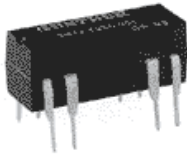


DIL-SIL-REED RELAYS



Version	DIL-High Profile				
Contact Form	1 Normally Open	2 Normally Open	1 Change Over	1 Change Over	1 Change Over
Type	3570 1210 ... ²⁾	3572 1220 ... ¹⁾	3563 1231 ... ²⁾	3573 1231 ... ²⁾	3565 1231 ... ²⁾
Features	- Industry-standard housing	- Industry-standard housing	- Industry-standard housing	- Industry-standard housing	- Industry-standard housing - High switch. power - High switch. current

Coil Parameters

Nominal coil voltage	VDC	5	12	24	5	12	24	5	12	24	5	12	24	5	12	24	
Pull-in voltage	max.	VDC	3,8	9	18	3,8	9	18	3,8	9	18	3,8	9	18	3,8	9	18
Drop-out voltage	min.	VDC	0,8	1	2	0,8	1	2	1	2	4	1	2	4	1	2	4
Operating voltage	max.	VDC	20	30	40	10	20	40	10	18	35	10	18	35	10	18	35
Coil resistance	±10%	Ω	500	1.000	2.150	140	500	2.150	200	500	2.150	200	500	2.150	200	500	2.150

Contact Parameters

Switching capacity	max.	W/VA	10	10	3	5	20
Switching voltage	max.	V	100 AC/DC	100 AC/DC	70 AC / 100 DC	100 AC/DC	100 AC/DC
Switching current	max.	A	0,5	0,5	0,25	0,5	1,0
Carrying current	max.	A	1,0	1,0	0,5	1,0	2,0
Contact resistance	max.	mΩ	150	150	200	150	150
Dielectric strength	min.	VDC	200	200	140	200	200

Relay Parameters

Dielectric strength	coil/contact	VDC	1.000	1.000	1.000	500	500
Insulation resistance	coil/contact	Ω	10 ¹⁰	10 ¹⁰	10 ¹⁰	10 ¹⁰	10 ¹⁰
Storage temperature		°C	-40...+105	-40...+105	-40...+105	-40...+105	-40...+105
Operating temperature		°C	-35...+80	-35...+80	-35...+80	-35...+80	-35...+80
Pull-in time incl. bounce time max.		ms	0,5	0,5	2,0	1,2	1,2
Drop-out time with diode		ms	0,5	0,5	3,0	0,8	0,8
Dimensions	page		23	23	23	23	23
Weight	approx. g		2,3	2,3	2,3	2,3	2,3
Pin configuration (top view)							

1) Also available with diode

2) Also available with diode or with electrostatic shielding and diode

General Parameters

Life Expectancy

The life expectancy of a Reed Relay is at least 10⁵...10⁶ operations at nominal load. At minimum load the life expectancy can be up to 5 x 10⁸ operations. The mechanical life expectancy is 10⁹ operations (minimum). Through the switching of higher loads, especially inductive or capacitive and lamp loads, life expectancy can be considerably reduced due to exceeding the permissible maximum current.

Thermal Resistance of the DIL-SIL-Reed Relays: 70 K/W.

Thermoelectric Voltage

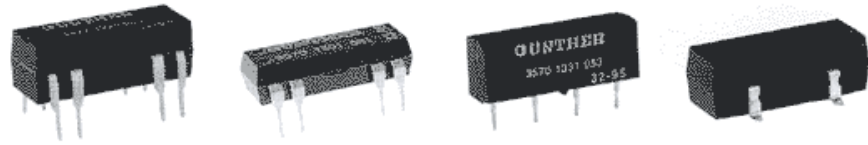
Between FeNi (Reed Switch) and Cu (PCB) a thermoelectric voltage $U_{th} = k \times (T_1 - T_2)$ occurs with the constant $k = 50 \mu V/^\circ C$ (T =temperature). Reed Relays can be used above this thermoelectric voltage.

Order Example:

Product group 35 70 1210 05 1
 Contact code
 Standard type

Version
 1 = without diode
 3 = with diode
 4 = with electrostatic shielding and diode
 Nominal coil voltage
 05 = 5V
 12 = 12V
 24 = 24V

DIL-SIL-REED RELAYS



Version	DIL-High Profile	DIL-Low Profile	SIL				Surface Mount
Contact Form	1 Normally Open	1 Normally Open	1 Normally Open	1 Normally Open	1 Normally Open	1 Normally Open	1 Normally Open
Type	3585 1210 ... ¹⁾	3570 1301 ... ²⁾	3570 1331 ... ¹⁾	3585 1331 ... ¹⁾	3570 1511 ...	3570 1511 ...	3570 1511 ...
Features	- Wetted - No bounce - Non position sensitive	- Industry-standard	- Industry-standard	- Wetted - No bounce - Non position sensitive	- Industry-standard	- Industry-standard	- High dielectric strength

Coil Parameters

Nominal coil voltage	VDC	5	12	24	5	12	24	5	12	24	5	12	24	5	12	24
Pull-in voltage max.	VDC	3,8	9	18	3,8	9	18	3,8	9	18	3,8	9	18	3,8	9	18
Drop-out voltage min.	VDC	0,5	1	2	0,8	1	2	0,8	1,5	2	0,5	1	2	0,8	1	2
Operating voltage max.	VDC	10	20	40	15	20	30	15	30	40	10	20	40	20	30	40
Coil resistance ±10%	Ω	140	500	2.150	500	1.000	2.000	500	1.000	2.000	140	500	2.000	500	1.000	2.150

Contact Parameters

Switching capacity max.	W/VA	30	10	10	30	10
Switching voltage max.	V	350 AC/DC	100 AC/DC	100 AC/DC	350 AC/DC	100 AC/DC
Switching current max.	A	0,75	0,5	0,5	0,75	0,5
Carrying current max.	A	2,0	1,0	1,0	2,0	1,0
Contact resistance max.	mΩ	100	150	150	100	200
Dielectric strength min.	VDC	1.000	200	200	1.000	200

Relay Parameters

Dielectric strength coil/contact	VDC	1.000	1.000	1.000	1.000	4.000
Insulation resistance coil/contact	Ω	10 ¹⁰	10 ¹⁰	10 ¹⁰	10 ¹⁰	10 ¹⁰
Storage temperature	°C	-35...+105	-40...+105	-40...+105	-35...+105	-40...+105
Operating temperature	°C	-20...+75	-35...+80	-35...+80	-20...+75	-35...+80
Pull-in time incl. bounce time max.	ms	1,8	0,5	0,5	1,8	1,0
Drop-out time with diode	ms	1,5	0,5	0,5	1,5	1,0
Dimensions	page	23	23	23	23	23
Weight	approx. g	2,5	1,8	1,6	1,8	1,6
Pin configuration (top view)						

1) Also available with diode

2) Also available with diode or with electrostatic shielding and diode

Vibration and Shock Resistance

During the evaluation of vibration and shock resistance, the relays are driven with nominal voltage. The switches should not open longer than 10 µsec.

	Normally Open	Change Over	Wetted
Vibration resist.	20 g / 5...2000 Hz	10 g / 5...500 Hz	10 g / 10...500 Hz
Shock resistance	100 g / 11 ms Sine half wave	50 g / 11 ms Sine half wave	30 g / 11 ms Sine half wave

Washability

Resistant to Caltron, Freon, alcohol and distilled (pure) water. During the final rinsing phase only the purest substances should be used.

Capacitance

The capacitance parameters are regarded as typical and are calculated for versions without shielding:

Capacitance, measured...	N.O.	N.O. wetted	Change over
across open contact	0,8 pF	1,8 pF	2,5 pF
between open contact and coil	1,5 pF	3,6 pF	2,5 pF
between closed contact and coil	3,0 pF	7,0 pF	2,5 pF

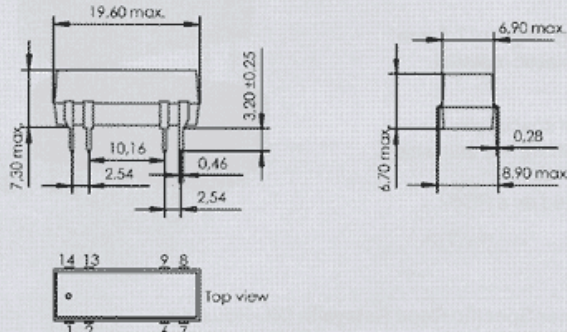
Solderability

By using laser welding in manufacture, a number of our DIL-SIL-Reed Relays are suitable for enhanced soldering requirements. All relays meet the DIN 8505 requirements.

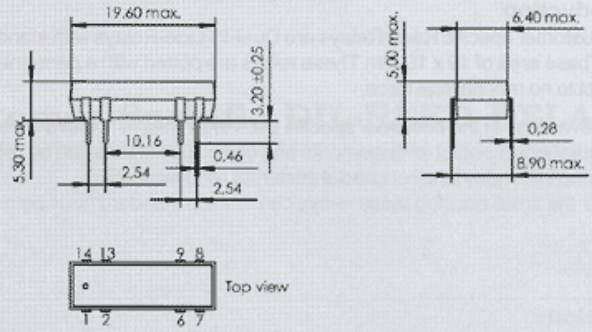
Hole Diameter in PCB: Ø 0,65 mm

DIL-SIL-REED RELAYS

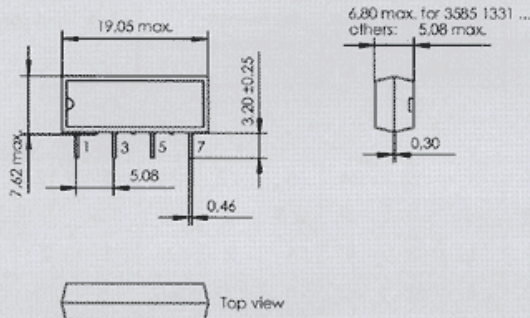
DIL-High Profile



DIL-Low Profile

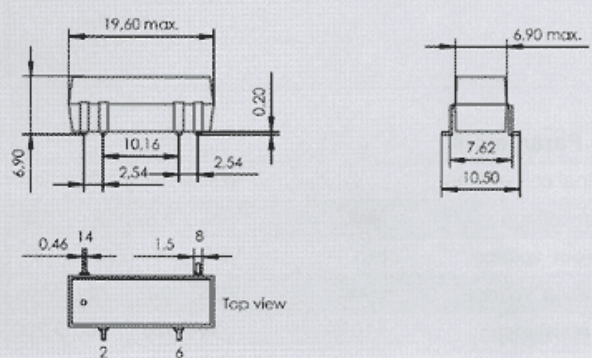


SIL



Dimensions in mm

Surface Mount

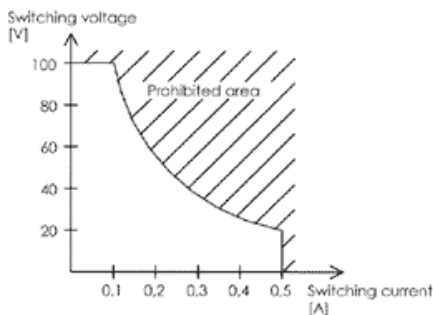


Pull-in and Drop-out Voltage, Coil Resistance

The tolerances indicated are valid at 25 °C ± 3 °C. The temperature coefficient of the coil resistance is 0,4 % / °C.

Switching Voltage, Current and Capacity

The parameters as listed for switching voltage, current and capacity are maximum values. Exceeding any one of these values causes overload and reduces relay life expectancy.



Contact Resistance

The contact resistance indicated is valid for new relays at nominal coil voltage.

The four-point method at 2 VDC / 100 mA or 10 mA is applied. Custom solutions for special applications, especially for switching signals smaller than 1 mV at 10 µA (low-level-applications) or applications requiring dynamic contact resistance measurement can be produced for special switching needs.

Temperature Range

The operating temperature of the relay is the equivalent of the internal temperature. If the relays are used in ambient temperatures (ϑ_a) higher than 20 °C, the maximum permissible operating voltage (U_1) must be calculated according to the table indicated below, using the formula:

$$U_1 = U_{\max} \times k_1$$

(U_{\max} = max. permissible operating voltage)

ϑ_a (°C)	20	30	40	50	60	70
k_1	1,00	0,96	0,92	0,88	0,74	0,70

Switching Time

When using dry Reed Switches in relays, contact bounce may occur.

Pull-in time (incl. bounce time) typ. 0,5...1,8 ms

at nominal voltage and 20 Hz

Drop-out time (with diode) typ. 0,5...1,5 ms

at nominal voltage and 20 Hz

Magnetic Shieldings

Magnetic shieldings for Reed Relays are also available:

- magnetic shieldings for SIL-Reed Relays:
 - top side and side by side
 - top side and front end
 - top side, side by side and front end
- magnetic shieldings for DIL-Reed Relays:
 - top side, side by side and front end suitable for the DIL-High profile

Comment

Relay versions with 15 V nominal coil voltage are available for orders exceeding min. quantity of 1.000 pieces.