

POWER RELAY

1 POLE—15 A (HEAVY POWER CONTROL)

VR SERIES

■ FEATURES

- UL, CSA, VDE recognized TV-5 rated
- 1 Form A (SPST-NO) contact
- Heavy duty 15 A miniature power relay with tab-terminals (#187)
- UL class B (130°C) insulation
- High isolation and high surge strength
 - Insulation distance: 8 mm
 - Dielectric strength: 5,000 VAC (between coil and contacts)
 - Surge strength: 10,000 V
- VRB type—good for high density mounting

■ ORDERING INFORMATION

[Example] $\frac{VR}{(a)}$ $\frac{B}{(b)}$ $\frac{-}{(*)}$ $\frac{12}{(c)}$

(a)	Series Name	VR: VR Series
(b)	Terminal	Nil: Top Tab-terminal (contacts) Bottom PCB terminal (coil) B: Top Tab-terminal (contacts) Bottom PCB terminal (coil and movable contact)
(c)	Nominal Voltage	Refer to the COIL DATA CHART

Actual marking omits the hyphen (–) of (*)

■ SAFETY STANDARD AND FILE NUMBERS

UL508 (File No. E56140, E108658)
 C22.2, No. 1, No. 14 (File No. LR35579)
 VDE0435, 0631, 0700

Type	Nominal voltage	Contact rating
VR VRB	3 to 60 VDC	TV-5 120 VAC 1HP 250 VAC 15 A 277 VAC/30 VDC resistive Pilot duty B 150

■ SPECIFICATIONS

Item		VR, VRB
Contact	Arrangement	1 form A (SPST-NO)
	Material	Silver-cadmium oxide
	Style	Single
	Resistance (initial) (at 1 A 6 VDC)	Maximum 100 mΩ
	Rating (resistive)	15 A 30 VDC/277 VAC
	Maximum Carrying Current	15 A
	Maximum Switching Power	4,155 VA, 450 W
	Maximum Switching Voltage	277 VAC, 30 VDC
	Maximum Switching Current	15 A
	Minimum Switching Load *1	100 mA 5 VDC
Coil	Nominal Power (at 20°C)	0.8 W
	Operate Power (at 20°C)	0.36 W
	Operating Temperature	-40°C to +85°C (no frost) (refer to the CHARACTERISTIC DATA)
Time Value	Operate (at nominal voltage)	Maximum 15 ms
	Release (at nominal voltage)	Maximum 10 ms
Insulation	Resistance (at 500 VDC)	Minimum 1,000 MΩ
	Dielectric Strength	between open contacts 1,000 VAC 1 minute
		between coil and contacts 5,000 VAC 1 minute
	Surge Strength	10,000 V (at 1.2 × 50 μs)
Life	Mechanical	5 × 10 ⁶ operations minimum
	Electrical	1 × 10 ⁵ operations minimum (contact rating)
Other	Vibration Resistance	Misoperation 10 to 55 Hz (double amplitude of 1.65 mm)
		Endurance 10 to 55 Hz (double amplitude of 2.0 mm)
	Shock Resistance	Misoperation 200 m/s ² (11 ± 1 ms)
		Endurance 1,000 m/s ² (6 ± 1 ms)
	Weight	Approximately 24 g

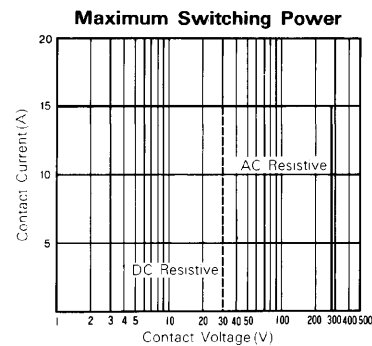
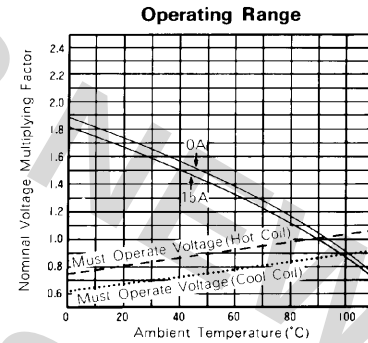
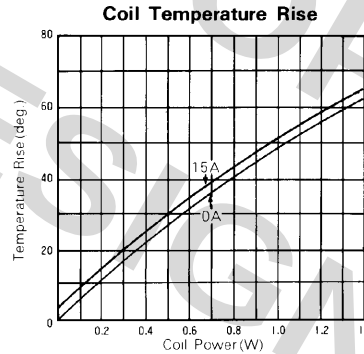
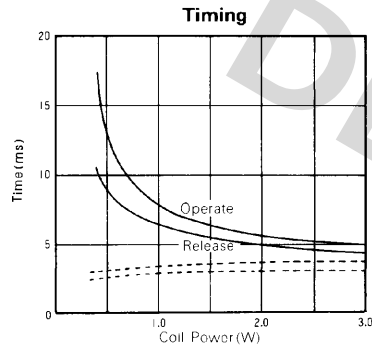
*1 Minimum switching loads mentioned above are reference values. Please perform the confirmation test with the actual load before production since reference values may vary according to switching frequencies, environmental conditions and expected reliability levels.

COIL DATA CHART

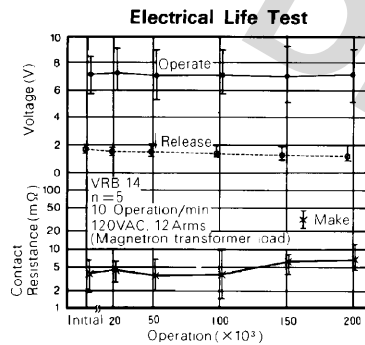
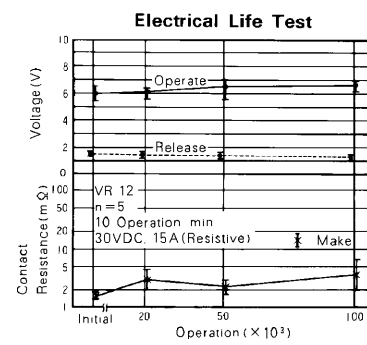
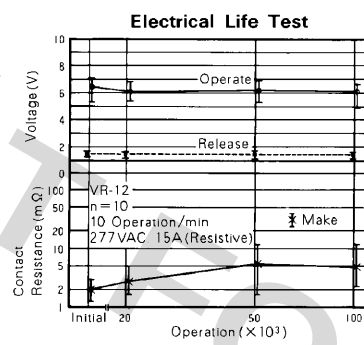
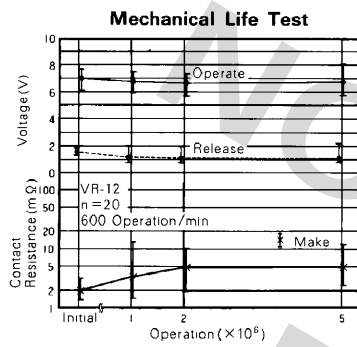
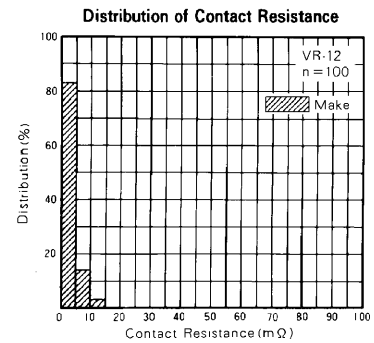
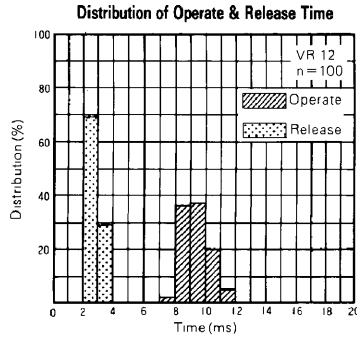
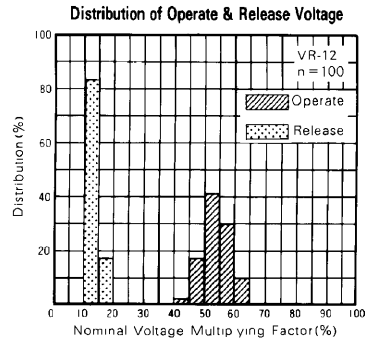
MODEL	Nominal voltage	Coil resistance ($\pm 10\%$)	Must operate voltage	Must release voltage	Nominal power
VR (B)- 3	3 VDC	11.2 Ω	2.0 VDC	0.3 VDC	0.8 W
VR (B)- 5	5 VDC	31 Ω	3.3 VDC	0.5 VDC	0.8 W
VR (B)- 6	6 VDC	45 Ω	4.0 VDC	0.6 VDC	0.8 W
VR (B)- 9	9 VDC	101 Ω	6.0 VDC	0.9 VDC	0.8 W
VR (B)-12	12 VDC	180 Ω	8.1 VDC	1.2 VDC	0.8 W
VR (B)-14	14 VDC	245 Ω	9.4 VDC	1.4 VDC	0.8 W
VR (B)-18	18 VDC	405 Ω	12.1 VDC	1.8 VDC	0.8 W
VR (B)-24	24 VDC	720 Ω	16.2 VDC	2.4 VDC	0.8 W
VR (B)-48	48 VDC	2,880 Ω	32.4 VDC	4.8 VDC	0.8 W
VR (B)-60	60 VDC	4,500 Ω	40.5 VDC	6.0 VDC	0.8 W

Note: All values in the table are measured at 20°C

CHARACTERISTIC DATA



REFERENCE DATA

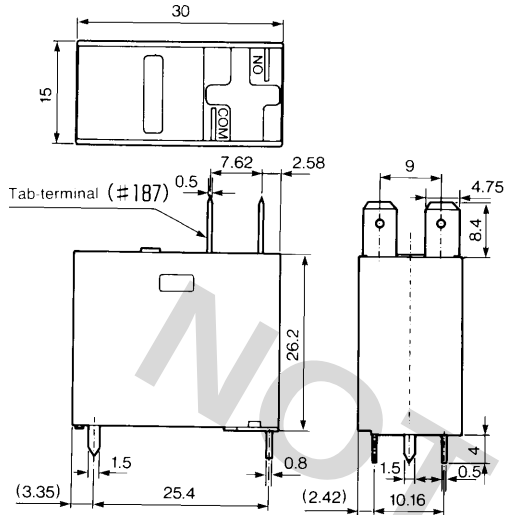


VR SERIES

■ DIMENSIONS

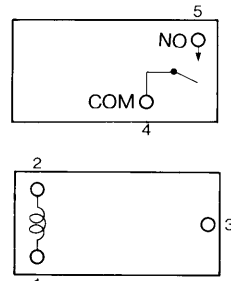
● Dimensions

VR type



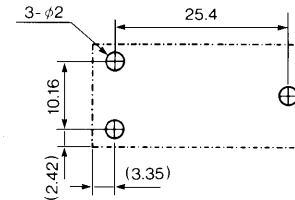
● Schematics

(TOP VIEW)



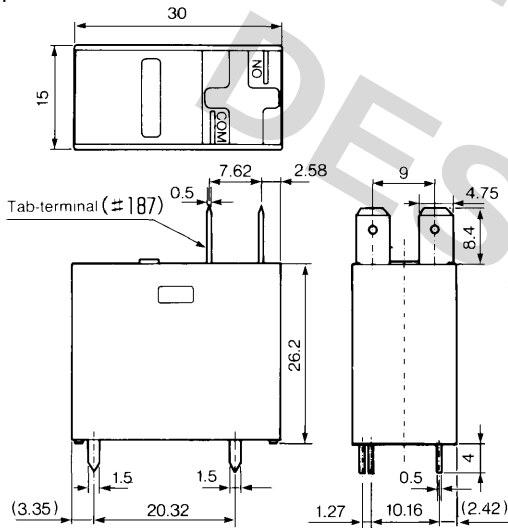
(BOTTOM VIEW)

● **PC board mounting hole layout**

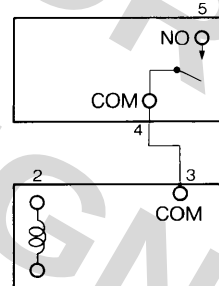


(BOTTOM VIEW)

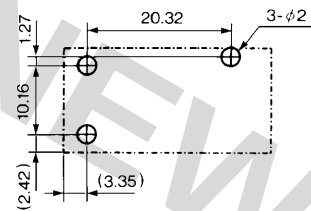
VRB type



(TOP VIEW)



(BOTTOM VIEW)



(BOTTOM VIEW)

Unit: mm

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