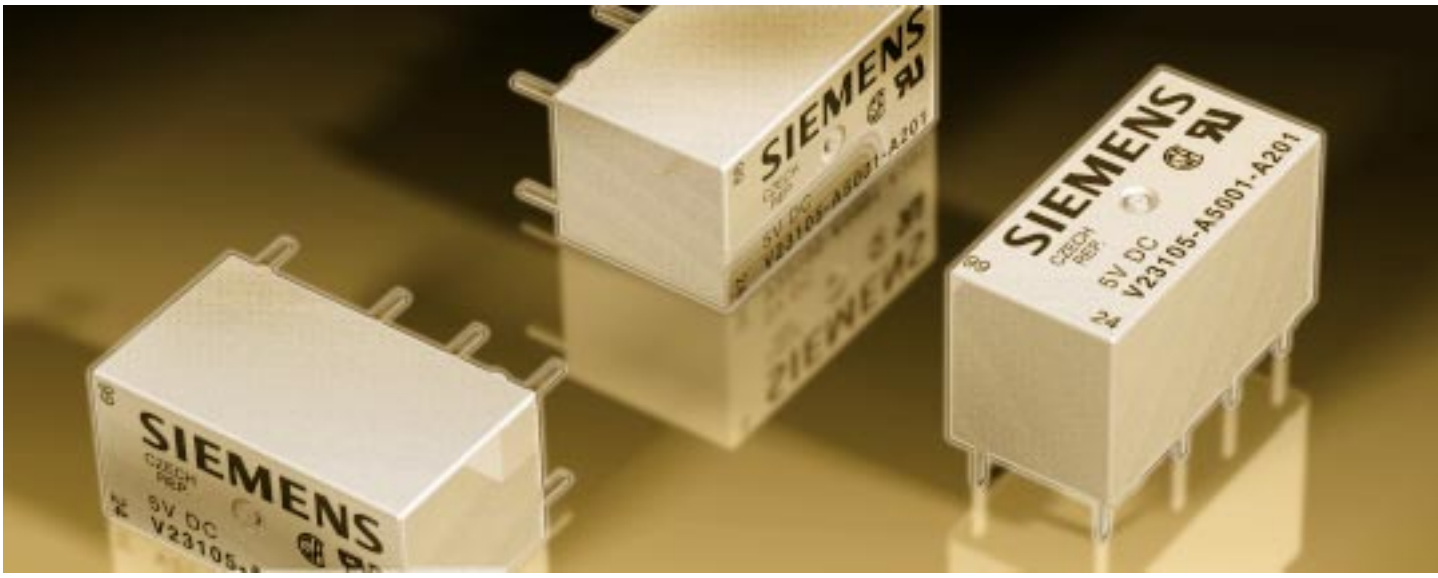
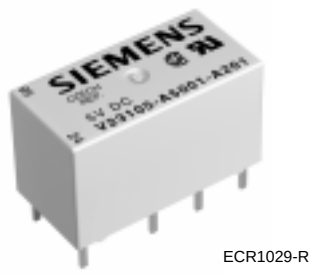
SIEMENS

Small Relay D2 neutral



Product Information

PCB relay for DC operation, neutral, monostable



ECR1029-R

Approx. 1.5 x original size

Features

- All purpose relay with 2 changeover contacts, suitable for a wide range of applications
- Four different coil versions available (150, 200, 400, 500 mW)
- The switching capacity ranges from low signal up to 3 A
- Standard Pinning
- High-voltage resistance according to FCC Part 68: 1.5 kV (10/160 µs)

Typical applications

- Communications technology
- Telecommunications terminal and accessories
- Entertainment electronics
- Measurement and control equipment

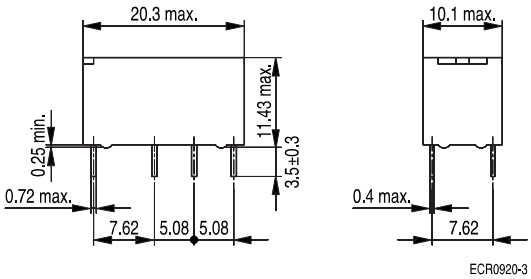
Version

– Monostable, 1 winding
– With 2 changeover contacts
– For printed circuits assembling
– Plastic case
– Immersion cleanable

Approvals

	UL	File E 48393
	CSA	File LR 45064-27
British Telecom BT47W		Spec. T4563c

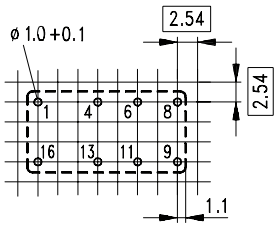
Dimension drawing (in mm)



ECR0920-3

Mounting hole layout

View on the terminals

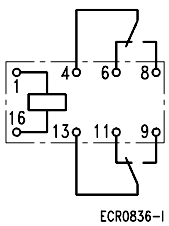


ECR1541-6

Basic grid 2.54 mm according to EN 60097 and DIN 40803

Terminal assignment

View on the terminals

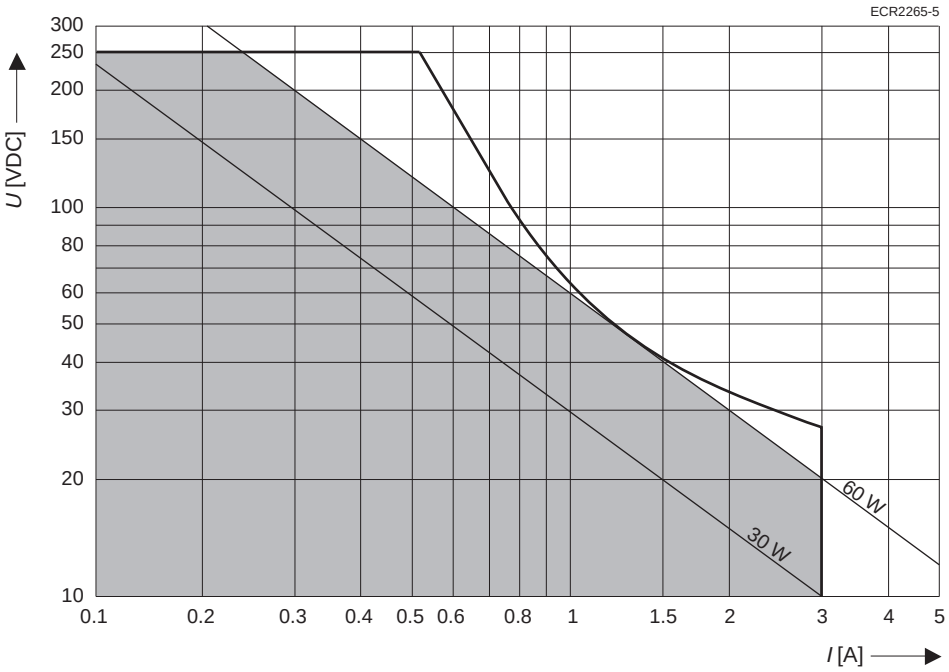


ECR0836-I

Small Relay D2 neutral

Contact data	
Number of contacts and type	2 changeover contacts
Contact assembly	single contacts
Contact material	Silver nickel, gold-plated, against silver nickel, gold-plated
Max. continous current at max. ambient temperature	3 A
Maximum switching current	3 A
Maximum switching voltage	250 VDC 230 VAC
Maximum switching capacity DC voltage AC voltage	 60 W, see load limit curve 120 VA
Recommended for load voltages greater than	10 mV
Thermoelectrical potential	< 15 µV
Contact resistance (initial value) / measuring current / driver voltage	≤ 100 mΩ / 10 mA / 20 mV

Load limit curve



I = switching current
U = switching voltage
■ = recommended application field

Load limit curve: Quenching of the arc during the transit time

Coil data	
Nominal voltages	from 3 VDC to 48 VDC
Nominal power consumption of the various coil versions	150 mW 200 mW 400 mW 500 mW
Maximum operating voltage 150 mW 200/400/500 mW	 80% of the nominal voltage *) 70% of the nominal voltage
Minimum release voltage	5% of the nominal voltage

*) < 80% of the nominal voltage on request

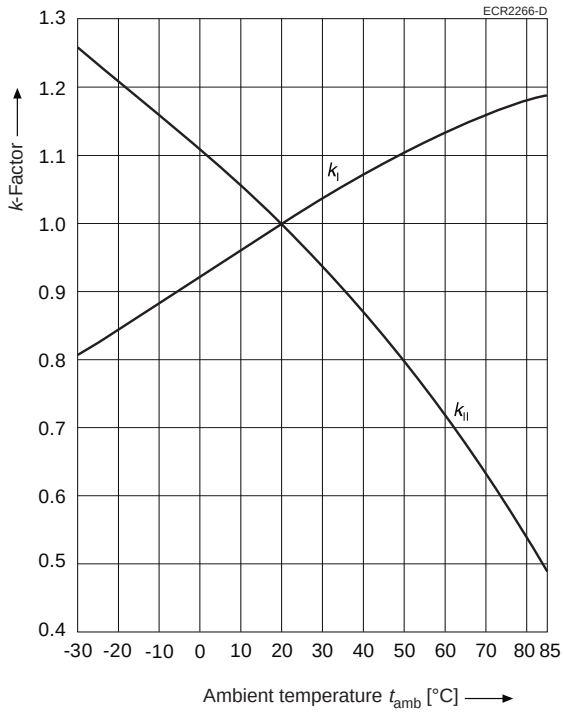
U_I = Minimum voltage at 20 °C with after pre-energizing with nominal voltage without contact current

U_{II} = Maximum continuous voltage at 20 °C

The operating voltage limits U_I and U_{II} are dependent on the temperature according to the formulae:

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

t_{amb} = Ambient temperature
$U_{I\,tamb}$ = Minimum voltage at ambient temperature t_{amb}
$U_{II\,tamb}$ = Maximum voltage at ambient temperature t_{amb}
k_I a. k_{II} = Factors (dependent on temperature), see diagram



Coil versions

Nominal voltage U_{nom}	Operating voltage range at 20 °C		Resistance at 20 °C	Coil number Ordering code block 2
	Minimum voltage U_I	Maximum voltage U_{II}		
VDC	VDC	VDC	Ω	
150 mW nominal power consumption				
3	2.4	10.2	60 ± 6	008
5	4.0	13.0	167 ± 16.7	001
6	4.8	15.6	240 ± 24	002
9	7.2	23.4	540 ± 54	006
12	9.6	31.2	960 ± 96	003
24	19.2	59.5	3480 ± 348	005
200 mW nominal power consumption				
3	2.1	6.7	45 ± 4.5	308
5	3.5	11.2	125 ± 12.5	301
6	4.2	13.5	180 ± 18	302
9	6.3	20.3	405 ± 40.5	306
12	8.4	27.0	720 ± 72	303
24	16.8	54.1	2880 ± 288	305
48	33.6	108.3	11520 ±1152	307
400 mW nominal power consumption				
5	3.5	7.9	62 ± 6.2	401
6	4.2	9.5	90 ± 9	402
9	6.3	14.3	203 ± 20.3	406
12	8.4	19.1	360 ± 36	403
24	16.8	38.3	1440 ± 144	405
48	33.6	76.6	5760 ± 576	407
500 mW nominal power consumption				
5	3.5	6.3	36 ± 3.6	501
6	4.2	8.9	70 ± 7	502
9	6.3	12.5	140 ± 14	506
10	7.0	15.0	200 ± 20	504
12	8.4	17.8	280 ± 28	503
24	16.8	34.4	1050 ± 105	505
48	33.6	67.3	4000 ± 400	507

Coil versions, BT 47 type / specification T4563C (current tested)

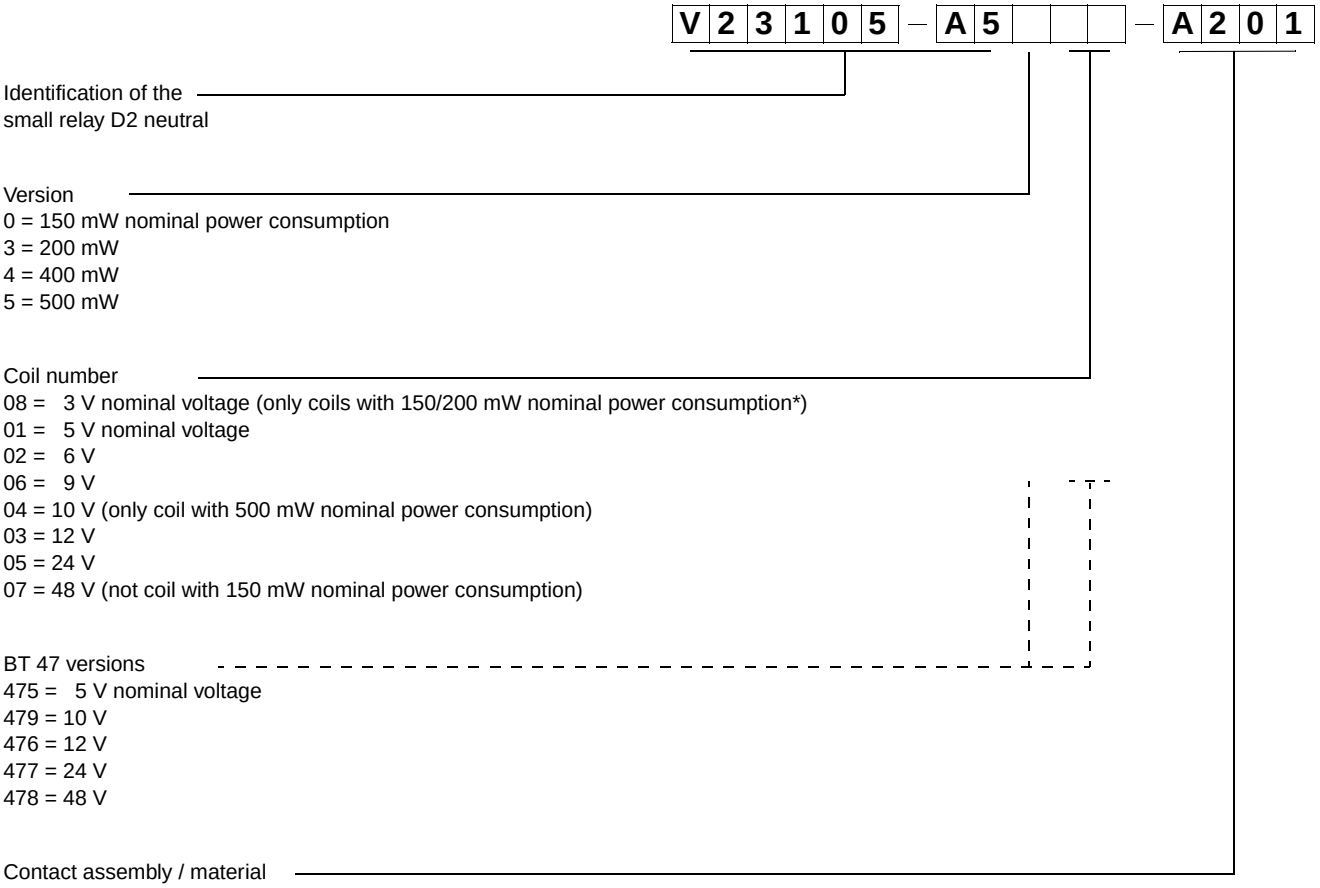
Nominal voltage U_{nom}	Operating current	Resistance at 20 °C	British Telecom Code	Coil number Ordering code block 2
VDC	mA	Ω		
5	80.0	36 ± 3.6	47W/5	475
10	32.5	200 ± 20	47W/9	479
12	27.0	280 ± 28	47W/6	476
24	14.0	1050 ± 105	47W/7	477
48	7.0	4000 ± 400	47W/8	478

General data	
Operate time at U_{nom} and 20 °C, typ.	5 ms
Release time at U_{nom} without parallel diode, typ.	4 ms
Bounce time, typ.	3 ms
Maximum switching rate without load	20 operations/s
Ambient temperature according to DIN IEC 61810-1 or VDE 0435 Part 201 150/200 mW nominal power consumption 400 mW nominal power consumption 500 mW nominal power consumption	 -25 °C ... +85 °C -25 °C ... +70 °C -25 °C ... +60 °C
Thermal resistance	approx. 100 K/W
Maximum permissible coil temperature	105 °C
Vibration resistance, 10 to 55 Hz according to IEC 60068-2-6 55 to 500 Hz according to IEC 60068-2-6	 function:10 g damage: 20 g
Shock resistance, half sinus, 11 ms according to IEC 68068-2-27	function:10 g damage: 40 g
Degree of protection according to VDE 0470 Part 1 EN 60529 / IEC 60529	immersion cleanable, IP 67
Capacitance at 1 kHz, 100 VAC between open contacts between closed contacts between contact and coil	 < 2 pF < 1.5 pF < 5 pF
Electrical endurance at resistive load 6 VDC / 100 mA 30 VDC / 1 A 30 VDC / 2 A (only 400 and 500 mW coils) 230 VAC / 500 mA	 > 2 x 10^6 operations approx. 5 x 10^5 operations approx. 1 x 10^5 operations > 3 x 10^5 operations
Mechanical endurance	15 x 10^6 operations
Mounting position	any
Processing information	Ultrasonic cleaning is not recommended
Weight	approx. 6 g

Insulation	
Insulation resistance at 500 V	≥ 1000 MΩ
Dielectric test voltage (1 min) contact/winding changeover contact/changeover contact at open contact	 1000 VAC_{rms} / 1500 VDC 750 VAC_{rms} / 1000 VDC 750 VAC_{rms} / 1000 VDC
Surge voltage resistance according to FCC 68 (10/160 µs)	 1500 V

Small Relay D2 neutral

Ordering code



*) Coils with 400/500 mW nominal power consumption on request

Ordering example: V23105-A5301-A201
Small relay D2 neutral, coil 5 V nominal voltage, 200 mW nominal power consumption,
Contact material silver nickel, gold-plated, against silver nickel, gold-plated