

# P1 Relay

# V23026

- Directly triggerable with TTL standard modules as ALS, HCT & ACT
- Slim line 13.5x7.85mm (0.531x0.309")
- Switching current 1 A
- Bifurcated 1 form C (CO) contact
- Immersion cleanable
- High sensitivity results in low nominal power consumption, 65 to 130mW for monostable and 30 to 150mW for bistable (latching)
- Initial surge withstand voltage 2,5kV (2/10µs) meets the Bellcore Requirement GR-1089 1,5kV (10/160µs) meets FCC Part 68



Typical application  
Automotiv equipment, CAN bus, immobilizer, office equipment, measurement and control equipment, medical equipment, safety equipment

## Approvals

Technical data of approved types on request

## Contact Data

Contact arrangement	1 form C (CO)
Max. switching voltage	125VDC, 150VAC
Rated current	1A
Limiting continuous current, 80°C	1A
Breaking capacity	see max. DC load breaking capacity
Contact material	Palladium Nickel, Gold-Rhodium covered bifurcated contact
Contactstyle	
Min. recommended contact load	10mA at 20mV
Initial contact resistance	≤50mΩ at 10mA/20mV
Frequency of operation without load	200 ops./s
Operate/release time max.	2ms
Set/reset time max.	2ms
Bounce time max.	3ms
Electrical endurance	
at 12V/10	typ. 50x10 <sup>6</sup> operations
at 6V/100	typ. 10x10 <sup>6</sup> operations
at 30V/1000	typ. 10x10 <sup>3</sup> operations
Contact ratings	
UL contact ratings, resistive load	30VDC/1A 65VDC/0.46A 150VAC/0.46A
Mechanical endurance	typ. 10 <sup>9</sup> operations

## Coil Data

Magnetic system	polarized
Coil voltage range	3 to 24VDC other coil voltages on request
Operative range, IEC 61810	see coil operative range
Max. coil temperature	85°C
Thermal resistance	<130K/W

## Coil versions, THT, monostable

Coil code	Rated voltage VDC	Operate voltage VDC <sub>min.</sub>	Release voltage VDC <sub>min.</sub>	Coil resistance Ω ±10%	Rated coil power mW
006	3	2.25	0.3	137	66
001	5	3.75	0.5	370	68
005	9	6.75	0.9	1165	70
002	12	9.00	1.2	2250	34
004	24	18.00	2.4	4500	128

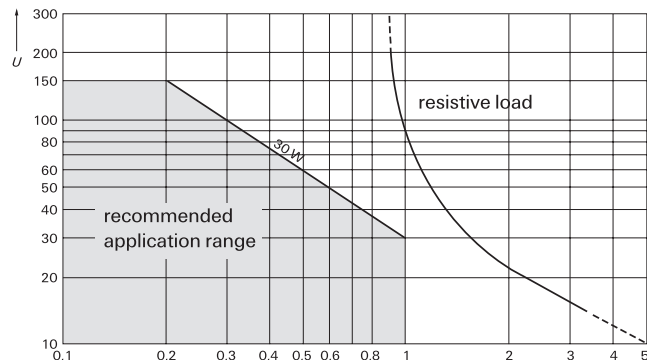
All figures are given for coil without pre-energization, at ambient temperature +23°C.

## Coil versions, SMT, monostable

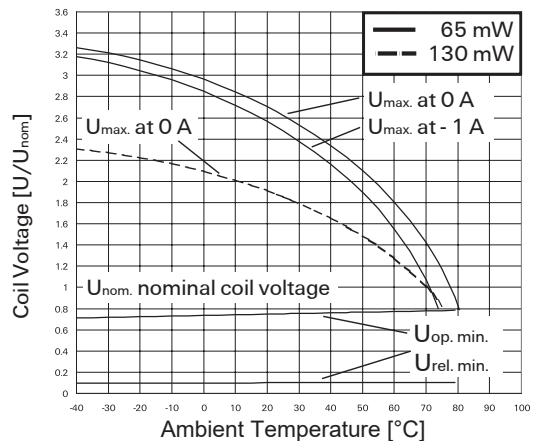
Coil code	Rated voltage VDC	Operate voltage VDC <sub>min.</sub>	Release voltage VDC <sub>min.</sub>	Coil resistance Ω ±10%	Rated coil power mW
026	3	2.25	0.3	113	80
021	5	3.75	0.5	313	80
025	9	6.75	0.9	1015	80
022	12	9.00	1.2	1800	80
024	24	18.00	2.4	4500	128

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

## Max. DC load Breaking capacity



## Coil operative range, monostable DC coil



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## Coil data (continued)

### Coil versions, THT and SMT, bistable 2 coils

Coil code	Rated voltage VDC	Set voltage VDC	Reset voltage VDC	Coil resistance $\Omega \pm 10\%$	Rated coil power mW
106	3	2.25	2.25	130	69
101	5	3.75	3.75	390	64
105	9	6.75	6.75	1200	68
102	12	9.00	9.00	1500	96

All figures are given for coil without pre-energization, at ambient temperature +23°C. Coils I and II are identical.

<sup>1)</sup> A nominal voltage of 24VDC is feasible with a 12VDC coil with a series resistor (1500Ω)

## Coil data (continued)

### Coil version, SMT, bistable 1 coil

Coil code	Rated voltage VDC	Set voltage VDC	Reset voltage VDC	Coil resistance $\Omega \pm 10\%$	Rated coil power mW
056	3	2.25	-2.25	300	30
051	5	3.75	-3.75	740	34
057	9	6.75	-6.75	2160	38
052	12	9.00	-9.00	4500	32
054	24	18.00	-18.00	4500	128

## Coil data (continued)

### Coil versions, , bistable 1 coil

Coil code	Rated voltage VDC	Set voltage VDC	Reset voltage VDC	Coil resistance $\Omega \pm 10\%$	Rated coil power mW
051	5	3.75	-3.75	740	34
052	12	9.00	-9.00	4500	32

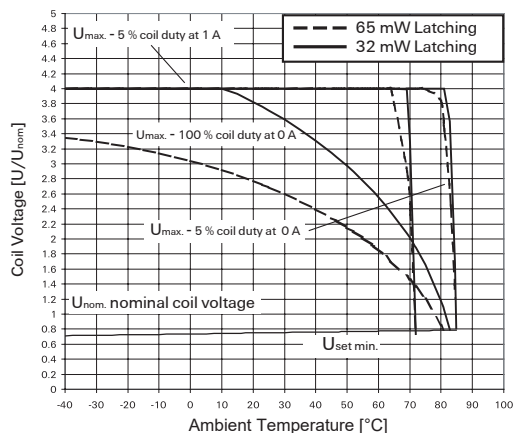
A nominal voltage of 24 V is feasible with a 12V coil with a series resistor (4500 Ω)

Other coil voltages on request

All figures are given for coil without pre-energization, at ambient temperature +23°C. Coil I and II are identical.

## Coil operative range, bistable

$U_{max}$  upper limit of the operative range of the coil voltage (limiting voltage) when coil are



continuously energized.

$U_{op min}$  lower limit of the operative range of the coil voltage (reliable operate voltage).

$U_{rel min}$  lower limit of the operative range of the coil voltage (reliable release voltage).

## Insulation Data

Initial dielectric strength between open contacts	500V <sub>rms</sub>
between contact and coil	1500V <sub>rms</sub>
Initial surge withstand voltage between contact and coil	2500V
Capacitance between open contacts	max. 5pF
between contact and coil	max. 6pF
Clearance/creepage between contact and coil	0.75mm
between adjacent contacts	0.75mm

## RF Data

Isolation at 100MHz/900MHz	Insertion loss at -30.0dB/-18.0dB
100MHz/900MHz Voltage standing wave ratio (VSWR)	-0.12dB/-19dB
at 100MHz/900MHz	1.06/1.75

## Other Data

Material compliance: EU RoHS/ELV, China RoHS, REACH, Halogen content

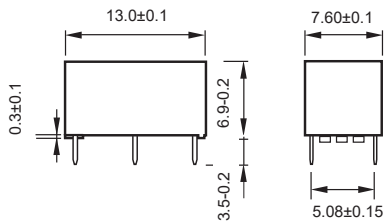
Ambient temperature	-40 to +85°C
Category of environmental protection, IEC 61810	RT III - immersion cleanable
Vibration resistance (functional)	20g, 200 to 2000Hz 40g, 10 to 200Hz
Shock resistance (functional) IEC 60068-2-27 (half sine)	50 g
Terminal type	PCB terminals and SMT terminals
Weight	max. 2g
Resistance to soldering heat THT IEC 60068-2-20	265 °C/10s
Resistance to soldering heat SMT IEC 60068-2-58	see reflow profile MSL3
Moisture sensitive level, JEDEC J-Std-020D	not recommended
Washing	possible
Ultrasonic cleaning	
Packaging unit	
THT	2000 pcs.
SMT	2400 pcs.

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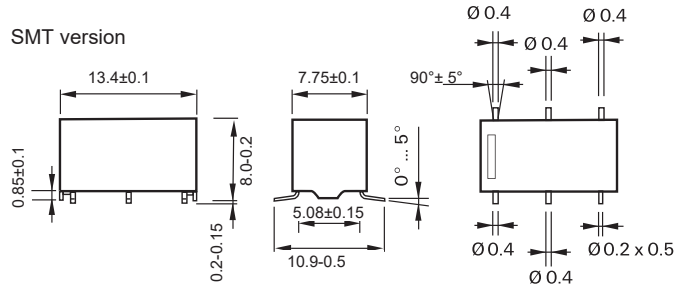
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## Dimensions

THT version

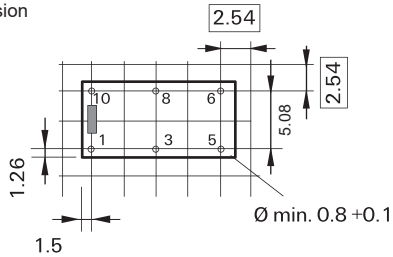


SMT version

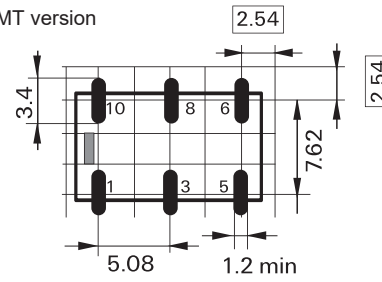


## PCB layout

TOP view on component of PCB  
THT version

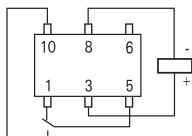


SMT version

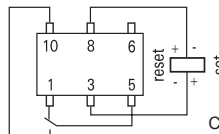


## Terminal assignment

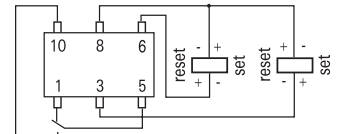
Monostable version  
reset condition



Bistable version  
reset condition



Bistable version, 2  
coils reset condition



Contacts are shown in reset condition. Both coils can either be set or reset coil. Contact position might change during transportation and must be reset before use.





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<b>Product code structure</b>	Typical product code	<b>V23026</b>	<b>A1</b>	<b>002</b>	<b>B201</b>
<b>Type</b>	<b>V23026</b> P1 Series Signal Relay				
<b>Version</b>	<b>A1</b> THT, monostable <b>B1</b> THT, bistable (latching), 2 coils <b>C1</b> THT, bistable (latching), 1 coil <b>D1</b> SMT, monostable <b>E1</b> SMT, bistable (latching), 2 coils <b>F1</b> SMT, bistable (latching), 1 coil				
<b>Coil</b>	Coil code: please refer to coil versions table				
<b>Contacts</b>	<b>B201</b> 1 form C, 1 CO				

Coil voltage	Coil	Version	Product code
3VDC	monostable	THT version	V23026A1006B201
5VDC	monostable	THT version	V23026A1001B201
9VDC	monostable	THT version	V23026A1005B201
12VDC	monostable	THT version	V23026A1002B201
24VDC	monostable	THT version	V23026A1004B201
3VDC	bistable, 2 coils	THT version	V23026B1106B201
5VDC	bistable, 2 coils	THT version	V23026B1101B201
9VDC	bistable, 2 coils	THT version	V23026B1105B201
12VDC	bistable, 2 coils	THT version	V23026B1102B201
3VDC	bistable, 2 coils	THT version	V23026C1056B201
5VDC	bistable, 2 coils	THT version	V23026C1051B201
9VDC	bistable, 2 coils	THT version	V23026C1057B201
12VDC	bistable, 2 coils	THT version	V23026C1052B201
24VDC	bistable, 2 coils	THT version	V23026C1054B201
3VDC	monostable	SMT version	V23026D1026B201
5VDC	monostable	SMT version	V23026D1021B201
9VDC	monostable	SMT version	V23026D1025B201
12VDC	monostable	SMT version	V23026D1022B201
24VDC	monostable	SMT version	V23026D1024B201
3VDC	bistable, 2 coils	SMT version	V23026E1106B201
5VDC	bistable, 2 coils	SMT version	V23026E1101B201
9VDC	bistable, 2 coils	SMT version	V23026E1105B201
12VDC	bistable, 2 coils	SMT version	V23026E1102B201
9VDC	bistable, 2 coils	SMT version	V23026F1051B201
12VDC	bistable, 2 coils	SMT version	V23026F1052B201