

Power Relay F4 A

- Pin assignment similar to ISO 7588 part 1
- Plug-in terminals
- Customized versions on request
 - Integrated components (e.g. resistor, diode)
 - Customized marking
 - Special covers (e.g. brackets, shrouded)

Typical applications

Cross carline up to 40A for example: ABS control, blower fans, car alarm, cooling fan, Electric Power Steering, energy management, engine control, fuel pump, heated front screen, lamps: front, rear, fog light, main switch/supply relay, valves, wiper control.



136-A_fbw1

Contact Data

Contact arrangement	1 form C, 1 CO	1 form A, 1 NO
Rated voltage	12VDC	
Limiting continuous current,		
form A/form B	NO/NC	NO
23°C	60/45A	60A
85°C	40/30A	40A
125°C	17/12A	17A
Limiting making current ¹⁾ ,		
form A/form B	120/45A	120A
Limiting breaking current,		
form A/form B	60/40A	60A
Limiting short-time current		
overload current, ISO 8820-3 ²⁾	1.35 x 40A, 1800s	
	2.00 x 40A, 60s	
	6.00 x 40A, 1s	
Jump start test, ISO 16750-1	24VDC for 5min,	
conducting nominal current at 23°C		
Contact material	silver based	
Min. recommended contact load ³⁾	1A at 5VDC	
Initial voltage drop at 10A,		
form A (NO) contact, typ./max.	15mV/200mV	
form B (NC) contact, typ./max.	20mV/250mV	
Frequency of operation at nominal load	6 ops./min (0.1Hz)	
Operate/release time typ.	7/2ms ⁴⁾	

Contact Data (continued)

Electrical endurance ⁵⁾	>1x10 ⁵ ops.
resistive load, form A (NO) contact	40A, 14VDC
resistive load, form B (NC) contact	30A, 14VDC
Mechanical endurance	>1x10 ⁶ ops.

1) The values apply to a resistive or inductive load with suitable spark suppression and at maximum 14VDC load voltages. For a load current duration of maximum 3s for a make/break ratio of 1:10.

2) Current and time are compatible with circuit protection by a typical automotive fuse. Relay will make, carry and break the specified current.

3) See chapter Diagnostics of Relays in our Application Notes or consult the internet at <https://relays.te.com/appnotes/>

4) For unsuppressed relay coil. Any parallel device to the coil will increase the release time.

5) Electrical endurance data is not valid for diode versions. Any diode or pn-junction parallel to the coil (internal or external) will significantly decrease the electrical lifetime, especially when used for inductive loads.

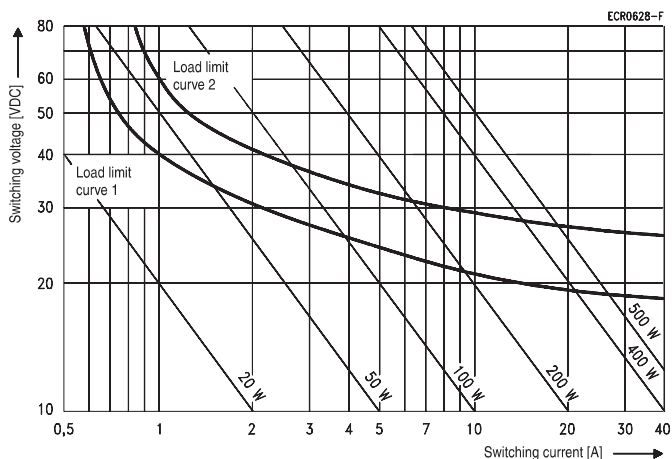
Coil Data

Rated coil voltage	12VDC				
Coil versions, DC coil					
Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance ⁶⁾ Ω±10%	Rated coil power ⁶⁾ W
001	12	7.2	1.6	114	1.3
004	12	7.2	1.2	90	1.6

6) Without components in parallel.

All figures are given for coil without pre-energization, at ambient temperature +23°C.

Max. DC load breaking capacity

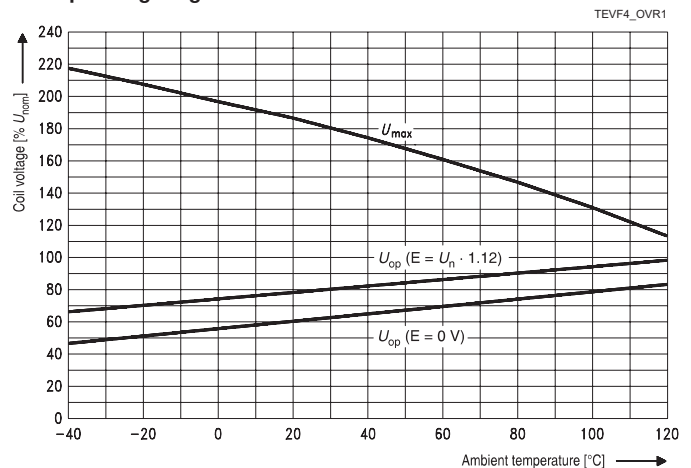


Load limit curve 1: arc extinguishes during transit time (changeover contact).

Load limit curve 2: safe shutdown, no stationary arc (make contact).

Load limit curves measured with low inductive resistors verified for 1000 switching events.

Coil operating range



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

Power Relay F4 A (Continued)

Insulation Data

Initial dielectric strength	
between open contacts	500V _{rms}
between contact and coil	500V _{rms}
between adjacent contacts	500V _{rms}

Other Data

EU RoHS/ELV compliance	compliant
Protection to heat and fire according UL94	UL94-HB or better
Ambient temperature	-40 to 125°C
Category of environmental protection, IEC 61810	RT I (dustproof)
Degree of protection, IEC 60529	IP54 (dustproof)

Vibration resistance (functional)	
IEC 60068-2-6 (sine sweep)	10 to 500Hz, min. 5g ⁷⁾
Shock resistance (functional)	
IEC 60068-2-27 (half sine)	11ms, min. 20g ⁷⁾
Drop test, free fall, IEC 60068-2-32	1m onto concrete

Other Data (continued)

Terminal type	plug-in, QC
Cover retention	
pull force	150N
push force	200N
Terminal retention	
pull force	100N
push force	100N
resistance to bending	10N ⁸⁾
force applied to side	10N ⁸⁾
torque	0.3Nm
Weight	approx. 35g (1.2oz)
Packaging unit	
standard cover	294 pcs.
cover with notches	273pcs.

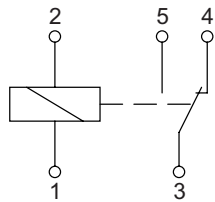
- 7) No change in the switching state >10μs. Valid for NC contacts, NO contact values significantly higher.
- 8) Values apply 2mm from the end of the terminal. When the force is removed, the terminal must not have moved by more than 0.3mm.

Accessories

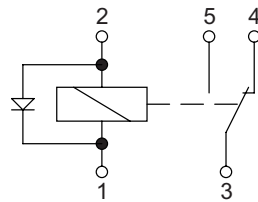
For details see datasheet Connectors for Mini ISO Relays

Terminal Assignment

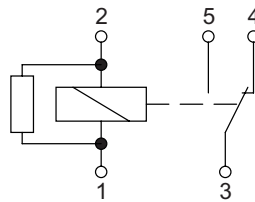
CO
1 form C, 1 CO



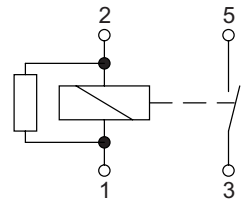
COD
1 form C, 1 CO with diode



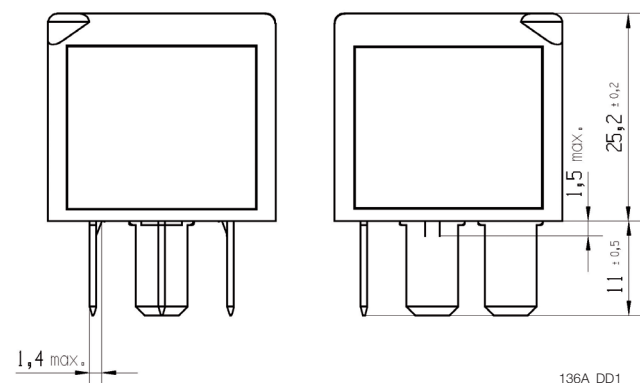
COR
1 form C, 1 CO with resistor



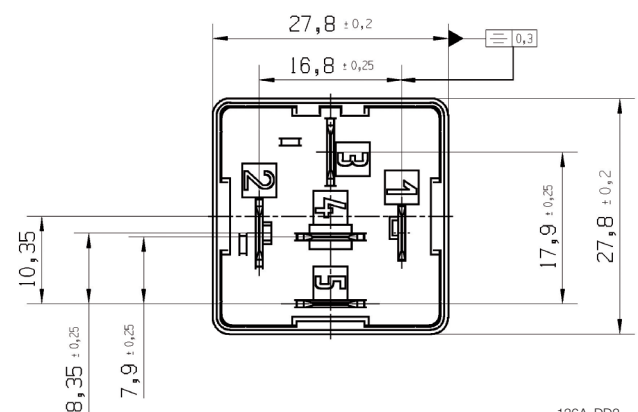
NOR
1 form A, 1 NO with resistor



Dimensions (version with standard cover)

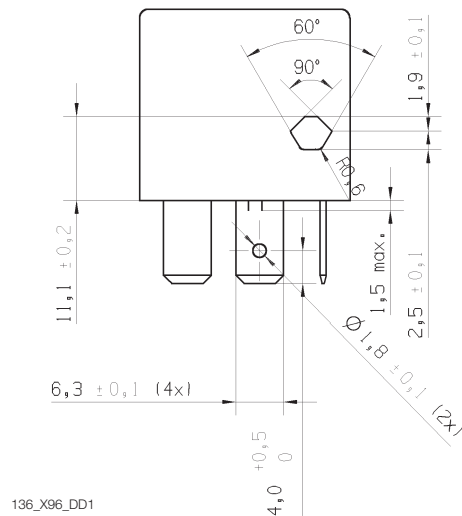


View of the terminals (bottom view)

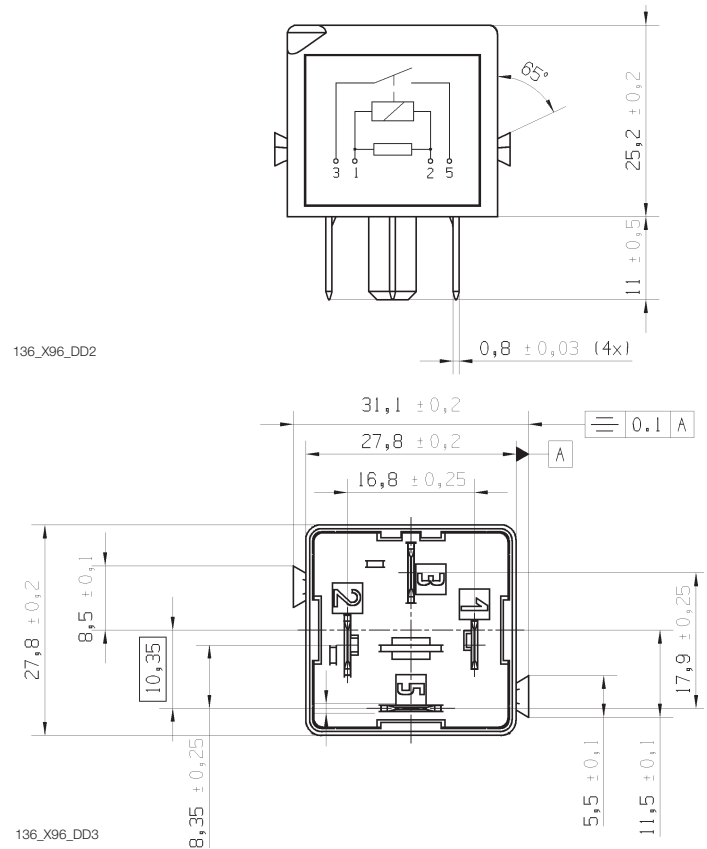


Power Relay F4 A (Continued)

Dimensions (version with notches)



View of the terminals (bottom view)



Product code structure

Typical product code **V23136 -A 0 001 -Xnnn**

Type	V23136 Power Relay F4 A			
Contact arrangement	A 1 form C, 1 CO		B 1 form A, 1 NO	
Cover	0 Standard			
Coil	001 12VDC		004 12VDC	
Terminal/arrangement	Xnnn Customized (nnn: version number)			

Production in Europe (only)

Product code	Arrangement	Coil suppr.	Circuit ¹⁾	Contact mat.	Coil	Part number
V23136-A0001-X083 ²⁾	1 form C, 1 CO	Resistor 680Ω	COR	Silver based	12VDC	4-1414977-8
V23136-A0004-X058			CO			1-1414686-0
V23136-A0004-X059		Resistor 680Ω	COR			1-1414687-0
V23136-A0004-X086		Diode (cathode 1)	COD			4-1414992-7
V23136-A0004-X075		Resistor 680Ω	COR			7-1414985-1

1) See terminal assignment diagrams. 2) Special cover with notches.

Production in Asia (only)

Product code	Arrangement	Coil suppr.	Circuit ¹⁾	Contact mat.	Coil	Part number
V23136-A0004-X058	1 form C, 1 CO		CO	Silver based	12VDC	6-1904112-9
V23136-A0001-X155		Resistor 680Ω	COR			2325917-1
V23136-A0004-X059						7-1904112-0
V23136-A0004-X086		Diode (cathode 1)	COD			7-1904112-1
V23136-A0004-X075		Resistor 680Ω	COR			4-1904134-7
V23136-B0001-X104	1 form A, 1 NO		NOR			7-1904116-0

1) See terminal assignment diagrams.

Other types on request. Part numbers listed represent the most common types and do not show all variants covered by this datasheet.