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ET1415.047
+ OA 56_ _

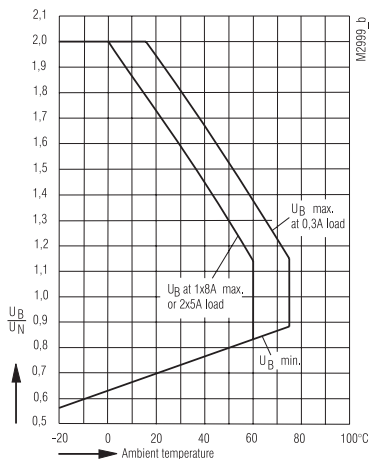
ET1415.044

ET1415.041

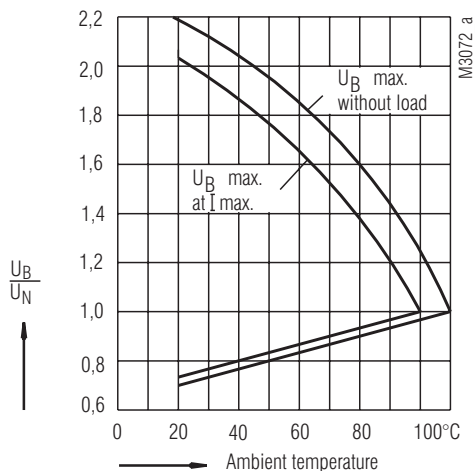
- According to DIN EN 61810
- 2 output contacts with monostable PCB-relay OA 5668
- Version with bistable PCB-relay OB 5694
- Contact material AgNi with fine gold
- High thermal current up to $I_{th} = 16$ A with relays OA 5682 and OB 5694
- Large temperature range: $-40 \dots +85$ °C
- As option with free-wheel diode or varistor between A1/A2
- As option with AgSnO₂ or AgNi with hard gold
- Width: 15.8 mm

	OA 5668	OA 5672	OA5682	OB 5694
Circuit Diagrams				
Approvals and Markings	CE	CE	CE	CE
Technical Data				
Coil				
Nominal voltage U_N	DC 6, 12, 20, 24, 48, 60, 110 V, others on request			DC 6, 12, 15, 20, 24 V AC 12, 24, 42, 230 V
Voltage range	$0.7 \dots 2 U_N$	$0.8 \dots 1.4 U_N$	$0.8 \dots 1.4 U_N$	$0.8 \dots 1.1 U_N$
Nominal consumption	0.5 W	0.53 W	0.53 W	1 W / 1.4 VA
Contacts				
Contacts	.02 2 NO .12 2 C/O	.01 1 NO .11 1 C/O	.01 1 NO .11 1 C/O	.01 1 NO .11 1 C/O
Contact material	AgNi as option AgSnO ₂ or AgNi with hard gold			
Rated insulation voltage	AC 250 V			
Limiting continuous current I_{th}	5 A	10 A	16 A	16 A
Switching capacity min./max.	3 / 2000 VA 30 / 200 W	4 / 2500 VA 35 / 300 W	4 / 4000 VA 35 / 500 W	3 / 4000 VA 35 / 300 W
Switching capacity AC 15 at AC 230 V DC 13 at DC 24 V	NC: 1 A, NO: 2 A NC: 1 A, NO: 1 A	NC: 1 A, NO: 3 A NC: 1 A, NO: 1 A	NC: 1 A, NO: 3 A NC: 1 A, NO: 1 A	NC: 1 A, NO: 2 A NC: 1 A, NO: 1 A
Electrical life	$\geq 1.5 \times 10^5$	$\geq 3 \times 10^5$	$\geq 2 \times 10^5$	$\geq 5 \times 10^4$
Operate time / release time	$\leq 8 / \leq 10$ ms	$\leq 7 / \leq 3$ ms	$\leq 7 / \leq 3$ ms	
Other				
Mechanical life	$\geq 50 \times 10^6$	$\geq 30 \times 10^6$	$\geq 30 \times 10^6$	$\geq 10 \times 10^6$ DC $\geq 1 \times 10^5$ AC
Temperature range	$-40 \dots +75$ °C	$-40 \dots +110$ °C	$-40 \dots +110$ °C	$-25 \dots +50$ °C
Insulation to DIN EN 60664-1, DIN EN 50178 Overvoltage category	AC 250 V			
Degree of pollution	3			
Rated impulse voltage	III			
Test voltage (1 min) Contact-coil Contact-contact	≥ 4 kV AC eff. ≥ 2.5 kV AC eff.	≥ 4 kV AC eff. ≥ 1.5 kV AC eff.		
Surge voltage (1.2 - 50 μ s) Contact-coil	≥ 6 kV			
Clearance and creepage distance to DIN EN 60730, DIN EN 60335; Contact-coil	≥ 8 mm			
Weight	15 g	17 g	17 g	15 g

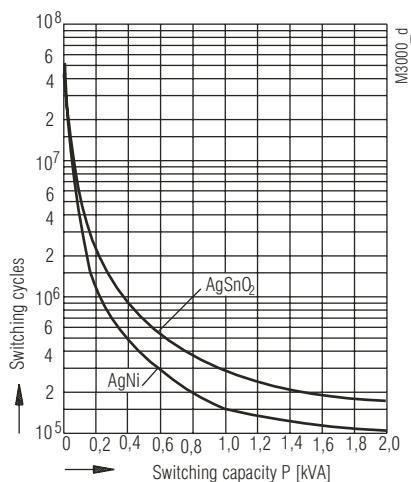
Characteristics



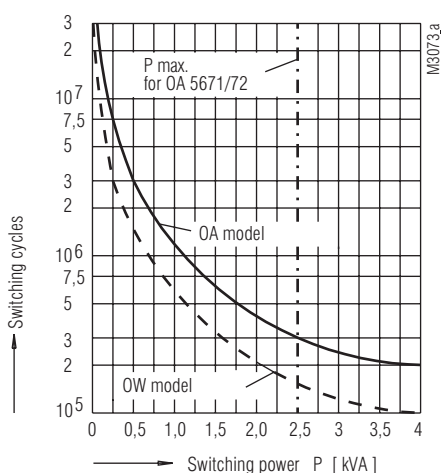
OA 5668: Operating voltage limit curve



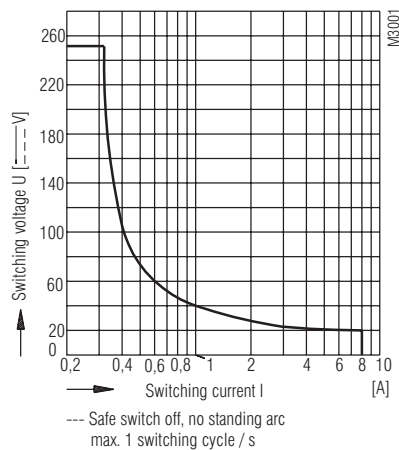
OA 5672, OA 5682: Operating voltage limit curve



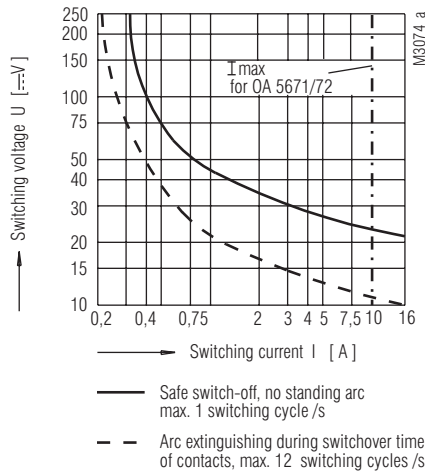
OA 5668: Contact service life (at t_u = 20°C)



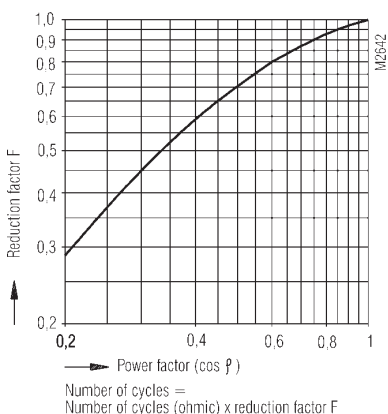
OA 5672, OA 5682: Contact service life (at t_u = 20°C)



OA 5668: Limit curve for arc-free operation (at t_u = 20°C)



OA 5672, OA 5682: Limit curve for arc-free operation (at t_u = 20°C)



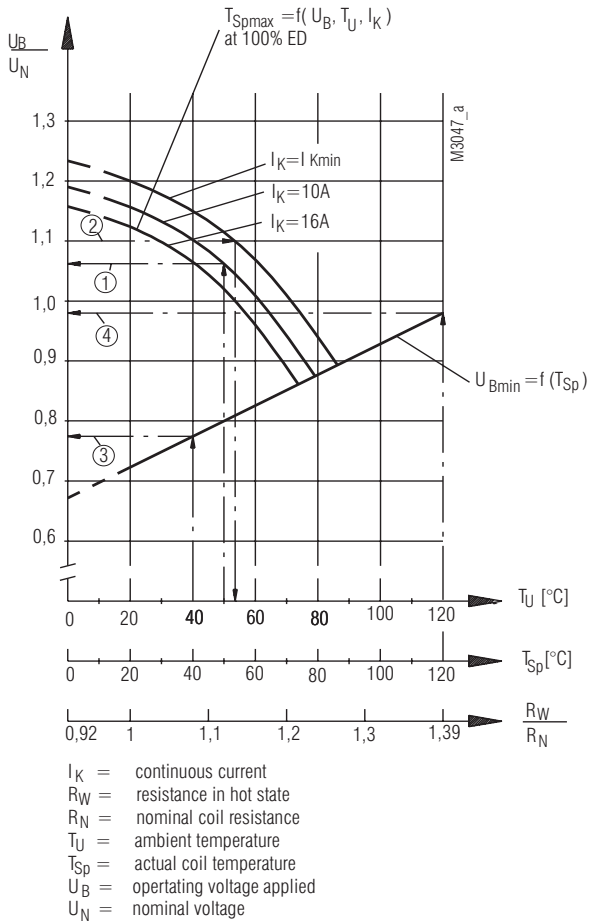
Characteristic is valid for:
 - inductive load
 - capacitive load

The actual number of cycles with reactive loads n_{blind} is can be calculated as follows:

$$n_{\text{blind}} = n_{\text{ohmic}} \times F$$

OA 5668, OA 5672, OB 5694:
 Reduction factor for inductive loads

Characteristics

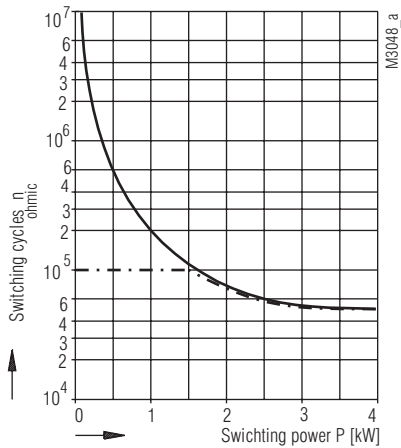


Example:

* for max. voltage or max. coil resistance (at $t_e > 10s \dots 100\% ED$)

- ① known: $T_U = 50^{\circ}C$, $I_K = 10A$
requested: U_{Bmax} ?
solution: $U_{Bmax} = 1,06 \times U_N$
- ② known: $I_K = I_{Kmin}$, $U_B = 1,1U_N$
requested: $T_U zul$?
solution: $T_U zul = 53^{\circ}C$
- * for operating behaviour of the relay
- ③ known: relay "cold", i.e. $T_{Sp} = T_U$ [with $T_U = 40^{\circ}C$]
requested: U_{Bmin} ?
solution: $U_{Bmin} = 0,77 \times U_N$
- ④ known: Relais "hot", i.e. $T_{Sp} > T_U$
[with $T_{Sp} \rightarrow 120^{\circ}C$ but according to ① or ② $T_U ca. 50^{\circ}C$]
requested: U_{Bmin} ?
solution: $U_{Bmin} = 0,98 \times U_N$

OB 5694: Operating voltage limit curve

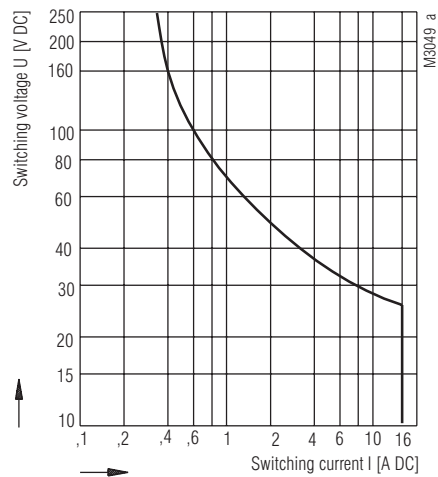


— DC-drive
- - - AC-drive

Comment

Graph is valid for:
- clear resistive load ($\cos \Phi = 1$)
- AC 230V

OB 5694: Contact service life



Contact distance $\geq 0,5$ mm
Graphic only for resistive DC-loads

at max. 1 switching cycle / s
- safe switch-off
- no standing arc

At voltages $< DC 25$ V
max. 300 W can be switched.

OB 5694: Limit curve for arc-free operation (at $t_u = 20^{\circ}C$)

Standard Variants

Nominal voltage DC V	Voltage range DC V	Resistance at 20°C Ω	Design version			
			AgNi		AgSnO ₂	AgNi + 5 μm Au
			.12	.02	.12	.12
5	3.7 ... 9.5	50	941	571	961	921
6	4.5 ... 11.0	70	942	572	962	922
12	9.0 ... 22.0	270	943	573	963	923
20	15.0 ... 36.0	820	948	578	968	928
24	18.0 ... 44.0	1 100	944	574	964	924
48	35 ... 89.0	4 400	945	575	965	925
60	44.0 ... 110.0	6 850	946	576	966	926
110	80.0 ... 190.0	20 000	947	577	967	927

OA 5668

Nominal voltage ¹⁾ DC V	Voltage range V	Resistance at 20°C Ω	Design version		
			AgSnO ₂		AgNi + 5 μm Au
			OA 5672 .11	OA 5682 .11	OA 5672 .11
6	4.2 ... 13.2	70	821	881	061
12	8.4 ... 26.4	280	822	882	063
15	10.5 ... 33.0	420	823	883	064
20	14.0 ... 44.0	750	824	884	065
24	16.8 ... 52.8	1 100	825	885	066
48	33.6 ... 105.6	4 500	829	889	070
60	42.0 ... 132.0	7 000	830	890	071
110	77.0 ... 242.0	23 000	831	891	072

OA 5672, OA 5682

Nominal voltage DC V / AC V		Voltage range ²⁾ V	Resistance at Ω (±10%)	Design version			
				AgSnO ₂		AgNi	
				.01/	.11/	.01/	.11/
6		4.8 ... 6.6	38	9321	9301	9331	9311
12		9.6 ... 13.2	150	9322	9302	9332	9312
15		12 ... 16.5	220	9323	9303	9333	9313
20		16 ... 22	410	9324	9304	9334	9314
24		19.2 ... 26.4	575	9325	9305	9335	9315
	12	9.6 ... 13.2	65	9422	8402	9432	9412
	24	19.2 ... 26.4	250	9423	9403	9433	9413
	42	33.6 ... 46.2	830	9424	9404	9434	9414
	230	184 ... 253	25 000	9425	9405	9435	9415

OB 5694

Ordering Example

OA 5668	/	
		Design version
		Contacts
		.12 = 2 changeover contacts
		.02 = 2 NO contacts
		.06 = 2 NC contacts
OA 5672	/	
		Design version
		Contacts
		.01 = 1 NO contact
		.11 = 1 changeover contact
OB 5694	/	
		Design version
		Contacts
		.01 = NO contact
		.11 = changeover contact

Accessories

Function module

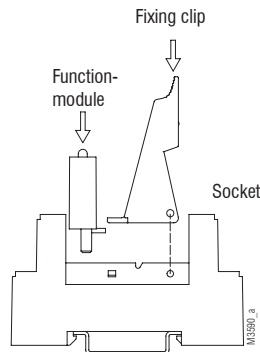
ET1415.913:	DC 24 V, with free-wheel diode and green LED
Article number	0056828
ET1415.911:	DC 24 V, with free-wheel diode and red LED
Article number	0055909
ET1415.912:	AC/DC 24 V, with varistor and green LED
Article number	0055910
ET1415.924:	DC 60 V, with free-wheel diode and red LED
Article number	0062552

Socket incl. fixing clip

ET 1415.041:	with screw terminals
Article number	0055571
ET 1415.044:	with screw terminals and safe separation
Article number	0059274
ET 1415.047:	with cage clamp terminals
Article number	0059270

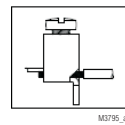
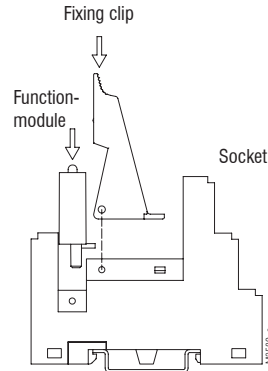
Accessories

Socket ET 1415.041



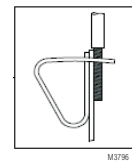
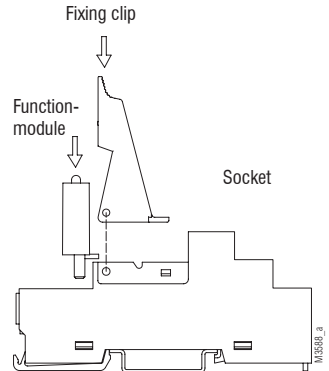
- Socket for DIN-rail
- incl. fixing clip

Socket ET 1415.044



Screw terminals

Socket ET 1415.047



Cage clamp terminals

- Socket for DIN-rail
- incl. fixing clip
- incl. safe separation between coil and contacts according to DIN EN 60947-1, DIN EN 61140, DIN EN 60204

Degree of protection

Terminals: IP 20 DIN EN 60529

Terminal designation: DIN EN 50005

Wire connection

ET 1415.041, ET 1415.044:	0.14 ... 2.5 mm ² solid (14 - 20 AWG)
	0.14 ... 2.5 mm ² stranded (14 - 20 AWG)
	0.14 ... 1.5 mm ² sleeved end (14 - 25 AWG)
ET 1415.047:	2 x (0.2 ... 1.5) mm ² solid (16 - 25 AWG)
	2 x (0.2 ... 1.5) mm ² stranded (16 - 25 AWG)
	2 x (0.2 ... 1.5) mm ² sleeved end (16 - 25 AWG)

Wire fixing:

box terminals or
cage clamp terminals

Mounting:

DIN-rail

DIN EN 60715

Weight:

ET 1415.041:	approx. 38.5 g
ET 1415.044:	approx. 43.5 g
ET 1415.047:	approx. 42 g

Dimensions

Width x height x depth:

ET 1415.041:	15.8 x 75 x 69 mm
ET 1415.044:	15.8 x 75 x 75 mm
ET 1415.047:	15.8 x 97 x 75.5 mm

