

FRA1 RELAY



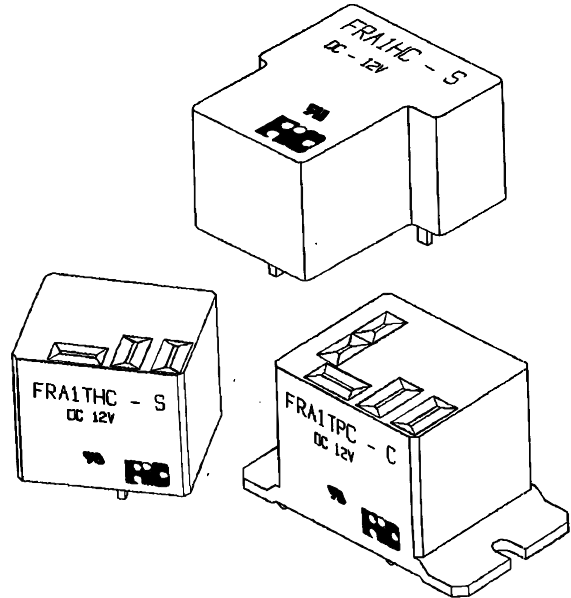
FEATURES

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

Recognized File No.: E139468

Recognized File No.: R2034463

(For FRA1/FRA1T/FRA1TP - "N" type <40Amp> only)



SPECIFICATIONS

COIL RATING

RATED VOLTAGE (V)	COIL RESISTANCE Ω +/- 10 %	MUST OPERATE VOLTAGE	MUST DROPOUT VOLTAGE	MAXIMUM VOLTAGE	POWER CONSUMPTION	
		% OF RATED VOLTAGE (AT +20°C)				
DC	5	28	75 Max.	10 Min.	130 Max.	0.9 Approx. (W) (Note : 0.6W is available under request)
	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)
	24	120				
	110	2360				
	120	3040				
	220/240	13490				

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 Load)	(see Figure 1)
Switching Voltage	DC 125V Max. AC 250V Max.
Operate Time (Initial)	15ms Max. (Typical 9ms) including Bounce
Release Time (Initial)	10ms Max. (Typical 7ms) including Bounce
Insulation Resistance	1000MΩ Min. (500V DC)
Dielectric Strength	1500V AC 50Hz, 1 minute between open contacts 1500V AC 50Hz, 1 minute between coil and contact ("R" type 2500V AC)
Shock Resistance	20g Approx.
Vibration Resistance	1.5mm, 10-55Hz Double Amplitude
Ambient Temperature	B Class Temp : Storage : -55°C to 130°C Operation : -55°C to +100°C F Class Temp : Storage : -55°C to 155°C Operation : -55°C to +125°C
Humidity	20 - 85% RH
Operation Life	Mechanical : 10 ⁷ Electrical : 10 ⁵ (At rated load) for FRA1 "H" type (30Amp) : 5 x 10 ⁴ (At rated load) for FRA1 "N" type (40Amp)
Weight	FRA1 : 22g Approx. (Open Type) 28g Approx. (Sealed Type) FRA1T : 32g Approx. (Sealed Type) FRA1TP : 35g Approx. (Sealed Type)

FRA1 RELAY



FIGURE 1

FRA1(T/P) UL RATING TYPE

	Form A	Form B	Form C	
	50/60 Hz	50/60Hz	50/60 Hz	
	NO	NC	NO	NC
Resistive	10A 240V AC	5A 240V AC	10A 240V AC	5A 240V AC
Tungsten	5A 240V AC	3A 240V AC	5A 240V AC	3A 240V AC
HP	1hp,125VAC; 2hp,240VAC		1/2hp,125VAC. 1hp,240VAC	
Coil Rating: 5-120V DC				

FRA1(T/P) H UL RATING TYPE

	Form A	Form B	Form C		Cycles
	50/60 Hz	50/60Hz	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,120V AC				30k
HP	1hp/16 FLA/120V	30 LRA/10FLA/120V	1hp/16 FLA/120V	30 LRA/10FLA/120V	30K
	2hp/12 FLA/240V	30 LRA/10FLA/240V	2hp/12 FLA/240V	30 LRA/10FLA/240V	30K
Coil Ratings: 5 - 120V DC; 12 - 220VAC					
<p>NO : 1HP / 30FLA / 80LRA / 120VAC 2HP / 12FLA / 240VAC</p> <p>NC : 10FLA / 30LRA / 120VAC 10FLA / 30LRA / 240VAC</p> <p>1 FORM C</p> <p>NO : 1HP / 30FLA / 80LRA / 120VAC 2HP / 12FLA / 240VAC</p> <p>NC : 10FLA / 30LRA / 120VAC 10FLA / 30LRA / 240VAC</p>					

FRA1(T/P) N UL/cUL RATING TYPE

	Form A	Form B	Form C	
	50/60 Hz	50/60Hz	50/60Hz	
	NO	NC	NO	NC
Resistive	40A 240VAC	30A 240VAC	40A 240VAC	30A 240VAC
	30A 277VAC for General Purpose	20A 277VAC for General Purpose	30A 277VAC for General Purpose	20A 277VAC for General Purpose
HP	2HP 250VAC 1 1/2HP 250VAC			
Coil Ratings : 3 - 120VDC; 12 - 277VAC				

TUV approved rating : For FRA1/FRA1T/FRA1TP - "N" type only

NO : 40A 14VDC/ 240VAC; NC : 30A 14VDC/240VAC

[Specifications are subject to change without notices]

FORWARD INDUSTRIAL COMPANY. (O/B COMMERCIAL UNION LTD)

RM. 1405, Wu Sang House, 655 Nathan Road, Mongkok, Kowloon, Hong Kong.

TEL : (852) 27892365 FAX : (852) 27893102 E-MAIL : sales@ficrelay.com.hk WEBSITE : http://www.ficrelay.com.hk

FRA1 RELAY



ORDERING INFORMATION

FRA1 R H C - S 1 J - DC12V E

NIL : CLASS "B" INSULATION 130°C
F : CLASS "F" INSULATION 155°C

RATED VOLTAGE : 5 - 110/120VDC or 12-220/240V AC

J : COM PIN ON ANOTHER SIDE

1 : SNAP OUTSIDE
(ONLY AVAILABLE FOR FRA1T & FRA1TP)

NIL : OPEN TYPE
E : DUST COVER <EPOXY BASE>
D : DUST COVER <SEPARATE COVER>
(ONLY FOR FRA1/ FRA1H)
S : SEALED TYPE <WASHABLE>

CONTACT ARRANGEMENT _____ A = 1 FORM A
B = 1 FORM B

NIL : GENERAL CAPACITY (10A) C = 1 FORM C
H : HIGH CAPACITY (30A)
N : NEW HIGH CAPACITY (40A)

Alternative Terminal Arrangement (only available for FRA1)

R : CUT PIN TYPE

* NOTE : AC COIL VOLTAGE IS ONLY AVAILABLE
WITH CUTPIN TYPE.

Nii : WITH MID PIN

RELAY MODEL

FRA1 (PCB MOUNT)

FRA1T (PCB & QC MOUNT)

FRA1TP (QC & PANEL MOUNT)

Note : Pb-Free and RoHS compliant relays are available.

For ordering, please add suffix "Pb-Free" or "RoHS" to standard relay part numbers.

For example : FRA1RHA-S DC 12V "Pb-Free" for Pb-Free Relay

For example : FRA1RHA-S DC 12V "RoHS" for RoHS Compliant Relay

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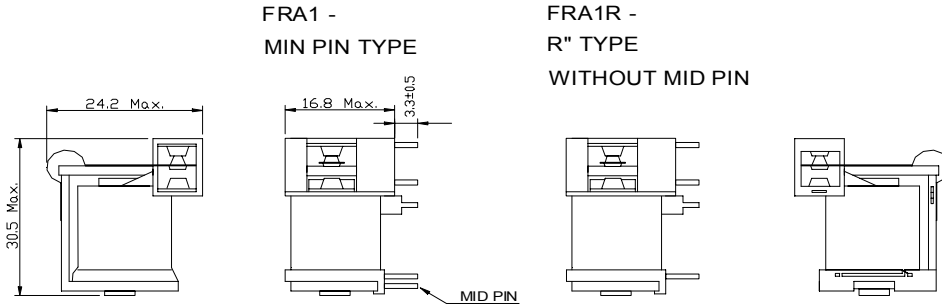
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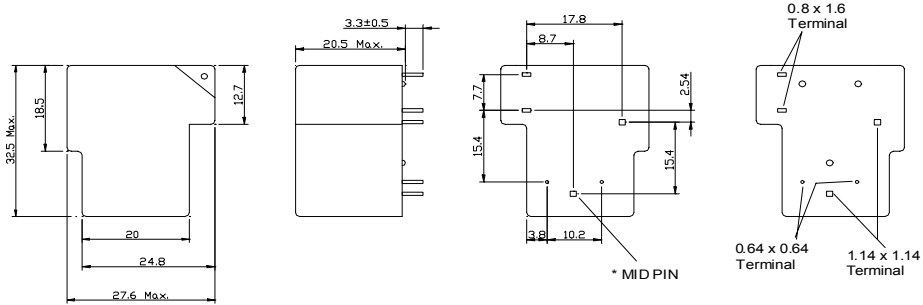


DIMENSIONS (UNIT : mm)

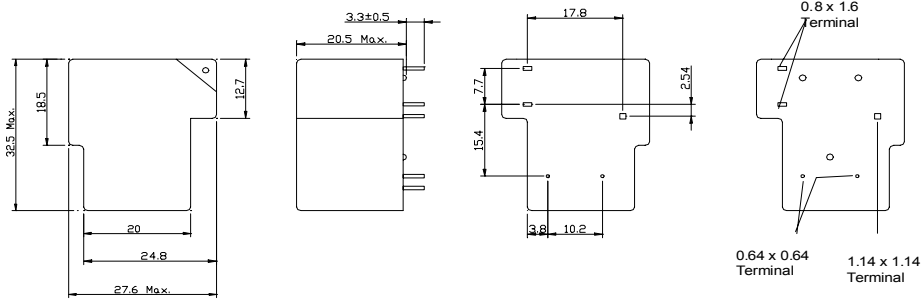
FRA1 (OPEN TYPE)



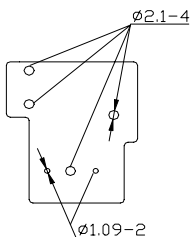
FRA1 DUST COVER / SEALED TYPE - WITH MID PIN



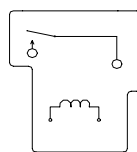
FRA1R DUST COVER / SEALED TYPE - CUT PIN TYPE



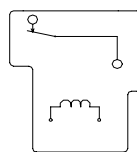
MOUNTING HOLES



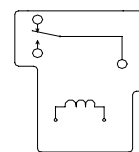
TERMINAL ARRANGEMENT



1 FORM A



1 FORM B



1 FORM C

FRA1 RELAY

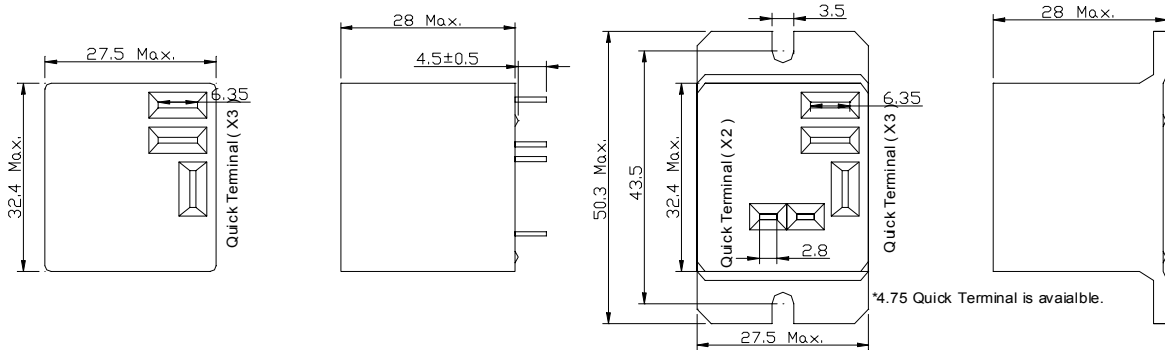


DIMENSIONS (UNIT : mm)

STANDARD TYPE (WITH COM PIN ON THE SAME SIDE)

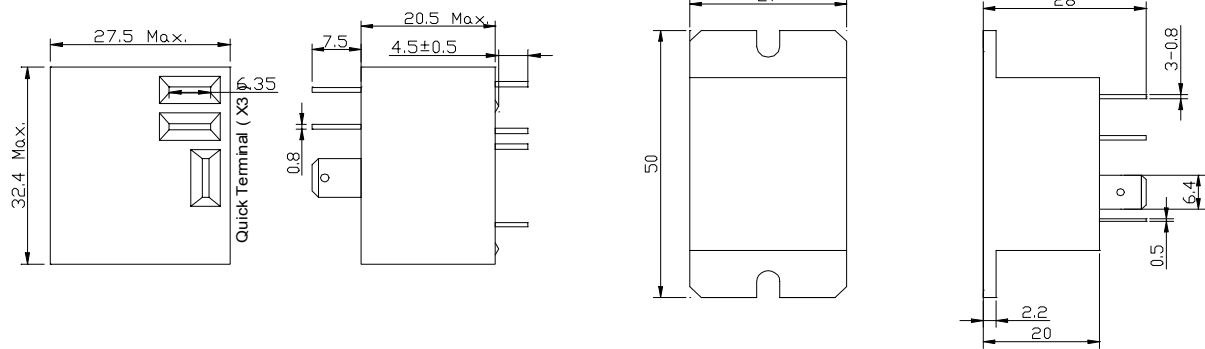
FRA1T(H/N) _ _ DC _ V _

FRA1TP(H/N) _ _ DC _ V _



FRA1T(H/N) _ _ 1 DC _ V _

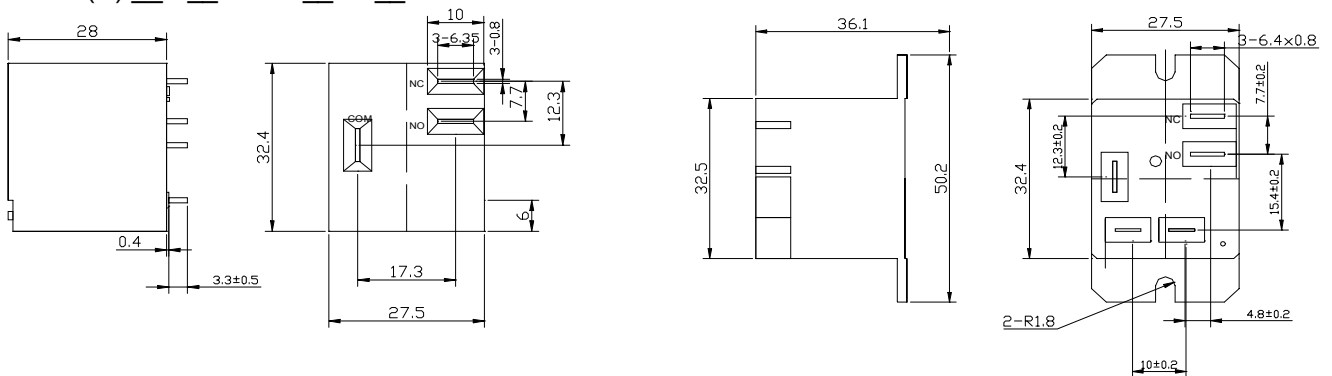
FRA1TP(H/N) _ _ 1 DC _ V _



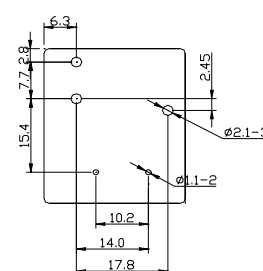
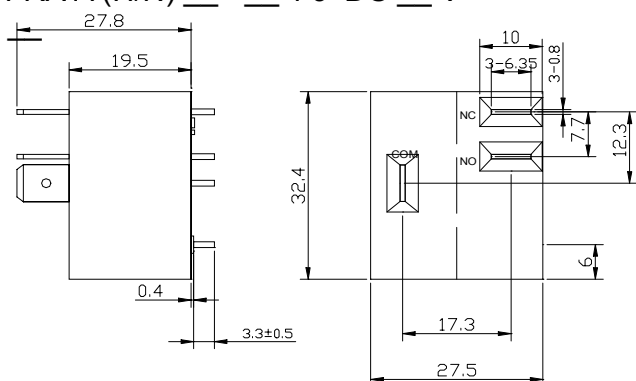
SPECIAL TYPE (J TYPE WITH COM PIN ON ANOTHER SIDE)

FRA1T(H) _ _ J DC _ V _

FRA1TP(H/N) _ _ J DC _ V _



FRA1T(H/N) _ _ 1 J DC _ V _



TERMINAL ARRANGEMENT (BOTTOM VIEW)

