

*Power Relays*

**Features**

Miniature high power designed for mounting on PC board  
 High contact rating (10-40A), high shock/vibration resistance  
 High reliability and long life  
 High temperature design, "F" Class +155°C available  
 Ideal for use in control car, air conditioner, home appliance, etc.  
 Open type, dust cover type or wash tight type



CAE us: E139468

△ : R50128328

**Ordering information**

<b>FRA1 R H C - S 1 - DC12V E</b>							
1	2	3	4	5	6	7	8
1 Relay model: FRA1 : PCB mount; FRA1T: PCB & QC mount; FRA1TP: QC & Panel mount				6 Termination (only available for FRA1T & FRA1TP): 1: Snap outside; J: Com pin on another side			
2 Alternative terminal arrangement (only available for FRA1): R : Cut pin type (AC coil voltage is only available with cut pin type) NIL: With mid pin				7 Rated voltage			
3 Contact rating: NIL: 10A; H: 30A; N: 40A				8 Insulation standard: NIL: Class "B" insulation 130°C F : Class "F" insulation 155°C			
4 Contact arrangement: A: 1 Form A; B: 1 Form B; C: 1 Form C				Note: RoHS : RoHS compliant relay RoHS-I : AgNi contact RoHS-N: AgSnO <sub>2</sub> contact			
5 Construction: NIL: Open type; E: Dust cover <epoxy base>; S : Wash tight type							

**Coil rating**

Rated voltage (V)	Coil resistance Ω+/-10%	Must operate voltage	Must dropout voltage	Maximum voltage	Power consumption Approx.	Operate time (ms)	Release time (ms)
DC	5	28	75 Max.	10 Min.	130 Max.	0.9 Approx. (W) (Note: 0.6W is available under request)	<15 Max. (typical 9ms) including Bounce
	6	40					
	9	90					
	12	160					
	18	360					
	24	640					
	48	2560					
110/120	13445						
AC	12	27	75 Max.	30 Min.	130 Max.	2.0 Approx. (VA)	<10 Max. (typical 7ms) including Bounce
	24	120					
	110	2360					
	120	3040					
	220/240	13490					

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	Silver alloy
Contact resistance	30mΩ Max. (Special: 20mΩ Max.)
Contact rating (resistive)	See figure 1
Switching power	7,200VA (10,000VA) / 1,200W Max.
Switching voltage	AC 300V / DC 110V Max.
Insulation resistance	1,000MΩ Min. (500VDC)
Dielectric strength	1,500VAC (50Hz/min) Between open contacts 1,500VAC (50Hz/min) Between coil and contact "R" type: 2,500VAC Special: 4,000VAC
Shock resistance	20g Approx.
Vibration resistance	1.5mm Double amplitude 10-55Hz

# FRA1

Ambient temperature		B Class temp: Storage: -55°C to +133°C    Operation: -55°C to +100°C F Class temp: Storage: -55°C to +155°C    Operation: -55°C to +125°C
Humidity		85% RH, 40°C
Operation life	Mechanical	10 <sup>7</sup>
	Electrical	10 <sup>5</sup> (at rated load) for "H" type (30Amp) 5 x 10 <sup>4</sup> (at rated load) for "N" type (40Amp)
Weight		FRA1 : 27g Approx. (open type)    30g Approx. (sealed type); FRA1T: 35g Approx. (sealed type);    FRA1TP: 37g Approx. (sealed type)

Figure 1: FRA1(T/P) UL Rating type

	Form A	Form B	Form C	
	50/60 Hz		50/60 Hz	
	NO	NC	NO	NC
Resistive	10A 240VAC	5A 240VAC	10A 240VAC	5A 240VAC
Tungsten	5A 240VAC	3A 240VAC	5A 240VAC	3A 240VAC
HP	1hp, 125VAC;    2hp, 240VAC		½hp, 125VAC;    1hp, 240VAC	
Coil voltages: 5 - 120VDC				

FRA1(T/P)H UL Rating type

	Form A	Form B	Form C		Cycles
	50/60 Hz		50/60 Hz		
	NO	NC	NO	NC	
Resistive	30A 14VDC/240VAC	30A 14VDC/20A 240VAC	30A 14VDC/240VAC	30A 14VDC/20A 240VAC	100K
Tungsten	15A 120VAC				30K
HP	1hp / 16FLA / 120V	30LRA / 10FLA / 120V	1hp / 16FLA / 120V	30LRA / 10FLA / 120V	30K
	2hp / 12FLA / 240V	30LRA / 10FLA / 240V	2hp / 12FLA / 240V	30LRA / 10FLA / 240V	30K
Coil voltages: 5-120VDC;    12-220VAC					
NO: 1HP / 30FLA / 80LRA / 120VAC 2HP / 12FLA / 240VAC NC: 10FLA / 30LRA / 120VAC 10FLA / 30LRA / 240VAC  1 Form C NO: 1HP / 30FLA / 80LRA / 120VAC 2HP / 12FLA / 240VAC NC: 10FLA / 30LRA / 120VAC 10FLA / 30LRA / 240VAC					

FRA1(T/P)N UL/cUL Rating type

	Form A	Form B	Form C	
	50/60 Hz		50/60 Hz	
	NO	NC	NO	NC
Resistive	40A 240VAC	30A 240VAC	40A 240VAC	30A 240VAC
General purpose	30A 277VAC	20A 277VAC	30A 277VAC	20A 277VAC
	30A 240VAC	20A 240VAC	30A 240VAC	20A 240VAC
Ballast	5A 280VAC	5A 280VAC	5A 280VAC	5A 280VAC
HP	2hp 250VAC	1½HP 250VAC	2HP 250VAC	1½HP 250VAC
Coil voltages: 3-120VDC;    12-277VAC				

TÜV rating: "H" type: NO: 30A/240VAC; NC: 20A/240VAC  
 "N" type: NO: 40A/240VAC; NC: 30A/240VAC  
 (Specifications are subject to change without notices.)

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