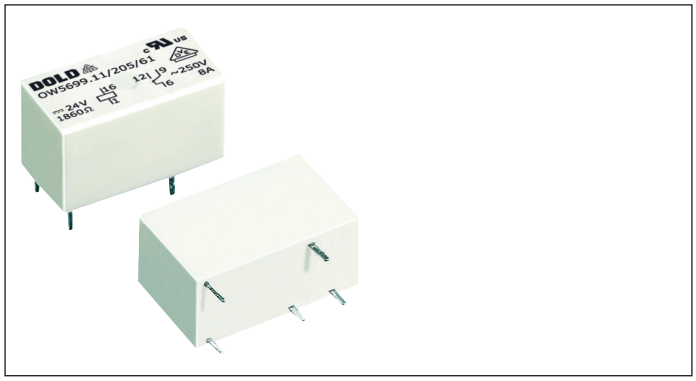
PCB Relays

DILAIS
Power Miniature Relays, monostable
OW 5691, OW 5699

Translation of the original instructions

0277498



- According to DIN EN 61810-1, DIN EN 60664-1
- Clearance and creepage distances:
  Contact - coil ≥ 5.5 mm
- Low rated power consumption
- High dielectric strength ≥ 4 kV
- High mechanical service life
- High switching power
- High thermal continuous current
- Large voltage range
- Very small volume **DIL model**, can be plugged into standard IC-Sockets
- Different connection arrangements and contact materials
- Wash proof RT III

Applications

- Control technique

Approvals and Markings

Canada / USA

Technical Data

Relay type		OW 5691 / OW 5699	OW 5699
1.0	**Relay coil**		
1.1	Nominal voltage	DC 4; 5; 6; 12; 20; 24; 48 V	
1.2	Nominal consumption	See table Technical Data	
1.11	Voltage range	0.75 ... 2.2 U_N	0.75 ... 1.6 U_N
1.13	Holding power	See table Technical Data	
2.0	**Contacts**		
2.1	Contact arrangement	1 NO, 1 changeover contact	
2.2	Contact material	AgNi + 0.3 µm Au[1]; optionally 3 µm Au	
2.3	Rated insulation voltage	AC 250 V	
	Switching voltage min./max.	AC/DC 10 V / DC 120 V, AC 250 V (AC/DC 2 / AC/DC 60)[3]	
2.4	Limiting continuous current I_{th}	5 A	8 A
	Switching current min./max.	0.01[2] / 5 A (1 mA / 0.3)[3]	0.01[2] / 8 A
2.5	Switching power min./max.	0.1 VA / 1250 VA	0.1 VA / 2000 VA
	Switching power min./max.	0.1 W / 120 W	0.1 W / 120 W
2.6	Switching capacity to IEC/EN 60947-5-1		
	AC 15	NC: AC 230 V / 1 A NO: AC 230 V/ 3 A	
	DC 13	NC: DC 24 V / 1 A NO: DC 24 V / 2 A	
2.7	Electrical life	At 1 s On, 1 s Off (see contacts service life)	
	at AC 230 V 5 A cos φ=1	See characteristics of contact service life	
2. 9	Response time	(I_{th}=5 A) Max. 8 ms (typically 5 ms)	(I_{th}=8 A) Max. 5 ms (typically 2.2 ms)
	Release time	Max. 4 ms (typically 2)	
	Bouncing time (NC)	Max. 10 ms (typically 6 ms)	Max. 8 ms (typically 3.5 ms)
	Bouncing time (NO)	(I_{th}=5 A) Max. 4 ms (typically 1.5 ms)	(I_{th}=8 A) Max. 2 ms (typically 1 ms)
2.10	Contact force	Approx. 8 cN	Approx. 10 cN
3.0	**Other**		
3.1	Mechanical life	≥ 10^8 switching cycles	
3.2	Temperature range	- 40 ... + 80 °C	
3.3	Degree of protection	Wash proof RT III	
3.5	Vibration resistance	10 ... < 60 Hz; 1,2 mm Amplitude IEC/EN 60068-2-6 60 ... 200 Hz, ≤ 10g (all contacts) IEC/EN 60068-2-6	
3.6	Climate resistance	20 / 080 / 04 (climate category); A / B / D IEC/EN 60068-1	

[1] On request: $AgSnO_2$ + 0.3 µm Au

[2] Typical values

Technical Data

3.8	Insulation according to IEC 60664-1	
	Rated insulation voltage	AC 250 V
	Pollution degree	3
	Overvoltage category	III
	Test voltage	
	Contact - coil (1 min)	≥ AC 4 kV eff.
	Clearance and creepage distances	
	Contact - coil	≥ 5.5 mm (safe separation acc. to EN 50178)
3.9	Weight	Approx. 5 g
4.0	**Packing**	
4.1	On cardboard in slipcase	100 pieces
4.2	In case package	1000 pieces
5.0	**Solder method**	
5.1	Solder method /-temperature /-duration	Wave soldering / 260 °C / 5 s

Design versions

1 changeover contact

I_{th} = 5 A	Nominal volatage U_N	V DC	4.5	6	12	20	24	48
	Design version Type OW 5691.11	AgNi 0.15	911	912	913	916	914	915
		Au-Contact	081	082	083	086	084	085
	Design version Type OW 5699.11	AgNi 0.15	171	172	173	176	174	175
		Au-Contact	191	192	193	196	194	195
	Resistance at 20°C	Ω	78	155	600	1 600	2 400	9 216
	Nominal consumption	mW	260	233	240	250	240	250
	Holding power	mW	65	58	60	62.5	60	62.5
	Response voltage	V DC	3.3	4.5	9	14.5	17.5	36
I_{th} = 8 A	Design version Type OW 5699.11	$AgSnO_2$	201	202	203	204	205	206
	Resistance at 20°C	Ω	65	115	465	1 250	1 860	6 310
	Nominal consumption	mW	311	313	310	320	310	365
	Holding power	mW	77.75	78.25	77.5	80	77.5	91.25
	Response voltage	V DC	3.3	4.5	9	15	18	36

1 NO contact

I_{th} = 5 A	Nominal volatage U_N	V DC	4.5	6	12	20	24	48
	Design version Type OW 5691.01	AgNi 0.15	921	922	923	926	924	
		Au-Contact	091	092	093	096	094	
	Design version Type OW 5699.01	AgNi 0.15	181	182	183	186	184	
		Au-Contact	231	232	233	236	234	
	Resistance at 20°C	Ω	155	315	1 070	2 960	4 350	
	Nominal consumption	mW	131	114	135	135	132	
	Holding power	mW	32.75	28.5	33.75	33.75	33	
	Response voltage	V DC	3	4.3	8	13	16	
I_{th} = 8 A	Design version Type OW 5699.01	$AgSnO_2$	221	222	223	224	225	226
	Resistance at 20°C	Ω	78	155	600	1 600	2 400	9 200
	Nominal consumption	mW	260	233	240	250	240	250
	Holding power	mW	65	58.25	60	62.5	60	62.5
	Response voltage	V DC	3.3	4.5	9	14	17	32

Ordering Example

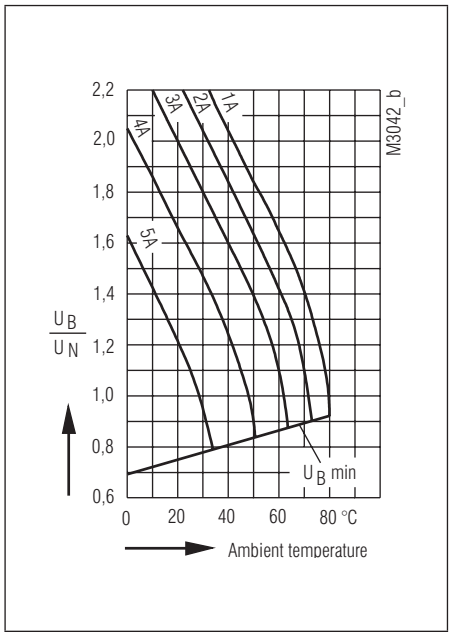
OW 5691 ._ _ /___ / 61*)

- /___ — Design version
- ._ _ — Contact arrangement
  - .01 = 1 NO
  - .11 = 1 changeover contact
- OW 5691 — Relay type

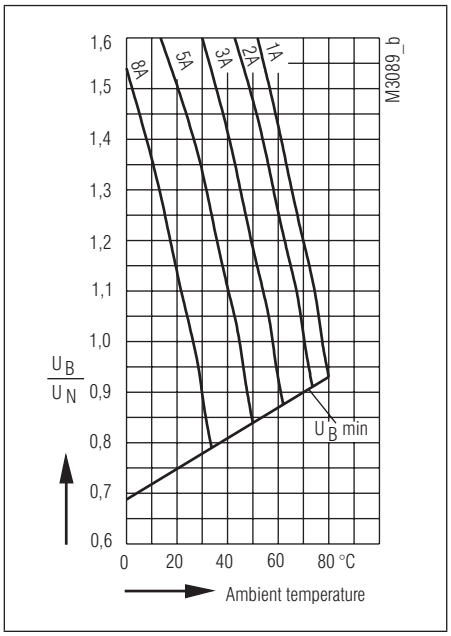
*) /61 cURus approval

Notes

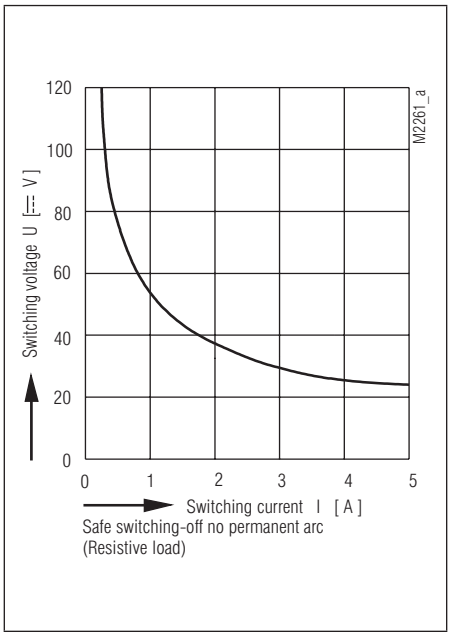
For the use and processing of our PCB relays, please refer to the **application and processing instructions** at www.dold.com



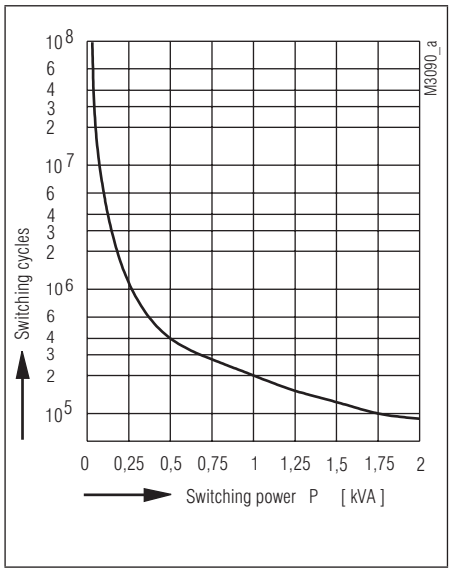
Operating voltage limit curve
for OW 5691 and OW 5699 with $I_{th} \leq 5$ A



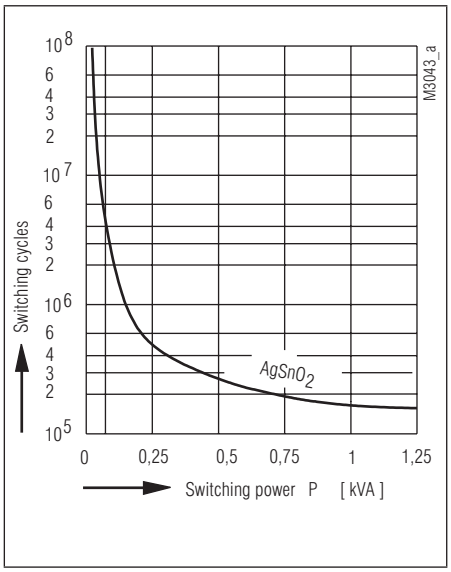
Operating voltage limit curve
for OW 5699 with $I_{th} \leq 8$ A



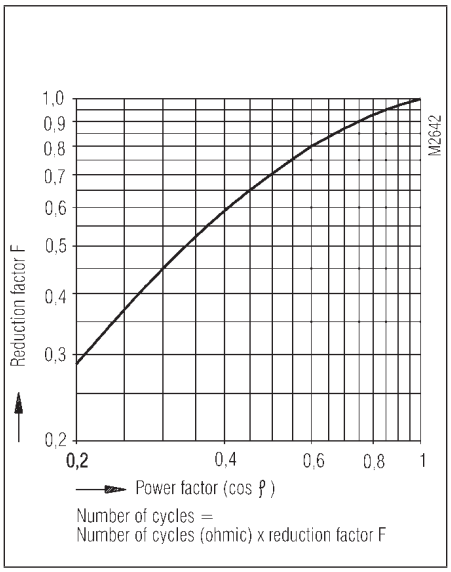
Arc limit curve
at t_u = 20°C) for OW 5691 and OW 5699



Contact service life
for OW 5699 with $I_{th} \leq 8$ A (NO contact)

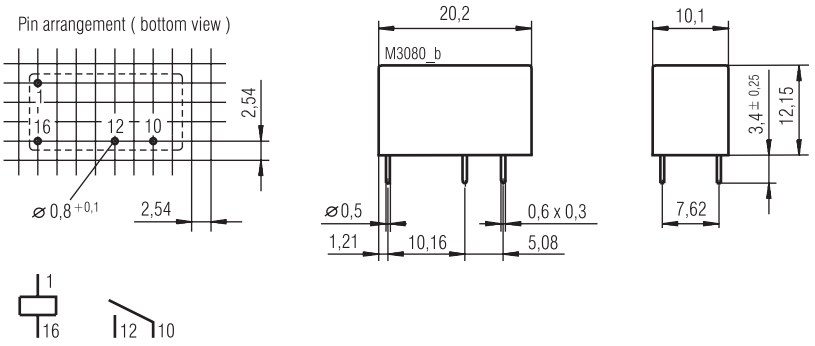


Contact service life
for OW 5691 and OW 5699 with $I_{th} \leq 5$ A
(NO contact)

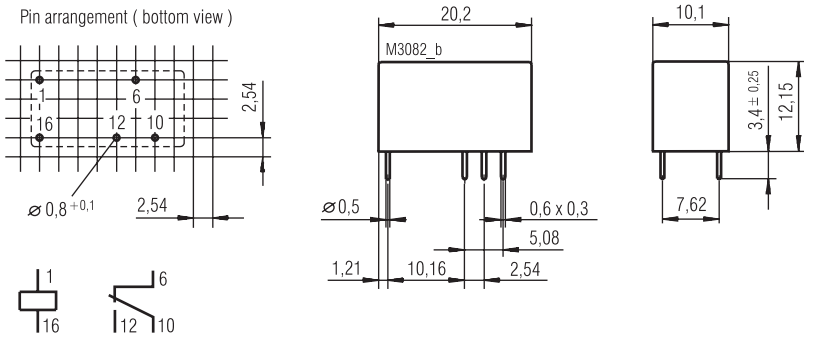


Reduction factor for inductive loads

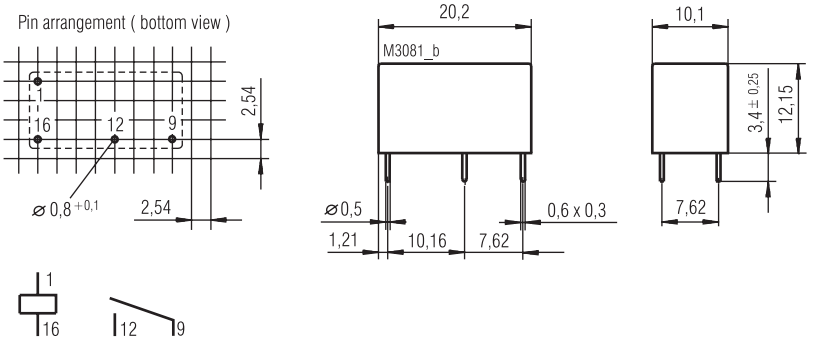
Dimensions, Pin Configuration, Connection Diagrams



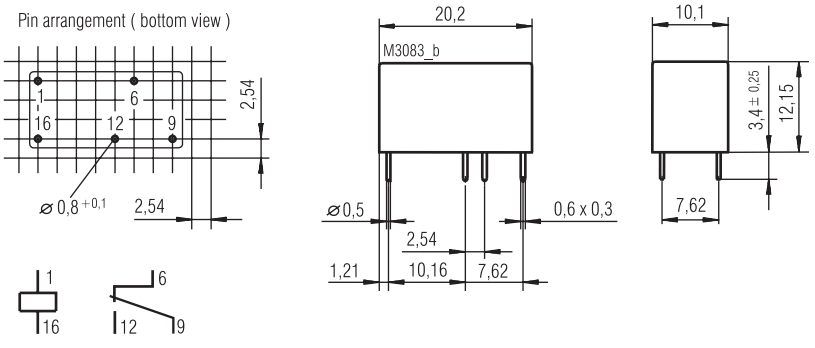
OW 5691.01



OW 5691.11



OW 5699.01



OW 5699.11

Connections for basic grid divensions 2.5 mm as well as 2.54 mm according to IEC/EN 60 097 and IEC 60 326 average.
Pin distance tolerance measured at the pin ends ± 0.3 mm. Dimensions are valid for untinned state.