Electronic Component Specification

Product ：	RELAY (RoHS)
Code：	
P/N（Manufacturer）：	HJR-3FF-S-Z-3T/24VDC
Supplier：	Ningbo Tianbo Ganglian Electroncis Co.,Ltd
Manufacturer：	Ningbo Tianbo Ganglian Electroncis Co.,Ltd
File No：	

Written： Weiwei Yi

Verified： Jianming Wang

Signed：

Approved： Wanxin Chen

Date： 2021.01.28

Note:

1. This specification will come into force after being signed by both parties. This specification is a total of 11 pages;
2. This specification is made in duplicate and the version is jointly maintained by the user and the supplier;
3. Any change to the content must be agreed by both parties and issued in written form.

Revision History

Date	Version	Desciption	writer
2021-01-28	V1.0	New compilation	Weiwei Yi

Material List

Material Code	Product	Code	P/N（Manufacter）	remark
	Relay		HJR-3FF-S-Z-3T/24VDC	

The version number of the file consists of "V×.×", in which：

a) the X before the decimal point is the main version number, and the value range is "0-9". When the document is significantly revised, the main version number increases by 1;

b) the X after the decimal point is the minor version number, and the value is "0-9, A-Z". When a file is modified once, the version number of the second version is increased by 1; when the main version number is changed, the version number of the second version is reset to 0;

c) the version number of the document not approved for release is v0. X version, and v1.0 version when approved for release. When the major version number changes, only the previous revision records with different minor version number can be deleted

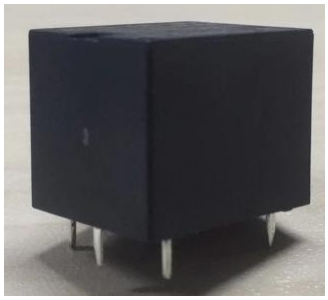
Content

1 Basic information

Product	RELAY
Code	
P/N（manufactuer）	HJR-3FF-S-Z-3T /24VDC
Environmental requirements	Compliance with RoHS,REACH
Material code	
Brand	TIANBO
Location	NO.305, Qishan Rd, Hengxi Town, Yinzhou District, Ningbo, Zhejiang
Material grade	--
Antistatic grade	--
Certificate Number	CQC:CQC08002028071 UL：E173485 TUV：R50116163 VDE: 40005471
Note 1：	

2 Technical information

2. 1 appearance



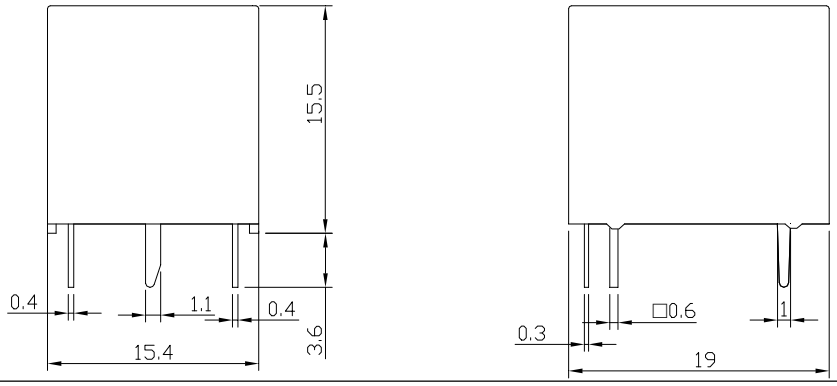
front

bottom

top

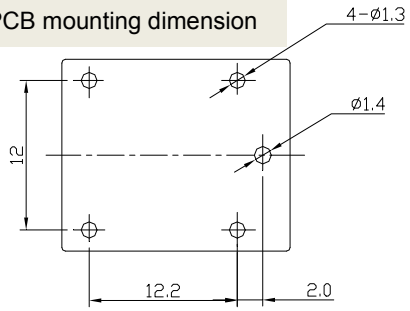
2. 2 Overall and mounting dimension

Remark: Dimensional tolerance is not shown for outline dimension of some products: when outline deminsion is ≤1mm, the tolerance is ±0.2mm; when outline deminsion is 1~ 5 mm, the tolerance is±0.3mm; when ouline dimension is ＞5 mm, the tolerance is ±0.4mm.

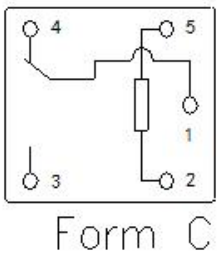


Dimension tolerance not shown in the dimension of installation hole installation holes are all ±0.2mm.

PCB mounting dimension

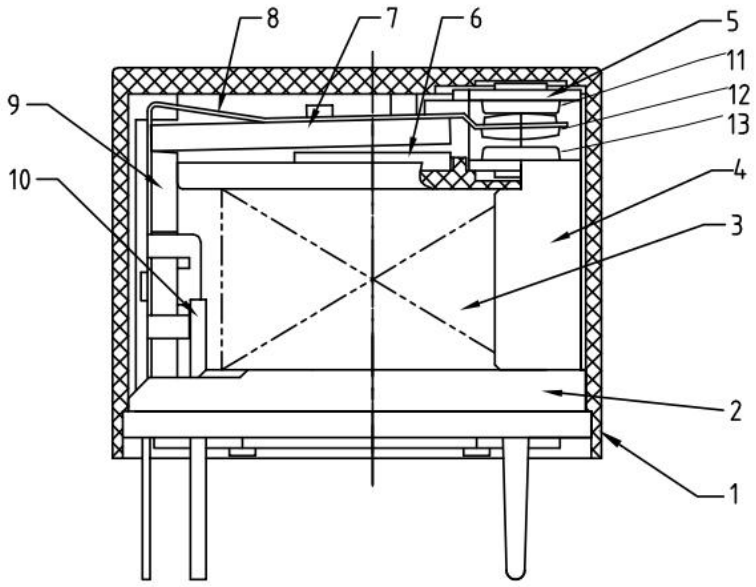


circuit diagram



Form C

2. 3 fundamental structure



Item No.	Part Name	Item No.	Part Name
1	cover	8	Moving spring
2	bobbin	9	yoke
3	wire	10	terminal
4	NO static spring	11	Static contact
5	NC static spring	12	Moving contact
6	core	13	Static contact
7	armature		

No.	Part Name	Material name	Parameter	Remark
1	cover	PBT	94 V-0	
2	bobbin	PBT	94 V-0	
3	wire	3UEW/155	wire diameter: 0.045mm	
4	NO stactic spring	Brass H65	thickness：0.4mm	
5	NC stactic spring	Brass H65	thickness：0.4mm	
6	core	DT4C	-	
7	armature	DT4E	thickness：1.0 mm	
8	Moving spring	Cu Alloy	thickness：0.15 mm	
9	yoke	DT4E	thickness：1.0 mm	
10	terminal	CP WIRE	0.55×0.55mm	
11	Static contact	AgSnO/Cu	diameter :3.0 mm ;thickness : 0.5 mm	
12	Moving contact	AgSnO/Cu /AgSnO	diameter :2.8 mm ;thickness : 0.5 mm	
13	Static contact	AgSnO/Cu	diameter :3.0 mm ;thickness : 0.5 mm	

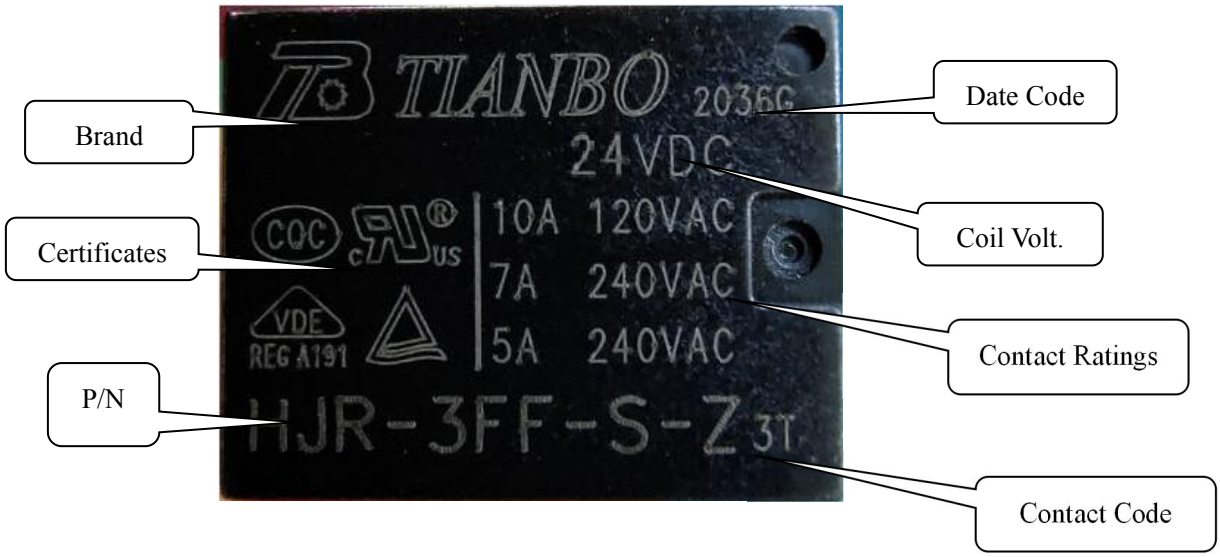
2. 4 Ordering Code

HJR-3FF- S- Z - 3T / 24VDC

1 2 3 4 5

1. Relay Model
2. S：sealed
3. Contact form
   Z: Form C
4.Contact code: compound AgSnO contact
5.Coil Nominal Voltage :24VDC

2.5 Printing mark



2.6 Techinical parameters

2.6.1 basic parameters

Performance Parameter	Technical Requirement	Remark
Rated voltage of NO contact	240VAC	
Rated current of NO contact	7A	
Rated current of NC contact	7A	
Coil power	0.36W	
Coil resistance	1600Ω±10%　at 23℃	
Operate voltage	≤18V at 23℃	
Release voltage	≥1.2V at 23℃	
Insulation resistance	100MΩ Min. (500VDC)	
Operata time	≤10ms　at 23℃	
Release time	≤5ms　at 23℃	
Dielectric strength	Between open contacts: 750VAC/min-1mA	
	Between contacts and coil ： 1500VAC/min-1mA	
Contact resistance	100mΩ Max.	
Contact life	See 2.6.2 life requirements	
Contact type	Z	
Contact rated load	7A 240VAC	
Working temperature	-40～85℃	
Working humidity	5%～95%RH	
Storage conditions	-20℃～+40℃、20～85%RH	
airtightness	RTII	

2. 6. 2 key parameters

Coil data	Rated voltage：24VDC Coil resistance：1600Ω±10% Coil power：0.36W Max. Coil voltage：31.2V
Contact data	Contact rating：7A 240VAC Max. switching current：7A Max. Switching power：1680VAC Min. load：1A 6VDC
Mechanical parameters	Contact gap：0.25～0.45mm Follow：0.10～0.22mm Downward pressure：≥0.08N
Operational performance	Contact resistance：≤100mΩ (1A 6VDC) Operate voltage：≤18VDC Release voltage：≥1.2VDC Operate time：≤10ms at 23℃ Release time：≤5ms at 23℃
Life requirements	Electrical life：30,000 ops（normal temperature and humidity，resistive load,random phases；operate frequency：30 ops/mins,on/off rate :50%，1s on, 1s off） Menchanical life：1,000,000ops(no load，operate frequency：300ops/mins)
Safety and environmental performance requirements	Insulation between contacts, between contacts and coil：100MΩ min.(500VDC) Dielectric Strenght between open contacts：750VAC(50/60Hz)（1mA）1 min Between contacts and coil：1500VAC (50/60Hz)（1mA）1 min (1)vibration resistance endurance vibration When the vibration is in the state of double amplitude 1.5mm and no excitation, and the vibration frequency of 10-55hz / min is used for 2h in each direction of XYZ, the contact resistance shall not be more than twice of the initial resistance, and the appearance, structure and other electrical performance shall meet the specifications (2)impact resistance impact resistance When there is no excitation and the acceleration is 1000m/s^2, three times (18 times in total) will be conducted in each direction of XYZ. There is no obvious damage to the appearance and structure after the test; the electrical performance meets the specification requirements after the test. maloperation impact In the excitation state, when the acceleration is under 100m/s^2, three times (18 times in total) shall be conducted in each direction of XYZ, and there shall be no mal operation in the test (the contact maloperation shall not exceed 10μs). After the test, the appearance, structure and electrical performance meet the requirements of the specification.

(3)low temperature resistance

Put the relay in a constant temperature bath with a temperature of-40±2℃ for 48 hours, move it to a place with normal temperature and humidity, wipe off the water drop, and place it for 1-2 hours, then check that its structure, operation, insulation resistance and dielectric performance meet the requirements of the specification.

(4)high temperature resistance

Put the relay in a constant temperature bath with a temperature of 85±2℃ for 48 hours, then move it to a place with normal temperature and humidity for 1-2 hours, and then check that its structure, operation, insulation resistance and dielectric performance meet the requirements of the specification.

(5)moisture resistance

Put the relay in an environment with a temperature of 40±2℃ and a relative humidity of 93±2% for 48 hours, move it to a place with normal temperature and humidity for 1-2 hours, and then check that its structure, operation and dielectric performance meet the requirements of the specification, and the insulation resistance is greater than 2mΩ.

(6)soldering

solderability inspection：Immerse the relay terminal in the 260±5℃ tin bath for 2~3s, the distance between the body and the molten solder is 1.6mm, and check that the tin coating on the terminal area is more than 95%.

solder heat resistance ： Immerse the relay terminal in the 270±5℃ tin bath for 10±1s, and the distance between the body and the molten solder is 1.6mm. In the place of normal temperature and humidity, the appearance, structure and performance of the relay shall be normal after being placed for 1 hour.

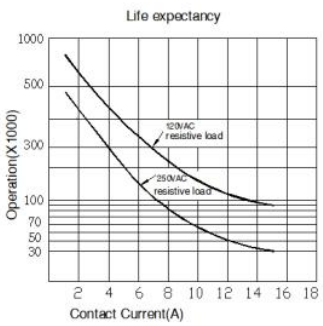
(7)terminal tensile strength

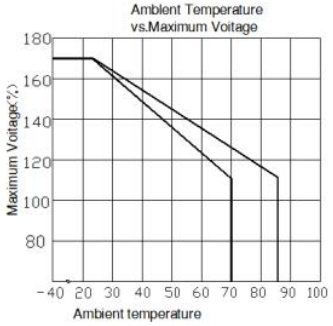
The relay terminal shall bear the specified pulling force in the direction of 10N axis for 1min; there shall be no abnormality in the appearance, structure and performance of the relay.

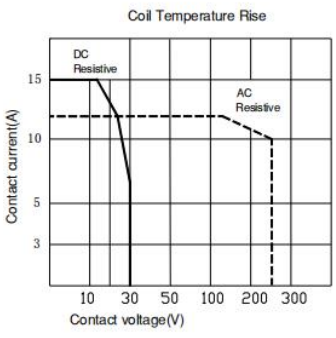
(8)fire resistance

flame rating:94V-0

2. 6. 3 Parameter characteristic curve







2. 7 Application notice

Voltage: The working voltage of the product should not be higher than 250 VAC.
Load: The max. contact over current should not exceed 7A.
Position: Put terminal down
Environment: not to be used in corrosive gases.

2. 8 Device X-ray

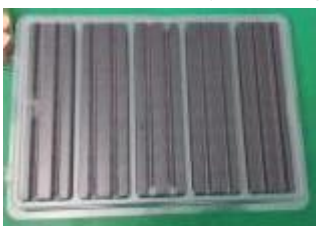
None

3 packing, transportation, storage

3. 1 packing

The inner package is packed in cartons, and the outer package is packed in strong cartons.

1、plastic tray packing：




Each plastic tray packed with 100 pcs, each inner carton is packed with 500 pcs relays, and each outer carton is packed with 2 inner boxes (1000 pcs relay).

3. 2 transport regulations

During the transportation of products, attention shall be paid to prevent heavy pressure, dropping, moisture-proof and heat-proof

The packing carton shall be placed on the top of the wooden card board and fixed on the periphery and the top of the goods with a film.

During transportation, when the drop height is ≥ 0.5m, the relay shall be scrapped.

Packing cartons, in case of fracturing, collapse, etc., the relay shall be scrapped.

3. 3 Storage environment and conditions

temperature：-20℃~+40℃，humidity：20%～85%RH。

4 inspection items

All inspection items need to meet the requirements of Tianbo standard; including coil resistance, coil power, contact resistance, unction test, operate time, release time, dielectric withstand voltage, insulation resistance, pin strength bending, pin strength tensile resistance, solderability, solder heat resistance, coil temperature rise, hot wire test, flame test, ball indentation test, electrical life, overload, mechanical life, high and low temperature cycle, vibration test, high temperature storage Storage, steady-state damp heat, low-temperature storage, ROHS compliance and REACH compliance.

Note: for undated references, the latest version is applicable to this standard.