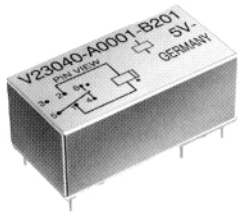
for DC operations, polarised, monostable or bistable

Features

- Permits optimum matching to an extremely wide variety of circuit conditions
- Complies with the requirements of LSI semiconductor technology
- Applications include measuring and control systems, process control engineering, entertainment electronics telecommunication, signalling systems and medical equipment
- Very high level of shock resistance



ECR0984-9

Picture approx. 1,5 x actual size

Typical applications

- Coupling and linking element in electronic modules
- Interface relay element for microcomputer systems
- Storage element for input and output equipment
- Data and communications technology
- Medical equipment
- Measurement and control equipment

Versions

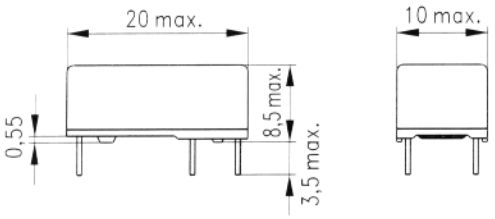
- Relay types: monostable, 1 winding or
  bistable, 2 windings or
  bistable, 1 winding
- Standard- and sensitive versions
- With 1 changeover contact
- With bifurcated contacts
- For printed circuit assembling
- Metal cover for screening against interference fields; optionally with earth terminal for reducing coupling capacitances
- Immersion cleanable
- Cleaning agent resistant

Approvals

	CSA	File LR 45064-2
	UL	File E 48393

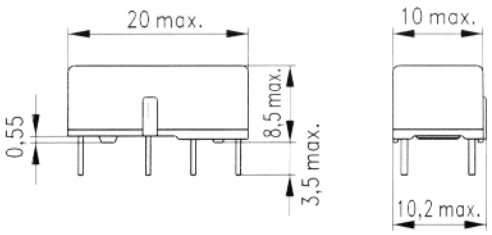
Without earth terminal

Dimensions (in mm)



ECR0819-T

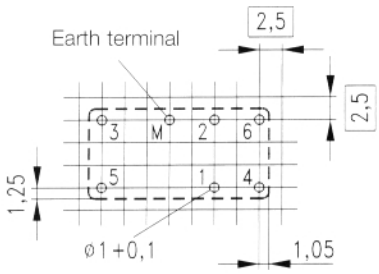
With earth terminal



ECR0820-W

Mounting hole layout

View onto the terminals



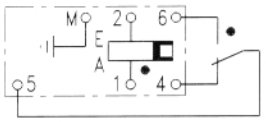
ECR0821-5

Pin arrangement suits 2,5 mm and 2,54 mm in acc. with DIN EN 60097 and DIN 40803

Base terminals

View onto the terminals

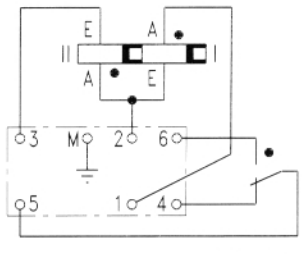
Monostable und bistable,
1 winding



ECR0822-D

M= Earth terminal
Circuit symbols drawn in the release condition
If a positive potential is applied to the start of the winding, the relay changes to operate position.

Bistable,
2 windings

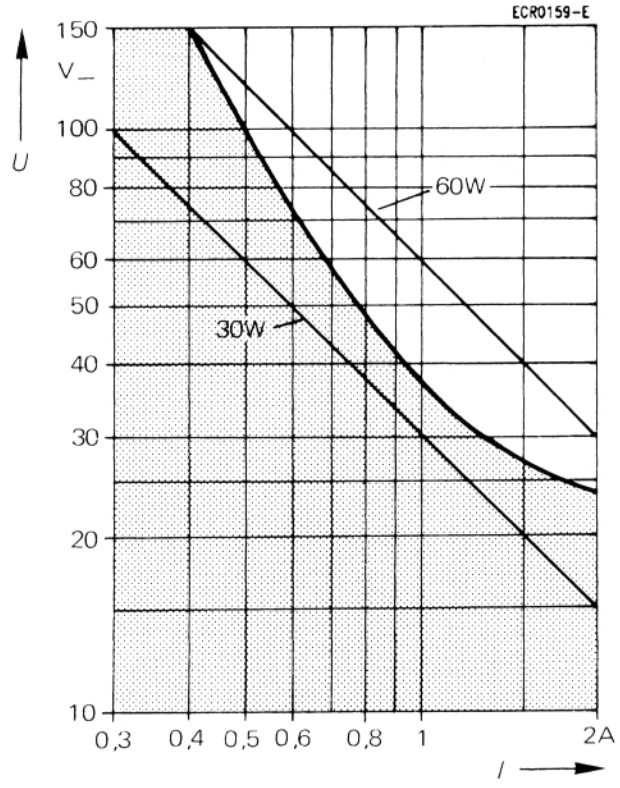


ECR0823-L

M= Earth terminal
The contact position illustrated shows the release condition. If a negative potential is applied to terminal 1 or a positive potential to terminal 3 as against terminal 2, the relay changes to release condition. If a positive potential is applied to terminal 1 or a negative potential to terminal 3 as against terminal 2, the relay changes to operate condition.

Contact data	
Number of contacts and type	1 changeover contact
Contacts assembly	Bifurcated contacts
Contact material	Pd Ni, Au Rh coated
Limiting continuous current at max. ambient temperature	2 A
Maximum switching current	2 A
Maximum switching voltage	125 V~ 150 V-
Minimum switching voltage	3 mV
Maximum switching capacity DC Voltage AC Voltage	 35...60 W, (see load limit curve) 60 VA
Contact resistance (initial value) / measuring current / driver voltage	100 mΩ / 10 mA / 20 mV

Load limit curve
(12,5 Operations/s)



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

Load limit curve: Safe shutdown, no stationary arc > 10 ms

Coil data

Nominal voltage	From 5 V- to 24 V-
Nominal power consumption	
monostable, 1 winding	65...130 mW
bistable, 2 windings	80...200 mW
bistable, 1 winding	35...100 mW
	depending on relay version and winding (see table)
Operative range/pick-up class according to DIN IEC 255 Part 1-00 and VDE 0435 Part 201	1/a
Maximum operate voltage	76 % of nominal voltage
Maximum release voltage (bistable)	76 % of nominal voltage
Minimum release voltage (monostable)	10 % of nominal voltage

U_I = Minimum voltage at 20 °C after pre-energising with nominal voltage without contact current
U_{II} = Maximum continuous voltage at 20 °C

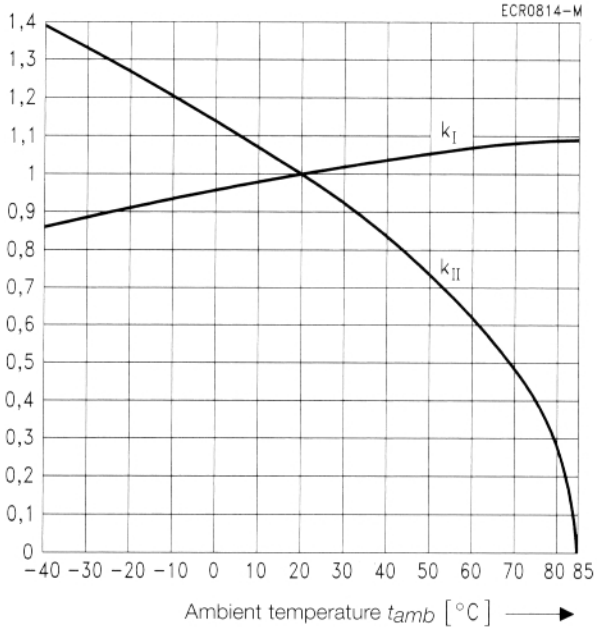
The operating voltage limits UI and UII are dependent on the temperature according to the formulae:

$U_{I\ tamb} = k_I \cdot U_{I\ 20\,°C}$
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 *and* k_{II} = Factors (dependant on temperature), see diagram

The sum of the ambient temperature and coil over temperature must not exceed 85 °C.

The maximum voltage is calculated such that with factor k_{II} taken into account the maximum permissible temperature of the relay will not be exceeded during continuous operation.



Coil versions

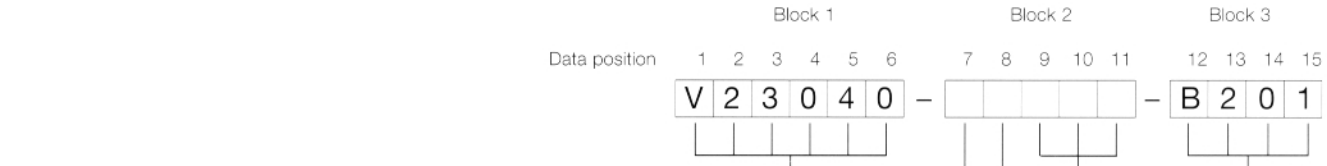
Nominal voltage U_{nom}	Operating voltage range at 20°C		Resistance at 20°C	Coil number Ordering code
	Minimum voltage U_I	Maximum voltage U_{II}		
V–	V–	V–	Ω	
Standard version				
monostable, 1 winding				A0***/-A2***
5	3,75	16,5	320 ± 32	001
12	9	30	1140 ± 170	002
24	18	60	4370 ± 650	004
bistable, 2 windings				B0 ***/-B2***
5	3,75	16	315 ± 47	101
12	9	30	1110 ± 165	102
15	11,25	37	1760 ± 265	103
24	18	46	2800 ± 420	104
bistable, 1 winding				-C0***/-C2***
5	3,75	20	500 ± 75	051
12	9	38	1850 ± 275	052
24	18	67	5650 ± 845	054

Coil versions for sensitive versions are available on request.

Gerneral data	
Operate time at U_{nom} and at 20 °C, typ.	2 ms
Release time at U_{nom} and at 20 °C (bistable), typ.	2 ms
Release time without diode in parallel (monostable), typ.,	0,6 ms
Bounce time	≤ 1 ms
Maximum switching rate without load	100 operations/s
Ambient temperature according to DIN IEC 255 Part 1-00 and VDE 0435 Part 201	-40 °C...+70 °C
Maximum permissible coil temperature	85 °C
Continuous thermal load	850 mW
Vibration resistance (function), frequency range according to ICE 68-2-6	20 g, 200 to 2000 Hz40 g, 10 to 200 Hz
Shock resistance (function), half sinus, 11 ms according to IEC 68-2-27	100 g
Degree of protection according to DIN VDE 0470 Part 1/IEC 529	Immersion cleanable IP 67 Sealing corresponds to DIN IEC 68 Part 2-17, method Qc
Electrical endurance for resistive load:	
6 V-, 100 mA	Approx. 10^8 operations
24 V-, 1 A	Approx. 10^7 operations
Mechanical endurance	Approx. 10^9 operations
Flammability	Flame resistant according to DIN IEC 695 Part 2-2
Mounting position	Any
Processing information	Ultrasonic cleanable Cleaning agent resistant according to DIN IEC 68 Part 2-45
Weight (mass)	Approx. 6 g

Insulation	
Insulation resistance at 500 V	$\geq 10^9\ \Omega$
Dielectric test voltage contact/winding (1 min)	
Contact/winding	1500 V~rms
Open contact	750 V~rms
Winding/cover	1000 V~rms
Contact/cover	1000 V~rms

Ordering code



Identification of the Miniature Relay D1

Relay type

A = monostable, 1 winding
B = bistable, 2 windings
C = bistable, 1 winding

Relay versions
0 = standard
2 = standard with earth terminal
3 = sensitive
5 = sensitive with earth terminal

Coil number
monostable, 1 winding
001 = 5 V nominal voltage
002 = 12 V
004 = 24 V

bistable, 2 windings:
101 = 5 V nominal voltage
102 = 12 V
103 = 15 V

bistable, 1 winding:
051 = 5 V nominal voltage
052 = 12 V
054 = 24 V

Contact arrangement/material
B201 = 1 changeover contact; Palladium-Nickel, gold-plated, rhodium-coated

Ordering example:
V23040-C0052-B201
Miniature Relay D1, bistable, 1 winding, standard version, coil 12 V nominal voltage

Note:
Special designs can be carried out to meet customer specifications. Please contact your local representative for more information.