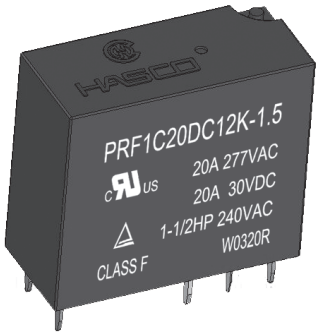
PR SERIES

POWER RELAY

c UL us
File No.:E75887

File No.:R 50261062

RoHS Compliant



FEATURES

- High breakdown voltage (5000VAC between coil and contact)
- Large switching capacity (20A 277VAC)
- Typical Applications:

General electronic controls or systems, Machine tool controls, Energy control circuits, Industrial machinery controls, Consumer controls (Air-conditioner, Rerigerator, Microwave Oven, etc.), Vending machine, Office machine, etc.

CONTACT RATINGS

Contact Arrangement	1A, 1C		2A, 2C	
Contact Resistance	≤50mΩ(1A 24VDC)			
Contact Material	AgSnO2, AgSnOIn			
Contact Rating(Resistive)	10A/277VAC 10A/30VDC	20A/277VAC 20A/30VDC	10A/277VAC 5A/30VDC	12A/277VAC 6A/30VDC 15A/277VAC 18A/277VAC
Max. Switching Voltage	277VAC/30VDC			
Max. Switching Current	10A	20A	10A	18A
Max. Switching Power	2770VA/300W	5540VA/600W	2770VA/300W	4986VA
Mechanical Life	Normal:1×10^7OPS 1.5mm:5×10^5OPS 2mm:3×10^5OPS			
Electrical Life	See more details at "safety approval ratings"			

CHARACTERISTICS

Insulation Resistance		1000MΩ (at 500VDC)
Dielectric Strength	Between coil & contacts	5000VAC 1min
	Between open contacts	1000VAC 1min(Normal contact gap) 2000VAC 1min(1.5mm contact gap) 2500VAC 1min(2mm contact gap)
	Between contact sets	3000VAC 1min
Operate time (at nomi. volt.)		≤15ms
Release time (at nomi. volt.)		≤5ms
Humidity		98% RH
Operation temperature		-40°C~+85°C
UL Class B/F		Insulation System Class B/F
Shock Resistance	Functional	98m/s²
	Destructive	980m/s²
Vibration resistance		10Hz ~ 55Hz 1.5mm DA
Unit weight		Approx. 18g
Construction		Sealed Type, Flux Tight Type

Notes: The data shown above are initial values

ORDERING INFORMATION

PR F 2C 10 DC12 K - E - 1.5 - XXXX

- Model
- F:Class F / Blank:Class B
- Contact arrangement: 1A, 1C, 2A, 2C
- Contact Rating: 1 Form 10A/20A, 2 Form 10A/12A/15A/18A
- Coil Voltage
- Pole Distance:K=5mm
- E:Flux Tight Type Blank:Sealed Type
- Contact Gap:1.5=1.5mm 2=2mm Blank=Normal
- 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.

COIL DATA at 25°C

Nominal Voltage VDC	Operate Voltage (Max.) VDC	Release Voltage (Min.) VDC	*Max. Allowable Voltage VDC	Coil Resistance Ω±10%		
				Normal	1.5mm	2mm
5	4.0	0.5	6.0	47	32	18
6	4.8	0.6	7.2	68	45	26
9	7.2	0.9	10.8	155	102	58
12	9.6	1.2	14.4	275	180	103
24	19.2	2.4	28.8	1100	720	412
48	38.4	4.8	57.6	4400	2880	1650
110	80.0	11.0	120.0	14400		——

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

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

COIL

Coil Power	Normal Contact Gap: Approx. 530mW 1.5mm Contact Gap: 800mW 2mm Contact Gap: 1400mW 110V: 840mW

SAFETY APPROVAL RATINGS

UL&CUL	Form 1	N.O./N.C.:16A/16A 277VAC, G.P., 1×10^5OPS N.O./N.C.:16A/16A 30VDC, 5×10^4OPS N.O./N.C.:1/2HP 120VAC, 6×10^3OPS N.O./N.C.:1-1/2HP 240VAC, 6×10^3OPS N.O.:10A 277VAC Tungsten, 2.5×10^4OPS N.O.:TV-10 277VAC, 2.5×10^4OPS N.O./N.C.:20A 277VAC/30VDC, 6×10^3OPS N.O./N.C.:10A/10A 277VAC, 6×10^3OPS N.O./N.C.:10A/10A 30VDC, 6×10^3OPS N.O./N.C.:1/4HP 120VAC, 6×10^3OPS N.O./N.C.:1/2HP 240VAC, 6×10^3OPS
	Form 2	N.O.:18A 277VAC, 85°C, 2.5×10^4OPS N.O.:15A 277VAC, G.P., 6×10^3OPS N.O.:12A 277VAC, 6×10^3OPS N.O./N.C.:10A/10A 277VAC, G.P., 6×10^3OPS N.O./N.C.:5A/5A 30VDC, 6×10^3OPS N.O./N.C.:1/8HP 120VAC, 6×10^3OPS N.O.:1/4HP 120VAC, 6×10^3OPS N.O.:1/2HP 240VAC, 6×10^3OPS N.O.:1/3HP 120VAC, 6×10^3OPS N.O.:3/4HP 240VAC, 6×10^3OPS N.O.:TV-5 120VAC/277VAC, 2.5×10^4OPS N.O.:TV-8 277VAC, 2.5×10^4OPS

TüV	Form 1	N.O.:20A 277VAC, 1×10^5OPS N.O./N.C.:16A/16A 277VAC, 1×10^5OPS N.O./N.C.:16A/16A 30VDC, 6×10^4OPS
	Form 2	N.O.:18A 277VAC, 85°C, 5×10^4OPS N.O.:15A 277VAC, 5×10^4OPS N.O.:10A 277VAC, 5×10^4OPS N.O./N.C.:12A/6A 277VAC, 2×10^4OPS N.O./N.C.:12A/6A 30VDC, 2×10^4OPS N.O.:12A 277VAC; N.C.:6A 277VAC, 5×10^4OPS N.O.:12A 30VDC; N.C.:6A 30VDC, 5×10^4OPS N.O./N.C.:5A/5A 250VAC, 5×10^4OPS N.O./N.C.:5A/5A 30VDC, 5×10^4OPS

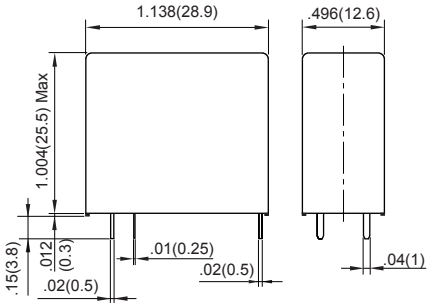
NOTES:

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.

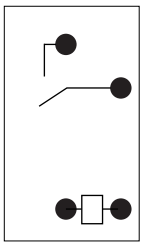
Unit: inch(mm)

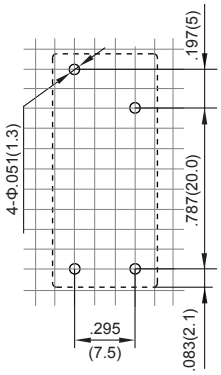
Outline Dimensions	Wiring Diagram (Bottom view)	PCB Layout (Bottom view)



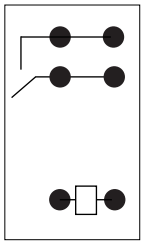
Contact Arrangement “A”

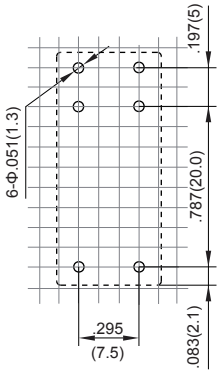
1A10



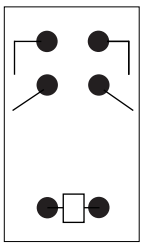


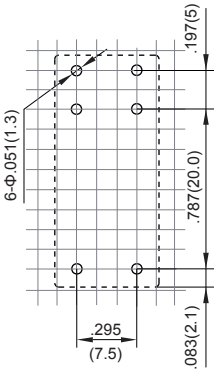
1A20





2A





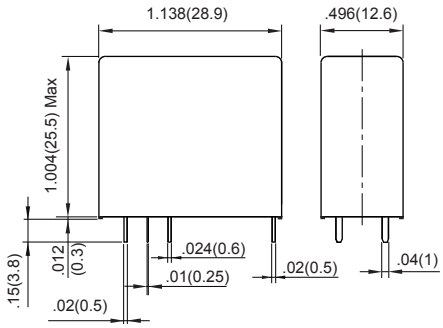
Unless otherwise specified tolerances are:		
≤1mm	＞1mm and ≤5mm	＞5mm
±0.2mm	±0.3mm	±0.4mm

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

OUTLINE DIMENSIONS, WIRING DIAGRAM AND PC BOARD LAYOUT.

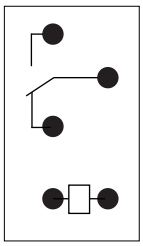
Unit: inch(mm)

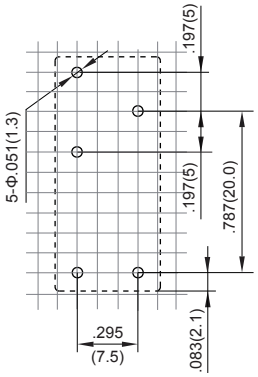
Outline Dimensions	Wiring Diagram (Bottom view)	PCB Layout (Bottom view)



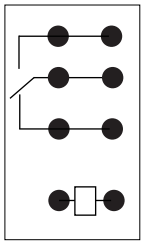
Contact Arrangement “C”

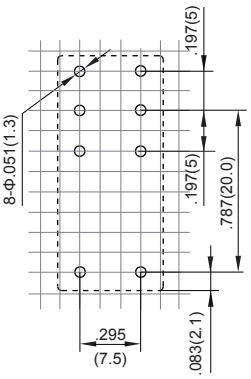
1C10



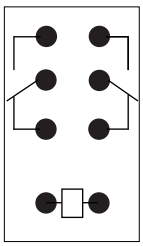


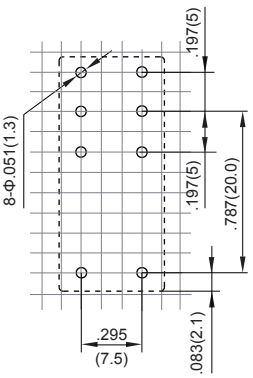
1C20





2C





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

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

PACKAGING SPECIFICATION

BLISTER BOX	INNER CARTON	OUTER CARTON	OUTER CARTON SIZE
30PCS	600PCS	1200PCS	L475mm*W275mm*H290mm

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