

Relay Catalog



NF Forward Relay Catalog

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Relay General Application Guidelines 98

Features

- 6.5mm slim type miniature PCB Relay
- UL/CUL approved
- Special design for interface application and home appliance
- Comply with RoHS-Directive 2011/65/EU



Type List

Terminal style	Contact form	Designation (provided with)
		Sealed type washable
PCB Terminal	1A (SPNO)	SG3 100 E .. W

Ordering Information

SG3 100 E 24 W
1 2 3 4 5

- | | | | |
|--------|------------------------------|-------|---|
| 1. SG3 | -- Basic series Designation | 4. 24 | -- Coil voltage: 5 = 5VDC; 12 = 12VDC;
24 = 24 VDC |
| 2. 100 | -- Single pole normally open | 5. W | -- Sealed washable |
| 3. E | -- Contact material AgSnO | | |

Contact Data

Type of contact	Single contact
Configuration	1 NO
Rated load	5A/250VAC; 5A/30VDC
Maximum switching current	5A
Maximum switching voltage	30VDC / 250VAC
Maximum switching capacity	150W / 1250VA
Contact resistance	100mΩ (@100mA/6V)
Contact material	AgSnO

Coil rating (DC @+23°C)

Rated voltage (V)	Rated current (mA) ±10%	Resistance (Ω) ±10%	Max. continuous voltage (V)	Pick up voltage (V)	Drop out voltage (V)	Power consumption at rated voltage (mW)
5	40	125	6.5	3.5	0.5	200
12	16.6	720	15.6	8.4	1.2	
24	8.3	2880	31.2	16.8	2.4	

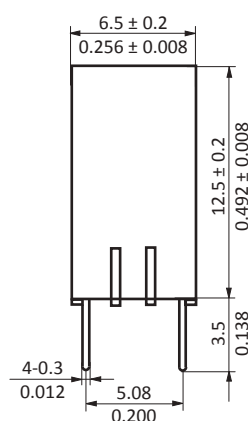
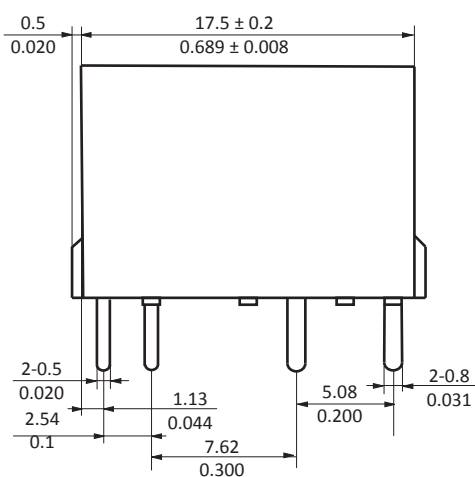
Specification

Mechanical life	20x10 ⁶ cycles	
Electrical life	see curve	
Operate Time	10ms Max.	
Release Time	5ms Max.	
Dielectric strength	Between coil and contacts	3000V, 50/60Hz, 1min
	Between open contacts	750V, 50/60Hz, 1min
Surge voltage withstand	Between coil and contacts	6000V (wave 1.2/50μs)
Vibration resistance (10..55 Hz) double amplitude	Operation extremes	1.5mm
	Damage limits	1.5mm
Shock resistance	Operation extremes - 11ms	10g
	Damage limits - 6ms	100g
Ambient temperature	-25...+70°C	
Approvals	UL/CUL	
Weight	3g	

Safety Approval

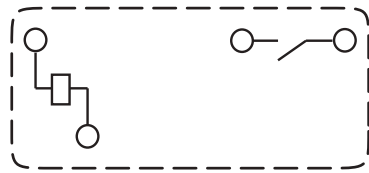
Certified	UL / CUL
Ratings	5A/250VAC ; 5A/30VDC

Outline Dimensions



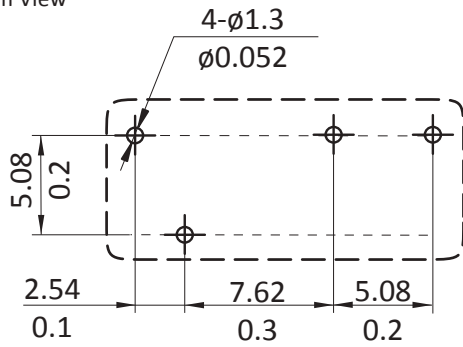
Wiring Diagram

Bottom View



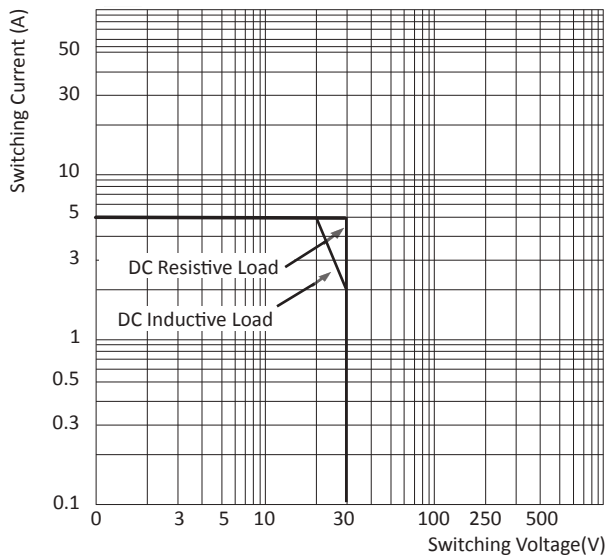
PC Board Layout

Bottom View

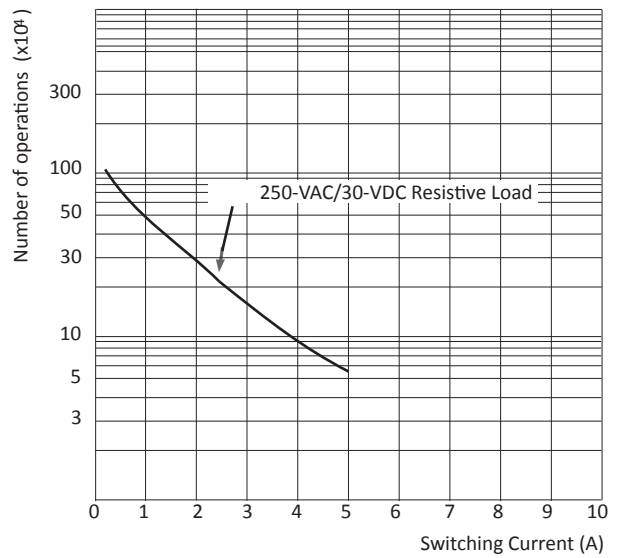


Engineering Data

Maximum Switching Capacity DC-load



Life Expectancy

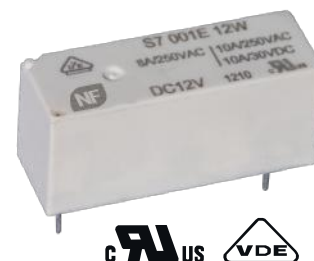


Disclaimer

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Features

- 1 CO or 1NO contact arrangement
- 10A 250VAC
- Pinning 3.2 and 5mm
- UL/CUL, VDE approved
- Special for interface application, heating control, timers
- Comply with RoHS-Directive 2011/65/EU



Type List

Terminal style	Contact form	Designation (provided with)
		Sealed type washable
PCB terminal	1A (SPNO)	S7 100 A..W
		S7 100 E..W
	1C (SPDT)	S7 001 A..W
		S7 001 E..W

Ordering Information

S7 001 E 24 W
 1 2 3 4 5

- | | | | |
|--------|---|------|---|
| 1. S7 | -- Basic series Designation | 3. A | -- Contact material AgNi |
| 2. 100 | -- Single pole normally open -
5,0mm pinning | E | -- Contact material AgSnO |
| 001 | -- Single pole double throw -
3,2mm pinning | 4. | -- Coil voltage : 5=5V; 6=6V; 9=9V; 12=12V;
18=18V; 24=24V; 48=48V |
| | | 5. W | -- Sealed washable |

Contact Data

Type of contact	Single contact
Configuration	1 NO, 1CO
Rated load	10A/250VAC ; 10A/30VDC
Maximum switching current	10A
Maximum switching voltage	300VDC / 440VAC
Maximum switching capacity	300W / 2500VA
Contact resistance	100mΩ
Contact material	AgNi ; AgSnO

Coil rating (DC @+23°C)

Rated voltage (V)	Rated current (mA) ±10%	Coil resistance (Ω) ±10%	Max. continuous voltage	Pick up voltage	Drop out voltage	Power consumption at rated voltage (mW) (mW)
5	44.2	113	See curve below	70 % of rated voltage	10 % of rated voltage	220
6	36.6	164				220
9	25	360				230
12	19.3	620				230
18	13.9	1295				250
24	10.2	2350				250
48	6.0	8000				290

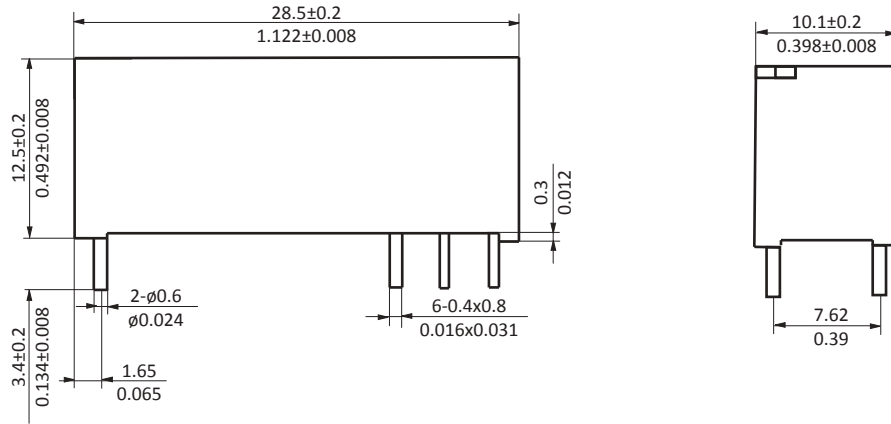
Specification

Mechanical life	10x10 ⁶ cycles	
Electrical life at rated load	1x10 ⁵ cycles	
Operate Time	10ms Max.	
Release Time	5ms Max.	
Dielectric strength	Between coil and contacts	5000V, 50/60Hz, 1min
	Between open contacts	1000V, 50/60Hz, 1min
Clearance / creepage	Between coil and contacts	10 / 10 mm
Vibration resistance (10..55Hz) double amplitude	Operation extremes NO/NC	1.65mm / 0.8mm
	Shock resistance	
Shock resistance	Operation extremes NO/NC	10 / 5 g
	Damage limits	100 g
Operating ambient temperature	-40~+85°C (no freezing)	
Approvals	VDE, UL/CUL	
Weight	8g	

Safety Approval

Certified	UL / CUL	VDE
Ratings	10A / 250VAC ; 10A / 30VDC	1CO: 8A / 250VAC 1NO: 10A / 250 VAC

Outline Dimensions



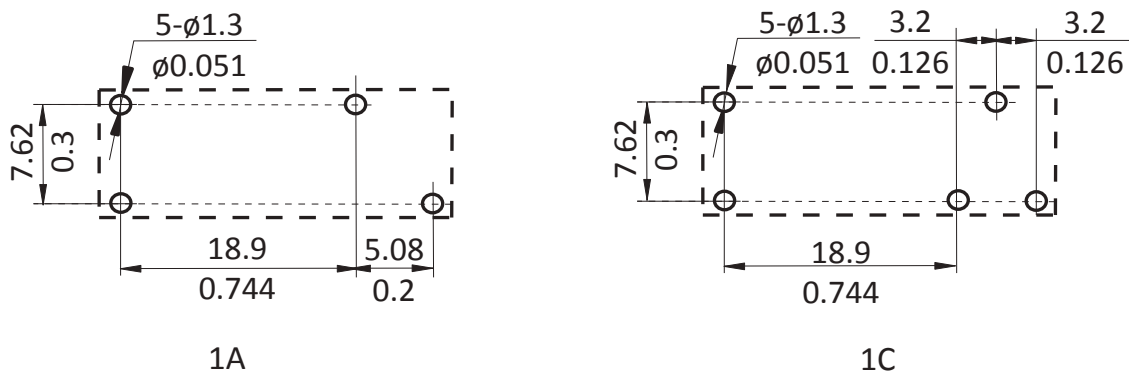
Wiring Diagram

Bottom View



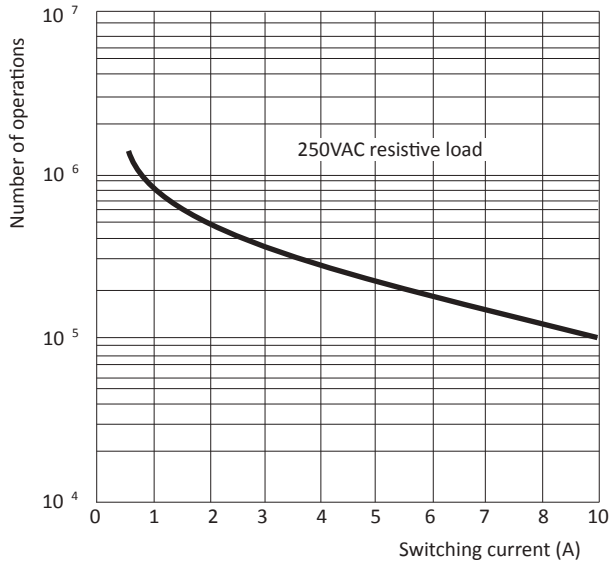
PC Board Layout

Bottom View

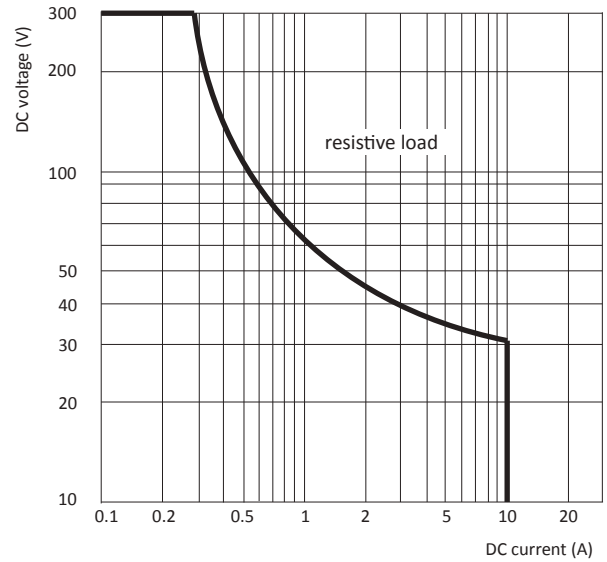


Engineering Data

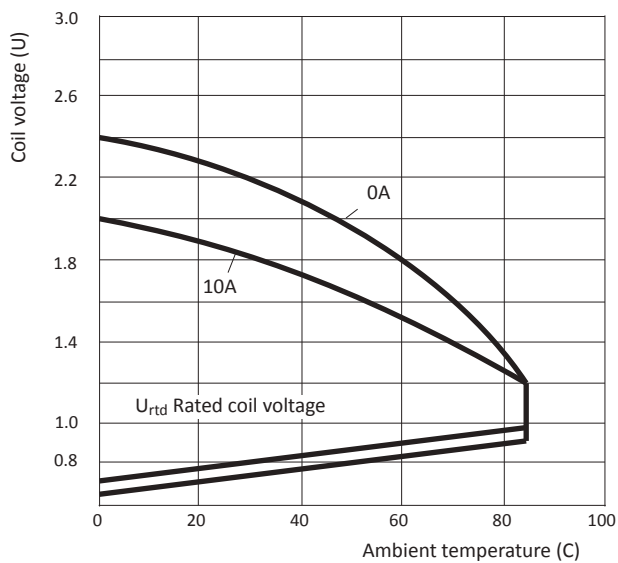
Electrical endurance



Max. DC load breaking capacity



Coil operating range DC



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Features

- high rating PCB power relay
- 1 pole 12 and 16A, 250VAC
- Ag alloy contact material
- 410mW coil power
- maximum ambient temperature +85°C
- UL/CUL and VDE approved
- Comply with RoHS-Directive 2011/65/EU



Type List

Terminal style	Contact form	Rated current	Designation (provided with)
			Sealed type washable
PCB terminal	1A (SPNO)	12 A	NF75 100 E..S
		16 A	NF75 100 E7..S
	1C (SPDT)	12 A	NF75 001 E..S
		16 A	NF75 001 E7..S

Ordering Information

NF75 001 E7 24 - S XXXX

1 2 3 4 5 6 7 8

- | | | | |
|----------|------------------------------|----------|---|
| 1. NF75 | -- Basic series Designation | 5. | -- Coil Voltage [VDC]: 5, 6, 9, 12, 24, 48 |
| 2. 100 | -- Single pole normaly open | 6. Blank | -- Coil Power 410mW |
| 001 | -- Single pole double throw | 7. Blank | -- Flux tight |
| 3. E | -- Contact Material Ag alloy | S | -- Sealed washable |
| 4. Blank | -- 12A Version | 8. Blank | -- Standard Type |
| 7 | -- 16A Version | XXXX | -- Letters and/or numbers for special customer design |

Contact Data

Type of contact	Single contact
Configuration	1 NO, 1CO
Maximum switching current	12A, 16A
Maximum switching voltage	250 VAC
Contact material	Ag alloy

Coil rating (DC @+23°C) - 410mW Version

U_N (VDC)	R (Ohm)	U_{PI} (VDC)	U_{DO} (VDC)	I_N (mA)
5	$61 \pm 10\%$	3.5	0.5	82
6	$688 \pm 10\%$	4.2	0.6	68
9	$198 \pm 10\%$	6.3	0.9	46
12	$351 \pm 10\%$	8.4	1.2	34
24	$1405 \pm 10\%$	16.8	2.4	17
48	$5620 \pm 10\%$	33.6	4.8	8.5

Specification

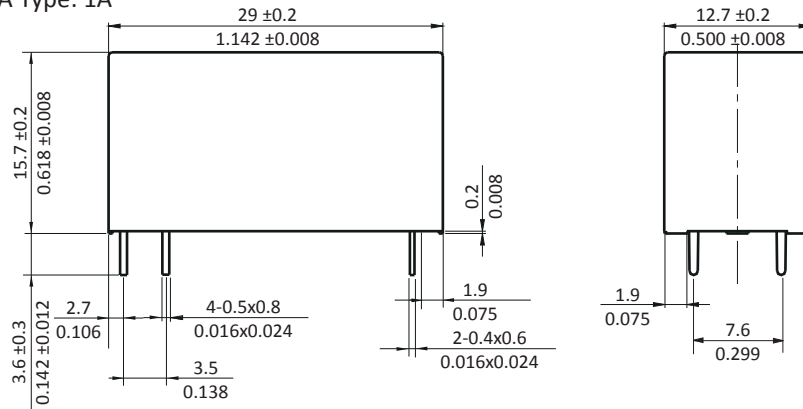
Mechanical life	10x10 ⁶ cycles	
Electrical life at rated load	1x10 ⁵ cycles (at 12/16A, 250VAC, +85°C)	
Max. Switching rate at rated load	360 Operations/h	
Operate Time / Release time	15 / 8 ms Max.	
Dielectric strength	Between coil and contacts	5000V, 50/60Hz, 1min
	Between open contacts	1000V, 50/60Hz, 1min
Ambient temperature	-40 .. + 85 °C	
Vibration resistance (10..55Hz)	1.5 mm	
Shock resistance 11 ms	10 g	
Approvals	VDE, UL	
Insulation materials for domestic appliances - according IEC60335-1 -PENDING-		

Safety Approval

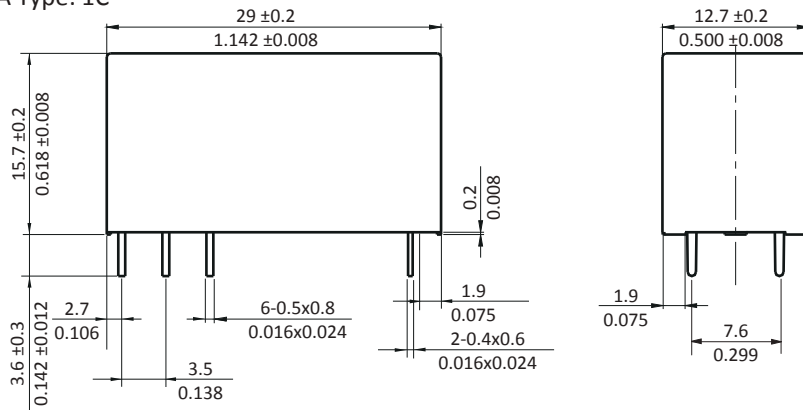
Certified	UL / CUL	VDE
Ratings	12A, 250VAC; 16A, 250VAC 12A 30VDC	12A 250VAC; 16A 250 VAC

Outline Dimensions

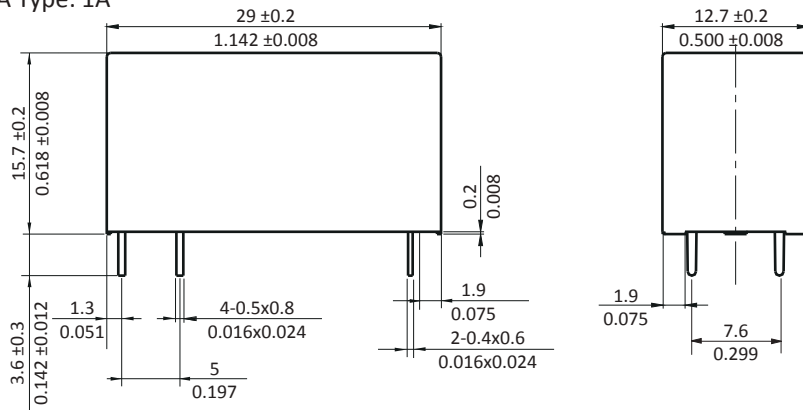
12A Type: 1A



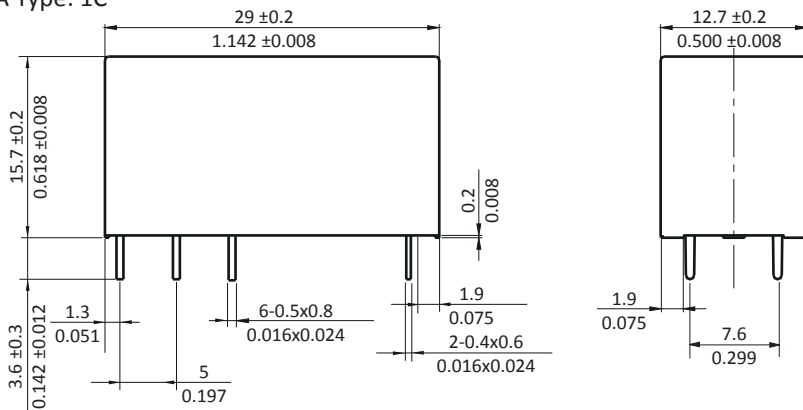
12A Type: 1C



16A Type: 1A

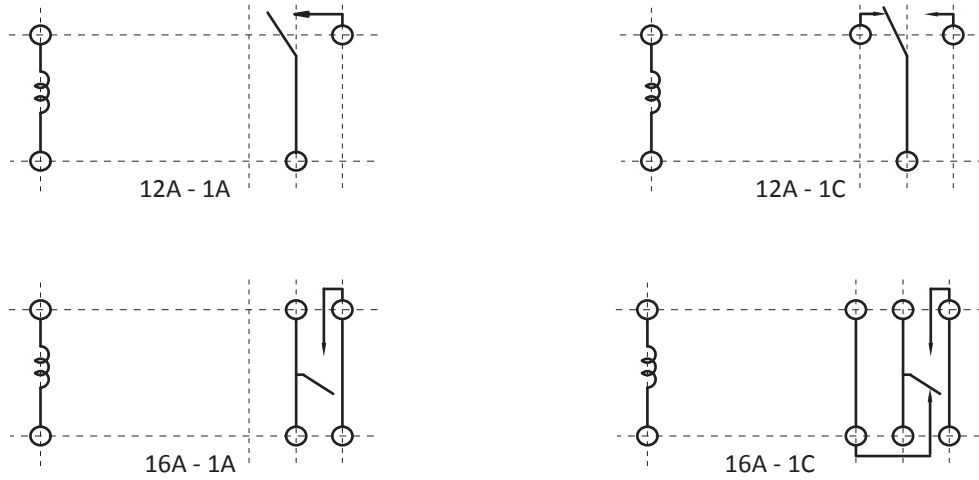


16A Type: 1C



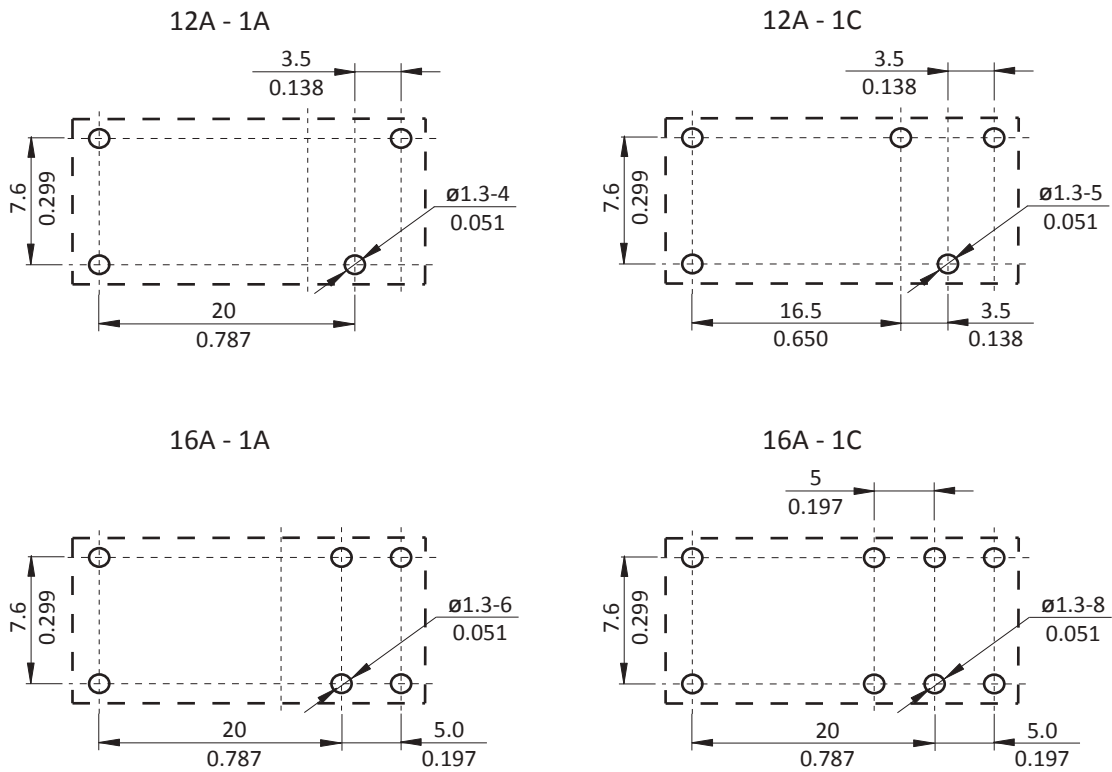
Wiring Diagram

Bottom View



PC Board Layout

Bottom View



Disclaimer

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Features

- 16A power sugar cube relay
- For high rating and high temperature applications
- Double NO terminal available
- Cd free contact material
- Maximum ambient temperature +105°C
- Approved by UL/CUL, VDE and CQC
- Comply with IEC 60335-1
- Comply with RoHS-Directive 2011/65/EU



Type List

Terminal style	Contact form	Pinning	Designation (provided with)	
			Flux tight	Sealed type washable
PCB terminal	1A (SPNO)	Standard Pinning	NF7 100 E..	NF7 100 E..S
		double NO Terminal	NF7 100 E7..	NF7 100 E7..S
	1C (SPDT)	Standard Pinning	NF7 001 E..	NF7 001 E..S
		double NO Terminal	NF7 001 E7..	NF7 001 E7..S

Ordering Information

NF7 001 E 7 24 S - XXXX

1 2 3 4 5 6 7 8

- | | | | |
|----------|---|----------|---|
| 1. NF7 | -- Basic series Designation | 6. Blank | -- Flux tight |
| | | S | -- Sealed washable |
| 2. 100 | -- Single pole normaly open | 7. Blank | -- Standard |
| 001 | -- Single pole double throw | | |
| 3. E | -- Contact Material Ag alloy | 8. Blank | -- Standard Type |
| | | XXXX | -- Letters and/or numbers for special customer design |
| 4. Blank | -- Standard | | |
| 7 | -- double NO Terminal | | |
| 5. | -- Coil Voltage [VDC]: 3, 5, 6, 9, 12, 24, 48 | | |

Contact Data

Type of contact	Single contact
Configuration	1 NO, 1CO
Maximum switching current	16A
Maximum switching voltage	250 VAC
Contact material	Ag alloy

Coil rating (DC @+23°C) - 360mW Version

U_N (VDC)	R (Ohm)	U_{PI} (VDC)	U_{DO} (VDC)	I_N (mA)
3	25 ± 10%	≤ 2.1	≥ 0.3	120
5	69 ± 10%	≤ 3.5	≥ 0.5	73
6	100 ± 10%	≤ 4.2	≥ 0.6	60
9	225 ± 10%	≤ 6.3	≥ 0.9	40
12	400 ± 10%	≤ 8.4	≥ 1.2	30
24	1600 ± 10%	≤ 16.8	≥ 2.4	15
48	6400 ± 10%	≤ 33.6	≥ 4.8	7.5

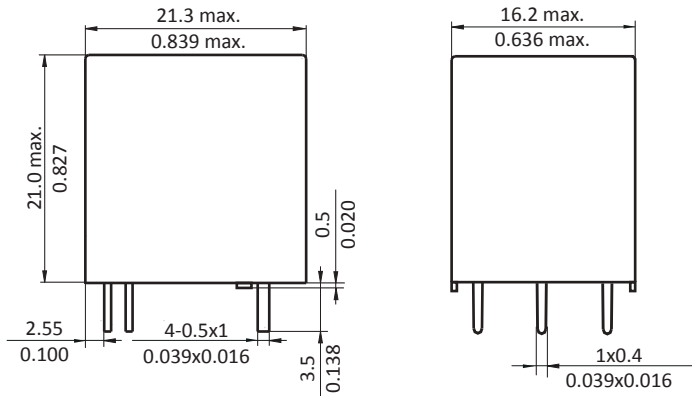
Specification

Mechanical life	10x10 ⁶ cycles	
Electrical life at rated load	see curve	
Max. Switching rate at rated load	360 Operations/h	
Operate Time / Release time	15 / 5 ms Max.	
Clearance / creepage distances	3/4 mm	
Dielectric strength	Between coil and contacts	2500V, 50/60Hz, 1min
	Between open contacts	1000V, 50/60Hz, 1min
Ambient temperature	-40 .. + 105 °C	
Vibration resistance (10..55Hz)	1.5 mm	
Shock resistance 11 ms	10 g	
Approvals	UL/CUL, VDE	
Insulation materials for domestic appliances - according IEC60335-1.		

Safety Approval

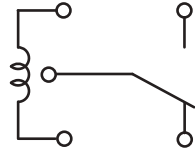
Certified	Ratings
UL/CUL	16A, 277VAC; 20A, 125VAC
	NO: 1HP (16FLA) 125VAC, (8FLA) 250VAC; NC: 1/2HP (9.8FLA) 125VAC, (4.9FLA) 250VAC
VDE NF7 Standard	16A, 250VAC, + 105°C, NO contact
	10A, 250VAC, + 105°C, NO contact
	7A, 400VAC, + 105°C, NO contact
CQC - NF7 Standard	10A, 250VAC, +85°C

Outline Dimensions

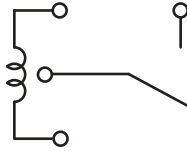


Wiring Diagram

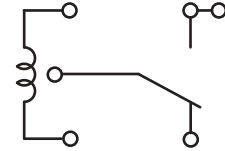
Bottom View



1CO



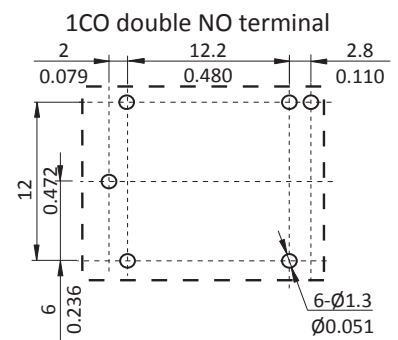
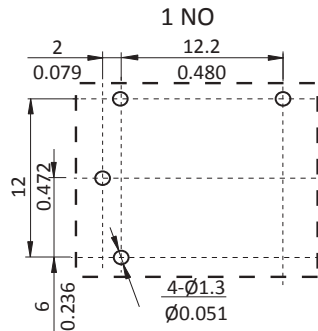
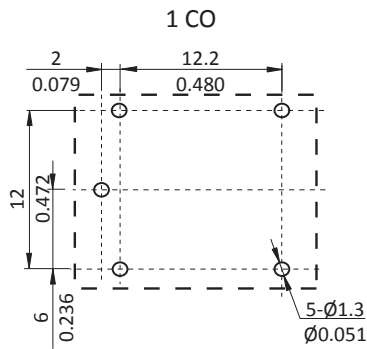
1NO



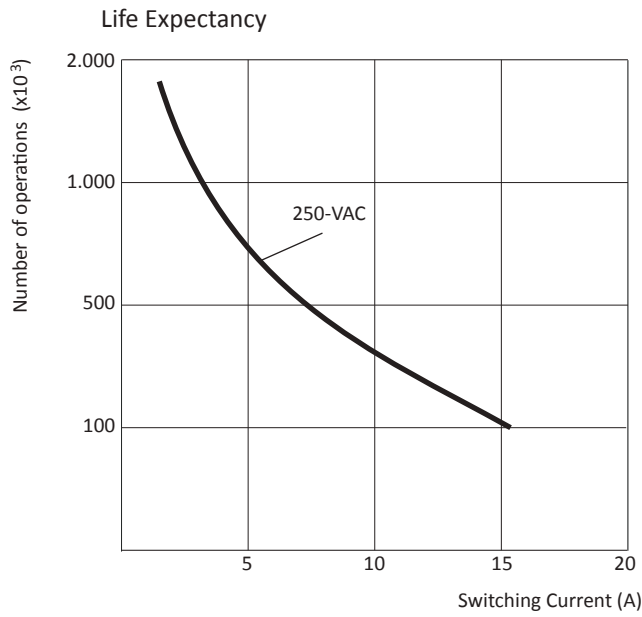
1CO double NO terminal

PC Board Layout

Bottom View



Engineering Data



Disclaimer

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Features

- 16A power sugar cube relay
- For high rating applications
- Double NO terminal available
- Cd free contact material
- Maximum ambient temperature +85°C
- Approved by UL/CUL, VDE and CQC
- Comply with IEC 60335-1
- Comply with RoHS-Directive 2011/65/EU



Type List

Terminal style	Contact form	Designation (provided with)	
		Flux tight	Sealed type washable
PCB terminal	1A (SPNO)	NF9 100 E..	NF9 100 E..S
	1C (SPDT)	NF9 001 E..	NF9 001 E..S

Ordering Information

NF9 100 E 24 S - XXXX
 1 2 3 4 5 6 7 8

- | | | | |
|--------|---|----------|---|
| 1. NF7 | -- Basic series Designation | 5. Blank | -- Flux tight |
| | | S | -- Sealed washable |
| 2. 100 | -- Single pole normally open | 6. Blank | -- Standard |
| 001 | -- Single pole double throw | | |
| 3. E | -- Contact Material Ag alloy | 7. Blank | -- Standard Type |
| | | XXXX | -- Letters and/or numbers for special customer design |
| 4. | -- Coil Voltage [VDC]: 3, 5, 6, 9, 12, 24, 48 | | |

Contact Data

Type of contact	Single contact
Configuration	1 NO, 1CO
Maximum switching current	16A
Maximum switching voltage	250 VAC
Contact resistance	<100 mΩ
Contact material	Ag alloy

Preliminary

Coil rating (DC @+23°C) - 360mW Version

U_N (VDC)	R (Ohm)	$U_{\text{pull-in}}$ (VDC)	$U_{\text{drop-out}}$ (VDC)	I_N (mA)
3	$25 \pm 10\%$	≤ 2.1	≥ 0.3	120
5	$69 \pm 10\%$	≤ 3.5	≥ 0.5	73
6	$100 \pm 10\%$	≤ 4.2	≥ 0.6	60
9	$225 \pm 10\%$	≤ 6.3	≥ 0.9	40
12	$400 \pm 10\%$	≤ 8.4	≥ 1.2	30
24	$1600 \pm 10\%$	≤ 16.8	≥ 2.4	15
48	$6400 \pm 10\%$	≤ 33.6	≥ 4.8	7.5

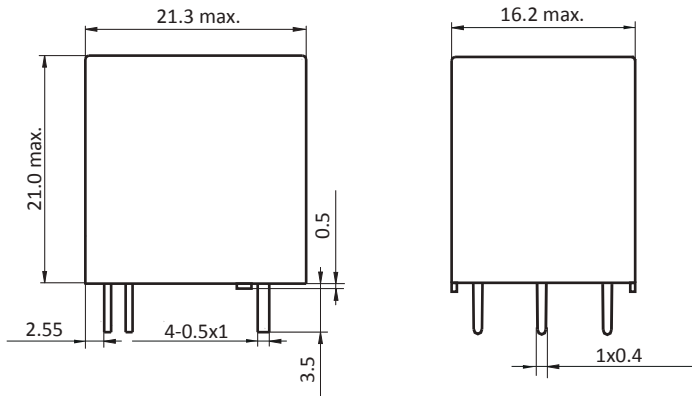
Specification

Mechanical life	10^7 cycles
Electrical life at rated load	10^5 cycles
Max. Switching rate at rated load	360 Operations/h
Operate Time / Release time	15 / 5 ms Max.
Clearance / creepage distances	3/4 mm
Dielectric strength	Between coil and contacts 2500V, 50/60Hz, 1min
	Between open contacts 1000V, 50/60Hz, 1min
Ambient temperature	-40 .. + 105 °C
Vibration resistance (10..55Hz)	1.5 mm
Shock resistance 11 ms	10 g
Approvals preliminary	UL/CUL, VDE
Insulation materials for domestic appliances - according IEC60335-1.	

Safety Approval

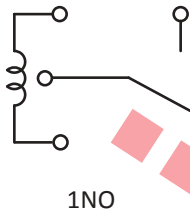
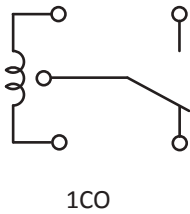
VDE (pending)	UL/CUL (pending)
16A, 250VAC, +85°C, NO contact	16A, 250VAC, +85°C, NO contact

Outline Dimensions (in mm)



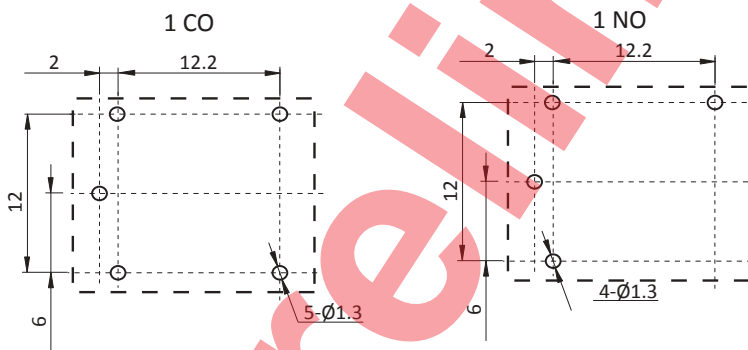
Wiring Diagram

Bottom View



PC Board Layout

Bottom View



View on solder pins.
Dimensions in mm.

Preliminary!

Disclaimer

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Features

- 12A sugar cube relay
- For high rating and high temperature applications
- Double NO terminal available
- Cd free contact material
- Maximum ambient temperature +105°C
- Approved by UL/CUL, VDE and CQC
- Comply with IEC 60335-1
- Comply with RoHS-Directive 2011/65/EU



Ordering Information

NF6T 100 E - 5 - XXXX
1 2 3 4 5 6 7

- | | | | | | |
|----|-------|--------------------------------|----|------|---|
| 1. | NF6 | -- standard version | 7. | XXXX | -- Letters and/or numbers for special customer design |
| | NF6T | -- high temperature version | | | |
| 2. | 100 | -- 1 NO contact | | | |
| | 001 | -- 1 CO contact | | | |
| 3. | E | -- Ag alloy | | | |
| 4. | Blank | -- Standard NO terminal | | | |
| 5. | 5 | -- 5, 6, 9, 12, 18, 24, 48 VDC | | | |
| 6. | Blank | -- Flux tight | | | |
| | S | -- Sealed washable | | | |

Contact Data

Type of contact	Single Contact
Configuration	1NO / 1CO
Contact rating	12A / 250VAC
Max. switching power	3000W
Max. switching voltage	250 VAC
Contact Resistance	≤100mΩ
Contact material	Ag alloy

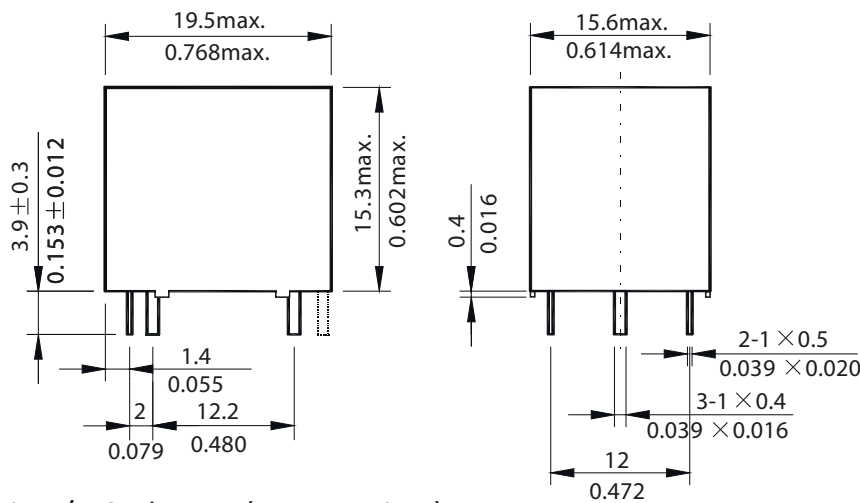
Coil rating (@+23°C)

U_N (VDC)	R (Ω) ± 10%	Pull-in Voltage U_{PI} (VDC)	Drop-out voltage U_{DO} (VDC)	Coil power P_{coil} (W)
5	69	≤ 3.5	≥ 0.5	360mW
6	100	≤ 4.2	≥ 0.6	
9	225	≤ 6.3	≥ 0.9	
12	400	≤ 8.4	≥ 1.2	
18	900	≤ 12.6	≥ 1.8	
24	1600	≤ 16.8	≥ 2.4	
48	6400	≤ 33.6	≥ 4.8	

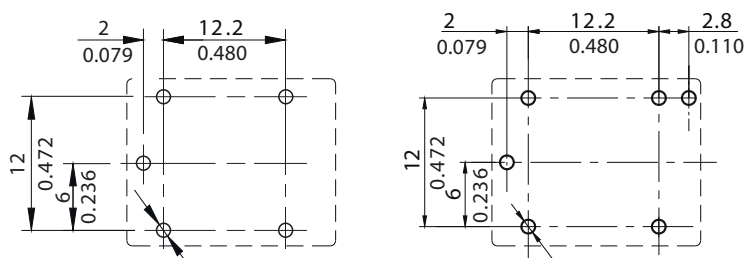
Specification

Mechanical life (frequency 18000 oper. / h)	10 ⁷ Oper.		
Electrical life (frequency 360 oper. / h)	NF6	10A / 100 x 10 ³	13A / 60 x 10 ³
	NF6T	10A / 100 x 10 ³	10A / 30 x 10 ³
Operating time / Release time	≤10ms / ≤5ms		
Insulation Resistance	250M Ω (at 500VDC)		
Dielectric strength contacts/ coil	1500 VACrms		
Dielectric strength open contacts	750 VACrms		
Ambient temperature (no freezing)	-40°C...+105°C		
Vibration resistance	10 ~ 55Hz; double amplitude 1.5mm		
Shock resistance	10G / 11ms		
Dimensions	19.5 x 15.6 x 15.3 mm		
Weight	approx. 9,5g		

Dimension (in mm)

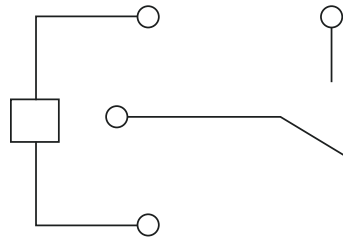


Wiring / PCB-layout (Bottom view)

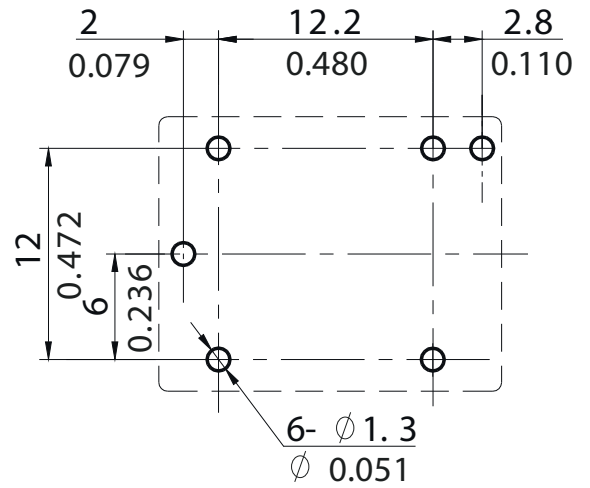
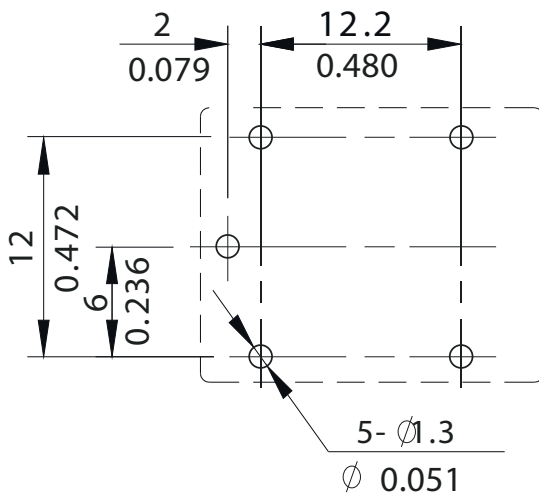
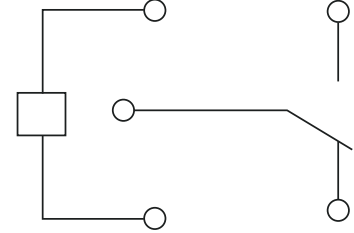


Wiring / PCB-layout (Bottom view)

1NO



1CO



Disclaimer

All technical performance data apply to the relay as such, specific conditions of the individual application are not considered. Please always check the suitability of the relay for your intended purpose. We do not assume any responsibility or liability for not complying herewith. We recommend to complete our questionnaire and to request our technical service. Any responsibility for the application of the product remains with the customer only. All specifications are subject to change without notification. All rights of NF Forward GmbH are reserved.

Features

- 10A sugar cube relay
- Double NO terminal available
- Cd free contact material
- Maximum ambient temperature +105°C
- Approved by UL/CUL, VDE and CQC
- Comply with IEC 60335-1
- Comply with RoHS-Directive 2011/65/EU



Type List

Terminal style	Contact form	Contact Material	Version	Designation (provided with)	
				Flux tight	Sealed type washable
PCB terminal	1A (SPNO)	AgSnO	Standard	NF8 100 E..	NF8 100 E..S
			12A	NF8 100 E7..	NF8 100 E7..S
	1C (SPDT)	AgSnO	Standard	NF8 001 E..	NF8 001 E..S
			12A	NF8 001 E7..	NF8 001 E7..S

Ordering Information

NF8 001 E 7 24 - XXXX
 1 2 3 4 5 6 7

- | | | | |
|----------|------------------------------------|----------|---|
| 1. NF8 | -- Basic series Designation | 5. Blank | -- Coil Voltage [VDC]: 6, 9, 12, 24, 48 |
| 2. 100 | -- Single pole normally open | 6. Blank | -- Flux tight |
| 001 | -- Single pole double throw | S | -- Sealed washable |
| 3. E | -- Contact Material Ag alloy | 7. Blank | -- Standard |
| 4. Blank | -- Standard Version 10A | xxxx | -- letters and/or numbers for special customer design |
| 7 | -- 12A Version, double NO Terminal | | |

Contact Data

Type of contact	Single contact
Configuration	1 NO, 1CO
Maximum switching current	10A,12A (refer to Ordering Information 4.)
Maximum switching voltage	250 VAC
Contact material	Ag alloy

Coil rating (DC @+23°C) - 360mW Version

U_N (VDC)	R (Ohm)	U_{PI} (VDC)	U_{DO} (VDC)	I_N (mA)
5	70 ± 10%	≤ 3.75	≥ 0.5	71
6	100 ± 10%	≤ 4.5	≥ 0.6	60
9	225 ± 10%	≤ 6.75	≥ 0.9	40
12	400 ± 10%	≤ 9	≥ 1.2	30
24	1600 ± 10%	≤ 18	≥ 2.4	15
48	6400 ± 10%	≤ 36	≥ 4.8	7.5

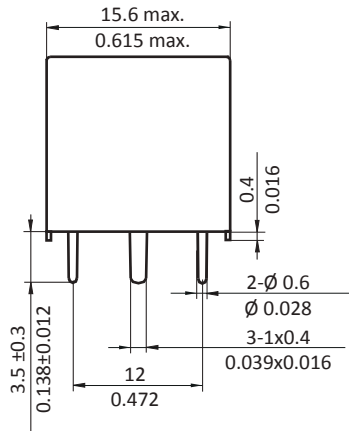
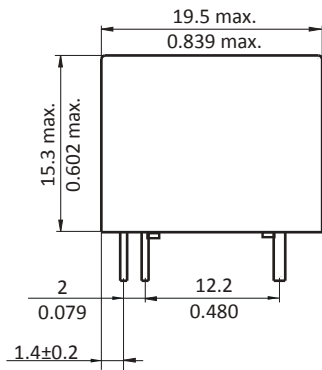
Specification

Mechanical life	10x10 ⁶ cycles		
Electrical life at rated load	10A Version	10A, 250VAC +85°C 6A, 250VAC +105°C	50x10 ³ 100x10 ³
	12A Version	12A, 250VAC +85°C 12A, 250VAC +70°C	50x10 ³ 100x10 ³
Max. Switching rate at rated load	360 Operations/h		
Operate Time / Release time	10 / 5 ms Max.		
Clearance / creepage distances	1.5 / 1.8 mm		
Dielectric strength	Between coil and contacts	1500V, 50/60Hz, 1min	
	Between open contacts	750V, 50/60Hz, 1min	
Ambient temperature	10A Version: -40 .. +105 °C; 12A Version: -40 .. + 85 °C ;		
Vibration resistance (10..55Hz)	1.5 mm		
Shock resistance 11 ms	10 g		
Approvals	VDE, UL/CUL		
Insulation materials for domestic appliances - according IEC60335-1.			

Safety Approval

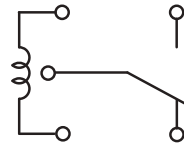
Certified	Ratings
UL/CUL	10A, 250VAC
	12A, 125VAC, +85°C, NO
	15A, 125VAC
VDE	10A, 250VAC, +85°C, NO contact
	6A, 250VAC, +105°C, NO contact
	6A, 400VAC, +85°C, NO contact
	12A, 250VAC, +85°C, NO contact
	12A, 250VAC, +70°C, NO contact
CQC	7A, 150VAC

Outline Dimensions

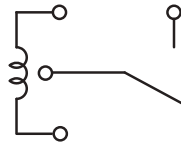


Wiring Diagram

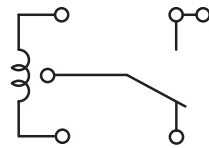
Bottom View



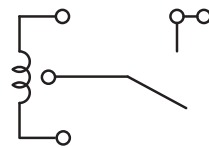
1CO



1NO



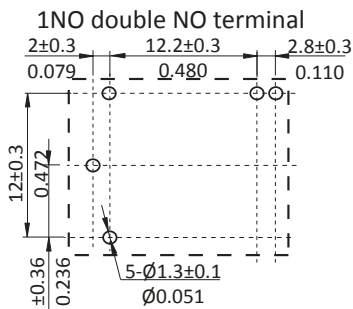
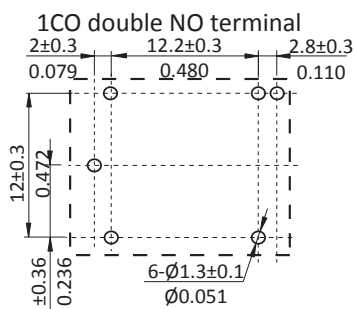
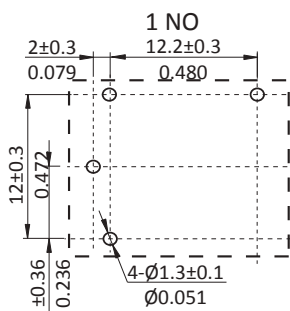
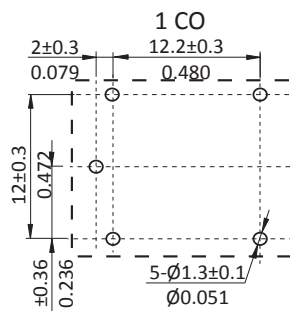
1CO double NO terminal



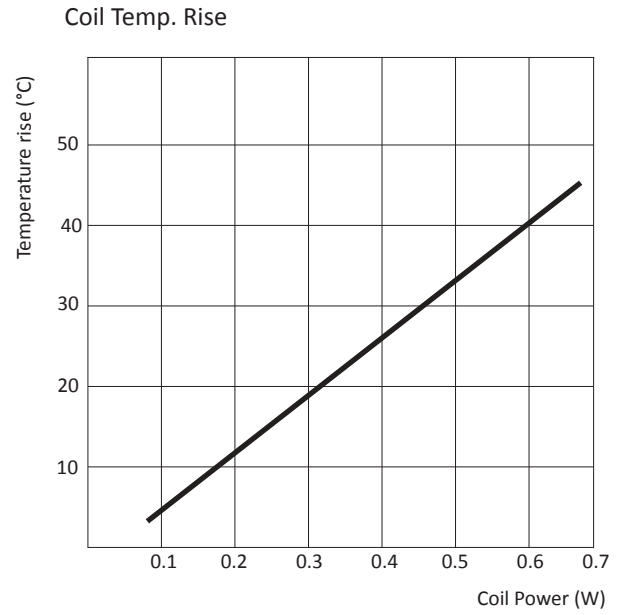
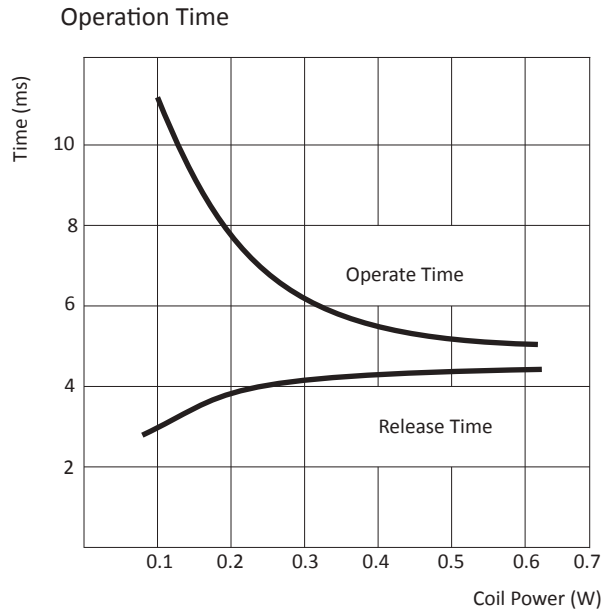
1NO double NO terminal

PC Board Layout

Bottom View



Engineering Data



Disclaimer

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Features

- 5A sugar cube relay
- Cd free contact material
- Maximum ambient temperature +85°C
- Approved by UL/CUL, VDE and CQC
- Comply with IEC 60335-1
- Comply with RoHS-Directive 2011/65/EU



Type List

Terminal style	Contact form	Designation (provided with)	
		Flux tight	Sealed type washable
PCB terminal	1A (SPNO)	NF5 100 D..	NF5 100 D..S
	1C (SPDT)	NF5 001 D..	NF5 001 D..S

Ordering Information

NF5 001 E 24 - XXXX

1 2 3 4 5 6

- | | | | |
|--------|------------------------------|----------|---|
| 1. NF5 | -- Basic series Designation | 4. Blank | -- Coil Voltage [VDC]: 6, 9, 12, 24, 48 |
| 2. 100 | -- Single pole normally open | 5. Blank | -- Flux tight |
| 001 | -- Single pole double throw | S | -- Sealed washable |
| 3. D | -- Contact Material Ag alloy | 6. Blank | -- Standard |
| | | xxxx | -- letters and/or numbers for special customer design |

Contact Data

Type of contact	Single contact
Configuration	1 NO, 1CO
Maximum switching current	5A
Maximum switching voltage	250 VAC
Contact material	Ag alloy

Coil rating (DC @+23°C) - 360mW Version

U_N (VDC)	R (Ohm)	U_{PI} (VDC)	U_{DO} (VDC)	I_N (mA)
5	$70 \pm 10\%$	≤ 3.75	≥ 0.5	71
6	$100 \pm 10\%$	≤ 4.5	≥ 0.6	60
9	$225 \pm 10\%$	≤ 6.75	≥ 0.9	40
12	$400 \pm 10\%$	≤ 9	≥ 1.2	30
24	$1600 \pm 10\%$	≤ 18	≥ 2.4	15
48	$6400 \pm 10\%$	≤ 36	≥ 4.8	7.5

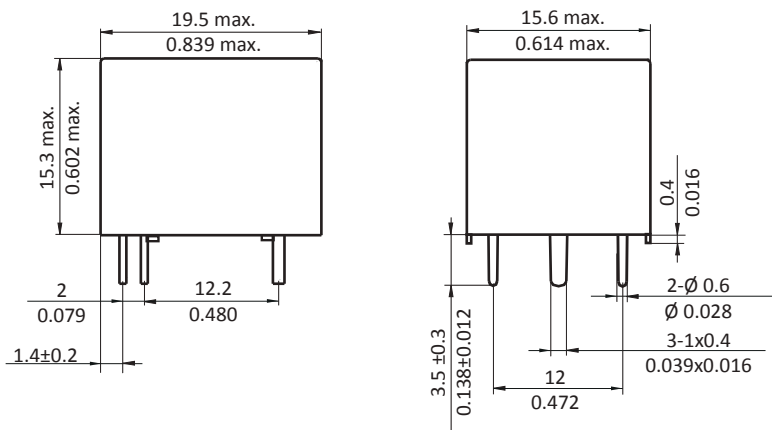
Specification

Mechanical life	10x10 ⁶ cycles	
Electrical life at rated load	5A, 250VAC +85°C	50x10 ³
	3A, 250VAC +85°C	100x10 ³
Max. Switching rate at rated load	360 Operations/h	
Operate Time / Release time	10 / 5 ms Max.	
Clearance / creepage distances	1.5 / 1.8 mm	
Dielectric strength	Between coil and contacts	1500V, 50/60Hz, 1min
	Between open contacts	750V, 50/60Hz, 1min
Ambient temperature	-40 .. + 85 °C	
Vibration resistance (10..55Hz)	1.5 mm	
Shock resistance 11 ms	10 g	
Approvals	UL/CUL, VDE	
Insulation materials for domestic appliances - according IEC60335-1.		

Safety Approval

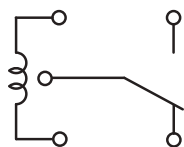
Certified	Ratings
UL/CUL	10A, 125VAC
VDE	5A, 250VAC, +85°C, NO contact

Outline Dimensions

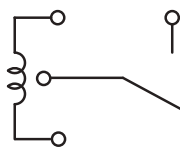


Wiring Diagram

Bottom View

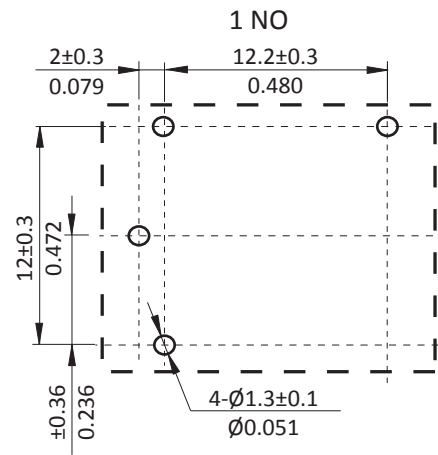
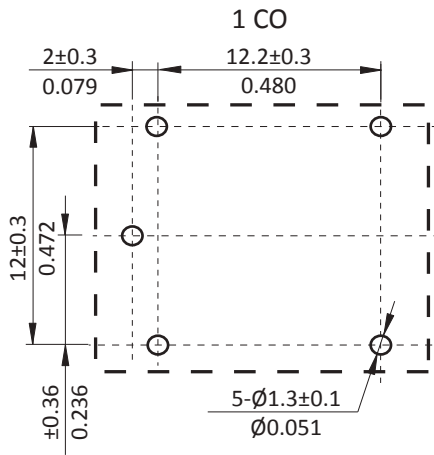


1CO



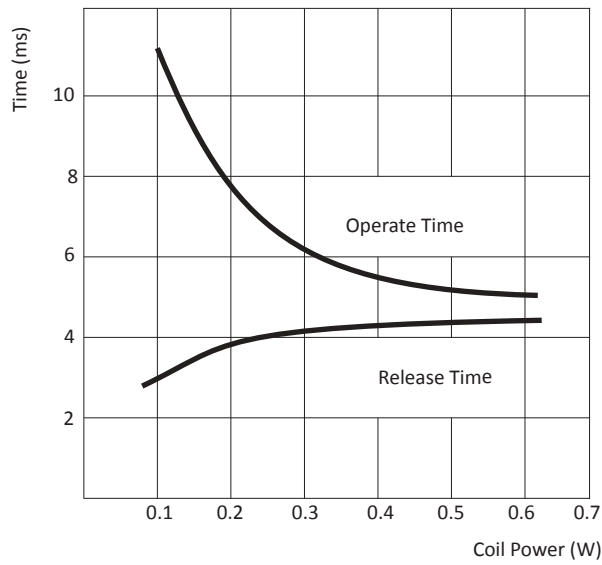
1NO

PC Board Layout Bottom View

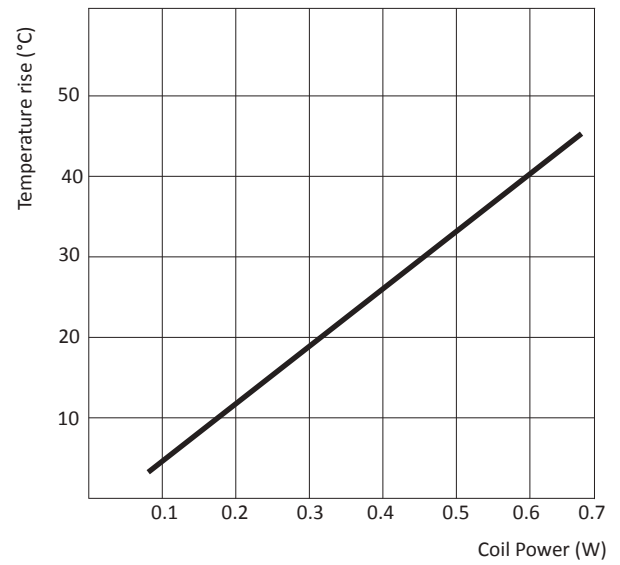


Engineering Data

Operation Time



Coil Temp. Rise



Features

- 30A power relay
- Cd free contact material
- Maximum ambient temperature +100°C
- Approved by UL/CUL, VDE (Pending)
- Comply with RoHS-Directive 2011/65/EU



Type List

Relay Version	Contact form	Designation (provided with)	
		Flux tight	Sealed type washable
Standard Version	1A (SPNO)	NF90 100 E..	NF90 100 E..S
	1C (SPDT)	NF90 001 E..	NF90 001 E.S
High power Version	1A (SPNO)	NF90H 100 E..	NF90H 100 E..S
	1C (SPDT)	NF90H 001 E..	NF90H 001 E..S

Ordering Information

NF90 100 E - 24 - - XXXX

1 2 3 4 5 6 7 8

- | | |
|---|--|
| 1. NF90 -- Standard Version
NF90H -- High power Version | 5. 5 -- Coil Voltage [VDC]: 5, 6, 9, 12, 24, 48 |
| 2. 100 -- Single pole normaly open
001 -- Single pole double throw | 6. Blank -- Flux tight
S -- Sealed washable |
| 3. E -- Contact Material Ag alloy | 7. Blank -- 2500VAC (Dielectrical Strength
B -- 4000VAC Contact/Coil) |
| 4. Blank -- Without pin6
7 -- With pin 6 | 6. Blank -- Standard
xxxx -- letters and/or numbers for special customer design |

Contact Data

Type of contact	Single contact
Configuration	1 NO, 1CO
Maximum switching current	30A / 40A
Maximum switching voltage	250 VAC
Contact material	Ag alloy

Coil rating (DC @+23°C) - 360mW Version

U_N (VDC)	R (Ohm)	$U_{Pull-in}$ (VDC)	$U_{drop-out}$ (VDC)	I_N (mA)
5	26 ± 10%	75% or less of Nominal Voltage (initial)	10% or less of Nominal Voltage (initial)	180
6	40 ± 10%			150
9	90 ± 10%			100
12	160 ± 10%			75
24	640 ± 10%			38
48	2560 ± 10%			19

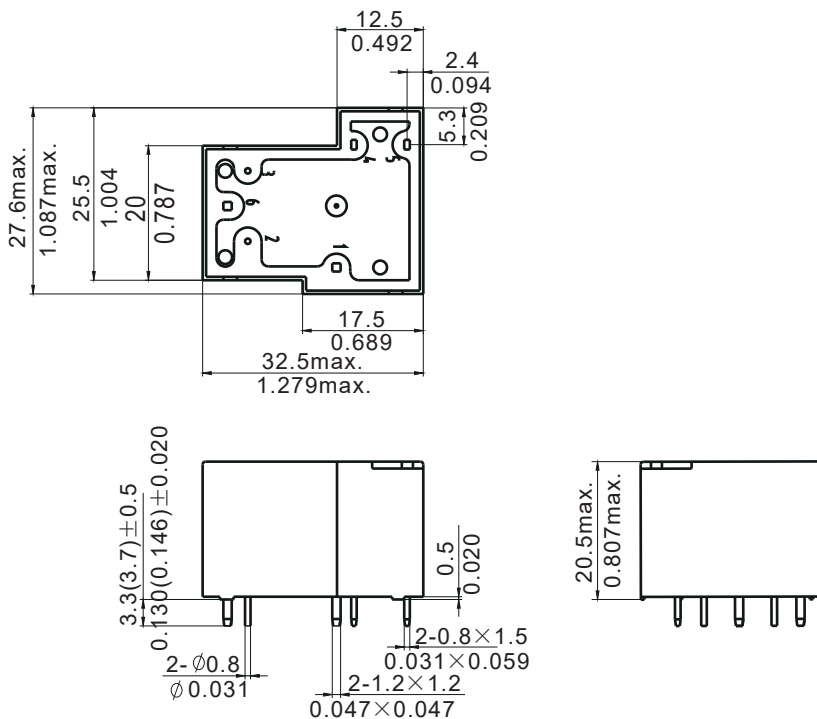
Specification

Mechanical life	10 ⁷ cycles	
Electrical life at rated load		
Operate Time / Release time	15 / 10 ms Max.	
Dielectric strength	Between coil and contacts	
	Between open contacts	2500V / 4000V , 50/60Hz, 1min
Ambient temperature	-40 .. + 105 °C	1500V, 50/60Hz, 1min
Vibration resistance (10..55Hz)	1.5 mm	
Shock resistance 11 ms	200 g	
Approvals	UL/CUL , VDE	

Safety Approval

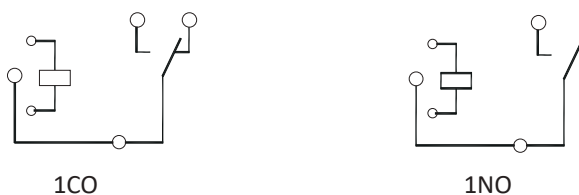
Certified	Ratings
UL	Pending
VDE	Pending

Outline Dimensions



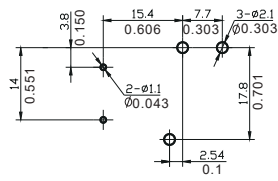
Wiring Diagram

Bottom View

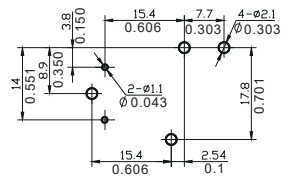


PC Board Layout

Bottom View



Without pin 6



With pin 6

Disclaimer

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