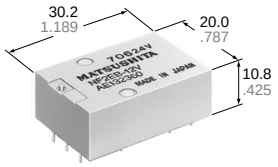
CSA pending

Panasonic
ideas for life

FLATPACK RELAY

NF-RELAYS



mm inch

FEATURES

1. Flatpack

2. Long seller

SPECIFICATIONS

Contacts

Arrangement[1]			2 Form C, 4 Form C
Initial contact resistance (By voltage drop 6 V DC 1 A)		Max.	50 mΩ
		Typical	25 mΩ
Contact material	Movable contact		Gold-clad silver
	Stationary contact		Gold-clad silver
Rating, (resistive load)	Max. switching power		60 W 100 VA
	Max. switching voltage		220 V AC, DC
	Max. switching current		2 A
Expected life (min. operations)	Mechanical		10^8
	Electrical (Resistive)	2 A 30 V DC	2×10^5
		1 A 30 V DC	10^6
		0.5 A 30 V DC	10^7

[1] MBB types available: 2MBB & 4MBB
(See next page for contact positions.)

Coil

Nominal operating power, at 25°C	2C	Approx. 300 mW
	4C	Approx. 480 mW
Max. operating power for continuous duty		Approx. 1 W at 40°C 104°F

Remarks

* Specifications will vary with foreign standards certification ratings.
*1 Measurement at same location as "Initial breakdown voltage" section
*2 Detection current: 10 mA
*3 Excluding contact bounce time
*4 Half-wave pulse of sine wave: 11ms; detection time: 10μs
*5 Half-wave pulse of sine wave: 6ms
*6 Detection time: 10μs
*7 Refer to 6. Conditions for operation, transport and storage mentioned in AMBIENT ENVIRONMENT.

Characteristics (at 25°C 77°F, 50% R.H. seal level)

Max. operating speed			50 cps
Initial insulation resistance*1			1,000 MΩ at 500 V DC
Electrostatic capacitance	Contact/Contact		Approx. 4 pF
	Contact/Coil		Approx. 7 pF
	Contact/Ground		Approx. 6 pF
Initial breakdown voltage*2	Between open contacts		750 Vrms
	Between contact sets		1,000 Vrms
	Between live parts and ground		1,000 Vrms
	Between contacts and coil		1,000 Vrms
Operate time*3 (at nominal voltage)			Max. 15 ms (Approx. 10 ms)
Release time (without diode)*3 (at nominal voltage)			Max. 10 ms (Approx. 3 ms)
Contact bounce			Approx. 1.5 ms
Shock resistance	Functional*4	In de-energized condition	Min. 29.4 m/s² {3 G} (In contact direction) Min. 98 m/s² {10 G} (perpendicular to contact)
		In energized condition	Min. 196 m/s² {20 G}
	Destructive*5		Min. 980 m/s² {100 G}
Vibration resistance	Functional*6	In de-energized condition	29.4 m/s² {3 G}, 10 to 55 Hz at double amplitude of 0.5 mm (in contact direction) 98 m/s² {10 G}10 to 55 Hz at double amplitude of 1.6 mm (perpendicular to contact)
		In energized condition	117.6 m/s² {12 G}10 to 55 Hz at double amplitude of 2 mm
	Destructive		196 m/s² {20 G}, 10 to 55 Hz at double amplitude of 3.3 mm
Conditions for operation, transport and storage*7 (Not freezing and condensing at low temperature)		Ambient temp.	–40°C to + 65°C –40°F to +149°F
		Humidity	5 to 85%R.H.
Unit weight		2C	Approx. 14 g .49 oz
		4C	Approx. 15.5 g .55 oz

TYPICAL APPLICATIONS

NF relays are widely acceptable in applications where small size and high sensitivity are required.
Such applications include: Electronic equipment, Household applications, Alarm systems, Office machines, Communication equipment, Measuring equipment, Remote control systems, General control circuits, Machine tools, Industrial machinery, etc.

ORDERING INFORMATION

Ex. NF | 4 | EB | 4M | 48V | 1

Contact arrangement	Type classification	MBB function	Coil voltage (DC)	Contact metarial
2: 2 Form C 4: 4 Form C	EB: Standard	Nil: Form C type 2M: 2MBB (2 Form D) 4M: 4MBB (4 Form D)	5, 6, 12, 24, 48 V	Nil: Gold-clad silver 1: Gold-cap over silver palladium

(Notes) 1. For VDE recognized types, add suffix VDE.
2. For UL/CSA recognized type, add suffix-A, as NF2EB-12V-A whose ground terminal is cut off.
3. Standard packing Carton: 20 pcs.; Case: 200 pcs.

TYPES AND COIL DATA (at 25°C 77°F)

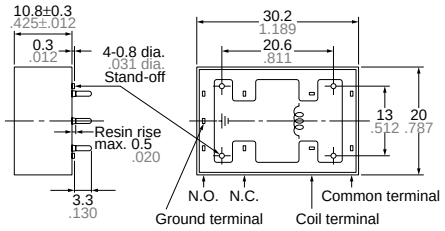
*Less than 1,000 Ω: ±10%
*More than 1,000 Ω: ±15%

Part No.	Nominal voltage, V DC	Pick-up voltage, V DC (max.)	Drop-out voltage, V DC (min.)	Max. allowable voltage, V DC (at 40°C)	Coil resistance,* Ω	Nominal operating power, mW	Inductance, H	
							Armarure	
							Open	Close
NF2EB-5V	5	4.0	0.5	8.7	90	278	0.071	0.071
NF2EB-6V	6	4.8	0.6	10.5	137	260	0.093	0.094
NF2EB-12V	12	9.6	1.2	21	500	290	0.338	0.344
NF2EB-24V	24	19.2	2.4	42	2,000	290	1.29	1.31
NF2EB-48V	48	38.4	4.8	84	7,000	330	4.12	4.18
NF4EB-5V	5	4.0	0.5	7	53	472	0.029	0.029
NF4EB-6V	6	4.8	0.6	8.5	90	400	0.070	0.071
NF4EB-12V	12	9.6	1.2	17.0	330	440	0.22	0.23
NF4EB-24V	24	19.2	2.4	34	1,200	480	0.77	0.79
NF4EB-48V	48	38.4	4.8	68	4,200	550	2.22	2.25

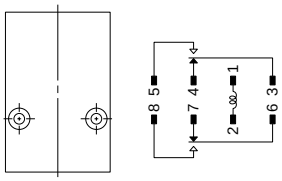
DIMENSIONS

mm inch

2 Form C



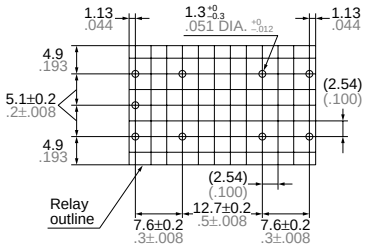
Schematic



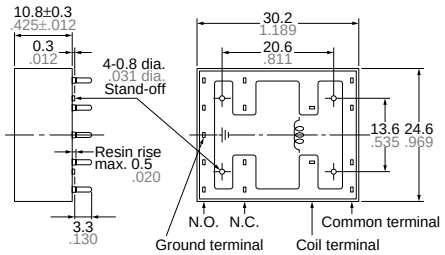
Terminal dimensions (except soldering)
Width: 0.8 .031
Thickness: 0.3 .012

MBB contact position
NF2-2M: terminal 6-7-8, 3-4-5

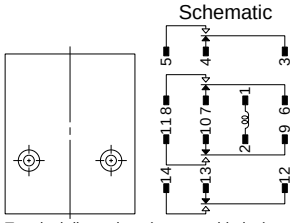
PC board pattern (Copper-side view)



4 Form C



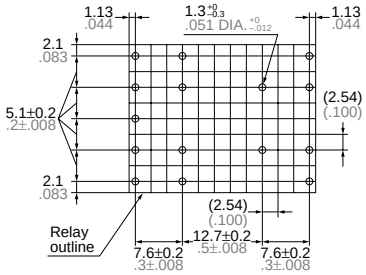
Schematic



Terminal dimensions (except soldering)
Width: 0.8 .031
Thickness: 0.3 .012

MBB contact position
NF4-2M: terminals 6-7-8, 9-10-11
NF4-2M: terminals 6-7-8, 3-4-5, 12-13-14, 9-10-11

PC board pattern (Copper-side view)



General tolerance: ±0.5 ±.020
(Except for the cover height)