General Purpose Power Relays

Features

High capacity, high withstand voltage relay
30A switching capabilities
SPST and DPST configurations
4KV dielectric strength coil to contacts
Heavy load up to 7,500VA

Ordering information

FRM7 MB - 2A S DC12V
1 2 3 4 5

1 Relay model
2 Mount: A : PCB Mount;
PB: Flanged & QC mount;
PN: Flanged & screw;
MB: Bracket attached & QC mount;
NB: Screw & QC mount;
NA: Screw & PCB mount
3 Contact arrangement: 1A: 1 Form A;
2A: 2 Form A

4 Construction: NIL: Dust cover;
S : Wash tight type
(for "FRM7NA" & "FRM7NB" only)
5 Rated voltage
Note: RoHS : RoHS compliant relay
RoHS-I : AgNi contact
RoHS-N: $AgSnO_2$ contact

Coil rating

	Rated voltage (V)	Coil resistance Ω+/-10%	Must operate voltage % of rated voltage (at 20°C)	Must dropout voltage % of rated voltage (at 20°C)	Power consumption Approx.	Operate time (ms)	Release time (ms)
AC	6	18.8	80 Max.	15 Min.	2.7VA	<30	<30
	12	75					
	24	300					
	48	1200					
	120	5200					
	220	20800					
DC	3	4.7	75 Max.	10 Min.	1.9W		
	6	18.8					
	12	75					
	24	300					
	48	1200					
	100	5200					
	110	6300					
	200	21000					

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); DPST (2 Form A)
Contact material	Sliver alloy
Contact resistance	100mΩ Max. (at 1A 24VDC)
Contact rating (resistive)	30A 277VAC
Motor load	3HP / 240VAC; 1.5HP 120VAC
Switching power	1 Form A: 8,310VA; 2 Form A: 6,925VA
Switching voltage	AC 277V
Insulation resistance	1,000MΩ Min. (500VDC)

Surge voltage		10,000VAC Between contact & coil
Shock resistance		Functional : 98m/s² Malfunction Destructive: 980m/s² Malfunction
Dielectric strength		2,000VAC (50Hz/min) Between open contacts 4,000VAC (50Hz/min) Between coil and contact
Vibration resistance		1.5mm Double amplitude 10-55Hz
Ambient temperature		-55°C to +70°C
Humidity		98% RH, 40°C
Operation life	Mechanical	1×10^6
	Electrical	1×10^5
Weight		120g Approx.

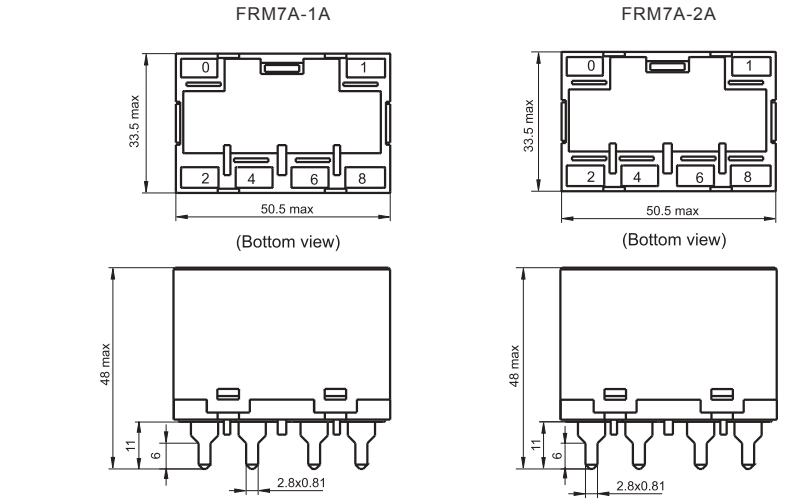
(Specifications are subject to change without notices.)

Dimensions

mm

Outline Dimensions

A Type

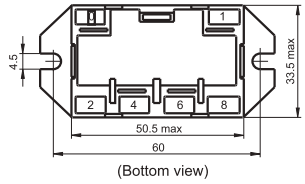


Dimensions mm

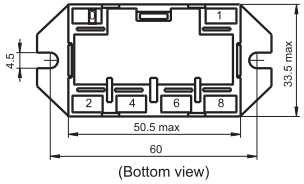
Outline Dimensions

PB Type

FRM7PB-1A

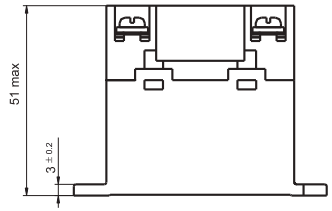


FRM7PB-2A

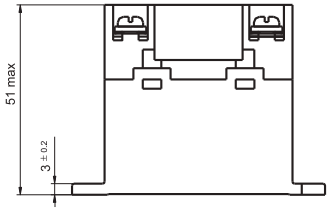


PN Type

FRM7PN-1A



FRM7PN-2A

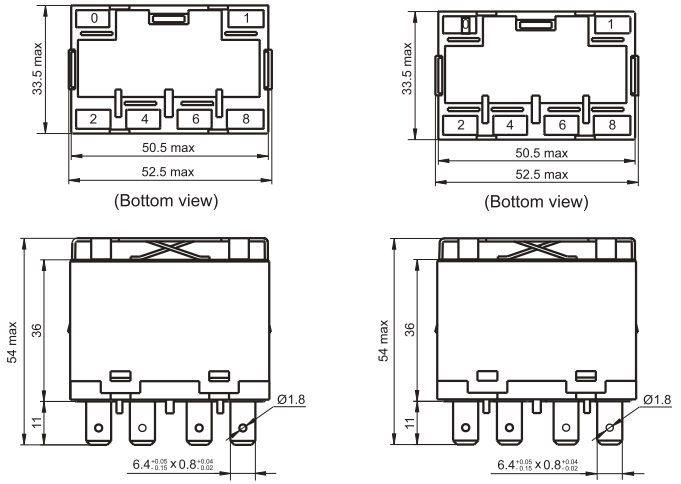


Dimensions mm

Outline Dimensions

MB Type

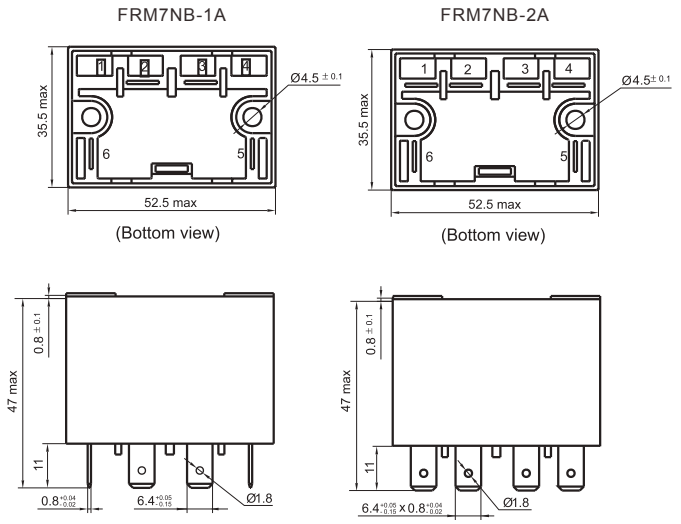
FRM7MB-1A



FRM7MB-2A

NB type

FRM7NB-1A



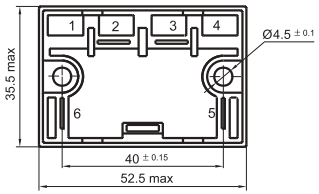
FRM7NB-2A

Dimensions mm

Outline Dimensions

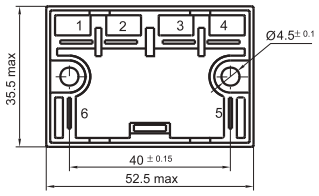
NA Type

FRM7NA-1A

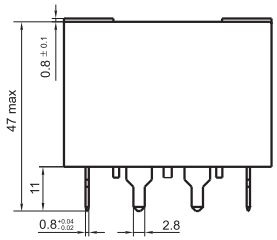


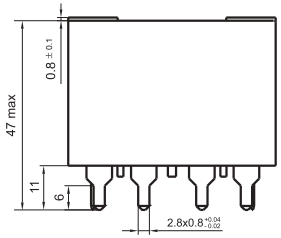
(Bottom view)

FRM7NA-2A



(Bottom view)

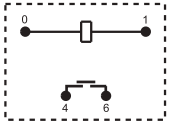




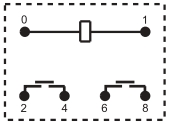
Wiring diagram
(Bottom view)

For mounting: A, PB, PN, MB

1 Form A

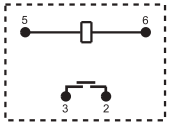


2 Form A

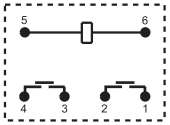


For mounting: NB, NA

1 Form A



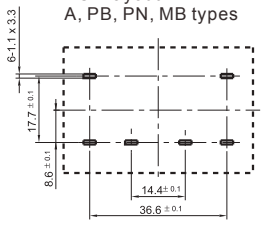
2 Form A



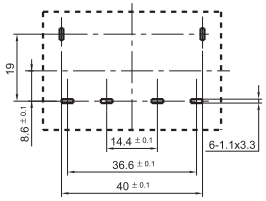
Dimensions mm

Outline Dimensions

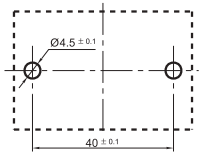
PCB layout:
A, PB, PN, MB types



PCB layout:
NA, NB types



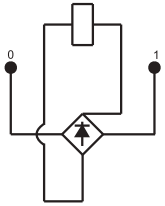
Mounting holes:
NA, NB types



Wiring diagram for mounting type: A, PB, PN

DC coil diagram

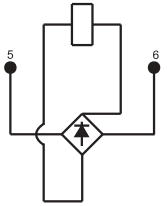
AC coil diagram



Wiring diagram for mounting type: NB, NA

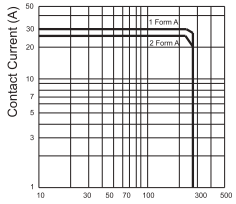
DC coil diagram

AC coil diagram

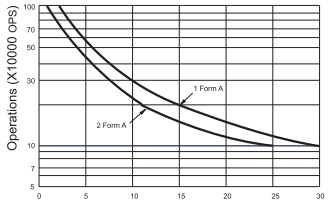
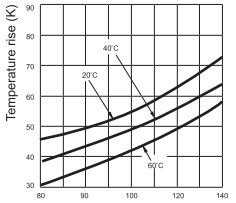


Reference data

MAXIMUM SWITCHING POWER



ENDURANCE CURVE



COIL TEMPERATURE RISE