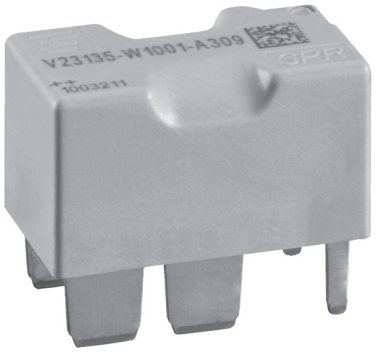
EN: This Datasheet/Document is presented by the manufacturer.

Please visit our website for pricing and availability at www.hestore.hu.

Star Point Relay SPR

- **Full, symmetric star-point disconnection of an electric power steering motor**
- **Limiting continuous current 90A at 85°C**
- **Disconnection of high over-currents up to 200A in 12VDC and up to 60A in 36VDC power nets**
- **Contact arrangement fulfills 42VDC power net requirements**
- **Optimized dimensions: lhw (in mm) 32x18.5x18**
- **Resistant against high ambient temperature up to 125°C**
- **Contact resistance typ. <2mΩ per path for load current 20A after fritting**

Typical applications
All EPA/EPS applications.

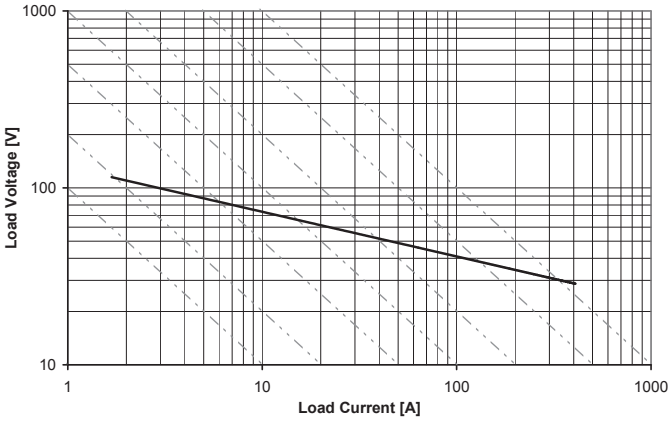


F135_fcw3b

Contact Data

Contact arrangement	1 form 3, 3 NO
Rated voltage	12VDC
Max. switching voltage	depends on load parameters[A)]
Rated current	120A
Limiting continuous current[1)]	
23°C	120A
85°C	90A
125°C	60A
Limiting breaking current	200A[2)]
Breaking capacity max.	>10 ops. at 200A
Contact material	AgNi0.15
Contact style	triple
Min. recommended contact load[5)]	1A at 5VDC
Initial voltage drop, after fritting with 90A for 30s	<180mV at 90A
Operate/release time max.[3)]	<20/10ms
Bounce time max.[3)]	see footnote[3)]
Electrical endurance	
120A, dry switching[4)] at 23°C, 500ms on/off	>2x10^5 ops.
Mechanical endurance	>10^6 ops.

Max. DC load breaking capacity



Load limit Curve II: valid for load path through pin 4 and pin 5, no coil suppression used.

Contact Data (continued)

A) Please contact TE relay application engineer.
1) Max. terminal temperatures up to 180°C are allowed. Final temperatures depend on the leadframe layout.
2) Without relay coil voltage: suppression component (see Application Note "Automotive Applications".
3) Release and bounce time depend on component in parallel to the coil, please contact application support.
4) Load only carried, not switched!
5) See Application Note "Diagnostics of Relays"

Coil Data

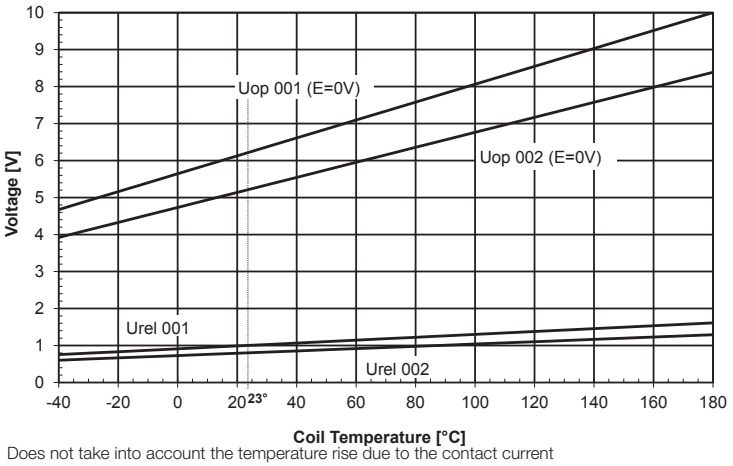
Coil voltage range	12VDC
Max. coil temperature	<180°C

Coil versions, DC coil

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance Ω±10%	Rated coil power W
001	12	6.4	1	150	0.96
002	10	5.2	0.8	97	1.03

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

Coil operating range



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

10-2012, Rev. 1012
www.te.com
© 2011 Tyco Electronics Corporation,
a TE Connectivity Ltd. company.

Datasheets and product specification according to IEC 61810-1 and to be used only together with the 'Definitions' section.

Datasheets and product data is subject to the terms of the disclaimer and all chapters of the 'Definitions' section, available at http://relays.te.com/definitions

Datasheets, product data, 'Definitions' section, application notes and all specifications are subject to change.

Star Point Relay SPR (Continued)

Insulation Data

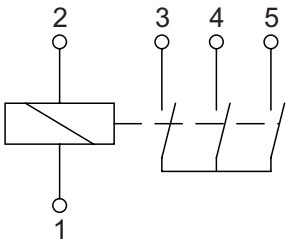
Initial dielectric strength	
between contact and coil	500VAC$_{rms}$

Other Data

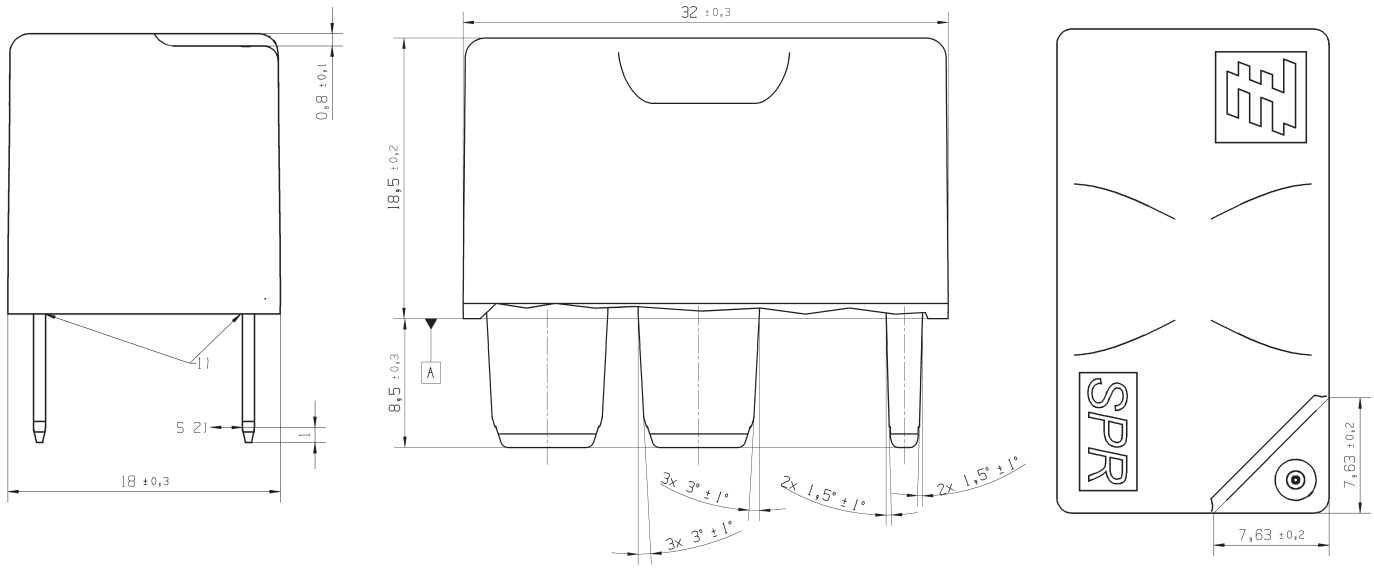
EU RoHS/ELV compliance	compliant
Ambient temperature	-40°C to 125°C
Cold storage, IEC 60068-2-1	2000h; -40°C
Dry heat, IEC 60068-2-2	500h; +135°C
Temperature cycling (shock),	
IEC 60068-2-14, Na	500 cycles; -40/+135°C
Damp heat cyclic,	
IEC 60068-2-30, Db, Variant 1	83 cycles (2000h) 25°C/55°C/93%RH
Flowing mixed gas corrosion test,	
IEC 60068-2-60, Ke, method 1	10 days
Degree of protection	IP67 (IEC 60529), RT III (IEC 61810)
Vibration resistance (functional),	
IEC 60068-2-64 (random) energized	20 to 1000Hz >6g ms
IEC 60068-2-64 (random) not energized	20 to 1000Hz >4g ms
Shock resistance (functional),	
IEC 60068-2-27 (half sine) 6ms, energized	>40g
IEC 60068-2-27 (half sine) 6ms, not energized	>10g
Mounting	welding process on leadframe
Weight	approx. 30g (1.06oz)
Packaging unit	357 pcs.

Terminal Assignment

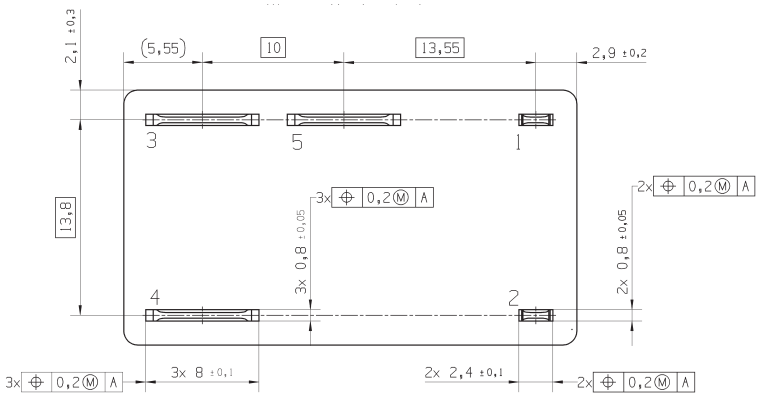
1 form 3, 3 NO



Dimensions



View of the terminals
Bottom view



1) Epoxy at terminals exceeds max. 0.9mm over coverage.
2) Permanent acceptable deformation 0.25mm respectively 0.5mm temporarily.

Maximum permissible thermal load of the terminals during the resistance welding process depends on leadframe design.

10-2012, Rev. 1012
www.te.com
© 2011 Tyco Electronics Corporation,
a TE Connectivity Ltd. company.

Datasheets and product specification according to IEC 61810-1 and to be used only together with the 'Definitions' section.

Datasheets and product data is subject to the terms of the disclaimer and all chapters of the 'Definitions' section, available at http://relays.te.com/definitions

Datasheets, product data, 'Definitions' section, application notes and all specifications are subject to change.

Star Point Relay SPR (Continued)

Product code structure

Typical product code: **V23135** **-W** **1** **001** **-A3** **09**

Type
V23135 Star Point Relay

Terminal and enclosure
W Welding version, sealed

Design
1 Single relay

Coil version
001 Standard **002** Sensitive

Contact type and material
A3 Standard, AgNi0.15

Contact arrangement
09 Standard (triple make)

Product code	Terminal and enclosure	Design	Coil	Contact	Arrangement	Part number
V23135-W1001-A309	Welding version, sealed	Single relay	12VDC	Standard, AgNi0.15	1 form 3, 3 NO	1-1414704-0
V23135-W1002-A309			10VDC			1-1414705-0

10-2012, Rev. 1012
www.te.com
© 2011 Tyco Electronics Corporation,
a TE Connectivity Ltd. company.

Datasheets and product specification according to IEC 61810-1 and to be used only together with the 'Definitions' section.

Datasheets and product data is subject to the terms of the disclaimer and all chapters of the 'Definitions' section, available at http://relays.te.com/definitions

Datasheets, product data, 'Definitions' section, application notes and all specifications are subject to change.