Features

Miniature high power design for PC board
Automobile relay with high switching power
Switching current up to 45A
Low cost and high performance
European(11mm) or USA(8mm) footprints
Open type, dust cover or wash tight type

Ordering information

FRA2 B C - C 1 DC12V R
　1　　2　3　　4　5　　6　　　7

1 Relay model	5 Version:　1: USA(8mm);　　2: European(11mm)
2 Contact rating:　NIL: 40A 14VDC;　　B: 45A 14VDC	6 Rated voltage
3 Contact arrangement:　A: 1 Form A;　　B: 1 Form B;	7 Termination:　R: Without one COM PIN
C: 1 Form C	Note:　RoHS　: RoHS compliant relay
4 Construction:　NIL: Open type;　　C: Dust cover;	RoHS-I　: AgNi contact
S　: Wash tight type	RoHS-N: AgSnO$_2$ contact

Coil rating

Rated voltage (V)	Coil resistance Ω+/-10%	Rated current (mA)	Must operate voltage	Must dropout voltage	Maximum voltage	Power consumption (W) Approx.	Operate time (ms)	Release time (ms)
			% of rated voltage (at 20°C)					
6	19	315						
12	90	133	57.5 Max.	10 Min.	150 Max.	1.6	<5	<5
24	360	66						

CAUTION: 1. The use of any coil voltage less than the rated coil voltage will compromise the operation of the relay.
　　　　　2. Pickup and release voltage are for test purposes only and are not to be used as design criteria.

Characteristics

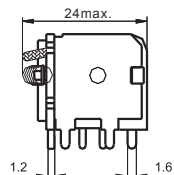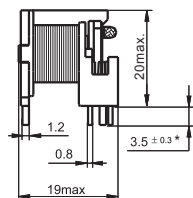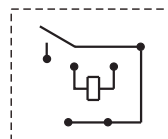| Contact arrangement		SPST (1 Form A or 1 Form B)　　SPDT (1 Form C)
Contact material		Sliver alloy
Contact resistance		30mΩ Max.
Contact rating (resistive)		NO: 40A/14VDC　　NC: 30A/14VDC　　(Special request NO: 45A/14VDC)
Switching voltage		DC 75V Max.
Insulation resistance		100MΩ Min. (500VDC)
Dielectric strength		500VAC (50Hz/min) Between open contacts
		750VAC (50Hz/min) Between coil and contact
Shock resistance		20g Approx.
Vibration resistance		1.27mm Double amplitude 10-40Hz
Ambient temperature		Operation: -40°C to +105°C　(Special request: -40°C to +125°C)
Humidity		85% RH, 40°C
Operation life	Mechanical	10^7
	Electrical	10^5 (at rated load)
Weight		Open type: 17g Approx.　　Wash tight type: 21g Approx.

(Specifications are subject to change without notices.)
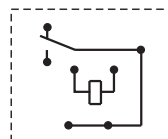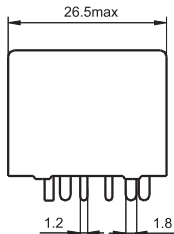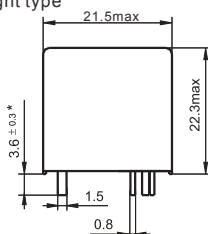
Dimensions

mm

Open type

Wiring diagram
(Bottom view)

20max.

1.2

0.8

3.5 ± 0.3 *

19max

24max.

1.2

1.6

1 Form A

Dust cover /
Wash tight type

21.5max

22.3max

3.6 ± 0.3 *

1.5

0.8

26.5max

1.2

1.8

1 Form C

Mounting holes

(2.8)   14.88

$2 - \varnothing 1.6\,^{+0.2}_{0}$

$1.2\,^{+0.2}_{0}$

3.73

3.35 3.75

$1.6\,^{+0.2}_{0}$

$2\,^{+0.2}_{0}$

11.87

$1.6\,^{+0.2}_{0}$

2.33

(5.13)

4.08

12.28

$2\,^{+0.7}_{0}$

FRA2-1

(4.3)   5.35 3.75

$2 - \varnothing 1.6\,^{+0.3}_{0}$

$1.2\,^{+0.2}_{0}$

3.73

(6.7)

11.87

$2\,^{+0.3}_{0}$

$1.6\,^{+0.3}_{0}$

4.08

12.28

FRA2-1R

(3.7)   15.9

$2 - \varnothing 1.6\,^{+0.2}_{0}$

$1.2\,^{+0.2}_{0}$

3.4

$2.2\,^{+0.3}_{0}$

10.1

8.9

12.1

$2\,^{+0.3}_{0}$

$2.2\,^{+0.2}_{0}$

2.2

(6.7)

2.2

13.2

$2.2\,^{+0.3}_{0}$

FRA2-2

(3.7)   10.1

$2 - \varnothing 1.6\,^{+0.2}_{0}$

$1.2\,^{+0.2}_{0}$

3.4

$2.2\,^{+0.2}_{0}$

5.9

(6.7)

12.1

$2\,^{+0.2}_{0}$

2.2

2.2

13.2

$2.2\,^{+0.2}_{0}$
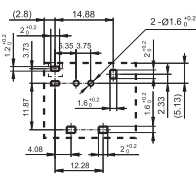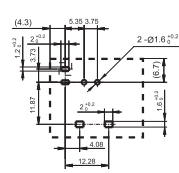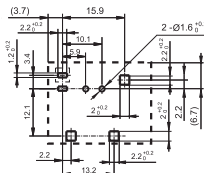
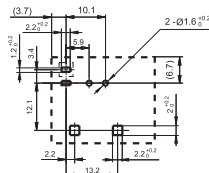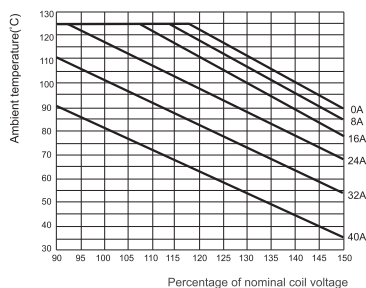**FRA2-2R**

Reference data

1. Coil operating voltage range

2. Load limit curve (at 23°C)

Ambient temperature(C)

130
120
110
100
90
80
70
60
50
40
30

90 95 100 105 110 115 120 125 130 135 140 145 150

Percentage of nominal coil voltage

0A
8A
16A
24A
32A
40A

Switching voltage (VDC)

75
70
60
50
40
30
20
10

0.5   1   2   3 4 5   7   10   20   30 45

Switching current (A)