Card relay E

V23127, V23057

for dc operation, neutral, monostable

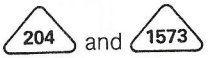
Outstanding features

- Used as switching element for electrical separation of low voltage control circuits from heavy current load circuits
- High switching capabilities for its small size
- The mechanical and electrical characteristics conform to the »Regulations for electrical relays in heavy current circuits« (VDE 0435/9.72) and the »Safe electrical separation of telecommunication and heavy current circuits« (VDE 0804)
- Specifications for thermostatic regulators and temperature limiting controllers in accordance with VDE 0631 and the »Safety regulations for mains operated electronic domestic appliances and related equipment« VDE 0860 (DIN IEC 65) are met
- Conforming to the relevant regulations for use in domestic appliances (VDE 0700 or VDE 0730) e. g. leakage current stability of the housing in accordance with CTI 175 (DIN IEC 112)
- Air gaps and creepage distances of $\geqslant$ 4 mm (make and changeover) or $\geqslant$ 8 mm (make and break)

Versions

- Flat or vertical mounting
- Contact arrangement: 1 make, 1 break or 1 changeover
- Single or bifurcated contacts with 1 changeover
- Termination: printed circuits
- Covered to give protection against damage
- Dust protected or washable;
  dust protected: transparent cover,
  washable: non-transparent cover,
  protection class IP 67 in accordance with DIN 40050 (IEC 529),
  sealing conforms to DIN IEC 68, section 2 - 17, tested to group
  Qc 2 (1 min. testing time)

Note: If at all possible, ultrasonic cleaning methods should not be used unless the manufacturer has been consulted first.

Approvals:		
	VDE	0435/09.72 – Certificate for monitoring of manufacturing – monogram 
	PTB	Ex-86/2049 U
	SEMKO	8419106, ...107, ...109 and ...110
		8513171 and ...172
		8403028 and ...029
		8401096
	SEV	D7.91/496 and D7.91/450
	CSA	File 50227, class 3211
	UL	Guide NRNT 2, file E 48393

V23057-A0★★★ with air gaps and creepage distances > 4 mm*)
With 1 changeover,
with single or bifurcated contacts
or
with 1 make,
with single contacts

V23057-C0★★★ with air gaps and creepage distances > 8 mm*)
With 1 make or 1 break,
with single contacts

Flat mounting
Washable
For direct mounting into printed circuits, pin arrangement for 2.5 mm grid also 2.54 mm grid in accordance with DIN 40801 and DIN 40803, **fine**

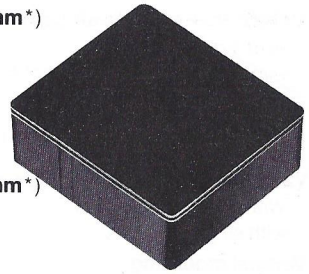
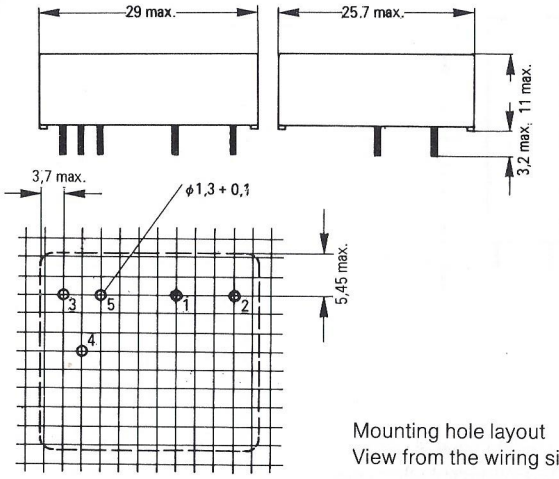
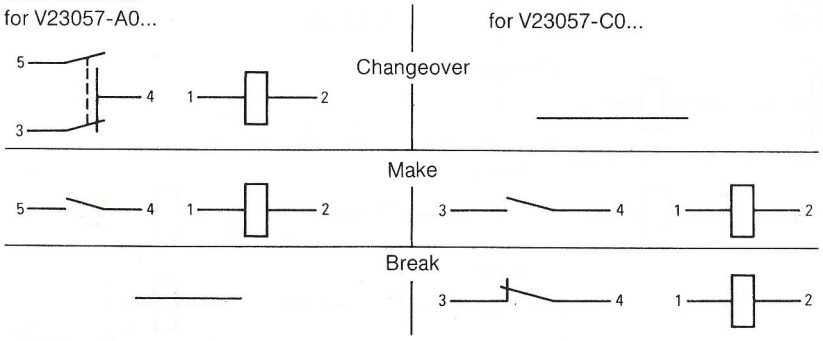


Illustration approx. original size
Approx. weight 20 g



Mounting hole layout
View from the wiring side

Base terminals
for V23057-A0...



*) Between winding and contacts

V23057-B0★★★ with air gaps and creepage distances > 4 mm*)
With 1 changeover,
with single or bifurcated contacts
or
with 1 make,
with single contacts

V23057-D0★★★ with air gaps and creepage distances > 8 mm *)
With 1 make or 1 break,
with single contacts

Vertical mounting
Washable
For direct mounting into printed circuits, pin arrangement for 2.5 mm grid also 2.54 mm grid in accordance with DIN 40801 and DIN 40803, **fine**

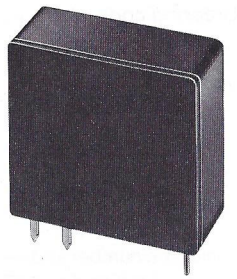
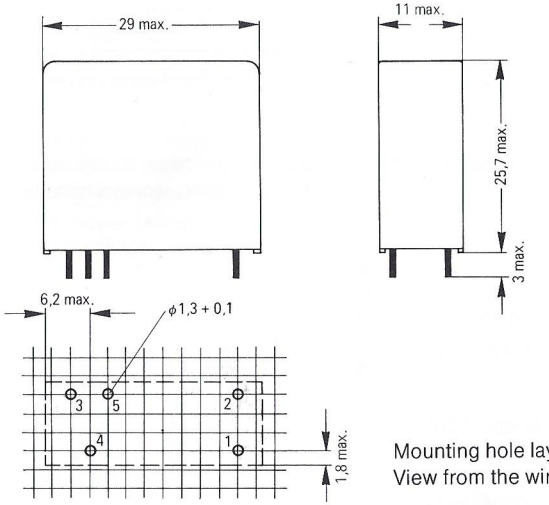
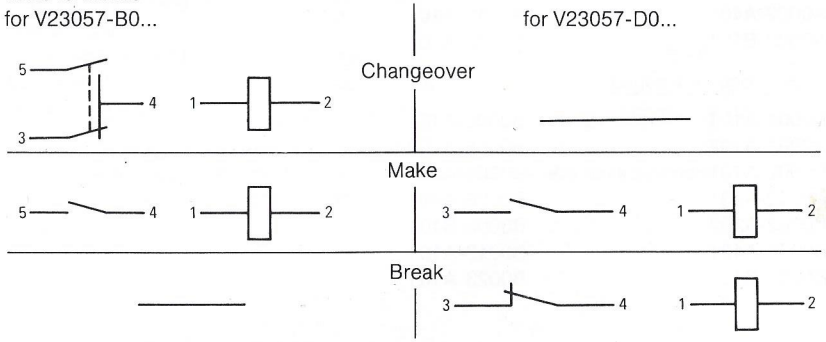


Illustration approx. original size
Approx. weight 20 g



Mounting hole layout
View from the wiring side

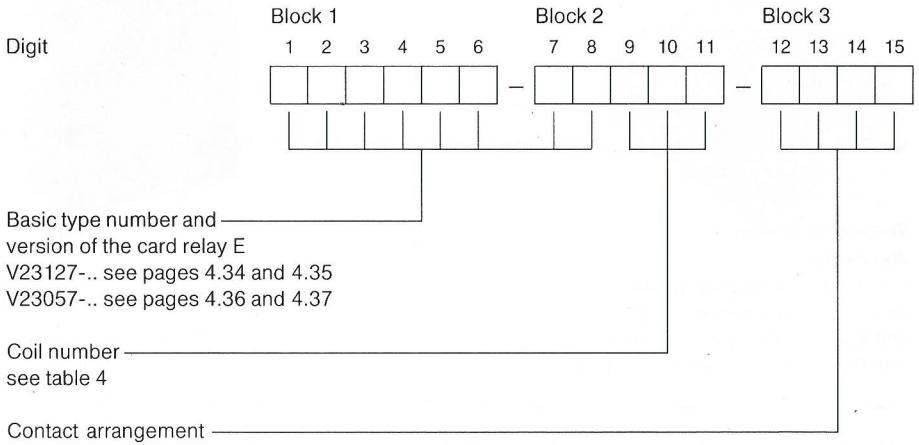
Base terminals
for V23057-B0...



*) Between winding and contacts

Card relay E

Ordering code



Ordering example: V23127-D0002-A102

Card relay E for vertical mounting, dust protected, with air gaps and creepage distances of ⩾ 8 mm between winding and contacts, coil 12 V nominal, 1 make, single contacts, contact material silver, gold flashed.

Preferred standard types

V23057-A0001-A101
-A0002-A101
-A0006-A101

V23057-B0002-A101
-B0006-A101

V23127-A0001-A101
-A0001-A201
-A0002-A101
-A0002-A102
-A0002-A201
-A0002-A401
-A0002-B101

V23127-A0006-A101
-A0006-A102
-A0006-A201
-A0006-A401
-A0006-B101
-A0013-A101
-A0023-A101

V23127-B0001-A101
-B0001-A102
-B0002-A101
-B0002-A201
-B0002-A202
-B0002-A401
-B0002-B101

V23127-B0006-A101
-B0006-A102
-B0006-A201
-B0006-A401
-B0006-B101
-B0013-A101
-B0023-A101

V23127-D0006-A402

Table 1 Characteristics for V23127-A0.../-B0... and V23057-A0.../-B0... with single contacts

Energising side

Operating voltages	Vdc	see table 4
Nominal power consumption	W	approx. 0.45
Maximum temperature	°C	115
Continuous thermal load at 20 °C ambient temperature	W	1.2
Thermal resistance	K/W	75

Contact side

Order No. block 3		A101	A201	A401	A102	A202	A402
Contact material		Silver, gold flashed	Silver, nickel	Silver-cadmium oxide	Silver, gold flashed	Silver, nickel	Silver, cadmium oxide
Contact designation		12			1		
Symbols (see also base terminals)							
Maximum switching voltage to VDE 0110 group C	Vdc Vac	300 250					
Max. switching current	A	5/15[1]	8/15[1]		5/15[1]	8/15[1]	
Max. power rating[2] dc voltage	W W W W	50 to 330 see fig. 1 (voltage dependent)	up to 24 V : 100 30 V : 80 200 V : 30 250 V : 50	35 to 330 see fig. 1 (voltage dependent)	50 to 330 see fig. 1 (voltage dependent)	up to 24 V : 100 30 V : 80 200 V : 30 250 V : 50	35 to 330 see fig. 1 (voltage dependent)
ac voltage	VA	1250	2000		1250	2000	
Max. continuous current	A	8					

General

Admissible ambient temperature	°C	−40 to +70
Operate time[3]	ms	approx. 6
Release time[3]	ms	approx. 4
Maximum switching rate	ops./sec	20
Test voltage contact/winding	V_{rms}	4000
Electrical life	operations	see pages 4.44 and 4.45
Mechanical life	operations	approx. 2×10^7

[1]) The current of 15 A may flow for a maximum of 4 sec. up to 10 % on time.
[2]) These values apply for resistive loads or inductive loads with suitable spark suppression.
[3]) Measured at nominal voltage without series resistor.

Table 2 Characteristics for V23127-A0.../-B0... and V23057-A0.../-B0... with bifurcated contacts

Energising side

Operating voltages	Vdc	see table 4
Nominal power consumption	W	approx. 0.45
Maximum temperature	°C	115
Continuous thermal load at 20 °C ambient temperature	W	1.2
Thermal resistance	K/W	75

Contact side

Order No. block 3		B101	B601
Contact material		Silver, gold flashed	Gold F
Contact designation		12	
Symbols (see also base terminals)			
Maximum switching voltage to VDE 0110 group C	Vdc Vac	300 250	36 30
Max. switching current	A	4/10[1])	0.2
Max. power rating with dc voltage	W	see fig. 2[2]) (voltage dependant)	5
with ac voltage	VA	500	—
Max. continuous current	A	6	2

General

Admissible ambient temperature	°C	−40 to +70
Operate time[3])	ms	approx. 6
Release time[3])	ms	approx. 4
Maximum switching rate	ops./sec.	20
Test voltage contact/winding	V_{rms}	4000
Electrical life[2])	operations	s. pages 4.44 and 4.45 —
Mechanical life	operations	approx. 2×10^7

[1]) The current of 10 A may flow for a maximum of 4 sec. up to 10 % on time.
[2]) These values apply for resistive loads or inductive loads with suitable spark suppression, obtained at 1 ops./sec.
[3]) Measured at nominal voltage without series resistor.

Table 3 Characteristics for V23127-C0.../-D0... and V23057-C0.../-D0...

Energising side

Operating voltages	Vdc	see table 4
Nominal power consumption	W	approx. 0.45
Maximum temperature	°C	115
Continuous thermal load at 20 °C ambient temperature	W	1.2
Thermal resistance	K/W	75

Contact side

Order No. block 3		A102	A202	A402	A103	A203	A403
Contact material		Silver, gold flashed	Silver, nickel	Silver-cadmium oxide	Silver, gold flashed	Silver, nickel	Silver-cadmium oxide
Contact designation		1			2		
Symbols (see also base terminals)							
Maximum switching voltage to VDE 0110 group C	Vdc Vac	300 250					
Max. switching current	A	5/15[1])	8/15[1])		5/15[1])	8/15[1])	
Max. power rating[2]) dc voltage	W W W W	50 to 330 see fig. 1 (voltage dependent)	up to 24 V : 100 30 V : 80 200 V : 30 250 V : 50	35 to 330 see fig. 1 (voltage dependent)	50 to 330 see fig. 1 (voltage dependent)	up to 24 V : 100 30 V : 80 200 V : 30 250 V : 50	35 to 330 see fig. 1 (voltage dependent)
ac voltage	VA	1250	2000		1250	2000	
Max. continuous current	A	8					

General

Admissible ambient temperature	°C	−40 to +70	
Operate time[3])	ms	approx. 7	approx. 6
Release time[3])	ms	approx. 3	approx. 4
Maximum switching rate	ops./sec	20	
Test voltage contact/winding	V_{rms}	4000	
Electrical life	operations	see page 4.44	
Mechanical life	operations	approx. 2×10^7	

[1]) The current of 15 A may flow for a maximum of 4 sec. up to 10 % one time.
[2]) These values apply for resistive loads or inductive loads with suitable spark suppression.
[3]) Measured at nominal voltage without series resistor.

Table 4 List of coils

Nominal voltage	Operating voltage range at 20 °C		Resistance at 20 °C	Coil No. Order No. block 2
	Minimum voltage U_I	Maximum voltage U_{II}		
Vdc	Vdc	Vdc	Ω	
5	3.5	9	57 ± 5.7	017
6	4.2	10.6	80 ± 8	001
12	8.3	21.5	330 ± 33	002
24	16.8	40	1200 ± 180	006
48	33.6	79	4700 ± 700	013
60	42	98	7200 ± 1080	023

The operating voltage limits U_I and U_{II} depend on temperature in accordance with the following formulae:

$U_{I\,tu} = k_I \cdot U_{I\,20\,°C}$ and $U_{II\,tu} = k_{II} \cdot U_{II\,20\,°C}$

t_u = ambient temperature

$U_{I\,tu}$ = minimum voltage at ambient temperature t_u

$U_{II\,tu}$ = maximum voltage at ambient temperature t_u

k_I and k_{II} = factors

t_u	20 °C	30 °C	40 °C	50 °C	60 °C	70 °C
k_I	1.0	1.04	1.085	1.13	1.17	1.21.
k_{II}	1.0	0.94	0.88	0.82	0.75	0.68

Limiting curves for power load

for relays with single contacts

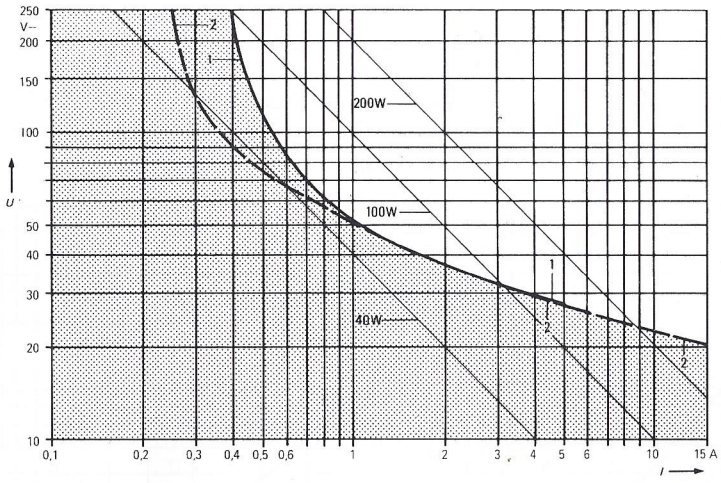


Fig. 1

for relays with bifurcated contacts

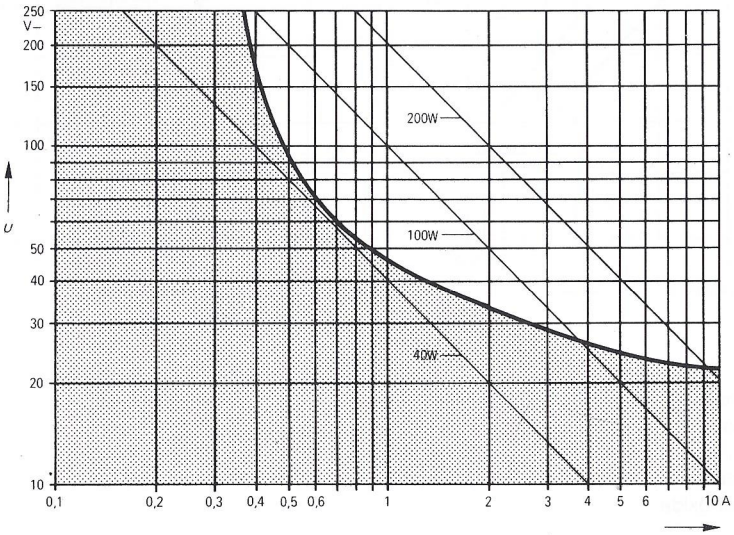


Fig. 2

I = Switching current

U = Switching voltage (dc)

Curves: Safe breaking, arc extinguished (limit curve II).
Maximum 12.5 ops./sec.

Curve 1 ———— Contact material silver, gold flashed

Curve 2 — — — — Contact material silver-cadmium-oxide