

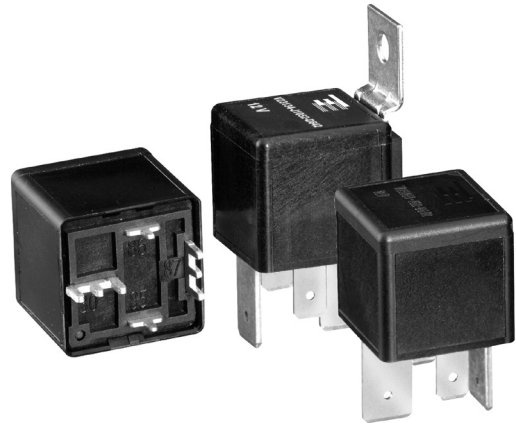
Power Relay F7

- Pin assignment similar to ISO 7588 part 1

- Plug-in or PCB terminals

Customized versions on request

- Integrated components (e.g. resistor, diode)
- Customized marking/color
- Special covers (e.g. notches, release features, brackets)
- For latching (bistable) version refer to Power Relay F7 A Latching
- For shrouded/weatherproof dust cover versions refer to Shrouded Power Relay F7 A



Typical applications

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

Contact Data

Contact arrangement	1 form A, 1 NO	1 form A, 1 NO
Rated voltage	12VDC	24VDC
Maximum switching voltage	16VDC	32VDC
Limiting continuous current	NO	NO
23°C	70A	70A
85°C	50A	50A
125°C	30A	30A
Limiting short time current		
overload current	1.35 x 50A, 900s	1.35 x 50A, 900s
ISO 8820-3 ¹⁾ (2010)	2.00 x 50A, 60s	2.00 x 50A, 60s
	3.50 x 50A, 7s	3.50 x 50A, 7s
	6.00 x 50A, 1s	6.00 x 50A, 1s
Contact material	silver alloy	silver alloy
Min. contact load ²⁾	1A 5VDC	1A 5VDC
Initial voltage drop		
NO contact at 10A, typ./max.	15mV/200mV	15mV/200mV
Operate time ³⁾	typ. 7ms	typ. 7ms
Release time ³⁾	typ. 2ms	typ. 2ms
Mechanical endurance	>1x10 ⁶ ops.	>1x10 ⁶ ops.

Electrical Endurance 12VDC Coil

Load voltage/ coil voltage	Load type		Load current	On / off ratio	Electrical endurance ⁴⁾
			1 form A		Coil suppression ⁵⁾
14VDC	Resistive	make	NO	2s / 2s	Resistor
		break	70A		>1x10 ⁵ ops.
	Resistive	make	70A	2s / 2s	>2x10 ⁵ ops.
		break	50A		

Electrical Endurance 24VDC Coil

28VDC	capacitive ⁶⁾	make	200A	2s / 2s	>1x10 ⁵ ops.
		break	40A		

All tests performed with cyclic temperature.

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

2) See Definitions for automotive relays <https://relays.te.com/definitions/> and chapter Diagnostics of Relays in our Application Notes at <https://relays.te.com/appnotes/>

3) At rated voltage and 23°C for a relay coil with suppression resistor. A suppression diode will influence the switching behaviour and reduce the service life.

4) According Weibull.

5) Any diode or pn-junction parallel to the coil (internal or external) will significantly decrease the electrical lifetime, especially when used for inductive loads.

6) Max. inrush peak-current at 250 ... 350µs.

Power Relay F7 (Continued)

Coil Data

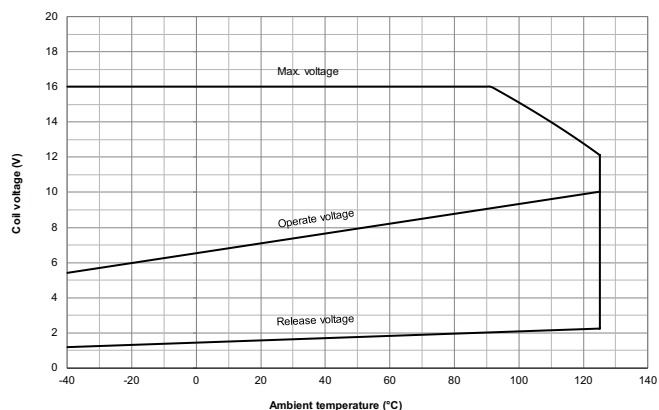
Coil code	Rated voltage [VDC]	Must Operate voltage [VDC]	Must Release voltage [VDC]	Coil resist. [Ω]	Suppr. resist. [Ω]	Total resist. [Ω] $\pm 10\%$	Rated coil power [W]
052	12	7.2	1.6	90	--	90	1.6
052	12	7.2	1.6	90	470	76	1.9
052	12	7.2	1.6	90	560	78	1.8
052	12	7.2	1.6	90	680	79	1.8
165	24	14.4	2.4	288	1200	232	2.5

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

Insulation Data

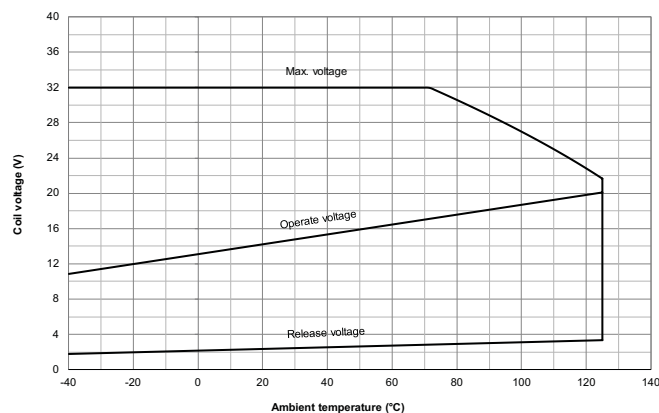
Initial dielectric strength	
between open contacts	500VAC _{rms}
between contact and coil	500VAC _{rms}

Coil operating range coil 0052



Does not take into account the temperature rise due to the contact current

Coil operating range coil 0165



Does not take into account the temperature rise due to the contact current

Other Data

EU RoHS/ELV compliance	compliant
Protection to heat and fire according UL-94	HB or better ⁷⁾
Ambient temperature	
for 12V coil	-40 to +125°C
for 24V coil	-40 to +105°C
Rapid change of temperature (thermal shock), IEC 60068-2-14 (2009)	
Na	100 cycles, -40°C / +125°C
Damp heat cyclic, IEC 60068-2-30 (2005)	
Db, Variant 1	6 cycles, upper air temp. 55°C
Degree of protection IEC 60529 (2013)	IP54
Vibration resistance (functional) ISO 16750-3 (2012)	10 to 1000Hz, 2.71g eff.
Test IV	No change of switching state >10 μ s
Shock resistance (functional) IEC 60068-2-27 (2008)	min. 20g 11ms
half sine	No change of switching state >10 μ s
Drop test, free fall, IEC 60068-2-32 (2008)	1m onto concrete
Terminal type	Plug-in, QC/ PCB
Cover retention	
pull	150N
push	200N
Terminal retention	
pull	100N
push	100N
resistance to bending	10N ⁸⁾
Weight	approx. 38g (1.3oz)
Packaging unit	
Plug-in:	210 pcs.
Plug-in with bracket:	208 pcs.
PCB	315 pcs.

7) Refers to used materials.

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.

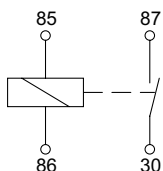
Accessories

For details see datasheet Connectors for Maxi ISO Relays

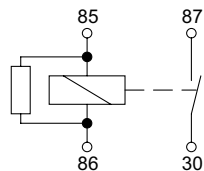
Power Relay F7 (Continued)

Terminal Assignment

NO
1 form A, NO



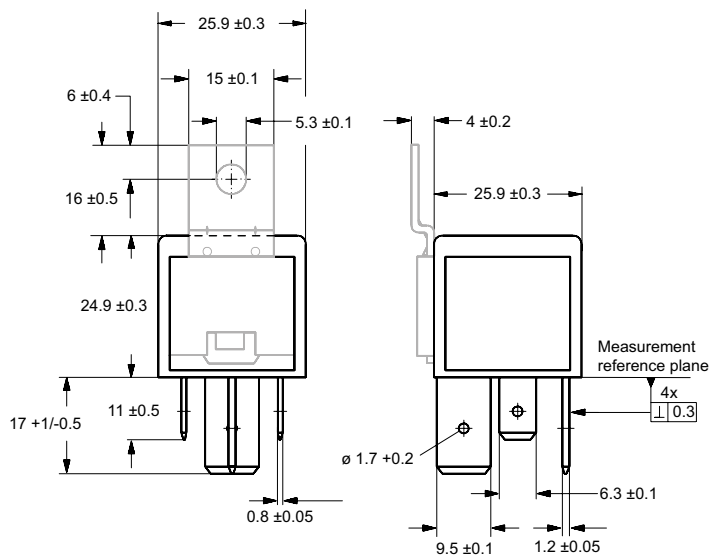
NOR
1 form A, NO with resistor



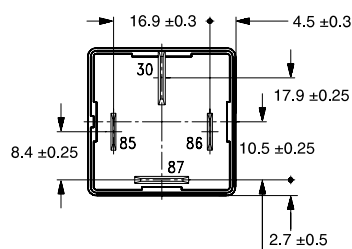
Dimensions

Power Relay F7 with quick connect (QC) terminals

External dimensions

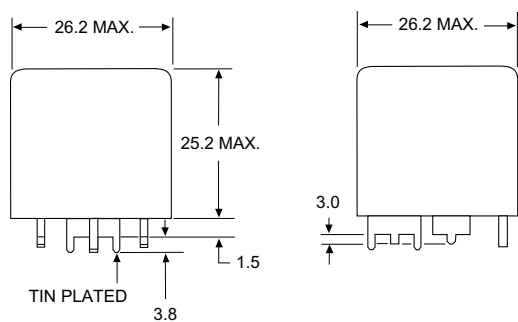


View of the terminals (bottom view)

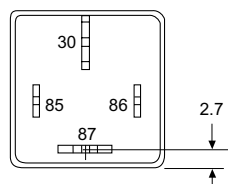


Power Relay F7 with PCB terminals

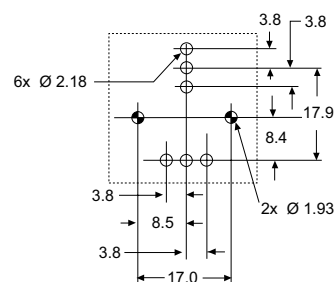
External dimensions



View of the terminals (bottom view)



Mounting hole layout (bottom view)



Power Relay F7 (Continued)

Product Code Structure

Typical product code **V23134 -J 0 052 -D642**

Type V23134 Power Relay F					
Contact arrangement J 1 form A, 1 NO					
Cover 0 Standard 2 Bracket at terminal 86 ISO		1 Bracket at terminal 30 ISO			
Coil 052 12VDC 165 24VDC					
Terminal arrangement D642 Plug-in/NO		Xnnn Customized (nnn: version number)			

Production in Europe (only)

Product Code	Arrangement	Cover	Coil Suppr.	Circuit ⁹⁾	Coil	Terminals	Part Number
V23134-J0052-D642	1 form A, 1 NO	Standard	--	NO	12VDC	Plug-in, QC	7-1393303-3
V23134-J0052-X429	1 form A, 1 NO	Standard	Resistor 680Ω	NOR	12VDC	Plug-in, QC	1-1414147-0
V23134-J0052-X455	1 form A, 1 NO	Standard	Resistor 470Ω	NOR	12VDC	PCB	1-1414610-0
V23134-J0052-X511	1 form A, 1 NO	Standard	--	NO	12VDC	PCB	3-1415001-2
V23134-J0052-X461 ¹⁰⁾	1 form A, 1 NO	Standard	Resistor 560Ω	NOR	12VDC	Plug-in, QC	1-1414469-0
V23134-J1052-D642	1 form A, 1 NO	Bracket	--	NO	12VDC	Plug-in, QC	1393304-9
V23134-J1052-X281	1 form A, 1 NO	Bracket	Resistor 560Ω	NOR	12VDC	Plug-in, QC	1-1393304-0
V23134-J0165-X537 ¹⁰⁾	1 form A, 1 NO	Standard	Resistor 1200Ω	NOR	24VDC	Plug-in, QC	3-1904117-4
V23134-J2165-X538 ¹⁰⁾	1 form A, 1 NO	Bracket	Resistor 1200Ω	NOR	24VDC	Plug-in, QC	3-1904117-5

Production in Asia (only)

Product Code	Arrangement	Cover	Coil Suppr.	Circuit ⁹⁾	Coil	Terminals	Part Number
V23134-J0052-D642	1 form A, 1 NO	Standard	--	NO	12VDC	Plug-in, QC	7-1904094-7
V23134-J0052-X429	1 form A, 1 NO	Standard	Resistor 680Ω	NOR	12VDC	Plug-in, QC	7-1904094-8
V23134-J0052-X461 ¹⁰⁾	1 form A, 1 NO	Standard	Resistor 560Ω	NOR	12VDC	Plug-in, QC	8-1904094-0
V23134-J0165-X537 ¹⁰⁾	1 form A, 1 NO	Standard	Resistor 1200Ω	NOR	24VDC	Plug-in, QC	tdb

Other types on request.

This list represents the most common types and does not show all variants covered by this datasheet.

⁹⁾ See terminal assignment diagrams.

¹⁰⁾ Special feature: 14.5mm load terminals.