information

| Nominal voltage<br>$U_{nom}$ | Operate/set voltage range        |                                  | Release/<br>reset voltage<br>Minimum | Coil power | Coil Resistance      | Relay code | Tyco part number |
|------------------------------|----------------------------------|----------------------------------|--------------------------------------|------------|----------------------|------------|------------------|
| Vdc                          | Minimum voltage $U_{min}$<br>Vdc | Maximum voltage $U_{max}$<br>Vdc | Vdc                                  | mW         | $\Omega / \pm 10 \%$ |            |                  |

### High Sensitive Version

#### SMT Gull Wings non-latching 1 coil

|     |       |       |      |     |      |        |             |
|-----|-------|-------|------|-----|------|--------|-------------|
| 3   | 2.40  | 8.70  | 0.30 | 100 | 91   | IM11GR | 9-1462038-5 |
| 4.5 | 3.60  | 13.10 | 0.45 | 100 | 194  | IM12GR | 1462039-3   |
| 5   | 4.00  | 14.60 | 0.50 | 100 | 238  | IM13GR | 1462039-4   |
| 12  | 9.60  | 35.00 | 1.20 | 110 | 1315 | IM16GR | 1462039-5   |
| 24  | 19.20 | 57.80 | 2.40 | 140 | 4120 | IM17GR | 1462039-6   |

### High Dielectric Version

#### SMT Gull Wings non-latching 1 coil

|     |       |       |      |     |      |         |             |
|-----|-------|-------|------|-----|------|---------|-------------|
| 3   | 2.25  | 7.20  | 0.30 | 140 | 64   | IM01CGR | 1462038-4   |
| 4.5 | 3.38  | 10.80 | 0.45 | 140 | 145  | IM02CGR | 1462038-1   |
| 5   | 3.75  | 12.10 | 0.50 | 140 | 178  | IM03CGR | 1462038-2   |
| 9   | 6.75  | 21.70 | 0.90 | 140 | 579  | IM05CGR | 1462038-3   |
| 12  | 9.00  | 28.90 | 1.20 | 140 | 1028 | IM06CGR | 9-1462037-9 |
| 24  | 18.00 | 48.50 | 2.40 | 200 | 2880 | IM07CGR | 1462038-2   |

### High Dielectric Version

#### SMT Gull Wings latching 1 coil

|   |      |       |       |     |     |         |             |
|---|------|-------|-------|-----|-----|---------|-------------|
| 5 | 3.75 | 14.30 | -3.75 | 100 | 250 | IM43CGR | 9-1462038-7 |
|---|------|-------|-------|-----|-----|---------|-------------|

### High Current/Low Contact Resistance Version

#### SMT Gull Wings non-latching 1 coil

|     |      |       |      |     |      |         |             |
|-----|------|-------|------|-----|------|---------|-------------|
| 4.5 | 3.38 | 10.80 | 0.45 | 140 | 145  | IM02DGR | 9-1462038-8 |
| 5   | 3.75 | 12.10 | 0.50 | 140 | 178  | IM03DGR | 9-1462038-9 |
| 9   | 6.75 | 21.70 | 0.90 | 140 | 579  | IM05DGR | 1-1462039-7 |
| 12  | 9.00 | 28.90 | 1.20 | 140 | 1028 | IM06DGR | 1-1462039-8 |

### High Current/Low Contact Resistance Version

#### SMT Gull Wings latching 1 coil

|     |      |       |       |     |     |         |             |
|-----|------|-------|-------|-----|-----|---------|-------------|
| 2.4 | 1.80 | 6.80  | -1.80 | 100 | 58  | IM42DGR | 1-1462039-9 |
| 4.5 | 3.38 | 12.90 | -3.38 | 100 | 203 | IM48DGR | 1462039-9   |

Further coil versions are available on request.

## Coil Data (values at 23 °C)

## Ordering Information

| Nominal voltage<br>$U_{nom}$ | Operate/set voltage range    |                              | Release/<br>reset voltage<br>Minimum | Coil<br>power | Coil<br>Resistance   | Relay<br>code | Tyco part<br>number |
|------------------------------|------------------------------|------------------------------|--------------------------------------|---------------|----------------------|---------------|---------------------|
| Vdc                          | Minimum<br>voltage $U_{min}$ | Maximum<br>voltage $U_{max}$ | Vdc                                  | mW            | $\Omega / \pm 10 \%$ |               |                     |

### Ultra High Sensitive Version

#### SMT Gull Wings non-latching 1 coil

|     |       |       |      |    |      |        |             |
|-----|-------|-------|------|----|------|--------|-------------|
| 3   | 2.55  | 10.80 | 0.30 | 50 | 180  | IM21GR | 2-1462039-6 |
| 4.5 | 3.83  | 16.20 | 0.45 | 50 | 405  | IM22GR | 2-1462039-7 |
| 5   | 4.25  | 18.00 | 0.50 | 50 | 500  | IM23GR | 2-1462039-9 |
| 12  | 10.20 | 43.20 | 1.20 | 50 | 2880 | IM26GR | 3-1462039-1 |

### Ultra High Sensitive Version

#### THT non-latching 1 coil

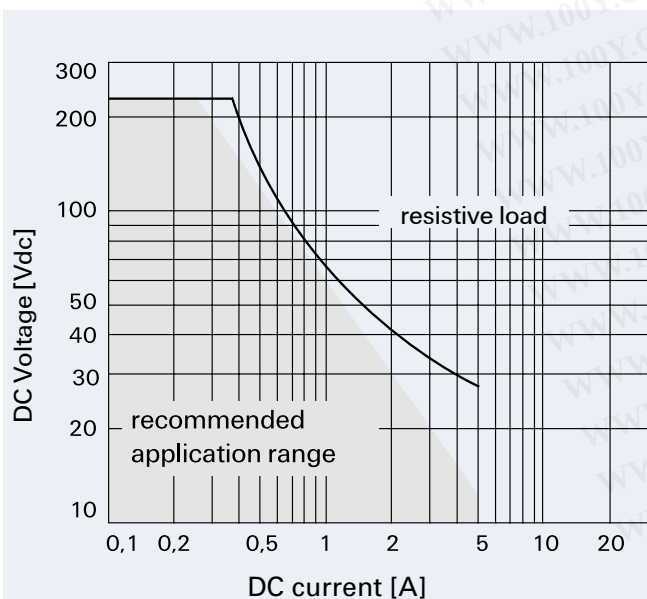
|     |       |       |      |    |      |        |             |
|-----|-------|-------|------|----|------|--------|-------------|
| 3   | 2.55  | 10.80 | 0.30 | 50 | 180  | IM21TS | 1-1462039-5 |
| 4.5 | 3.83  | 16.20 | 0.45 | 50 | 405  | IM22TS | 2-1462039-8 |
| 5   | 4.25  | 18.00 | 0.50 | 50 | 500  | IM23TS | 3-1462039-0 |
| 12  | 10.20 | 43.20 | 1.20 | 50 | 2880 | IM26TS | 3-1462039-2 |

Further coil versions are available on request.

## Contact Data

|                                                                 |                                                                                                                                                                                                                                |                                                                                                                                                                                                                                                       |
|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                 |                                                                                                                                                                                                                                | „D“ Version                                                                                                                                                                                                                                           |
| Number of contacts and type                                     | 2 changeover contacts                                                                                                                                                                                                          |                                                                                                                                                                                                                                                       |
| Contact assembly                                                | Bifurcated contacts                                                                                                                                                                                                            |                                                                                                                                                                                                                                                       |
| Contact material                                                | Palladium-ruthenium, gold-covered                                                                                                                                                                                              | Silver-nickel, gold-covered                                                                                                                                                                                                                           |
| Limiting continuous current at max. ambient temperature         | 2 A                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                       |
| Maximum switching current                                       | 2 A                                                                                                                                                                                                                            |                                                                                                                                                                                                                                                       |
| Maximum swichting voltage                                       | 220 Vdc<br>250 Vac                                                                                                                                                                                                             |                                                                                                                                                                                                                                                       |
| Maximum switching capacity                                      | 60 W, 62.5 VA                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                       |
| Thermoelectric potential                                        | < 10 $\mu$ V                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                       |
| Minimum switching voltage                                       | 100 $\mu$ V                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                       |
| Initial contact resistance / measuring condition: 10 mA / 20 mV | < 50 m $\Omega$                                                                                                                                                                                                                |                                                                                                                                                                                                                                                       |
| Electrical endurance<br>Resistive load                          | at contact application 0 ( $\leq 30$ mV / $\geq 10$ mA)<br>cable load open end<br>at 125Vdc / 0.24 A - 30 W<br>at 220 Vdc / 0.27 A - 60 W<br>at 250 Vac / 0.25 A - 62.5 VA<br>at 30 Vdc / 1 A - 30 W<br>at 30 Vdc / 2 A - 60 W | min. $2.5 \times 10^6$ operations<br>min. $2.0 \times 10^6$ operations<br>min. $5 \times 10^5$ operations<br>min. $1 \times 10^5$ operations<br>min. $1 \times 10^5$ operations<br>min. $5 \times 10^5$ operations<br>min. $1 \times 10^5$ operations |
| Mechanical endurance                                            | typ. $10^8$ operations                                                                                                                                                                                                         |                                                                                                                                                                                                                                                       |
| UL contact ratings                                              | 220 Vdc / 0.24 A - 60 W<br>125 Vdc / 0.24 A - 30 W<br>250 Vac / 0.25 A - 62.5 VA<br>125 Vac / 0.5 A - 62.5 VA<br>30 Vdc / 2 A - 60 W                                                                                           |                                                                                                                                                                                                                                                       |

## Max. DC Load Breaking Capacity



## Insulation

|                                                                                                                                                                                                                                                                                             | Sensitive Version                                            | High Dielectric Version                                      | „D“ Version                                                  |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|--------------------------------------------------------------|
| Insulation resistance at 500 Vdc                                                                                                                                                                                                                                                            | > 10 <sup>9</sup> Ω                                          | > 10 <sup>9</sup> Ω                                          | > 10 <sup>9</sup> Ω                                          |
| Dielectric test voltage (1 min)<br>between coil and contacts<br>between adjacent contact sets<br>between open contacts                                                                                                                                                                      | 1800 Vrms<br>1000 Vrms<br>1000 Vrms                          | 1800 Vrms<br>1800 Vrms<br>1500 Vrms                          | 1500 Vrms<br>750 Vrms<br>750 Vrms                            |
| Surge voltage resistance<br>according to Telcordia TR-NWT-001089 (2/10 μs)<br>between coil and contacts<br>between adjacent contact sets<br>between open contacts<br>according to FCC 68 (10/160 μs)<br>between coil and contacts<br>between adjacent contact sets<br>between open contacts | 2500 V<br>1500 V<br>1500 V<br><br>2500 V<br>1500 V<br>1500 V | 2500 V<br>2500 V<br>2500 V<br><br>2500 V<br>2500 V<br>2500 V | 2000 V<br>1000 V<br>1000 V<br><br>2000 V<br>1000 V<br>1000 V |

## High Frequency Data

|                                                                                                                              |                                                               |
|------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------|
| Capacitance<br>between coil and contacts<br>between adjacent contact sets<br>between open contacts                           | max. 2 pF<br>max. 2 pF<br>max. 1 pF                           |
| RF Characteristics<br>Isolation at 100 MHz / 900 MHz<br>Insertion loss at 100 MHz / 900 MHz<br>V.S.W.R. at 100 MHz / 900 MHz | - 37.0 dB / - 18.8 dB<br>- 0.03 dB / - 0.33 dB<br>1.06 / 1.49 |

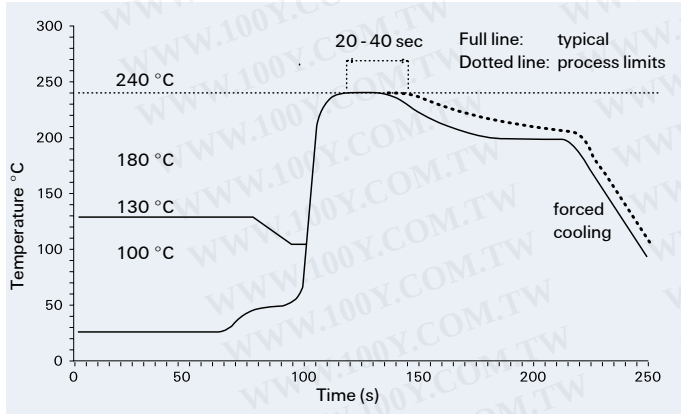
## General Data

|                                                                             |                                               |
|-----------------------------------------------------------------------------|-----------------------------------------------|
| Operate time at U <sub>nom</sub> typ. / max.                                | 1 ms / 3 ms                                   |
| Reset time (latching) at U <sub>nom</sub> , typ. / max.                     | 1 ms / 3 ms                                   |
| Release time without diode in parallel (non-latching), typ. / max.          | 1 ms / 3 ms                                   |
| Release time with diode in parallel (non-latching), typ. / max.             | 3 ms / 5 ms                                   |
| Bounce time at closing contact, typ. / max.                                 | 1 ms / 5 ms                                   |
| Maximum switching rate without load                                         | 50 operations/s                               |
| Ambient temperature                                                         | -40 °C ... +85 °C                             |
| Thermal resistance                                                          | < 150 K/W                                     |
| Maximum permissible coil temperature                                        | 125 °C                                        |
| Vibration resistance (function)                                             | 20 G<br>10 to 500 Hz                          |
| Shock resistance, half sinus, 11 ms<br>Shock resistance, half sinus, 0.5 ms | 50 G (function)<br>500 G (damage)             |
| Degree of protection / Environmental protection                             | immersion cleanable, IP 67 / RT V             |
| Needle flame test                                                           | application time 20 s, no burning and glowing |
| Mounting position                                                           | any                                           |
| Processing information                                                      | Ultrasonic cleaning is not recommended        |
| Weight (mass)                                                               | max. 0.75 g                                   |
| Terminal surface                                                            | NiPdAu                                        |
| Moisture sensitive level (JEDEC J-STD-020B) - SMD types                     | MSL 3                                         |
| Resistance to soldering heat                                                | 265 °C / 10 s                                 |

All data refers to 23 °C unless otherwise specified.

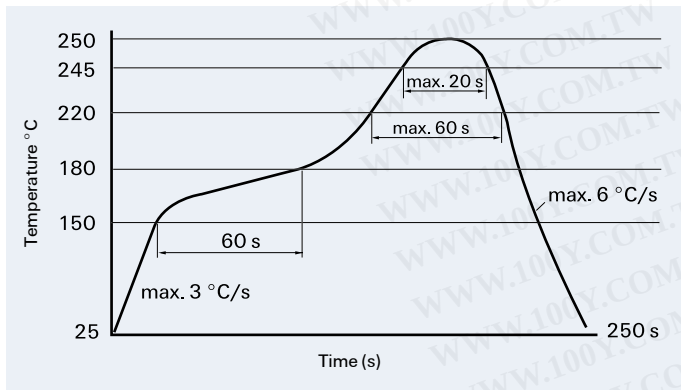
## Recommended Soldering Conditions

Soldering conditions according IEC 60058-2-58 and IPC/JEDEC J-STD-020B



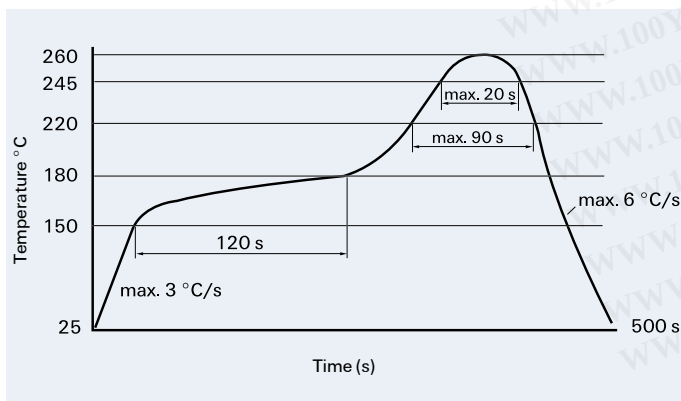
Vapor Phase Soldering: Temperature/Time Profile  
(Lead and Housing Peak Temperature)

## Recommended reflow soldering profile



Infrared Soldering: Temperature/Time Profile  
(Lead and Housing Peak Temperature)

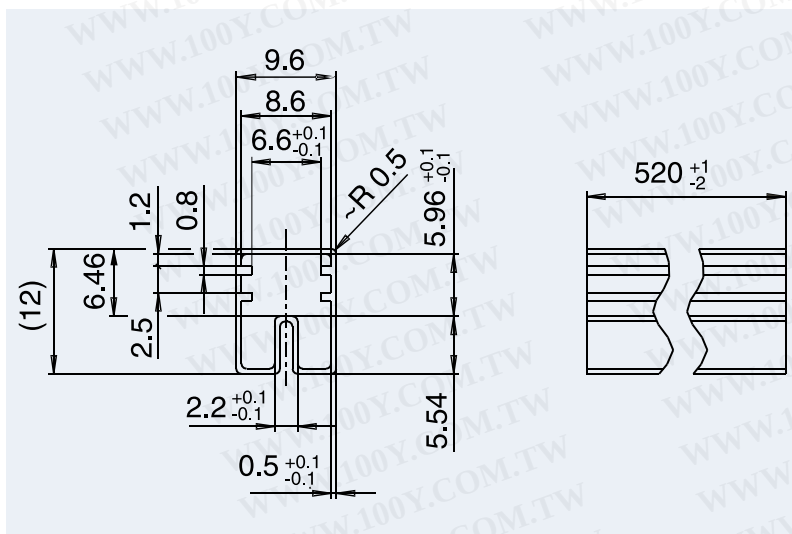
## Resistance to soldering heat - Reflow profile



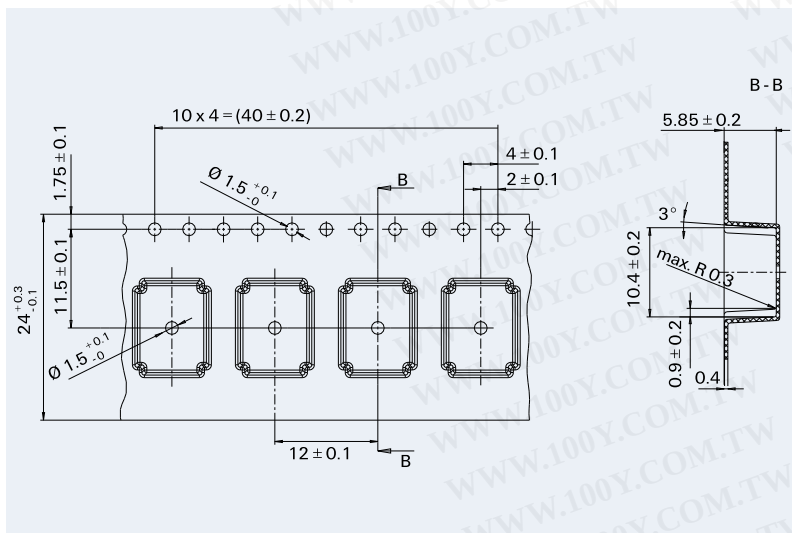
Infrared Soldering: Temperature/Time Profile  
(Lead and Housing Peak Temperature)

## Packing

Dimensions in mm



Tube for THT version  
50 relays per tube  
1'000 relays per box



Tape and reel for SMT version  
1'000 relays per reel  
1'000 or 5'000 relays per box

## Reel dimension

