

# **Power Relay F4**

## Pin assignment similar to ISO 7588 part 1

Plug-in or PCB terminals

**Customized versions on request** 

- 24VDC versions with contact gap >0.8mm
- 48VDC version on request
- Integrated components (e.g. resistor, diode)
- Customized marking/color
- Special covers (e.g. notches, release features, brackets)
- Various contact arrangements and materials
- For latching (bistable) version refer to Power Relay F7 A Latching
- For shrouded/weatherproof dust cover versions refer to Shrouded Power Relay F4 A and F4

#### Typical applications

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



Contact arrangement   1 form A, 1 NO/1 NO (2x87)   1 form U, 2 NO   1 form C, 1 CO     Contact gap   >0.8mm   >0.8mm   >0.8mm   >0.8mm     Rated voltage   12VDC   24VDC   12VDC   24VDC	Contact Data										
Fated voltage   12VDC   24VDC   10VC   NO/NC   NO/NC   NO/NC   NO/NC   10/NC   120/15A   120/45A	Contact arrangement	1 form A, 1 NC	D/1 NO (2x87)		1 form U, 2 NO			1 form C, 1 CC	)		
Limiting continuous current   NO   NO   NO   NO   NO   NO   NO/NC	Contact gap					>0.8mm			>0.8mm		
23°C   60A   60A   2x32A   2x32A   2x32A   60/45A   60/45A   60/45A   60/45A     85°C   40A   40A   2x25A   2x25A   2x25A   40/30A   40/30A   40/30A   40/30A     125°C   17A   17A   2x11A   2x11A   2x11A   17/12A   17/12A   17/12A   17/12A     Limiting making current <sup>2</sup> 120A   120A   2x100A   2x100A   2x100A   120/45A   120/45A   120/45A   120/45A     Limiting breaking current   60A   20A   2x40A   2x15A   2x30A   60/40A   20/15A   30/20     Limiting short-time current   i.35 x 40A, 1800s   1.35 x 40A, 1800s   1.35 x 40A, 1800s   1.35 x 40A, 1800s   1.35 x 40A, 0.5s   3.50 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 10A, typ./max.   15/200mV   15/200mV   20/250mV   20/250mV   20/250mV <td>Rated voltage</td> <td>12VDC</td> <td>24VDC</td> <td>12VDC</td> <td>24VDC</td> <td>24VDC</td> <td>12VDC</td> <td>24VDC</td> <td>24VDC<sup>1)</sup></td>	Rated voltage	12VDC	24VDC	12VDC	24VDC	24VDC	12VDC	24VDC	24VDC <sup>1)</sup>		
85°C   40A   40A   2x25A   2x25A   2x25A   40/30A   40/30A   40/30A     125°C   17A   17A   2X11A   2X11A   2X11A   17/12A   17/12A   17/12A   17/12A     Limiting making current <sup>20</sup> NO/NC   120A   120A   2x100A   2x100A   2x100A   120/45A   120/45A   120/45A   120/45A     Limiting breaking current   NO/NC   60A   20A   2x40A   2x15A   2x30A   60/40A   20/15A   30/20     Limiting short-time current overload current, ISO 8820-3 <sup>3</sup> :   1.35 x 40A, 1800s   1.35 x 40A, 1800s   1.35 x 40A, 1800s   1.35 x 40A, 0.5s   3.50 x 40A, 0.5s   5.00 x 40A, 0.1s   Contact matrial   Contact matrial   Silver based   2°C   Contact matrial   2°C   Contact matrial   20/250mV   15/200mV   15/200mV   15/200mV   20/250mV   20/250mV   20/250mV   20/250mV   20/250mV   20/250mV   20/250mV   2	Limiting continuous current	NO	NO	NO	NO	NO	NO/NC	NO/NC	NO/NC		
125°C   17A   17A   2x11A   2x11A   2x11A   17/12A   17/12A   17/12A     Limiting making current <sup>2</sup> NO/NC   120A   120A   2x100A   2x100A   2x100A   120/45A   120/45A   120/45A   120/45A     Limiting breaking current   60A   20A   2x40A   2x15A   2x30A   60/40A   20/15A   30/20     Limiting short-time current overload current, ISO 8820-3 <sup>3</sup> ):   1.35 x 40A, 1800s   1.35 x 40A, 1800s   1.35 x 40A, 5s   2.00 x 40A, 5s   2.00 x 40A, 5s   2.00 x 40A, 0.5s   3.50 x 40A, 0.5s   3.50 x 40A, 0.5s   6.00 x 40A, 0.5s   6.00 x 40A, 0.5s   6.00 x 40A, 0.1s   6.00 x 40A, 0.1s   6.00 x 40A, 0.1s   15/200 x 40A, 0.1s   10/2 x 5/200 x 40A, 0.1s   15/200 x 40A, 0.1s   15/200 x	23°C	60A	60A	2x32A	2x32A	2x32A	60/45A	60/45A	60/45		
Limiting making current <sup>2)</sup> 120A   120A   2x100A   2x100A   2x100A   120/45A   120/45A   120/45A   120/45A     Limiting breaking current   60A   20A   2x40A   2x15A   2x30A   60/40A   20/15A   30/20     Limiting short-time current   overload current, ISO 8820-3 <sup>3</sup> );   1.35 x 40A, 1800s   1.35 x 40A, 1800s   1.35 x 40A, 1800s   2.00 x 40A, 5s   2.00 x 40A, 5s   2.00 x 40A, 5s   2.00 x 40A, 5s   3.50 x 40A, 0.5s   3.50 x 40A, 0.5s   3.50 x 40A, 0.5s   6.00 x 40A, 0.1s   6.00 x 40A, 0.1s   6.00 x 40A, 0.1s   6.00 x 40A, 0.1s   Contact material   silver based   Silver based <t< td=""><td>85°C</td><td>40A</td><td>40A</td><td>2x25A</td><td>2x25A</td><td>2x25A</td><td>40/30A</td><td>40/30A</td><td>40/30A</td></t<>	85°C	40A	40A	2x25A	2x25A	2x25A	40/30A	40/30A	40/30A		
NO/NC   120A   120A   2x100A   2x100A   2x100A   120/45A   120/45A   120/45A     Limiting breaking current NO/NC   60A   20A   2x40A   2x15A   2x30A   60/40A   20/15A   30/20     Limiting short-time current overload current, ISO 8820-39:   1.35 x 40A, 1800s   1.35 x 40A, 1800s   1.35 x 40A, 1800s   1.35 x 40A, 5s   2.00 x 40A, 5s   3.50 x 40A, 0.5s   6.00 x 40A, 0.1s   6.00 x 40A, 0.1s   6.00 x 40A, 0.1s   5.00 x 40A, 0.1s   5.0	125°C	17A	17A	2x11A	2x11A	2x11A	17/12A	17/12A	17/12A		
Limiting breaking current NO/NC   60A   20A   2x40A   2x15A   2x30A   60/40A   20/15A   30/20     Limiting short-time current overload current, ISO 8820-3 <sup>3</sup> :   1.35 x 40A, 1800s   1.35 x 40A, 1800s   1.35 x 40A, 1800s   2.00 x 40A, 5s   2.00 x 40A, 5s   2.00 x 40A, 5s   3.50 x 40A, 0.5s   3.50 x 40A, 0.5s   3.50 x 40A, 0.5s   3.50 x 40A, 0.1s   6.00 x 40A, 0.1s   6.00 x 40A, 0.1s   5.00 x 40A, 10 x 5.00 x 40A, 0.1s   5.00 x 40A, 10	Limiting making current <sup>2)</sup>										
NO/NC   60A   20A   2x40A   2x15A   2x30A   60/40A   20/15A   30/20     Limiting short-time current overload current, ISO 8820-3%;   1.35 x 40A, 1800s   1.35 x 40A, 1800s   1.35 x 40A, 1800s   2.00 x 40A, 5s   2.00 x 40A, 5s   2.00 x 40A, 5s   3.50 x 40A, 0.5s   3.50 x 40A, 1.5   UAD   2.40 A, 0.5s   3.50 x 40A	NO/NC	120A	120A	2x100A	2x100A	2x100A	120/45A	120/45A	120/45A		
Limiting short-time current overload current, ISO 8820-3 <sup>3</sup> : 1.35 x 40A, 1800s 2.00 x 40A, 5s 3.50 x 40A, 0.5s 6.00 x 40A, 0.5s 6.00 x 40A, 0.5s 6.00 x 40A, 0.1s 1.35 x 40A, 1800s 1.35 x 40A, 1800s 2.00 x 40A, 5s 3.50 x 40A, 0.5s 6.00 x 40A, 0.1s 1SO 16750-1 24VDC for 5min conducting nominal current at 23°C Contact material Silver based Min. recommended contact load <sup>41</sup> 1A at 5VDC Initial voltage drop NC contact at 10A, typ./max. 15/200mV 15/200mV 15/200mV 15/200mV 2x15/	Limiting breaking current										
overload current, ISO 8820-3 <sup>3</sup> ):   1.35 x 40A, 1800s   1.35 x 40A, 1800s   1.35 x 40A, 1800s     2.00 x 40A, 5s   2.00 x 40A, 5s   2.00 x 40A, 5s   2.00 x 40A, 5s     3.50 x 40A, 0.5s   3.50 x 40A, 0.5s   3.50 x 40A, 0.5s   3.50 x 40A, 0.5s     6.00 x 40A, 0.1s   6.00 x 40A, 0.1s   6.00 x 40A, 0.1s   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 <sup>40</sup> 1A at 5VDC   Initial voltage drop   VX 15/200mV   2x15/200mV   15/200mV   15/200mV   20/250mV		60A	20A	2x40A	2x15A	2x30A	60/40A	20/15A	30/20		
1.35 x 40A, 1800s 1.35 x 40A, 1800s 1.35 x 40A, 1800s   2.00 x 40A, 5s 2.00 x 40A, 5s 2.00 x 40A, 5s   3.50 x 40A, 0.5s 3.50 x 40A, 0.5s 3.50 x 40A, 0.5s   6.00 x 40A, 0.1s 6.00 x 40A, 0.1s 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 Initial voltage drop   NC contact at 10A, typ./max. 15/200mV 2x15/200mV 2x15/200mV 15/200mV 15/200mV 15/200mV   Yestige drop NC contact at 10A, typ./max. 15/200mV 2x15/200mV 2x15/200mV 20/250mV 20/250mV 20/250mV   Frequency of operation at nominal load 6 ops./min (0.1Hz) 00 00 20/250mV 20/250m											
2.00 x 40Å, 5s   2.00 x 40Å, 5s   2.00 x 40Å, 5s   3.50 x 40Å, 0.5s     3.50 x 40Å, 0.5s   3.50 x 40Å, 0.5s   3.50 x 40Å, 0.5s   3.50 x 40Å, 0.5s     Jump start test   6.00 x 40Å, 0.1s   6.00 x 40Å, 0.1s   6.00 x 40Å, 0.1s     Jump start test   ISO 16750-1   24VDC for 5min conducting nominal current at 23°C   6.00 x 40Å, 0.1s     Contact material   silver based   Initial voltage drop   1A at 5VDC   15/200mV   15/200mV   15/200mV   20/250mV   20/25	overload current, ISO 8820	)-3 <sup>3)</sup> :									
3.50 x 40A, 0.5s   3.50 x 40A, 0.5s   3.50 x 40A, 0.5s   3.50 x 40A, 0.5s     6.00 x 40A, 0.1s   6.00 x 40A, 0.1s   6.00 x 40A, 0.1s   6.00 x 40A, 0.1s     Jump start test   ISO 16750-1   24VDC for 5min conducting nominal current at 23°C   C     Contact material   silver based   Initial voltage drop   NO contact at 10A, typ./max. 15/200mV   1A at 5VDC     Initial voltage drop   NO contact at 10A, typ./max. 15/200mV   15/200mV   2x15/200mV   15/200mV   15/200mV     NC contact at 10A, typ./max.   15/200mV   15/200mV   2x15/200mV   20/250mV   20/250mV   20/250mV     Frequency of operation   at nominal load   6 ops./min (0.1Hz)   0   0   15/200mV   20/250mV			,	-	1.35 x 40A, 1800s				1.35 x 40A, 1800s		
6.00 x 40A, 0.1s   6.00 x 40A, 0.1s   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 <sup>4)</sup> 1A at 5VDC     Initial voltage drop   NO contact at 10A, typ./max. 15/200mV   15/200mV   2x15/200mV   2x15/200mV   15/200mV   15/200mV     NC contact at 10A, typ./max.   15/200mV   2x15/200mV   2x15/200mV   20/250mV   20/250mV   20/250mV     Frequency of operation   at nominal load   6 ops./min (0.1Hz)   0   20/250mV   20/250mV <td></td> <td>2.00 x</td> <td>: 40A, 5s</td> <td></td> <td>2.00 x 40A, 5s</td> <td colspan="5">2.00 x 40A, 5s</td>		2.00 x	: 40A, 5s		2.00 x 40A, 5s	2.00 x 40A, 5s					
Jump start test   24VDC for 5min conducting nominal current at 23°C     Contact material   silver based     Min. recommended contact load <sup>4)</sup> 1A at 5VDC     Initial voltage drop   NO contact at 10A, typ./max. 15/200mV   15/200mV   2x15/200mV   2x15/200mV   15/200mV   15/200mV     NC contact at 10A, typ./max.   15/200mV   2x15/200mV   2x15/200mV   20/250mV   20/250mV   20/250mV     Frequency of operation   at nominal load   6 ops./min (0.1Hz)   20/250mV   20/250mV   20/250mV   20/250mV     Operate/release time typ.   7/2ms <sup>5</sup> )   Electrical endurance <sup>6)</sup> 7/2ms <sup>5</sup> )   51x10 <sup>5</sup> ops.   >1x10 <sup>5</sup> ops.		3.50 x	40A, 0.5s		3.50 x 40A, 0.5s			3.50 x 40A, 0.5	).5s		
ISO 16750-1   24VDC for 5min conducting nominal current at 23°C     Contact material   silver based     Min. recommended contact load <sup>4)</sup> 1A at 5VDC     Initial voltage drop   NO contact at 10A, typ./max. 15/200mV   2x15/200mV   2x15/200mV   2x15/200mV   15/200mV   15/200mV   15/200mV   20/250mV		6.00 x	40A, 0.1s		6.00 x 40A, 0.1s			6.00 x 40A, 0.1	S		
Contact material   silver based     Min. recommended contact load <sup>4)</sup> 1A at 5VDC     Initial voltage drop NO contact at 10A, typ./max. 15/200mV   15/200mV   2x15/200mV   2x15/200mV   15/200mV   15/200mV   15/200mV     NC contact at 10A, typ./max.   15/200mV   2x15/200mV   2x15/200mV   2x15/200mV   20/250mV   2											
Min. recommended contact load <sup>4</sup> )   1A at 5VDC     Initial voltage drop   NO contact at 10A, typ./max. 15/200mV   15/200mV   2x15/200mV   2x15/200mV   15/200mV   15/200mV   15/200mV   20/250mV	ISO 16750-1		24VDC	for 5min conduct	ting nominal curre	ent at 23°C					
Initial voltage drop NO contact at 10A, typ./max. 15/200mV 2x15/200mV 2x15/200mV 15/200mV 15/200mV 15/200mV   NC contact at 10A, typ./max. 100 20/250mV 20/250mV 20/250mV 20/250mV 20/250mV   Frequency of operation 6 ops./min (0.1Hz) 20/250mV 20/250mV 20/250mV 20/250mV   Operate/release time typ. 7/2ms <sup>5</sup> 7/2ms <sup>5</sup> 7/2ms <sup>5</sup> 7/2ms <sup>5</sup> Electrical endurance <sup>6</sup> 92x10 <sup>5</sup> ops. >1x10 <sup>5</sup> ops. >1x10 <sup>5</sup> ops. >1x10 <sup>5</sup> ops. >1x10 <sup>5</sup> ops.   40A, 14VDC 20A, 28VDC 2x25A, 14VDC 2x15A, 28VDC 2x20A, 28VDC 40A, 14VDC 30A, 28 VDC   Mechanical endurance NC contact 10A, 28 VDC 10A, 28 VDC 10A, 28 VDC											
NO contact at 10A, typ./max. 15/200mV 2x15/200mV 2x15/200mV 2x15/200mV 15/200mV 15/200mV 20/250mV <		bad <sup>4)</sup>			1A at 5VDC						
NC contact at 10A, typ./max.   20/250mV   20/250mV   20/250mV   20/250mV     Frequency of operation at nominal load   6 ops./min (0.1Hz)   0	Initial voltage drop										
Frequency of operation at nominal load 6 ops./min (0.1Hz)   Operate/release time typ. 7/2ms <sup>5</sup> )   Electrical endurance <sup>6)</sup> 7/2ms <sup>5</sup> )   resistive load, NO contact >2x10 <sup>5</sup> ops.   40A, 14VDC 20A, 28VDC   2x25A, 14VDC 2x15A, 28VDC   2x20A, 28VDC 40A, 14VDC   20A, 28VDC 2x25A, 14VDC   2x15A, 28VDC 2x20A, 28VDC   40A, 14VDC 20A, 28VDC   2x25A, 14VDC 2x15A, 28VDC   40A, 14VDC 20A, 28VDC   40A, 28VDC 2x15A, 28VDC   40A, 28VDC 2x25A, 14VDC	NO contact at 10A, typ./m	ax. 15/200mV	15/200mV	2x15/200mV	2x15/200mV	2x15/200mV	15/200mV	15/200mV	15/200mV		
at nominal load   6 ops./min (0.1Hz)     Operate/release time typ.   7/2ms <sup>5</sup> )     Electrical endurance <sup>6</sup> )   7/2ms <sup>5</sup> )     resistive load, NO contact   >2x10 <sup>5</sup> ops.     40A, 14VDC   20A, 28VDC     2x25A, 14VDC   2x15A, 28VDC     2x20A, 28VDC   20A, 28 VDC     30A, 28 VDC   >5x10 <sup>5</sup> ops.     VDC   14VDC     VDC   10A, 28 VDC     VDC   10A, 28 VDC		ax.					20/250mV	20/250mV	20/250mV		
Operate/release time typ.   7/2ms <sup>5</sup> )     Electrical endurance <sup>6</sup> )   resistive load, NO contact   >2x10 <sup>5</sup> ops.   >1x10 <sup>5</sup> ops.   >10A, 28 VDC   X28 VDC <td< td=""><td>Frequency of operation</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>	Frequency of operation										
Electrical endurance <sup>6</sup> ) resistive load, NO contact >2x10 <sup>5</sup> ops. >1x10 <sup>5</sup> ops. >2x10 <sup>5</sup> ops. >2x10 <sup>5</sup> ops. >1x10	at nominal load			6		<u>z)</u>					
resistive load, NO contact >2x10 <sup>5</sup> ops. >1x10 <sup>5</sup> ops. >5x10 <sup>5</sup> ops. >1x10 <sup>5</sup> ops. >10A, 28 VDC >10A, 28 VDC NDC <td< td=""><td></td><td></td><td></td><td></td><td>7/2ms<sup>5)</sup></td><td></td><td></td><td></td><td></td></td<>					7/2ms <sup>5)</sup>						
40A, 14VDC 20A, 28VDC 2x25A, 14VDC 2x15A, 28VDC 2x20A, 28VDC 40A, 14VDC 20A, 28 VDC 30A, 28 VDC resistive load, NC contact Mechanical endurance	Electrical endurance6)										
resistive load, NC contact >5x10 <sup>5</sup> ops. 10A, 28 VDC	resistive load, NO contact	>2x10 <sup>5</sup> ops.	>1x10 <sup>5</sup> ops.	>2x10 <sup>5</sup> ops.	>1x10 <sup>5</sup> ops.	>1x10 <sup>5</sup> ops.	>2x10 <sup>5</sup> ops.	>1x10 <sup>5</sup> ops.	>1x10 <sup>5</sup> ops.		
10A, 28 VDC Mechanical endurance		40A, 14VDC	20A, 28VDC	2x25A, 14VDC	2x15A, 28VDC	2x20A, 28VDC	40A, 14VDC	20A, 28 VDC	30A, 28 VDC		
Mechanical endurance	resistive load, NC contact										
DC coil $>1x10^6$ ops.	Mechanical endurance								,		
	DC coil				>1x10 <sup>6</sup> ops.						

1) Special high performance 24VDC version with contact gap >0.8mm.

2) 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.

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

4) See chapter Diagnostics of Relays in our Application Notes or consult the internet at http://relays.te.com/appnotes/

5) For unsuppressed relay coil. Any parallel device to the coil will increase the release time.

6) Electrical endurance data is not valid for diode versions. Any diode or pn-junction parallel to the coil (internal or external) will significantly decrease the electrical lifetime, especially when used for inductive loads.

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 https://relays.te.com/definitions

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

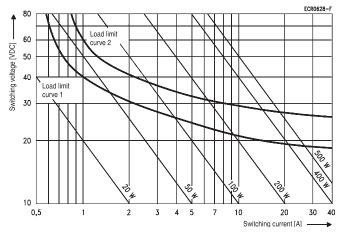
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# Power Relay F4 (Continued)

### Max. load DC breaking capacity



Load limit curve 1: arc extinguishes during transit time (CO contact).

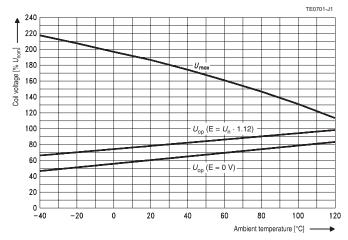
Load limit curve 2: safe shutdown, no stationary arc (NO contact).

Load limit curves measured with low inductive resistors verified for 1000 switching events.

Coil Da	ata							
Rated coil voltage 12/24VDC								
Coil ver	sions, DC co	il						
Coil	Rated	Operate	Release	Coil	Rated coil			
code	voltage	voltage	voltage	resistance <sup>7)</sup>	power <sup>7)</sup>			
	VDC	VDC	VDC	Ω±10%	W			
052	12	7.2	1.6	90	1.6			
053	24	14.4	3.2	324	1.8			
056	24	16.0	4.0	268	2.1			
165	24	14.4	2.4	288	2.0			

All figures are given for coil without pre-energization, at ambient temperature +23°C. 7) Without components in parallel.

#### Coil operating range



Does not take into account the temperature rise due to the contact current  $\ensuremath{\mathsf{E}}\xspace$  pre-energization.

## 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	Vs=+86.5VDC	
ISO 7637-2 (24VDC), test pulse 5	Vs=+200VDC	

### Other Data

Other Data	
EU RoHS/ELV compliance	compliant
Ambient temperature DC coil	-40 to +125°C
Protection to heat and fire	UL94-HB or better <sup>8)</sup>
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	3
IEC 61810	RTI – dustproof
Degree of protection, IEC 60529	IP54 (dustproof)
Corrosive gas	
IEC 60068-2-42	10±2cm <sup>3</sup> /m <sup>3</sup> SO <sub>2</sub> , 10 days
IEC 60068-2-43	1±0.3cm <sup>3</sup> /m <sup>3</sup> H <sub>2</sub> S, 10 days
Vibration resistance (functional)	
IEC 60068-2-6 (sine sweep)	10 to 500Hz $> 5g^{9)}$
Shock resistance (functional)	
IEC 60068-2-27 (half sine)	11ms >20g <sup>9)</sup>
Drop test, free fall	
IEC 60068-2-32	1m onto concrete
Terminal type	plug-in, QC/PCB
Cover retention	
pull force	150N
push force	200N
Terminal retention	
pull force	100N
push force	100N
resistance to bending, force applie	
resistance to bending, force applie	d to side <sup>10)</sup> 10N
torque	0.3Nm
Weight	approx. 35g (1.2oz)
Packaging unit	
plug-in/PCB	315 pcs.
plug-in with bracket	200 pcs.
8) Refers to used materials.	

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

10) 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 Mini ISO Relays

2

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# Power Relay F4 (Continued)

NOR\_SD

1 form A, 1 NO

85

大

with resistor & serial diode

### **Terminal Assignment**

NO 1 form A, 1 NO



with resistor 85 87 20 8F

1 form A, 1 NO

NOR

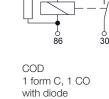
COR 1 form C, 1 CO with resistor

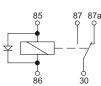
86



85 87 87a

30





NO\_2x87 1 form A, 1 NO (2x87)

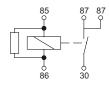


DNO 1 form U, 2 NO

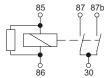


-2.7 ±0.5

NOR\_2x87 1 form A, 1 NO (2x87) with resistor



DNOR 1 form U, 2 NO with resistor





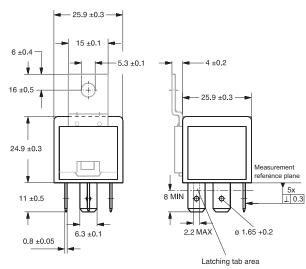
CO

1 form C, 1 CO

85

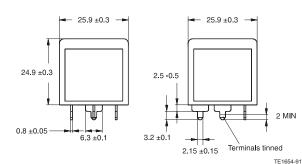
86

Power Relay F4 with quick connect (QC) terminals

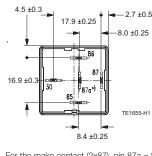


Quick connect terminal similar to ISO 8092-1

Power Relay F4 with PCB terminals

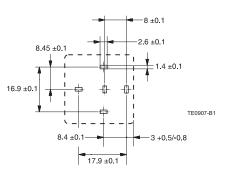


View of the terminals (bottom view)



For the make contact (2x87), pin 87a = 87; for the double make contact, pin 87a = 87b.

Mounting hole layout (bottom view)



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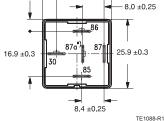
TE1093-S1

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3

 $4.5 \pm 0.3$ 



25.9 ±0.3 —

 $179 \pm 025$ 

For the make contact (2x87), pin 87a = 87; for the double make contact, pin 87a = 87b.

View of the terminals (bottom view)



# Power Relay F4 (Continued)

						100000	_			
Prod	uct co	de structure		Ту	pical product code	V23134	-A	0	052	-C643
Туре	V2313	<b>4</b> Power Relay F4				]				
Conta										
arran	gement	t								
	Α	1 form C, 1 CO	С	1 form A, 1 NO (2x87)						
	В	1 form A, 1 NO	Μ	1 form U, 2 NO						
Cove	r									
	0	Standard	1	Bracket at terminal 30 ISO						
	2	Bracket at terminal 86 ISO								
Coil										
	052	12VDC	053	24VDC						
	056	24VDC (contact gap >0.8mm)	165	24VDC (contact gap >0.8mm)						
Termi	nal/arra	angement		i de la companya de l						
	C642	Plug-in/NO	C643	Plug-in/CO						
	G242	PCB/NO	G243	PCB/CO						
	Xnnn	Customized (nnn: version number)								

## Production in Europe (only)

Product code	Arrangement	Version	Coil suppr.	Circuit <sup>1)</sup>	Coil	Contact mat.	Terminals	Part number
V23134-A0052-C643	1 form C, 1 CO	Standard		CO	12VDC	Silver based	Plug-in, QC	2-1393302-2
V23134-A0052-G243							PCB	2-1393302-3
V23134-A0052-X278			R 560Ω	COR			Plug-in, QC	4-1393302-1
V23134-A0053-C643				CO	24VDC		-	5-1393302-1
V23134-A0053-G243							PCB	5-1393302-2
V23134-A0056-X432 <sup>2)</sup>			D (cathode 86)	COD			Plug-in, QC	1-1414167-0
V23134-A0056-X433 <sup>2)</sup>			R 1200Ω	COR				1-1414168-0
V23134-A1052-C643		Bracket		CO	12VDC			5-1393302-8
V23134-A1052-X2944)			R 560Ω	COR				6-1393302-0
V23134-A1053-C643				CO	24VDC			6-1393302-3
V23134-A1053-X2954)			R 1200Ω	COR				6-1393302-4
V23134-B0052-C642	1 form A, 1 NO	Standard		NO	12VDC			7-1393302-5
V23134-B0052-G242							PCB	7-1393302-7
V23134-B0052-X2706)			R 680Ω	NOR			Plug-in, QC	1-1414099-0
V23134-B0052-X506			R 560Ω	NOR_SD <sup>3)</sup>				4-1414992-3
V23134-B0053-C642				NO	24VDC			1393303-9
V23134-B0053-G242							PCB	1-1393303-0
V23134-B1052-C642		Bracket			12VDC		Plug-in, QC	3-1393303-4
V23134-B1053-C642					24VDC			3-1393303-7
V23134-B1053-X2964)			R 1200Ω	NOR				3-1393303-8
V23134-C0052-C642	1 form A, 1 NO (2x87)	Standard		NO_2x87	12VDC			3-1393303-9
V23134-C0053-C642					24VDC			4-1393303-4
V23134-C1052-C642		Bracket			12VDC			4-1393303-7
V23134-C1052-X280 <sup>4)5)</sup>			R 560Ω	NOR_2x87				4-1393303-8
V23134-C1053-C642				NO_2x87	24VDC			5-1393303-0
V23134-M0052-C642	1 form U, 2 NO	Standard		DNO	12VDC		Plug-in, QC	5-1393304-6
V23134-M0052-G242							PCB	5-1393304-7
V23134-M0053-C642					24VDC		Plug-in, QC	6-1393304-7
V23134-M0053-G242							PCB	6-1393304-8
V23134-M0165-X539 <sup>2)</sup>			R 1200Ω	DNOR			Plug-in, QC	3-1904117-6
V23134-M1052-C642		Bracket		DNO	12VDC			7-1393304-1
V23134-M1053-C642					24VDC			7-1393304-4
1) See terminal assignment diag	rams. 4) No h	ole in terminal	30.					

2) Special feature: contact gap >0.8mm.

5) No hole in terminal 87a.

6) No holes in all terminals.

3) Serial diode. Other types on request.

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

## Production in Asia (only)

Product code	Arrangement	Version	Coil suppr.	Circuit <sup>1)</sup>	Coil	Contact mat.	Terminals	Part number
V23134-B0052-C642	1 form A, 1 NO	Standard		NO	12VDC	Silver based	Plug-in, QC	7-1904094-0
V23134-B0052-X270 <sup>2)</sup>			R 680Ω	NOR				7-1904094-1
V23134-B0053-C642				NO	24VDC			7-1904094-5
1) See terminal assignment diagr	rams.							

2) No holes in all terminals.

Other types on request.

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

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