VPRD/S series

30 Amp Latching Relay with PC Board or Quick Connect Terminals for Automotive Applications

Features

- 30A continuous contact rating @ 125°C.
- 1 Form C arrangements.
- Plug-in or PC board terminals.
- Optional mounting bracket.
- Various enclosure options.
- Magnetically latched in both positions.
- High shock and vibration resistance.

Conditions

All parametric, environmental and life tests are performed according to EIA Standard RS-407-A at standard test conditions (23±1°C Ambient, 20-50% RH, 29.5 ± 0.5" Hg.) unless otherwise noted.

Contact Data

Arrangements: 1 Form C (SPDT).
Material: AgNi 0.15 and AgSnO.
Max. Switching Rate: 10 operations per second with no contact load.
6 operations per minute for rated life at rated load.
Max. Switching Voltage: 75VDC (1).
Max. Load Current @ (14VDC Load Voltage):

Load	Form C			
	NO 87/30		NO 87a/30	
	AgNi 0.15	AgSnO	AgNi 0.15	AgSnO
Max. Continuous Current	**35A**	**35A**	**35A**	**35A**
Max. Make Current(2)	**120A**	**180A**	**120A**	**180A**
Max. Break Current(1)	**40A**	**40A**	**40A**	**40A**

Max. Switching Power: 50-560 watts DC (voltage dependent) (1).
Initial Voltage Drop: 200 millivolts, maximum for normally open and normally closed contacts @ 30A contact load.
Mechanical Life: 10 million operations.
Electrical Life: 100,000 operations @ 30A, 14VDC, resistive load on either or both contacts.
100,000 operations @ 40A, 14VDC, 0.5mH inductive load on either contact.

Initial Dielectric Strength

Between Contacts and Coil: 500V rms.

Coil Data

Voltage: 6, 12 and 24VDC.
Resistance: See Coil Data table.
Nom. Power: See Coil Data table.
Thermal Resistance: 50°C per actual coil watt in still air with no contact load current.

Operate Data

Latch/Reset Voltage: See Coil Data table.
Operate Pulse Width: 50 milliseconds, minimum, with nominal coil voltage and -40°C to +125°C ambient.
100 milliseconds, minimum, with specified maximum pull-in voltage and +23°C ambient.
Initial Operate Time: 15 milliseconds (including bounce), typical, with rated coil voltage applied.

Environmental Data

Temperature Range: Storage: -40°C to +155°C.
-40°C to +125°C (sealed).
Operating: -40°C to +125°C.
Shock: 30g, 11 milliseconds, half sine wave pulse.
Vibration: 10-40 Hz., 1.27mm double amplitude.
40-86 Hz., 1.0mm double amplitude.
87-2000 Hz., 30g's constant.

Mechanical Data

Termination: PC board.
2.8mm (0.110") quick connect.
Enclosures: Dust Cover: Protects relay from dust. For use in passenger compartment or underhood relay center type enclosure.
Shrouded/Weatherproof Cover: Mates with sealed or unsealed connectors. See Connectors section for more detail.
Sealed: PCB terminal relays are supplied with epoxy sealed immersion cleanable enclosure.
Weight: 31g (1.1 oz.) approximately (dust cover model).

Abnormal Operation

Overload Current: 40.5A, 1800 sec.(3).
60A, 30 sec.
105A, 4 sec.
180A, 1 sec.
Drop Test: Capable of meeting specifications after a 1.0 meter drop onto concrete.
Cover Retention: Dust cover will withstand a 50 pound (220 Newton) force, axially applied, without detachment.
Flammability: UL94-HB or better (meets FMVSS 302).

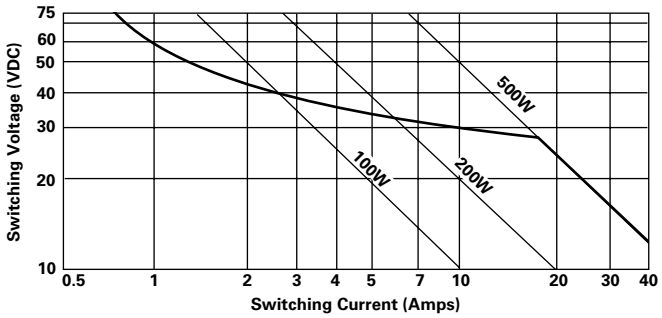
Notes

(1) See Figure 1.
(2) Inrush current for lamp load.
(3) Overcurrent tested per fuse SAE J1888, 30A.

Coil Data (@ 23°C Coil Temperature)

Coil Type Designator	Coil Voltage Designator	Rared Coil Voltage (VDC)	Coil Resistance ± 10% (Ohms)	Coil Inducance (H) (Ref.)	Must-Operate Voltage VDC	Nominal Power unsuppressed (W)
D	D	6	22	TBD	3.6	1.6
D	F	12	90	TBD	7.2	1.6
D	H	24	360	TBD	14.4	1.6
S	D	6	44	TBD	3.6	0.8
S	F	12	180	TBD	7.2	0.8
S	H	24	720	TBD	14.4	0.8

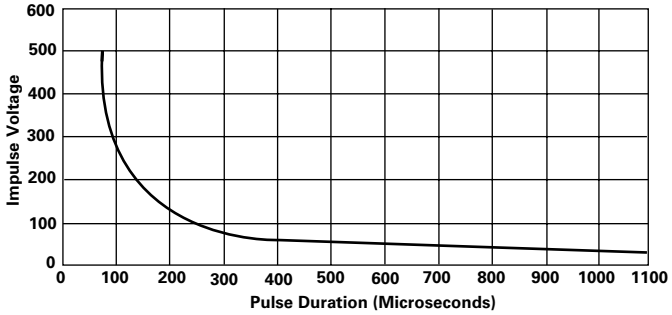
Figure 1 – Limiting Curve for Power Load



Safe breaking, arc extinguished for resistive loads.

Figure 2 – Coil Transient Immunity Curve

Voltages transients above the values indicated by the transient immunity curve may cause the relay to operate, and at higher voltages may cause permenent change in relay operating characteristics.



Ordering Information

Part Number	Contact Arrangement	Contact Material	Enclosure	Terminals
VPRD-15*12	Dual coil	AgNi 0.15	Dust cover, epoxy sealed	Printed circuit
VPRD-15*14	Dual coil	AgNi 0.15	Dust cover	2.8mm quick connect
VPRD-15*24	Dual coil	AgSnO	Dust cover	2.8mm quick connect
VPRD-65*14	Dual coil	AgNi 0.15	Weatherproof shrouded cover with bracket	2.8mm quick connect
VPRS-15*14	Single coil	AgNi 0.15	Dust cover	2.8mm quick connect

* Coil Voltage Designator: D = 6VDC (Consult factory for availability).
F = 12VDC
H = 24VDC (Consult factory for availability).

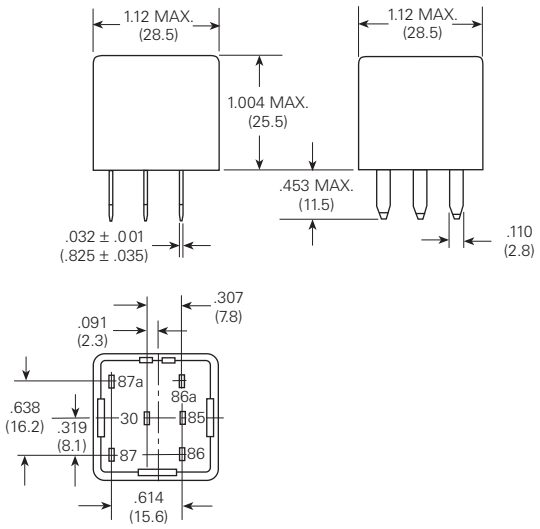
Optional Coil Suppression
Add suffix -S07 for 180 ohm resistor in parallel with 6VDC coil.
Add suffix -S01 for 680 ohm resistor in parallel with 12VDC coil.
Add suffix -S08 for 2,700 ohm resistor in parallel with 24VDC coil.

Stock Items – The following items are normally maintained in stock for immediate delivery.

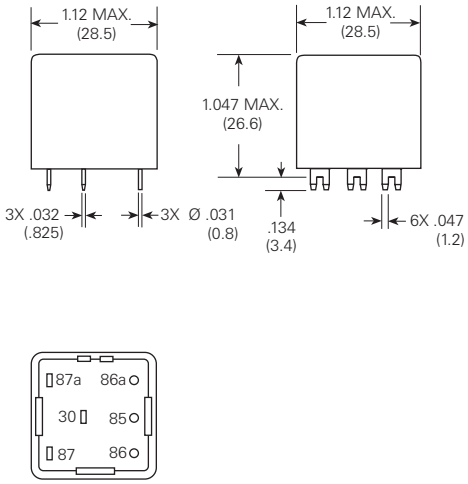
Consult factory for availability.

Outline Dimensions

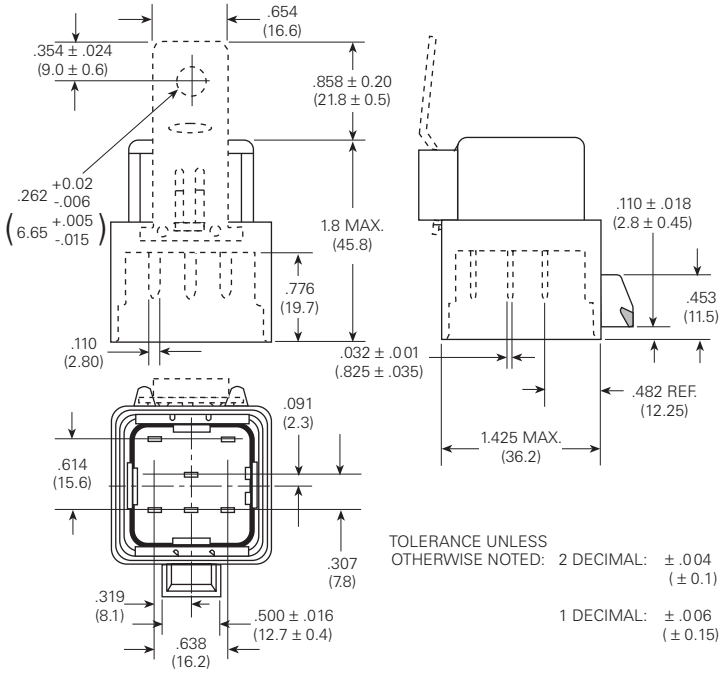
Dust Cover
With Quick Connect Terminals
VPR_-15_ _4



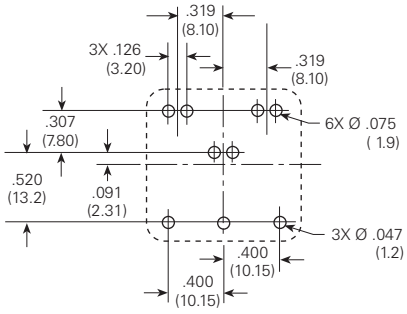
Immersion Cleanable
With PC Board Terminals
VPR_-15_ _2



Shrouded/Weatherproof Cover
With Quick Connect Terminals
VPR_-35_ _4 and VPR_-65_ _4

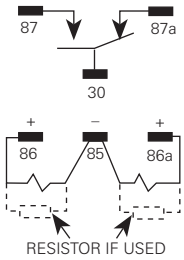


Suggested PC Board Layout (Bottom View)



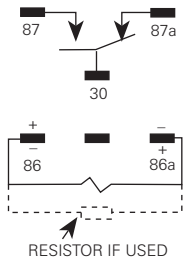
Wiring Diagrams (Bottom Views)

1 Form C
Dual Coil



A 50 millisecond or greater length pulse applied between pins 86 and 85 will cause a contact closure between pins 87 and 30. This contact position will be maintained until a similar pulse is applied to pins 86a and 30, which will transfer the contacts back to the original position.

1 Form C
Single Coil



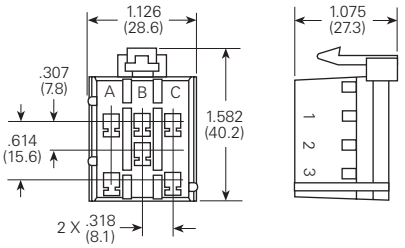
A 50 millisecond or greater length pulse applied between pins 86 (positive) and 86a (negative) will cause a contact closure between pins 87 and 30. This contact position will be maintained until a pulse with voltage polarity reversed, is applied to pins 86 and 86a which will transfer the contacts back to the original position.

Connectors

Shrouded (Unsealed)
(order terminals separately)
Connector For Use With VPR_-35_ _4 and VPR_-65_ _4 Relays

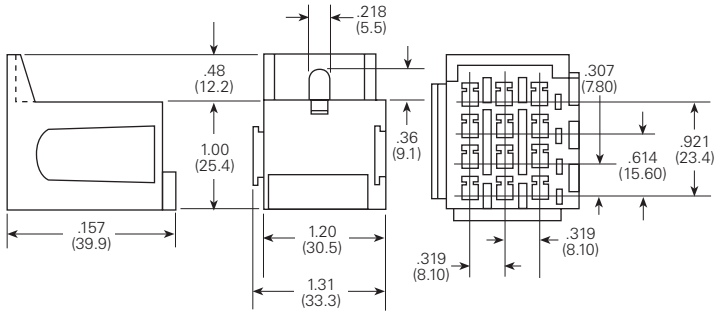
VCPR-1003

For passenger compartment or similar applications where weather sealing of the relay and relay to terminal interface is not required.



Wiring Harness Style, Bracket Mount Socket
(order terminals separately)
(Mount individually or can be interlocked.)
Connector For Use With VPR_-15_ _ 4 Relay

VC28-1002 (Consult factory for availability.)



Connector For Use in Weatherproof Application With VPR_-35_ _ 4 and VPR_-65_ _ 4

When relays are used in high splash areas, including most under-hood applications the relay as well as the relay-terminal to connector-terminal interface should be
protected from direct spray. This can be achieved through the use a Delphi Packard Metri-Pack, 280 Series, Flexlock, Sealed Connector (typical Part Number TBD*)
with corresponding terminals and cable seals. These parts will be available from Delphi Packard (1-800-PACKARD).

*Delphi Packard Weatherproof Connector for this product was not tooled at the time this data sheet was printed. Consult your Siemens Electromechanical Components sales representative to obtain the typical GM part number.

Connector/Terminal Usage Chart - Boldface items are stocked.

Connector	Required Crimp Terminals (Order Separately)			
	Siemens P/N	Alternate P/N Delphi Packard	Wire AWG	Qty. Required Form C
VC28-1002 VCPR-1003	**26A1494A** 26A1494B **26A1494C** **26A1494D**	12110843 12110844 12129424 12129425	20-22 16-18 14-16 10-12	6

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