Issue :4

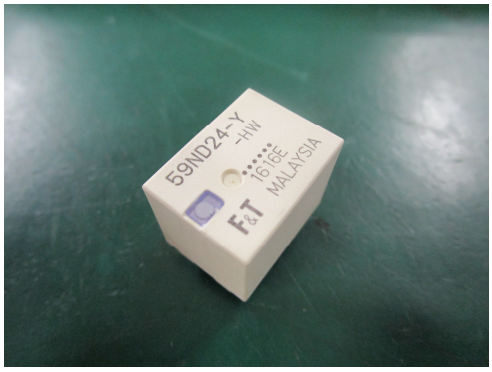
FBR59-HW Relay For 24VDCBattery

Automotive Relay

[FEATURES]

RoHS compliant

- Smallest High power relay for 24VDC Battery
- 1 form U (form A)
- High temperature grade (-40°C to +125°C)
- This relay is able to replace the Mini ISO relay



1. ORDERING INFORMATION

[Example] FBR59 N D24 - Y - HW - RW - WG
(a) (b) (c) (d) (e) (f) (g)

(a)	Series Name	FBR59–HW Series
(b)	Structure	N : Plastic sealed type Nil : Flux free type
(c)	Nominal Voltage	D12 : 12VDC D24 : 24VDC
(d)	Contact Material	Y : Silver- tin oxide
(e)	Carrying Current Rating	HW : 20A
(f)	Soldering	Nil : Standard RW : Reflow version for Plastic sealed type
(g)	Suffix	WG : For 24VDC Battery

2. COIL DATA CHART

Coil Number	Nominal Voltage [VDC]	Coil Resistance [ohms] (tolerance of 10%)	Operate Voltage [VDC]	Release Voltage [VDC]	Nominal Power [W]
D12	12	123	7.3	1.0	Approx 1.2
D24	24	490	14.4	1.9	

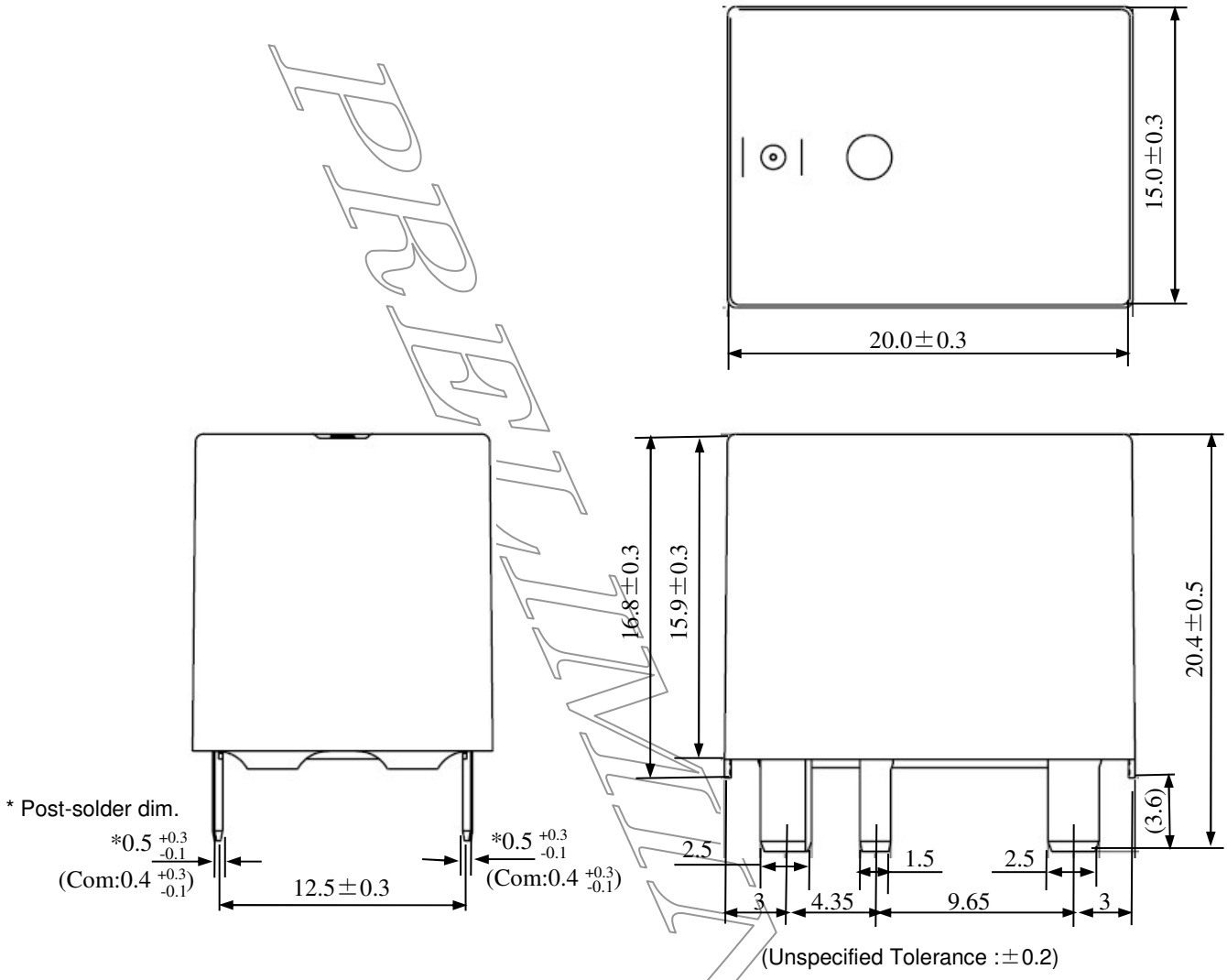
All values in the table are measured at 20 °C.

3. SPECIFICATIONS ※

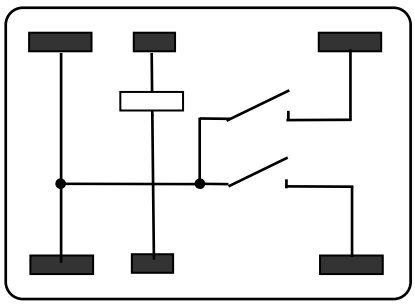
Item			FBR59-HW Relay 24VDC Battery
Contact	Arrangement		1 form U
	Material		Silver Tin Oxide
	Rating (Resistive)		20A 28VDC
	Max. Carrying Current		30A (@85℃)
	Max. Switching Load		20A 28VDC (Resistive)
	Min. Switching Load		1A 6VDC(Reference)
	Contact Voltage Drop		Max. 100 mV (at 1A 12VDC)
Coil	Operating Temperature		-40 to +125 ºC (no frost)
Time Value	Operate		Max. 10ms (at nominal voltage, without bounce)
	Release		Max. 5ms (at nominal voltage, without bounce)
Insulation	Resistance (at 500VDC)		Min. 100MΩ
	Dielectric Strength	B/T contacts	500VAC, 1 minute
		B/T coil and contacts	500VAC, 1 minute
Life	Mechanical		1 x 10^6 ope. min.
	Electrical	Resistive	1 x 10^5 ope. min.
Vibration Resistance	Miss operation		10 to 55 Hz at double amplitude of 1.5mm
	Endurance		10 to 55 Hz at double amplitude of 1.5mm
Shock Resistance	Miss operation		Min. 100m/s^2 (11±1ms)
	Endurance		Min. 1,000m/s^2 (6±1ms)
Weight			Approx. 13g

※Normal temp.&humidity

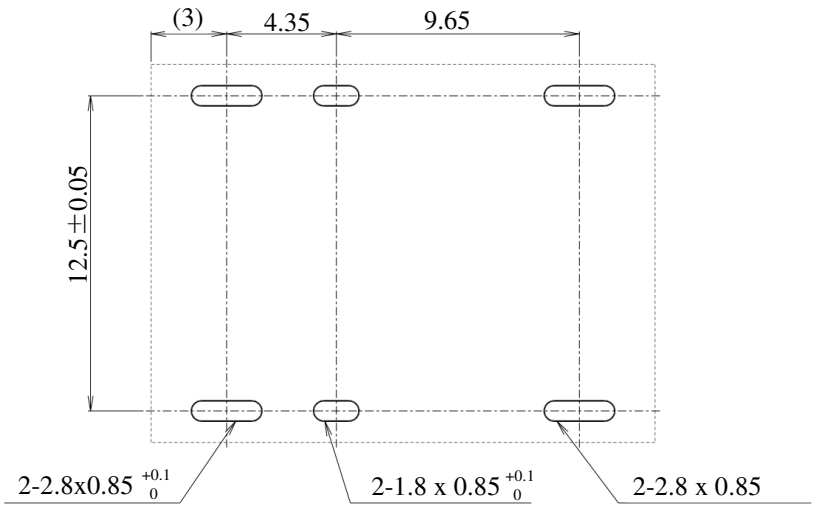
4. Dimensions



5.Schematics (Bottom View)

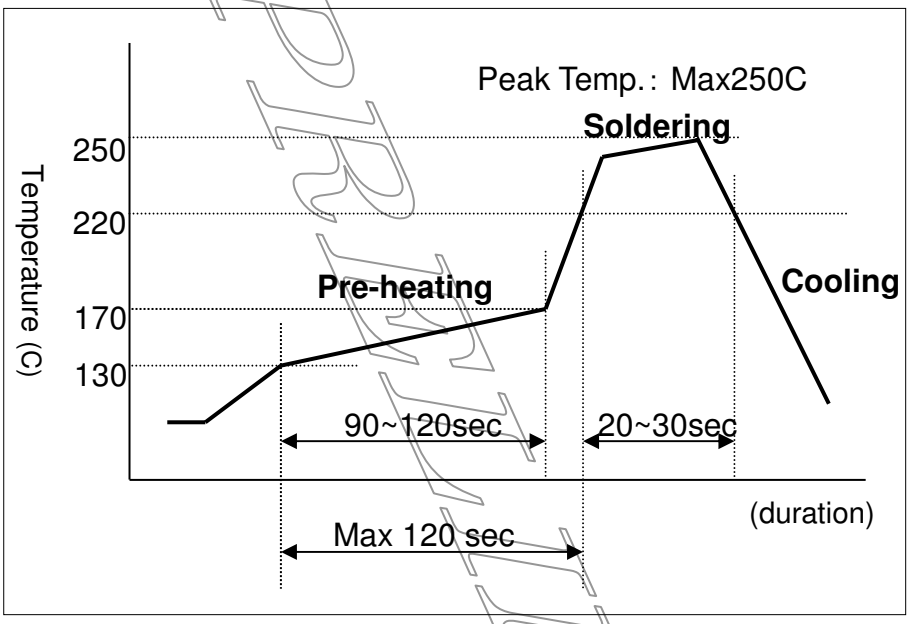


6.PC board mounting hole layout (Bottom View)



7. Recommended solder condition

Reflow solder condition※1,2(FBR59ND24-Y-HW-RW)



※1. Reflow profile

Recommended reflow profile is only a relay mounting. The temperature rise of the relay may become severe condition by the state of part coexistence on the same PC board and the heat method of the reflow equipment. Therefore, please confirm that the temperature on PC board surface in the vicinity of relay become the recommended condition or less by using actual equipment.

Note: Because there is an option type that has increased number of desiccant, please kindly take contact with sales person if there was any inconvenient issue after the evaluation under actual assembly condition.

※2. Solder heat resistance

No abnormality on the relay structure or characteristics after mounted on the PCB with one-time of reflow soldering.