HF33F-G SUBMINIATURE INTERMEDIATE POWER RELAY

File No.:E134517

File No.:125661

File No.:CQC12002076530

Features

- 10A switching capability
- Creepage distance: 8mm
- Clearance distance: H type 4.5mm,Z type 4mm
- 1 Form A and 1 Form C configurations
- UL insulation system: Class F
- Reflow soldering version available
- Product in accordance to IEC 60335-1 available
- Plastic sealed and flux proofed types available
- Shape and Pin compatible with HF33F

RoHS compliant

CONTACT DATA

Contact arrangement	1A, 1C		
Contact resistance	100mΩ max.(at 1A 6VDC)		
Contact material	$AgSnO_2$		
Contact rating (Res. load)	1A	1C	
		NO	NC
	10A 250VAC	10A 250VAC	5A 250VAC
Max.switching current	10A		5A
Max.switching power	2500VA		1250VA
Max.swtiching voltage	277VAC		
Mechanical endurance	5×10^6 OPS		
Electrical endurance	NO:1 x 10^5OPS(10A 250VAC, Resistive load, 40˚C, 1s on 9s off) NC:1 x 10^5OPS(5A 250VAC, Resistive load, 40˚C, 1s on 9s off)		

CHARACTERISTICS

Insulation resistance		1000MΩ (at 500VDC)
Dielectric strength	Between coil & contacts	4000VAC 1min
	Between open contacts	1000VAC 1min
Operate time (at rated. volt.)		8ms max.
Release time (at rated. volt.)		5ms max.
Shock resistance	Functional	98m/s²
	Destructive	980m/s²
Vibration resistance		10Hz to 55Hz 1.5mm DA
Humidity		5% to 85% RH
Ambient temperature		-40˚C to 105˚C
Termination		PCB
Unit weight		Approx. 7g
Construction		Plastic sealed[2] Flux proofed

Notes: The data shown above are initial values.

COIL

Coil power	Standard: Approx. 450mW; Sensitive: Approx. 200mW

COIL DATA at 23˚C

Standard Type

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Voltage VDC	Coil Resistance Ω
3	2.25	0.15	3.9	20 x (1±10%)
5	3.75	0.25	6.5	55 x (1±10%)
6	4.50	0.30	7.8	80 x (1±10%)
9	6.75	0.45	11.7	180 x (1±10%)
12	9.00	0.60	15.6	320 x (1±10%)
18	13.5	0.90	23.4	720 x (1±10%)
24	18.0	1.20	31.2	1280 x (1±10%)
48	36.0	2.40	62.4	5120 x (1±10%)

Sensitive type

Nominal Voltage VDC	Pick-up Voltage VDC max.	Drop-out Voltage VDC min.	Max. Voltage VDC	Coil Resistance Ω
3	2.25	0.15	3.9	45 x (1±10%)
5	3.75	0.25	6.5	125 x (1±10%)
6	4.50	0.30	7.8	180 x (1±10%)
9	6.75	0.45	11.7	400 x (1±10%)
12	9.00	0.60	15.6	720 x (1±10%)
18	13.5	0.90	23.4	1600 x (1±10%)
24	18.0	1.20	31.2	2800 x (1±10%)
48	36.0	2.40	62.4	11520 x (1±10%)

Notes: 1) The data shown above are initial values.
2) Maximum voltage refers to the maximum voltage which relay coil could endure in a short period of time.

SAFETY APPROVAL RATINGS

VDE	1H	$AgSnO_2$	10A 250VAC/277VAC, 85°C 10A 30VDC, 40°C 5A 250VAC/277VAC, 105°C 10A 250VAC/277VAC, 105°C(only for sensitive type) Makiing 4.4A 277VAC/Breking 2.2A 277VAC, 105°C
	1Z	$AgSnO_2$	NO:10A 250VAC/277VAC, 85°C NO:10A 30VDC, 40°C NO:Makiing 4.4A 277VAC/Breking 2.2A 277VAC, 105°C NC:5A 250VAC/277VAC,85°C NC:10A 30VDC,40°C
UL/CUL(1)	1H	$AgSnO_2$	10A 250VAC/277VAC, 40°C 10A 250VAC/277VAC, 85°C 10A 30VDC, 85°C TV-5 120VAC/240VAC, 85°C(only for standard type) 1/2HP 250VAC, 85°C 1/3HP 125VAC, 85°C Electronic Ballast,1A 120VAC, 85°C 10A 250VAC/277VAC, 105°C(only for sensitive type)
	1Z	$AgSnO_2$	NO:10A 250VAC/277VAC, 40°C NO:10A 250VAC/277VAC, 85°C NO:10A 30VDC, 85°C NO:TV-5 120VAC/240VAC, 85°C(only for standard type) NO:1/2HP 250VAC, 85°C NO:1/3HP 125VAC, 85°C NO:Electronic Ballast,1A 120VAC, 85°C NO:10A 250VAC/277VAC, 105°C(only for sensitive type) NC:5A 250VAC/277VAC, 40°C NC:5A 250VAC/277VAC, 85°C NC:5A 30VDC, 85°C
CQC	1H	$AgSnO_2$	10A 250VAC, 85°C
	1Z	$AgSnO_2$	NO:10A 250VAC, 85°C NC:5A 250VAC, 85°C

Notes: 1) Opening the vent hole under contact material Plastic sealed types testing.
2) Only typical loads are listed above. Other load specifications can be available upon request.

ORDERING INFORMATION

HF33F-G / 12 -H S L T F (XXX)

Type		
Coil voltage	3, 5, 6, 9, 12, 18, 24, 48VDC	
Contact arrangement	**H:** 1 Form A	**Z:** 1 Form C
Construction[1)2)]	**S:** Plastic sealed	**Nil:** Flux proofed
Coil power	**L:** Sensitive 200mW(H type only)	**Nil:** Standard 450mW
Contact material	**T:** $AgSnO_2$	
Insulation standard	**F:** Class F	
Special code	**XXX:** Customer special requirement	**Nil:** Standard

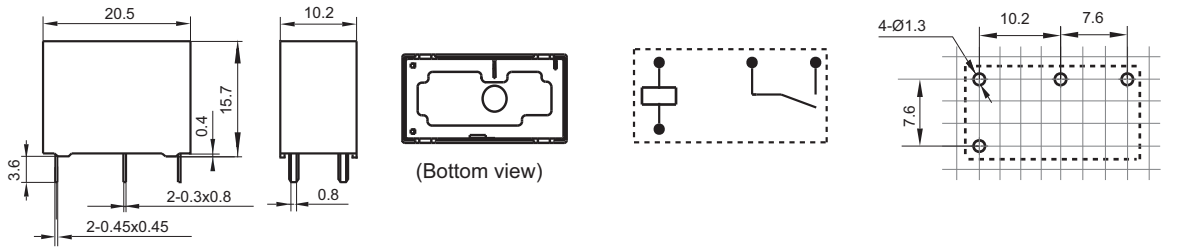
Notes: 1) Under the ambience with dangerous gas like H_2S, SO_2 or NO_2, plastic sealed type is recommended; Please test the relay in real applications. If the ambience allows, flux proofed type is preferentially recommended.
2) Contact is recommended for suitable condition and specifications if water cleaning or surface process is involved in assembling relays on PCB.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT

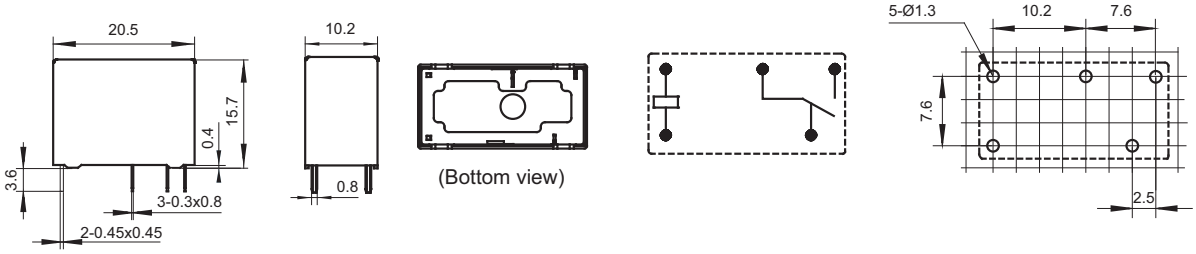
Unit: mm

Outline Dimensions | Wiring Diagram (Bottom view) | PCB Layout (Bottom view)

1 Form A



1 Form C



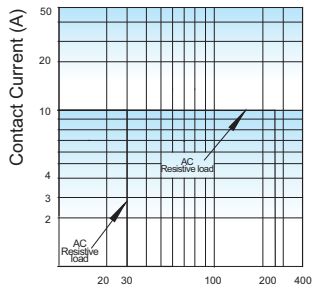
Remark:1) In case of no tolerance shown in outline dimension: outline dimension ≤1mm, tolerance should be ±0.2mm; outline dimension >1mm and ≤5mm, tolerance should be ±0.3mm; outline dimension >5mm, tolerance should be ±0.4mm.

2) The tolerance without indicating for PCB layout is always ±0.1mm.

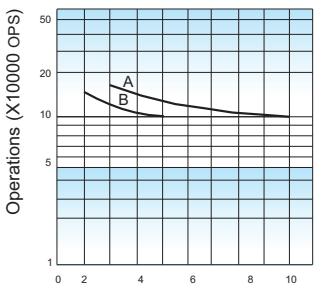
3) Mesh width is 2.54mm.

CHARACTERISTIC CURVES

MAXIMUM SWITCHING POWER



ENDURANCE CURVE



Notes:

Curve A：NO contact

Curve B：NC contact

Test conditions:

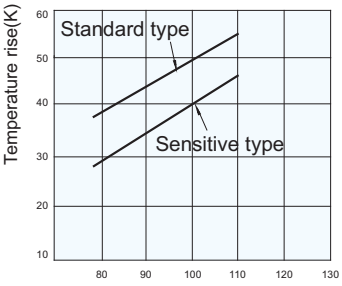
A：NO,250VAC/277VAC,Resistive load

flux proofed type,Room temp,1s on 9s off

B：NC,250VAC/277VAC,Resistive load

flux proofed type,Room temp,1s on 9s off

COIL TEMPERATURE RISE



Test conditions: 10A at 85℃

Mounting distance: 10mm

Disclaimer

The specification is for reference only. See to "Terminology and Guidelines" for more information. Specifications subject to change without notice. We could not evaluate all the performance and all the parameters for every possible application. Thus the user should be in a right position to choose the suitable product for their own application. If there is any query, please contact Hongfa for the technical service. However, it is the user's responsibility to determine which product should be used only.