

VF4 A



**Description**

**Features**

- Limiting continuous currents 60/40 A at the NO / NC contacts
- Dimensional characteristics and the functional allocations of the plug-in terminals to ISO 7588 part 1
- Standardized dimensions
- Plug-in or PCB terminals

**Typical applications**

- Ignition lock
- Lamp load (headlights)
- Cooling fan
- ABS
- Exhaust emission control
- Cross carline up to 60 A
- Fuel pump
- Engine cooling fan
- A/C blower
- A/C compressor clutch
- Also available for 42 V applications



Please contact Tyco Electronics for relay application support.

**Design**

Dustproof; protection class IP 54 to IEC 529 (EN 60 529); with either mounting bracket or mounting clip

**Options**

Shrouded and weatherproof covers

**Weight**

Approx. 1.2 oz. (35 g)

**Nominal voltage**

6 V, 12 V or 24 V; other nominal voltages available on request

**Terminals**

Quick connect terminals similar to ISO 8092-1 coil and load 6.3 x 0.8 mm; surfaces tin-plated or PCB terminals

**Accessories**

Connectors see page 188

**Special models on request**

- Integrated components: resistor, varistor, diode
- Special labels
- Special cover shapes

**Conditions**

All parametric, environmental and endurance tests are performed according to EIA Standard RS-407-A at standard test conditions unless otherwise noted:  
23 °C ambient temperature, 20-50% RH, 29.5 ± 1.0" Hg (998.9 ± 33.9 hPa).  
Please also refer to the Application Recommendations in this catalog for general precautions.

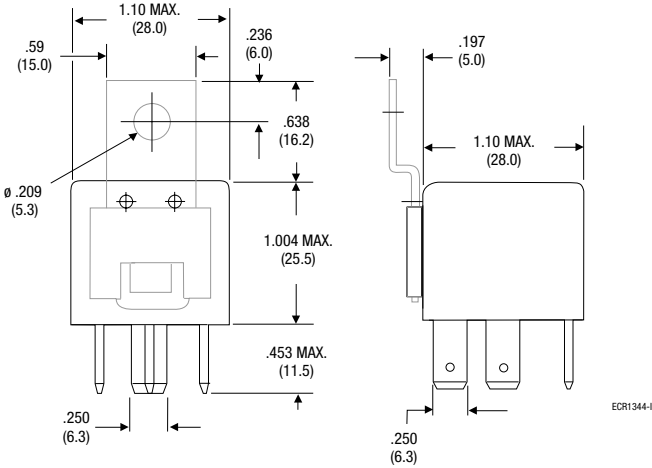
**Disclaimer**

All technical performance data apply to the relay as such, specific conditions of the individual application are not considered. Please always check the suitability of the relay for your intended purpose. We do not assume any responsibility or liability for not complying herewith. We recommend to complete our questionnaire and to request our technical service. Any responsibility for the application of the product remains with the customer only. All specifications are subject to change without notification. All rights of Tyco are reserved.

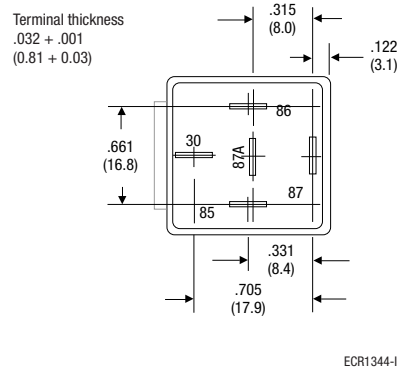
VF4 A

**North America production**  
**Dimensional drawing**

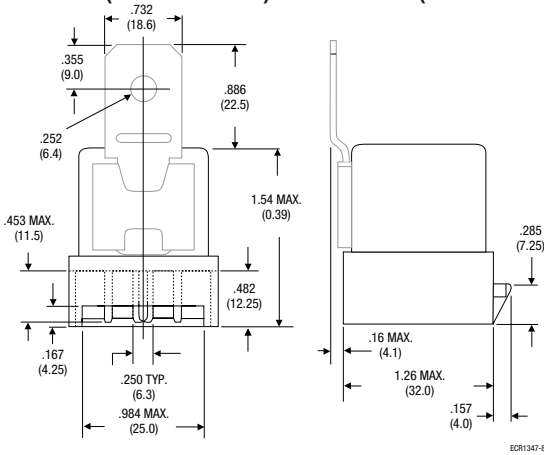
**Dust cover with quick connect terminals**  
**VF4-1\*\*\*\* (without bracket) and VF4-4\*\*\*\* (with bracket)**



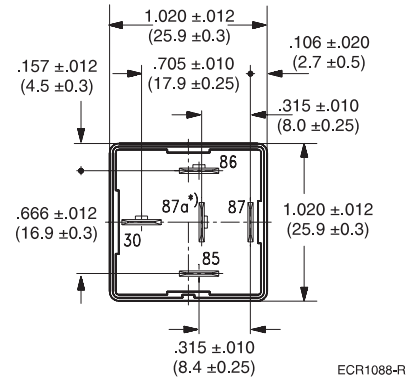
**View of the terminals (bottom view)**



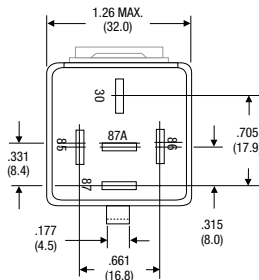
**Shrouded dust cover with quick connect terminals**  
**VF4-2\*\*\*\* (without bracket) and VF4-5\*\*\*\* (with bracket)**



**View of the terminals (bottom view)**



**View of the terminals (bottom view)**

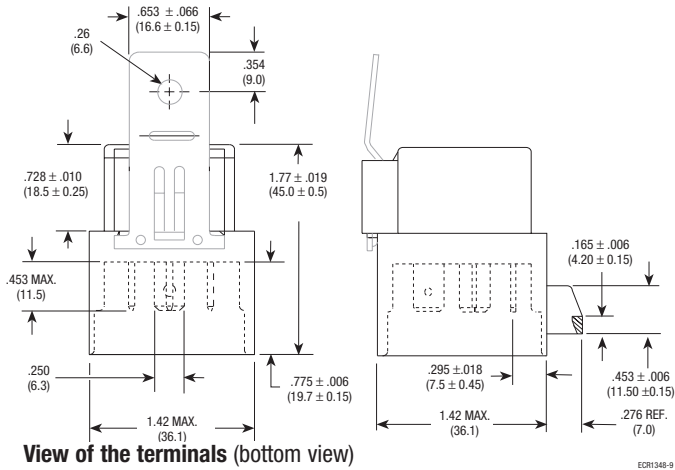


VF4 A

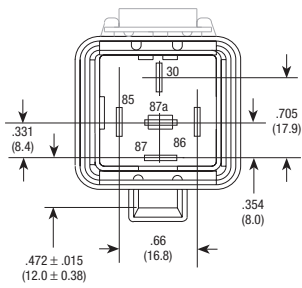
**North America production**

**Weatherproof cover with quick connect terminals**

**VF4-3\*\*\*\* (without bracket) and VF4-6\*\*\*\* (with bracket)**



ECR1348-9



VF4 A

**Contact data**

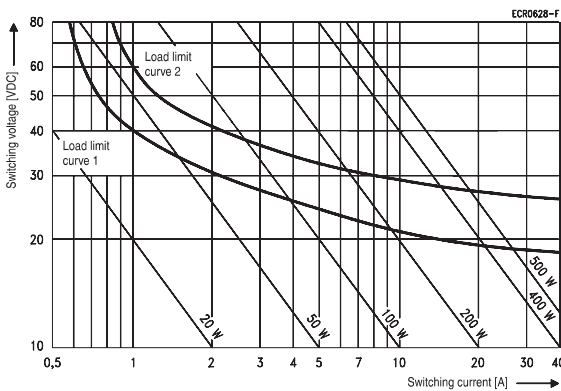
Contact configuration	Make contact/ Form A	Changeover contact/ Form C
Circuit symbol (see also Pin assignment)		
Limiting continuous current at 23 °C at 85 °C	60 A 40 A	40/60 A 40/60 A
Contact material	AgNi0.15	
Max. switching voltage/power	See load limit curve	
Max. switching current <sup>1)</sup>		NC/NO
On <sup>2)</sup>	120 A	45/120 A
Off	60 A	40/60 A
Min. recommended load <sup>3)</sup>	1 A at 5 V	
Voltage drop (initial) NO contact at 40 A NC contact at 30 A	Typ. 60 mV, 200 mV max.	Typ. 60 mV, 200 mV max. Typ. 60 mV, 250 mV max.
Mechanical endurance (without load)	> 10 <sup>7</sup> operations	
Electrical endurance (example of resistive load)	> 1 x 10 <sup>5</sup> operations 40 A, 14 V	> 1 x 10 <sup>5</sup> operations 40 A, 14 V (NO contact)
Max switching rate at nominal load	6 operations per minute (0.1 Hz)	

<sup>1)</sup> The values apply to a resistive or inductive load with suitable spark suppression and at maximum 13.5 V for 12 V load voltages.

<sup>2)</sup> For a load current duration of maximum 3 s for a make/break ratio of 1:10.

<sup>3)</sup> See chapter Diagnostics in our Application Recommendations on page 18 of this catalog or consult the internet at <http://relays.tycoelectronics.com/application.asp>

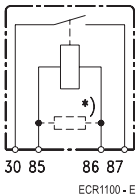
**Load limit curve**



Load limit curve 1  $\hat{=}$  arc extinguishes during transit time (changeover contact)  
Load limit curve 2  $\hat{=}$  safe shutdown, no stationary arc (make contact)

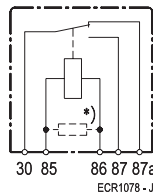
**Pin assignment**

1 make contact/  
1 form A



\*) Models with resistor or diode in parallel to the coil on request.

1 changeover contact/  
1 form C



\*) Models with resistor or diode in parallel to the coil on request.

VF4 A

**Coil data**

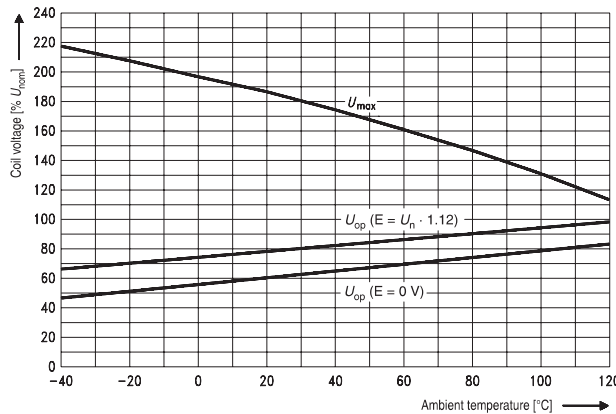
Available for nominal voltages	6, 12, 24 V
Nominal power consumption of the unsuppressed coil at nominal voltage	1.6 W
Nominal power consumption at nominal voltage with suppression resistor	1.8 W
Test voltage winding/contact	500 VAC <sub>rms</sub>
Ambient temperature range	- 40 to + 125 °C
Operate time at nominal voltage	Typ. 7 ms
Release time at nominal voltage <sup>1)</sup>	Typ. 2 ms

<sup>1)</sup> For unsuppressed relay coil

N.B.

A low resistive suppression device in parallel to the relay coil increases the release time and reduces the lifetime caused by increased erosion and/or higher risk of contact tack welding.

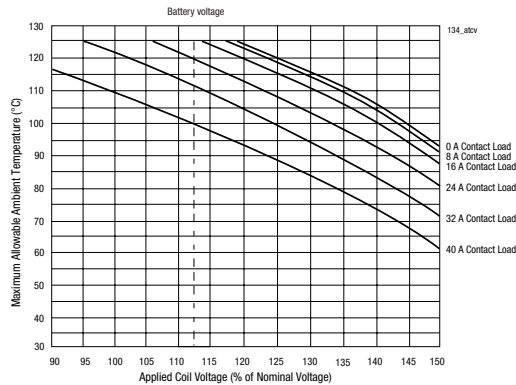
**Operating voltage range**



Does not take into account the temperature rise due to the contact current  
E = pre-energization

ECR0701-J

**Ambient temperature vs. coil voltage for continuous duty**



**Assumptions:**

1. Still air
2. Nominal coil resistance
3. Maximum mean coil temperature = 180 °C
4. Coil temperature rise due to load = 1 °C at 8 A  
= 5 °C at 16 A  
= 11 °C at 24 A  
= 20 °C at 32 A  
= 32 °C at 40 A
5. Thermal resistance and power dissipation based on coil resistance at 180 °C
6. Curves are based on 1.6 W at 23 °C
7. When full lifetime is at high ambient and high load current, subtract 25 °C from maximum allowable ambient temperature.

**Mechanical data**

Cover retention	
Axial force	150 N (33.8 lbs)
Pull force	200 N (45 lbs)
Push force	200 N (45 lbs)
Terminals	
Pull force	100 N (22.5 lbs)
Push force	100 N (22.5 lbs)
Resistance to bending, force applied to front	10 N (2.25 lbs) <sup>1)</sup>
Resistance to bending, force applied to side	10 N (2.25 lbs) <sup>1)</sup>
Torsion	0.3 Nm
Enclosures	
Dust cover	Protects relay from dust. For use in passenger compartment or enclosures
Shrouded dust cover	Protects relay and relay connector (order separately) from dust and splash
Weatherproof cover	Mates with a connector (order separately) to seal relay from salt spray etc. Recommended for under hood application

<sup>1)</sup> Values apply 2 mm from the end of the terminal. When the force is removed, the terminal must not have moved by more than 0.3 mm.

VF4 A

Operating conditions				
Temperature range, storage	Refer to <i>Storage</i> in the "Glossary"			
Test	Relevant standard	Testing as per	Dimension	Comments
Vibration resistance	1.27 mm double amplitude 5 g constant 0.5 mm double amplitude 5 g constant		10-40 Hz 40-70 Hz 70-100 Hz 100-500 Hz	Valid for NC contacts. NO contacts are significantly higher
Shock resistance	half sine wave pulse		20 g 11 ms	No change in the switching state > 1 ms
Jump start	24 V for 5 minutes conducting nominal current at 23 °C			
Drop test	capable of meeting specifications after 1.0 m (3.28 foot) drop onto concrete			
Flammability	UL94-HB or better (meets FMVSS 302)			
Overload current <sup>1)</sup>	54 A, 1800 s 80 A, 40 s 140 A, 5 s 240 A, 1 s			

<sup>1)</sup> Current and time are compatible with circuit protection by a typical 40 A automotive fuse. Relay will make, carry and break the specified current.

Ordering information

Part numbers for VF4 A (see table below for coil data)		Contact arrangement	Contact material	Enclosure	Special features
Relay part number	Tyco order number				
<b>12 V Plug-In Relays</b>					
VF4-15F11	6-1393298-0	1 Form C	AgNi0.15	Dust cover	
VF4-15F11-C01	6-1393298-1	1 Form C	AgNi0.15	Sealed	
VF4-15F11-C05	6-1393298-2	1 Form C	AgNi0.15	Sealed	Resistor 680 Ω
VF4-15F11-S01	6-1393298-4	1 Form C	AgNi0.15	Dust cover	Resistor 680 Ω
VF4-15F21-S01	7-1393298-3	1 Form C	AgSn02	Dust cover	Resistor 680 Ω
VF4-45F11	8-1393298-8	1 Form C	AgNi0.15	Dust cover	Bracket
VF4-45F21-S01	1432636-1	1 Form C	AgSn02	Dust cover	Bracket, resistor 680 Ω
VF4-55F11	8-1393305-6	1 Form C	AgNi0.15	Shrouded Cover	
VF4-55F11-S01	8-1393305-7	1 Form C	AgNi0.15	Shrouded Cover	Resistor 680 Ω
VF4-65F11-S01	9-1393305-5	1 Form C	AgNi0.15	Weatherproof Cover	Resistor 680 Ω
<b>24 V Plug-In Relays</b>					
VF4-15H11	8-1393298-1	1 Form C	AgNi0.15	Dust cover	
VF4-45H11	1-1393302-1	1 Form C	AgNi0.15	Dust cover	Bracket
VF4-65H11-S08	9-1393305-9	1 Form C	AgNi0.15	Weatherproof Cover	Resistor 2.7 kΩ

Coil versions

Coil data for VF4 A	Rated coil voltage (V)	Coil resistance +/- 10% (Ω)	Must operate voltage (V)	Must release voltage (V)	Allowable overdrive <sup>1)</sup> voltage (V)	
					at 23 °C	at 85 °C
VF4-**F**-**	12	90	7.2	1.2	20.2	15.7
VF4-**H**-**	24	360	14.4	2.4	40.5	31.5

<sup>1)</sup> Allowable overdrive is stated with no load applied and minimum coil resistance.

**Standard delivery packs** (orders in multiples of delivery pack)

VF4-1, VF4-4	300 pieces
VF4-2, VF4-3	165 pieces
VF4-5, VF4-6	110 pieces

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Automotive Relays](#) category:*

*Click to view products by [TE Connectivity](#) manufacturer:*

Other Similar products are found below :

[896H-1AH-D1SW-001-24VDC](#) [896H-1AH-D1SW-R1-12VDC](#) [896H-1CH-C1-001-12VDC](#) [896H-1CH-S-24VDC](#) [896HP-1AH-C-12VDC](#)  
[G5CE1ASIDC12](#) [AEV31024](#) [1393204-2](#) [1393302-3](#) [13Z99A115-0074](#) [1432872-1](#) [1617057-2](#) [2-1617057-2](#) [CB1F-M-12V-H15](#) [CB1-T-R-M-12V](#) [896H-1CH-D1SF-R1-12VDC](#) [896H-1CH-D1SF-R1-T-12VDC](#) [898H-1AH-D-001-12VDC](#) [24198-1](#) [5-1616920-2](#) [5-1617052-9](#) [5407-0011-HS](#) [CB1AF-M-12V-H59](#) [5-1617346-8](#) [103-1AH-C-12VDC](#) [CF2Q-12V](#) [V23134A1052X299](#) [CP112J](#) [896H-1AH-S1-001-12VDC](#)  
[897H-1AH-D-R1-U01-12VDC](#) [896H-1CH-D-U39-24VDC](#) [896HP-1AH-C-U2120VDC](#) [896E-1CH-D1SW-U57-12VDC](#) [896H-1CH-D1SW-R1-U30-12VDC](#) [896H-1AH-C1S-R1-24VDC](#) [102-1CH-C-12VDC](#) [V23076A3001D142T](#) [1-19042-6](#) [3-1393305-1](#) [J7TKNA9](#)  
[V23234A1001X043-EV-144](#) [V23086-R1851-A502](#) [898H-1AH-D1SW-R1-12VDC](#) [RH4C1P2607](#) [RE031005](#) [V23134M0052G242](#) [1393204-1](#)  
[G8N-1L-AS DC12](#) [V23076A3022D142](#) [V23074A2001A402](#)