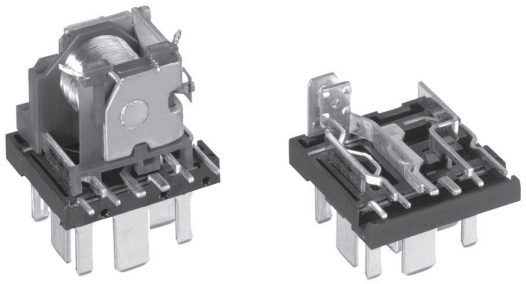
Basic Module Relay F

- **Modular unit based on Power Relay F4/F7 to be customized with one or more relays, electronics or further components.**
- **Limiting continuous current up to 70A (example shown on this datasheet, 40A versions on request)**
- **Pin assignment according to ISO 7588 part 1**
- **Terminals prepared for soldering to an integrated printed circuit board**
- **For relay operation a printed circuit board or leadframe is required**
- **Mounting bracket or clip on request**



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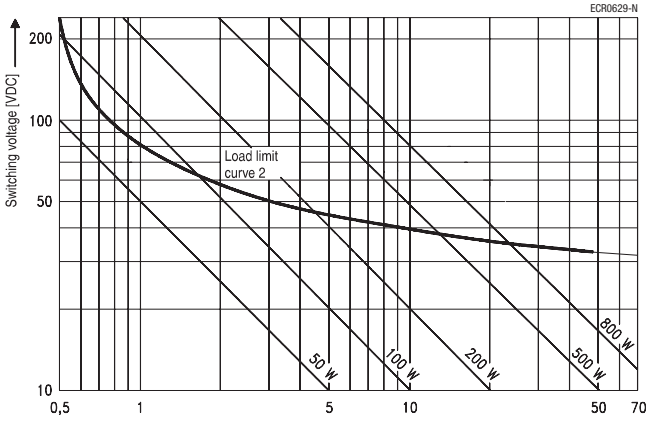
Typical applications
Customer specific solutions, especially programmable timer relay. Automatic wash/ wiper control, battery disconnection, cooling fan controls, energy distribution, fuel/water pump control unit, flexible control unit functions, light control applications, motor antennas, over voltage protection, power management/outlet control/window actuator, rear window defogger, seat adjustment/stationary heating, timer, wiper control.

Contact Data

Contact arrangement	1 form A, NO	
Rated voltage	12VDC	24VDC
Rated current	50A at 85°C	25A at 85°C
Limiting continuous current, form A/form B (NO/NC)		
23°C	70A	70A
85°C	50A	50A
125°C	30A	30A
Jump start test	24VDC for 5min, conducting nominal current at 23°C	
Contact material	AgNi0.15	
Min. recommended contact load	1A at 5VDC	
Initial voltage drop, form A (NO)		
NO contact at 10A, typ./max.	typ.10mV/200mV	
Operate/release time max.	7/2ms[3]	
Electrical endurance		
resistive load, NO contact	>1x10^5 ops., 70A, 14VDC	>1x10^5 ops., 25A, 28VDC
	>2x10^5 ops. 50A, 14VDC at NO	
Mechanical endurance, DC coil, without load	>1x10^{7}ops.	

3) Without component in parallel.
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.

Max. DC load breaking capacity



Load limit curve 2: safe shutdown, no stationary arc (NO contact).
The load limit curves were measured with low inductive resistors verified for 1000 switching events.

Coil Data

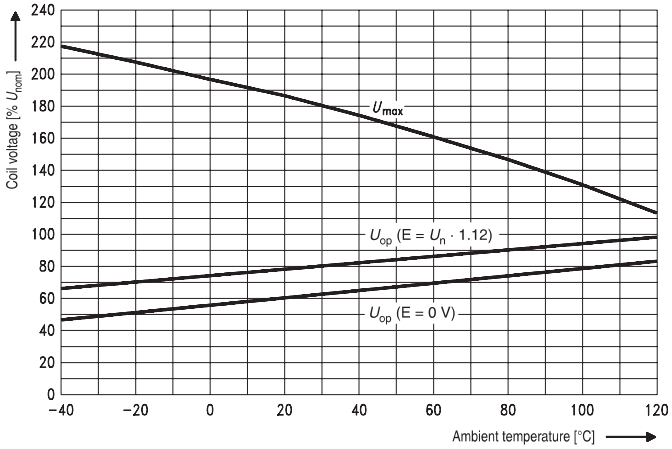
Rated coil voltage	12VDC	24VDC
Max. coil temperature	155°C	155°C

Coil versions, DC coil

Coil code	Rated voltage VDC	Operate voltage VDC	Release voltage VDC	Coil resistance Ω±10%	Rated coil power W
052	12	7.2	1.6	90	1.6
053	24	14.4	3.2	324	1.8

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

Insulation Data

Initial dielectric strength	
between contact and coil	500VAC$_{rms}$
Load dump test	
ISO 7637-1 (12 V), test pulse 5	Vs=+86.5VDC
ISO 7637-2 (24 V), test pulse 5	Vs=+200VDC

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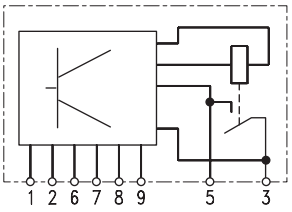
Other Data	
EU RoHS/ELV compliance	compliant
Protection to heat and fire	according UL94HB or better[4]
Ambient temperature	-40°C to +125°C
Climatic cycling with condensation, EN ISO 6988	6 cycles, storage 8/16h
Temperature cycling, IEC 60068-2-14, Nb	10 cycles, -40/+85°C (5°C/min)
Damp heat cyclic, IEC 60068-2-30, Db, Variant 1	6 cycles, upper air temp. 55°C
Damp heat constant, IEC 60068-2-3 (78), Ca	56 days
Degree of protection, dustproof:	IP54 (IEC 60529), RT I (IEC 61810)
Corrosive gas	
IEC 60068-2-42	10±2cm³/m³ SO_2, 10 days
IEC 60068-2-43	1±0.3cm³/m³ H_2S, 10 days
Vibration resistance (functional), IEC 60068-2-6 (sine sweep)	10 to 500Hz, > 5g[5]
Shock resistance (functional), IEC 60068-2-27 (half sine)	11ms, >20g[5]
Drop test, free fall, capable of meeting specification after drop onto cocrete	1m onto concrete
Terminal type	plug-in, QC
Cover retention	
axial force	150N
pull force	200N
push force	200N
Terminal retention	
pull force	100N
push force	100N
torque	0.3Nm
Weight	
Power F7	approx. 35/38g (1.2/1.3oz)
Storage conditions	according IEC 600688[6]
Packaging unit	
relay	144 pcs.

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

6) For general storage and processing recommendations please refer to our Application Notes and especially to Storage in the Definitions or at http://relays.tycoelectronics.com/appnotes/

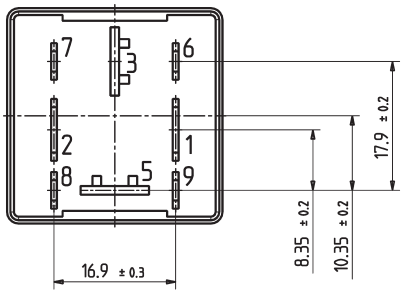
Terminal Assignment

Special NO
1 form A, 1 NO



Load terminals according to ISO 7880

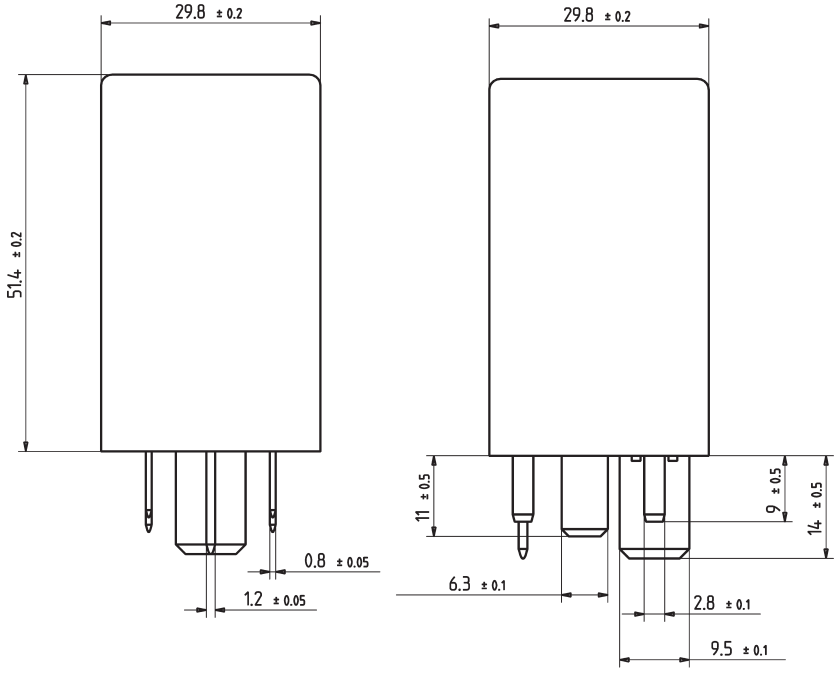
View of the terminals
Bottom view



Note
Terminals 1, 2, 6, 7, 8, 9 are optional.
Terminals 3, 4, 5 are fixed in function (make or changeover contacts).

Connector Information
Connector 929102
Fitting FASTIN-FASTON Contacts
2.8 FF e.g. 160655-2 for 0.5-1.5 mm2
6.3 FF e.g. 6-160448-5 for 1.0-2.5 mm2

Dimensions



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Basic Module Relay F (Continued)

Product code structure

Typical product code: **V23140** **-A** **0** **052** **-C** **642**

Type
V23140 Basic Module Relay F

Contact arrangement
J 1 form A contact

Undefined
0 Undefined position

Coil
052 12VDC **053** 24VDC

Cover
C Cover height 51.4mm

Terminal/arrangement
642 Plug-in/form A(NO)

Product code	Arrangement	Coil	Terminals	Cont. material	Cover height	Assignment	Part number
V23140-J0052-D642	1 form A, 1 NO	12VDC	Plug-in, QC	AgNi0.15	51.4mm	Special NO	1-1414654-0
V23140-J0053-D642		24VDC					1-1414674-0

Versions covered by this datasheet shown above. Further versions with limited continuous currents up to 40 A on request.
Part numbers currently available: 1-1414676-0, 1-1414675-0, 1-1414673-0 and 1-1414672-0.