Shrouded 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/color**
  - **– Special cover with bracket**

F136_fcw3c_bw

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

Contact Data

Contact arrangement	1 form A, 1 NO	1 form C, 1 CO
Rated voltage	12VDC	12VDC
Limiting continuous current	NO	NO/NC
23°C,form A/form B	60A	60/45A
85°C,form A/form B	40A	40/30A
125°C,form A/form B	17A	17/12A
Limiting making current[1)]		
form A/form B	120A	120/45A
Limiting breaking current,		
form A/form B	60A	60/40A
Limiting short-time current		
overload current, ISO 8820-3[2)]	1.35 x 40A, 1800s 2.00 x 40A, 5s 3.50 x 40A, 0.5s 6.00 x 40A, 0.1s	
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,		
form A (NO) at 10A, typ./max.	15/300mV	15/300mV
form B (NC) at 10A, typ./max.	-	25/300mV
Frequency of operation at nominal load	6 ops./min (0.1Hz)	
Operate/release time typ.	8.5/4ms[4)]	
Electrical endurance	>2x10^{5}ops	>1x10^{5}ops
resistive load at 14VDC	40A (NO)	40A (NO)

Contact Data (continued)

Mechanical endurance	>1x10^{7}ops

1) The values apply to a resistive or inductive load with suitable spark suppression and at maximum 14VDC for 12VDC or 28VDC for 24VDC 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 http://relays.te.com/appnotes/
4) For unsuppressed relay coil. 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.

Coil Data

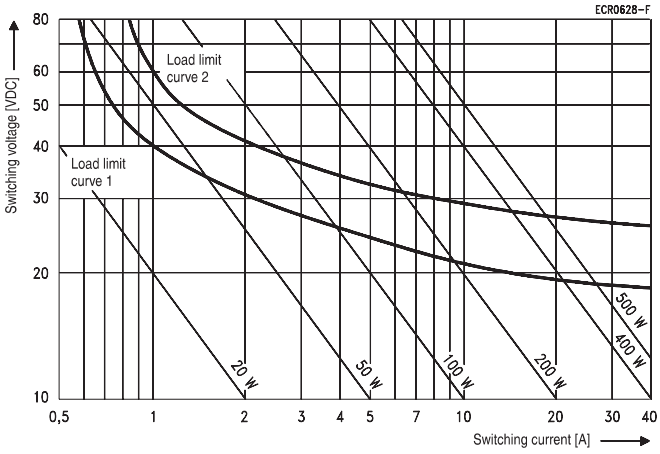
Rated coil voltage	12VDC

Coil versions, DC coil

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance[5)] Ω±10%	Rated coil power[5)] W
001	12	7.2	1.6	114	1.3

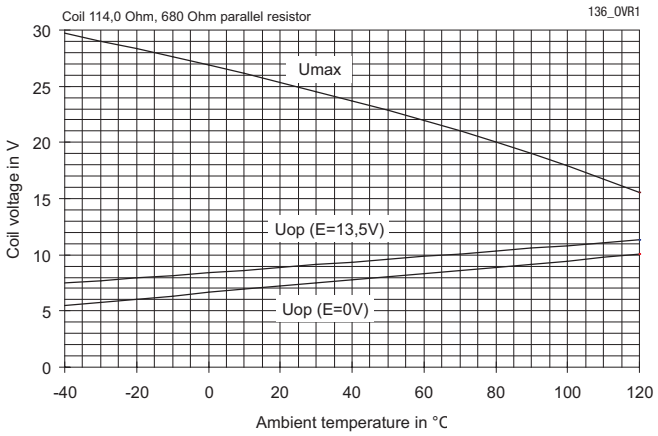
5) Without components in parallel.
All figures are given for coil without pre-energization, at ambient temperature +23°C.

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.

Shrouded 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}
Load dump test	
ISO 7637-1 (12VDC), test pulse 5	V_s=+86.5VDC
ISO 7637-2 (24VDC), test pulse 5	V_s=+200VDC

Other Data	
EU RoHS/ELV compliance	compliant
Protection to heat and fire according UL94	HB or better[6)]
Ambient temperature	-40 to 125°C
Climatic cycling with condensation	
EN ISO 6988	6 cycles, storage 8/16h
Temperature cycling	
IEC 60068-2-14, Nb	10 cycles, -40/+85°C (5°C/min)
Damp heat cyclic	
IEC 60068-2-30, Db, Variant 1	6 cycles, upper air temp. 55°C
Damp heat constant, IEC 60068-2-3, Ca	56 days
Category of environmental protection,	
IEC 61810	RT III – sealed
Degree of protection, IEC 60529	IP67 (sealed) only with special connector
Corrosive gas	
IEC 60068-2-42	10±2cm^3/m^3 SO_2, 10 days
IEC 60068-2-43	1±0.3cm^3/m^3 H_2S, 10 days
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

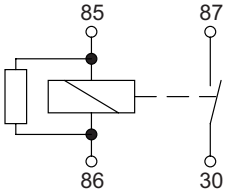
Other Data (continued)	
Terminal type	plug-in, QC/ PCB
Cover retention	
axial force	150N
pull force	200N
push force	200N
Terminal retention	
pull force	100N
push force	100N
Weight	approx. 60g (2.1oz)
Packaging unit	108 pcs.

6) Refers to used materials.
7) No change in the switching state >1µs. Valid for NC contacts, NO contact values significantly higher.

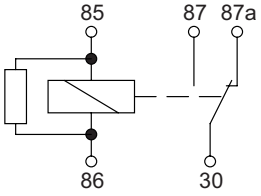
Accessories
For fitting connectors please contact us via online Support Center

Terminal Assignment

NOR
1 form A, NO with resistor

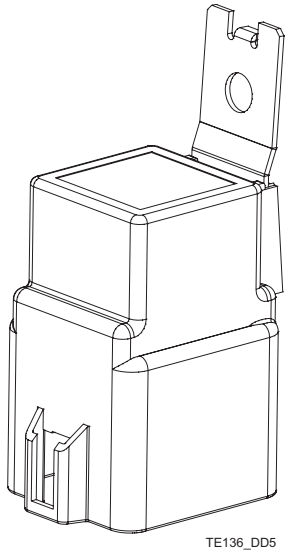


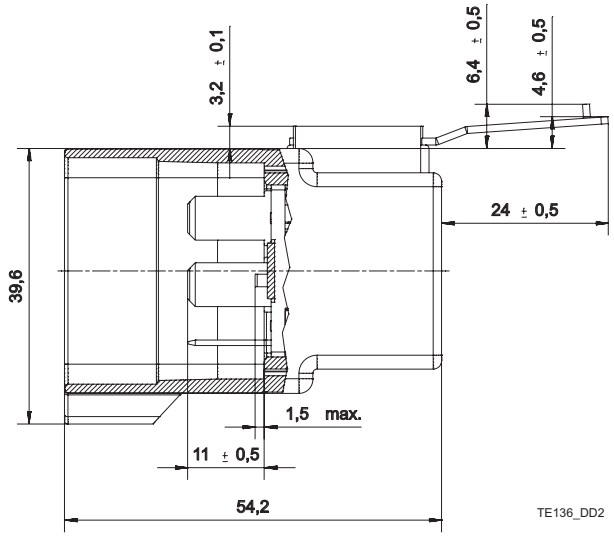
COR
1 form C, CO with resistor



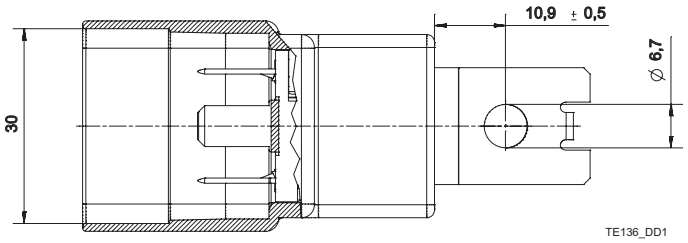
Shrouded Power Relay F4 A (Continued)

Dimensions


TE136_DD5

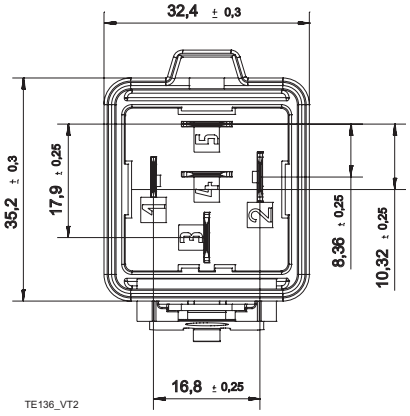


TE136_DD2

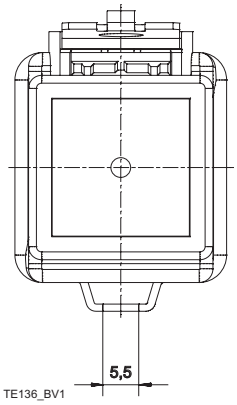


TE136_DD1

View of the terminals (bottom view)



TE136_VT2



TE136_BV1

Product code structure

Typical product code: **V23136** **-A** **1** **001** **-X057**

Type
V23136 Power Relay F4 A

Contact arrangement
A 1 form C, 1 CO **B** 1 form A, 1 NO

Cover
1 Bracket at terminal 30 ISO

Coil
001 12VDC

Terminal/arrangement
Xnnn Customized (nnn: version number)

Product code	Arrangement	Cover	Coil suppr.	Circuit[1)]	Coil	Cont. material	Terminals	Part number
V23136-A1001-X057	1 Form C, 1 CO	Shrouded	Resistor 680Ω	COR	12VDC	Silver based	Plug-in, QC	1-1414552-0
V23136-B1001-X051	1 Form A, 1 NO			NOR				1-1414121-0

1) See terminal assignment diagrams.
Other types on request.
This list represents the most common types and does not show all variants covered by this datasheet.