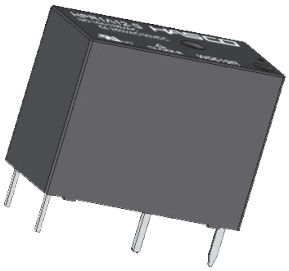
HPR SERIES

POWER RELAY

c US
File No.:E75887

File No.:R 50325379

RoHS Compliant



FEATURES

- 10A switching capability
- 1 Form A and 1 Form C configurations
- Subminiature, standard PCB layout
- Sealed Type, Dust Cover Type and Flux Tight Type is available.

CONTACT RATINGS

Contact Arrangement	1A	1C	
Contact Resistance	≤100mΩ (1A 24VDC)		
Contact Material	AgSnO		
Contact Rating(Resistive)	1A	1C	
		N.O.	N.C.
	5A/250VAC 5A/30VDC 10A/125VAC	5A/250VAC 5A/30VDC 10A/125VAC	5A/250VAC 5A/30VDC
Max. Switching Voltage	250VAC/150VDC		
Max. Switching Current	10A	5A	
Max. Switching Power	1250VA/150W		
Mechanical Life	45×10^4 OPS		
Electrical Life	1A type:1×10^5OPS (5A 250VAC, Resistive load, Room temp., 1s on 1s off) 1C type:5×10^4OPS (N.O./N.C.:5A 250VAC, Resistive load, Room temp., 1.5s on 1.5s off)		

CHARACTERISTICS

Insulation Resistance		1000MΩ (500VDC)
Dielectric Strength	Between coil & contacts	4000VAC 1min
	Between open contacts	750VAC 1min
Operate time (at nomi. volt.)		≤20ms
Release time (at nomi. volt.)		≤10ms
Humidity		85%
Operation temperature		-40°C~+85°C
UL Class F		Insulation System Class F
Shock Resistance	Functional	98m/s²
	Destructive	980m/s²
Vibration resistance		10Hz ~ 55Hz 1.5mm DA
Unit weight		Approx. 7g
Construction		Sealed Type, Dust Cover Type, Flux Tight Type

Notes:1) The data shown above are initial values.
2) Please find coil temperature curve in the characteristic curves.

ORDERING INFORMATION

HPR F 1A 12 - 1 S - XXXX

Model

F:Class F

1A:1 Form A 1C:1 Form C

Coil Voltage

1:Dust Cover Type 2:Flux Tigth Type
Blank:Sealed Type

S:Sensitive type(Only for 1 Form A)
Blank:Standard type

Customer Code

Notes:
1. PC board assembled with dust cover type and flux tight type relays can not be washed and/or coated.
2. Dust cover type and flux tight type relays can not be used in the environment with dust, or H_2S, SO_2, NO_2 or similar gaseous environment etc.

This datasheet is for customers' reference. All the specifications are subject to change without notice.

COIL DATA at 25°C

Standard Type

Nominal Voltage VDC	Operate Voltage (Max.) VDC	Release Voltage (Min.) VDC	*Max. Allowable Voltage VDC	Coil Resistance Ω±10%
5	3.75	0.25	6.5	63
6	4.50	0.30	7.8	90
9	6.75	0.45	11.7	202
12	9.00	0.60	15.6	360
24	18.0	1.20	31.2	1440

Sensitive Type(Only for 1 Form A)

Nominal Voltage VDC	Operate Voltage (Max.) VDC	Release Voltage (Min.) VDC	*Max. Allowable Voltage VDC	Coil Resistance Ω±10%
5	3.75	0.25	7.5	125
6	4.50	0.30	9.0	180
9	6.75	0.45	13.5	405
12	9.00	0.60	18.0	720
24	18.0	1.20	36.0	2800

Note:"*Max Allowable Voltage": The relay coil can endure max allowable voltage for a short period time only.

COIL

Coil Power	Standard Type：400mW
	Sensitive Type：200mW

SAFETY APPROVAL RATINGS

UL&CUL	N.O.:5A 250VAC, 100°C, 5×10^4OPS
	N.O.:5A 30VDC, 100°C, 2×10^4OPS
	N.O.:10A 125AC, 100°C, 5×10^4OPS
	N.O.:1/6HP 125VAC, 40°C, 5×10^4OPS
	N.C.:5A 250VAC, 100°C, 5×10^4OPS
	N.C.:5A 30VDC, 100°C, 2×10^4OPS
TüV	N.O.:10A 125VAC, 2×10^4OPS
	N.C.:5A 250VAC, 5×10^4OPS
	N.C.:5A 30VDC, 5×10^4OPS
	N.O./N.C.:5A 250VAC, 5×10^4OPS
	N.O./N.C.:5A 30VDC, 5×10^4OPS

NOTES:

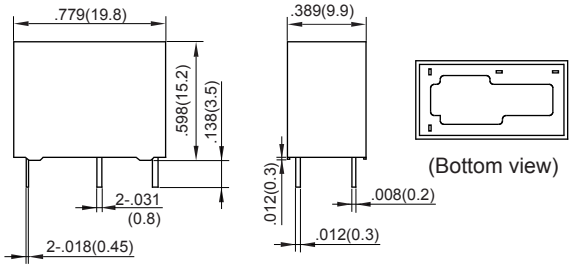
1. All values without specified temperature are at 25°C.
2. The above lists the typical loads only. Other loads may be available upon request.

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT.

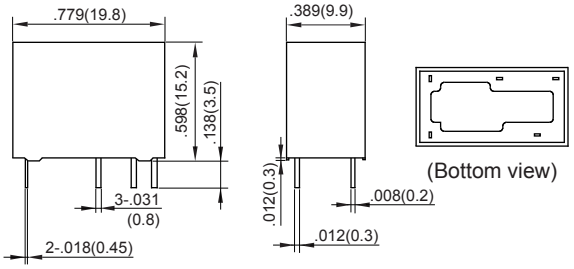
Unit: inch(mm)

Outline Dimensions

1A



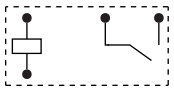
1C



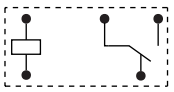
Unless otherwise specified tolerances are:		
≤1mm	＞1mm and ≤5mm	＞5mm
±0.2mm	±0.3mm	±0.4mm

Wiring Diagram (Bottom view)

1A

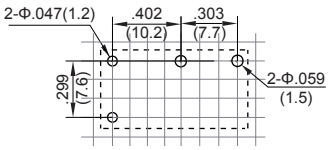


1C

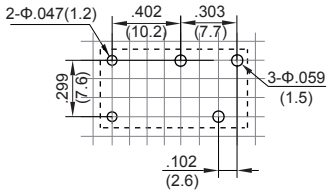


PCB Layout (Bottom view)

1A



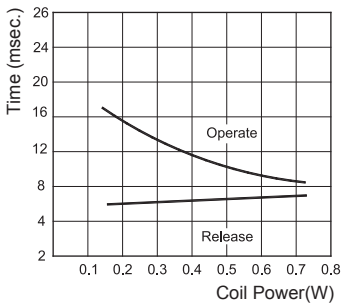
1C



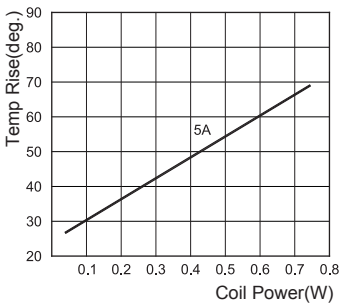
* The tolerance without indicating for PCB layout is always ±0.1mm.

CHARACTERISTIC CURVES

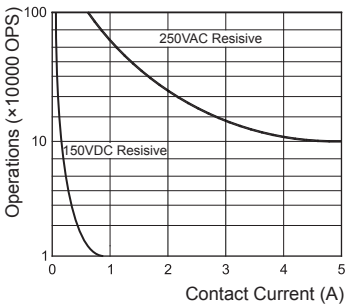
Timing



Coil Temperature Rise



Life Curves



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PACKAGING SPECIFICATION

BLISTER BOX	INNER CARTON	OUTER CARTON	OUTER CARTON SIZE
100PCS	600PCS	2400PCS	L375mm*W280mm*H400mm

APPLICATION GUIDELINES

Automatic Soldering

* Flow solder is the optimum method for soldering.
* Adjust the level of solder so that it does not overflow onto the top of the PC board.
* Unless otherwise specified, solder under the following conditions depending on the type of relay.

Preheat time 20°C-100°C	Rising slope 20°C-120°C	Decreasing slope Peak-150°C	Welding temperature 255°C-265°C
90±5 seconds	＜3°C/s	＜4°C/s	3~5s

Hand Soldering

* Keep the tip of the soldering iron clean.

Solder Iron	30W or 60W
Iron Tip Temperature	Approx. 350°C 662°F
Solder Time	Within approx. 3 seconds

* Immediate air cooling is recommended to prevent deterioration of the relay and surrounding parts due to soldering heat.
* Although the sealed type relay can be cleaned, avoid immersing the relay into cold liquid (such as washing solvent) immediately after soldering. Doing so may deteriorate the sealing performance.

Discard the dropped product