

## Shrouded Power Relay F7 A

- Pin assignment similar to ISO 7588 part 1
- Customized versions on request
  - Integrated components (e.g. resistor, diode)
  - Customized marking/color
  - Special cover with bracket

### Typical applications

Cross carline up to 70A for example: ABS control, blower fans, cooling fan, energy management, engine control, fuel pump, heated front screen, ignition, lamps: front, rear, fog light, main switch/supply relay, wiper control.



F136\_fw1\_bw

### Contact Data

Contact arrangement	1 form A, 1 NO
Rated voltage	12VDC
Limiting continuous current	
23°C	70A
85°C	50A
125°C	30A
Limiting making current <sup>1)</sup>	240A
Limiting breaking current	70A
Limiting short-time current	
overload current, ISO 8820-3 <sup>2)</sup>	1.35 x 50A, 1800s 2.00 x 50A, 5s 3.50 x 50A, 0.5s 6.00 x 50A, 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 <sup>3)</sup>	1A at 5VDC
Initial voltage drop at 10A, form A (NO) contact, typ./max.	15/200mV
Frequency of operation at nominal load	6 ops./min (0.1Hz)
Operate/release time typ.	7/2ms <sup>4)</sup>
Electrical endurance	>2x10 <sup>5</sup> ops.
resistive load, NO contact	50A, 14VDC

### Contact Data (continued)

Mechanical endurance	>1x10 <sup>6</sup> ops.
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- 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
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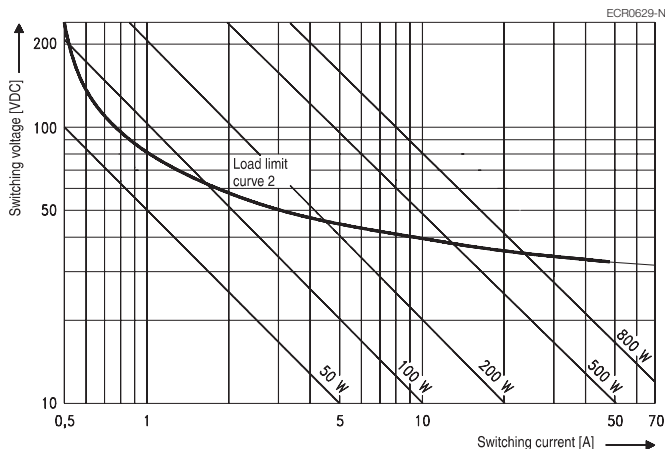
### Coil versions, DC coil

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance <sup>5)</sup> Ω±10%	Rated coil power <sup>5)</sup> W
004	12	7.2	1.6	90	1.6

5) Without components in parallel.

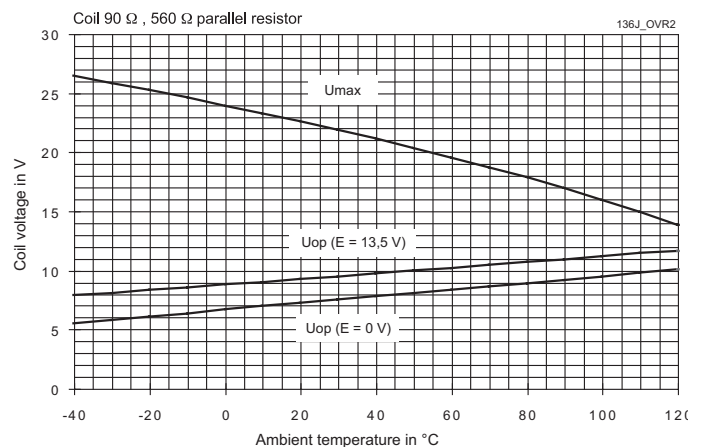
All figures are given for coil without pre-energization, at ambient temperature +23°C.

### 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 F7 A** (Continued)

**Insulation Data**

Initial dielectric strength	
between open contacts	500V <sub>rms</sub>
between contact and coil	500V <sub>rms</sub>
between adjacent contacts	500V <sub>rms</sub>
Load dump test	
ISO 7637-1 (12VDC), test pulse 5	V <sub>s</sub> =+86.5VDC
ISO 7637-2 (24VDC), test pulse 5	V <sub>s</sub> =+200VDC

**Other Data**

EU RoHS/ELV compliance	compliant
Protection to heat and fire according UL94	HB or better <sup>6)</sup>
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
Vibration resistance (functional) IEC 60068-2-6 (sine sweep)	10 to 500Hz, min. 10g <sup>7)</sup>
Shock resistance (functional) IEC 60068-2-27 (half sine)	6ms, min. 30g <sup>7)</sup>
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	150N
push force	150N
Weight	approx. 60g (2.1oz)
Packaging unit	108 pcs.

6) Refers to used materials.

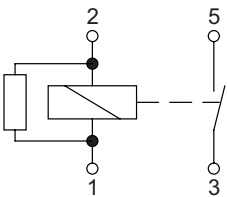
7) No change in the switching state >10µs. Valid for NC contacts, NO contact values significantly higher.

**Accessories**

For fitting connectors please contact us via online Support Center

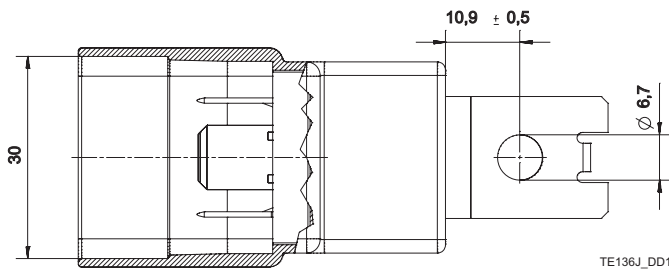
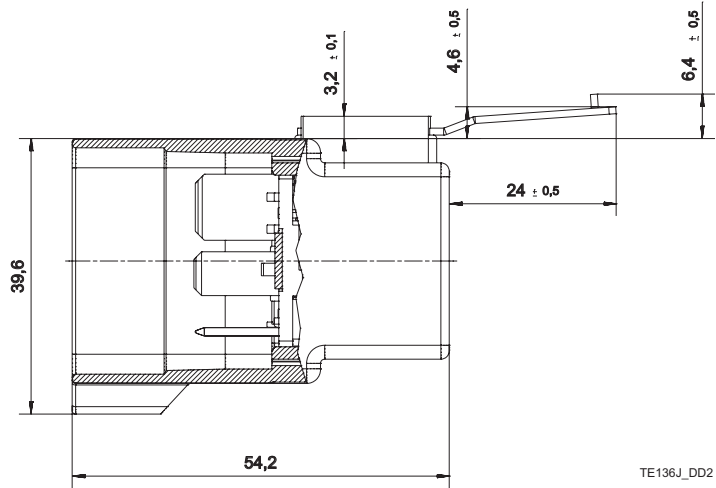
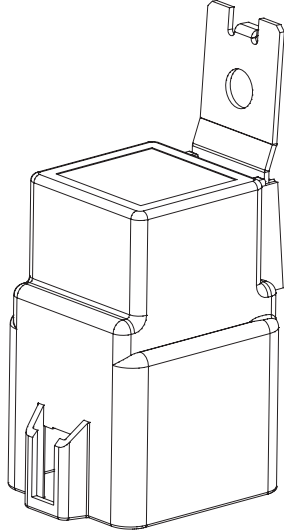
**Terminal Assignment**

NOR  
1 form A, NO with resistor

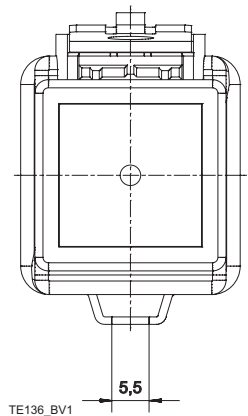
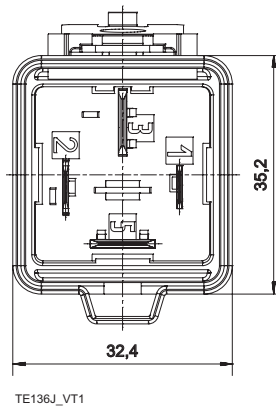


**Shrouded Power Relay F7 A** (Continued)

**Dimensions**



View of the terminals (bottom view)



**Product code structure**

Typical product code **V23136 -J 1 004 -X050**

<b>Type</b> V23136 Power Relay F7 A									
<b>Contact arrangement</b> J 1 form A, 1 NO									
<b>Cover</b> 1 Bracket at terminal 3									
<b>Coil</b> 004 12VDC									
<b>Terminal/arrangement</b> Xnnn Customized (nnn: version number)									

Product code	Arrangement	Cover	Coil suppr.	Circuit <sup>1)</sup>	Coil	Contact material	Terminals	Part number
V23136-J1004-X050	1 Form A, 1 NO	Standard	Resistor 560Ω	NOR	12VDC	Silver based	Plug-in, QC	1-1414122-0

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.