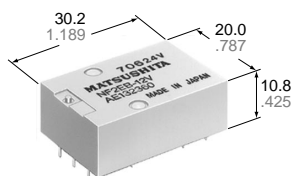


**Panasonic**  
ideas for life

**FLATPACK RELAY**

**NF-RELAYS**



mm inch

## FEATURES

1. Flatpack
2. Long seller

## SPECIFICATIONS

### Contacts

Arrangement <sup>1)</sup>	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 <sup>8</sup>
	Electrical (Resistive)	2 A 30 V DC	2 × 10 <sup>5</sup>
		1 A 30 V DC	10 <sup>6</sup>
		0.5 A 30 V DC	10 <sup>7</sup>

<sup>1)</sup> 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.
- \*<sup>1)</sup> Measurement at same location as "Initial breakdown voltage" section
- \*<sup>2)</sup> Detection current: 10 mA
- \*<sup>3)</sup> Excluding contact bounce time
- \*<sup>4)</sup> Half-wave pulse of sine wave: 11ms; detection time: 10μs
- \*<sup>5)</sup> Half-wave pulse of sine wave: 6ms
- \*<sup>6)</sup> Detection time: 10μs
- \*<sup>7)</sup> 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* <sup>1)</sup>		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* <sup>2)</sup>	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* <sup>3)</sup> (at nominal voltage)		Max. 15 ms (Approx. 10 ms)
Release time (without diode)* <sup>3)</sup> (at nominal voltage)		Max. 10 ms (Approx. 3 ms)
Contact bounce		Approx. 1.5 ms
Shock resistance	Functional* <sup>4)</sup>	In de-energized condition Min. 29.4 m/s <sup>2</sup> {3 G} (In contact direction) Min. 98 m/s <sup>2</sup> {10 G} (perpendicular to contact)
		In energized condition Min. 196 m/s <sup>2</sup> {20 G}
	Destructive* <sup>5)</sup>	Min. 980 m/s <sup>2</sup> {100 G}
Vibration resistance	Functional* <sup>6)</sup>	In de-energized condition 29.4 m/s <sup>2</sup> {3 G}, 10 to 55 Hz at double amplitude of 0.5 mm (in contact direction) 98 m/s <sup>2</sup> {10 G} 10 to 55 Hz at double amplitude of 1.6 mm (perpendicular to contact)
		In energized condition 117.6 m/s <sup>2</sup> {12 G} 10 to 55 Hz at double amplitude of 2 mm
	Destructive	196 m/s <sup>2</sup> {20 G}, 10 to 55 Hz at double amplitude of 3.3 mm
Conditions for operation, transport and storage* <sup>7)</sup> (Not freezing and condens- ing 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

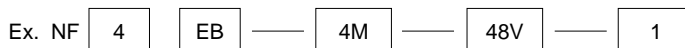
## TYPICAL APPLICATIONS

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



Contact arrangement	Type classification	MBB function	Coil voltage (DC)	Contact material
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)

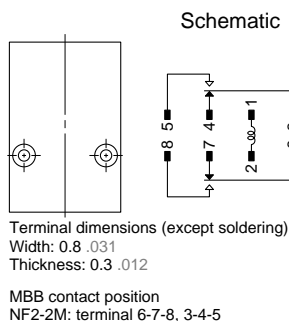
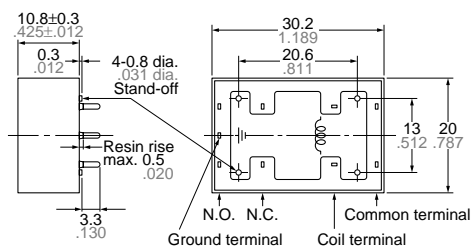
\*Less than 1,000 Ω: ±10%  
 \*More than 1,000 Ω: ±15%

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	
							Armature	
							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

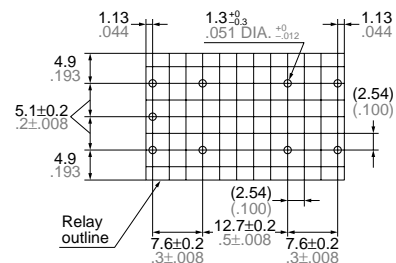
## DIMENSIONS

mm inch

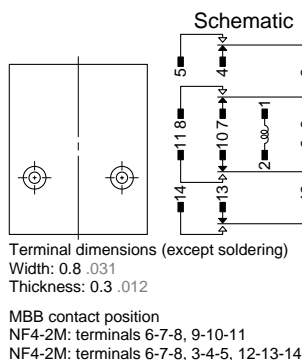
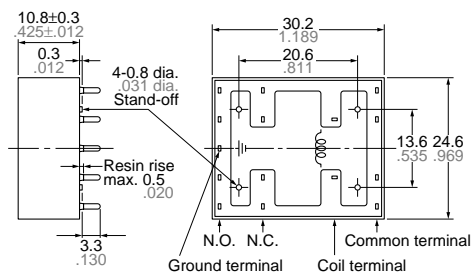
### 2 Form C



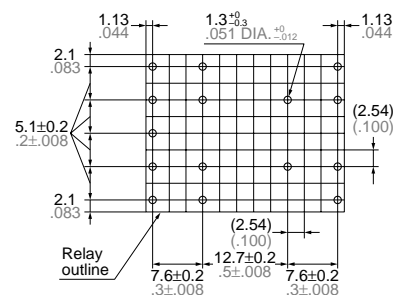
### PC board pattern (Copper-side view)



### 4 Form C



### PC board pattern (Copper-side view)



General tolerance: ±0.5 ±0.020  
 (Except for the cover height)