

**AXICOM**

Telecom-, Signal and RF Relays

## **Cradle Relay S** V23054 / V23062

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## Cradle Relay S V23054/V23062

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The dimensions in this datasheet are for reference purpose only and are subject to change without notice. Specifications are subject to change without notice.

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## Cradle Relay S V23054/V23062

Hand solder and plug-in relay,  
for DC operation,  
non-polarized, non-latching

ROHS compliant (Directive 2002/95/EC) as per  
product date code 0501.

### Features

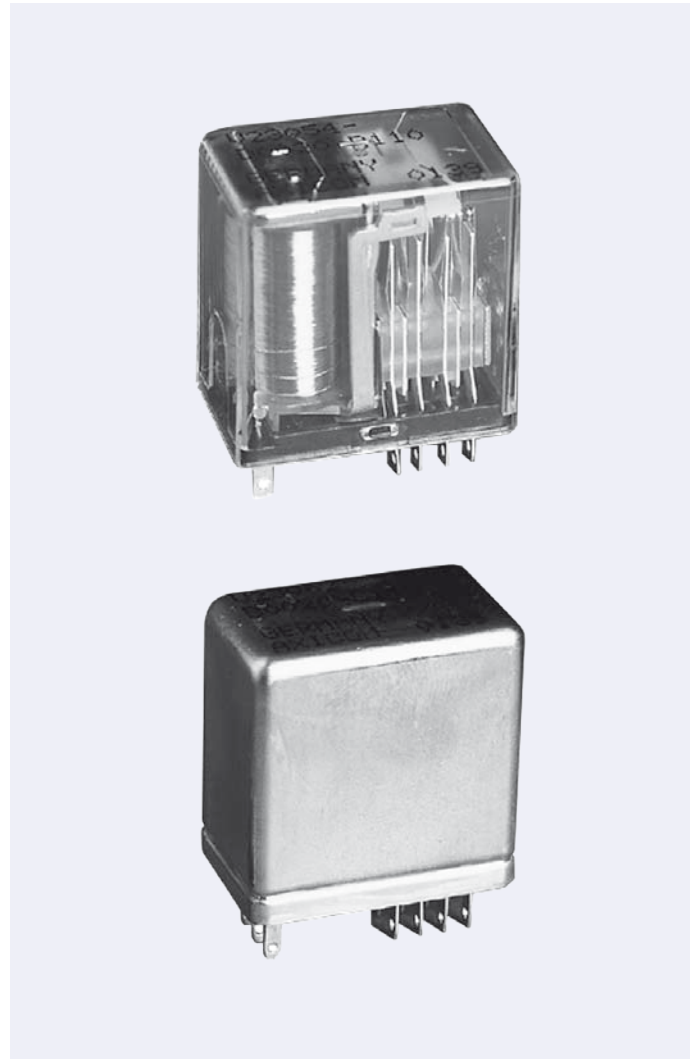
- Stronger magnet system and thus wider voltage range than cradle relay N
- highly reliable
- Contacts for signal loads and currents up to 5 A
- AC and DC, latching and non-latching, coils operating voltage 6 V ... 220 V
- Multi purpose relay
- Great variety of contact arrangements and materials to meet specific applications
- Sockets for easy and quick mounting of relays (see data sheet Accessories)

### Typical applications

- Press controls with high safety requirements (forcibly guided springs)
- Traffic and railroad signalling
- Motor vehicle traffic controls

### Relay types

- Size I or II, depending on contact set
- Standard contact sets with max. 6 changeover contacts or 6 make contacts
- Single or bifurcated contacts
- Hand solder terminals also for plug-in connection with screw fixing
- Dust-protected with plastic cover, V23054-XXX
- Hermetically sealed with metal enclosure, V23062-XXX



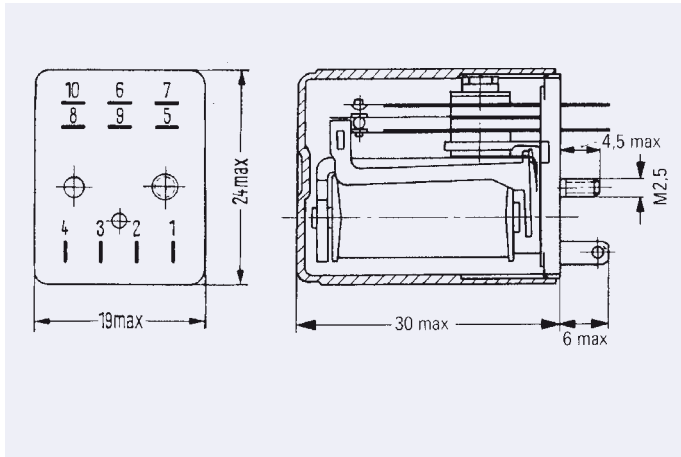
## Cradle Relay S V23054/V23062

### Dimensions

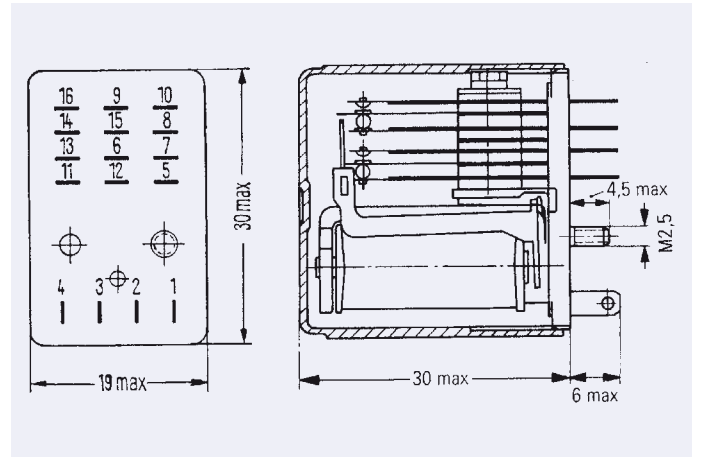
Dimensions in mm

#### Type V23054-Cxxx Size I

Hand solder terminals, silver-plated  
Also for plug-in connection and screw fixing  
With earth terminal  
Dust-protected

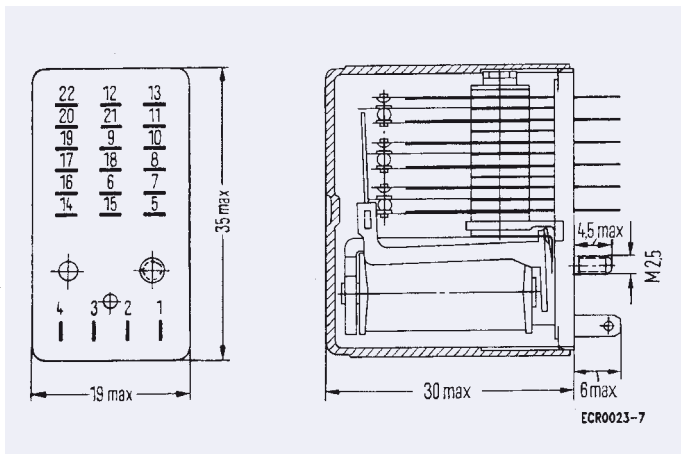


#### Type V23054-Dxxx Size II



#### Type V23054-Exxx Size III

Hand solder terminals, silver-plated  
Also for plug-in connection and screw fixing  
With earth terminal  
Dust-protected



For sockets and hold-down springs see data sheet Accessories

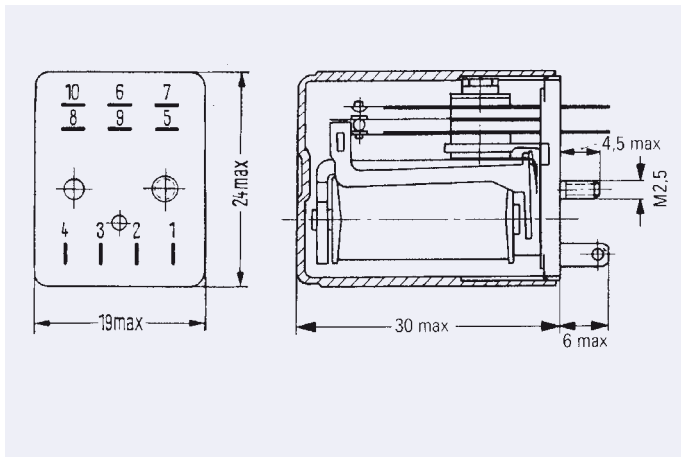
## Cradle Relay S V23054/V23062

### Dimensions

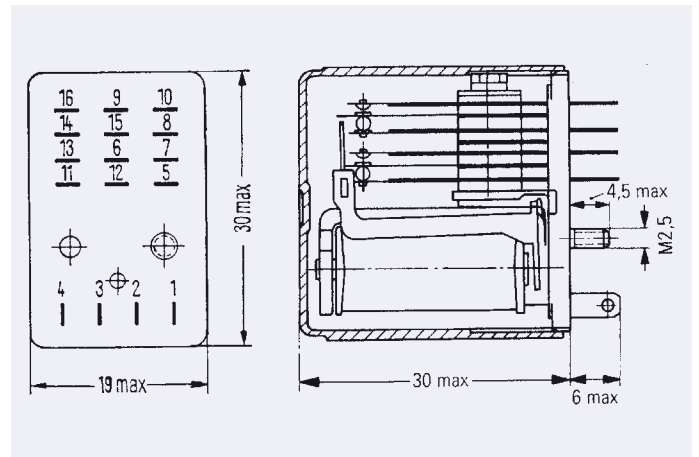
Dimensions in mm

#### Type V23062-Axxx Size I

Hand solder terminals, silver-plated  
Also for plug-in connection and screw fixing  
With earth terminal  
hermetically sealed with metal enclosure



#### Type V23062-Bxxx Size II



For sockets and hold-down springs see data sheet Accessories

## Cradle Relay S V23054/V23062

### Coil Data and operating range

Nominal voltage	from 6 Vdc to 220 Vdc
Typical nominal power consumption, at 20 °C	1 W
Class of the operative range acc to EN 61810-1 / IEC 61810-1 and VDE 0435 Part 201	2
Operating voltage (according to the coil type)	max. 92% of the nominal voltage

Terminals:

Coil with 1 winding

Start 4 End 1

Coil with 2 windings (upon request)

Start 3 End 2 for winding I

Start 4 End 1 for winding II

The minimum voltage  $U_I$  depends on the contact set and the ambient temperature, the maximum voltage  $U_{II}$  only depends on the ambient temperature.

Between minimum voltage  $U_{I \text{ t amb}}$  and operating voltage  $U$  a safety margin of approx. 20% is recommended.

$$U_{I \text{ t amb}} (1.2) < U \leq U_{II \text{ t amb}}$$

$$U_{I \text{ t amb}} = U_{I 20^\circ\text{C}} \cdot k_{I \text{ t amb}}$$

$$U_{II \text{ t amb}} = U_{II 20^\circ\text{C}} \cdot k_{II \text{ t amb}}$$

$t_{\text{amb}}$  = Ambient temperature

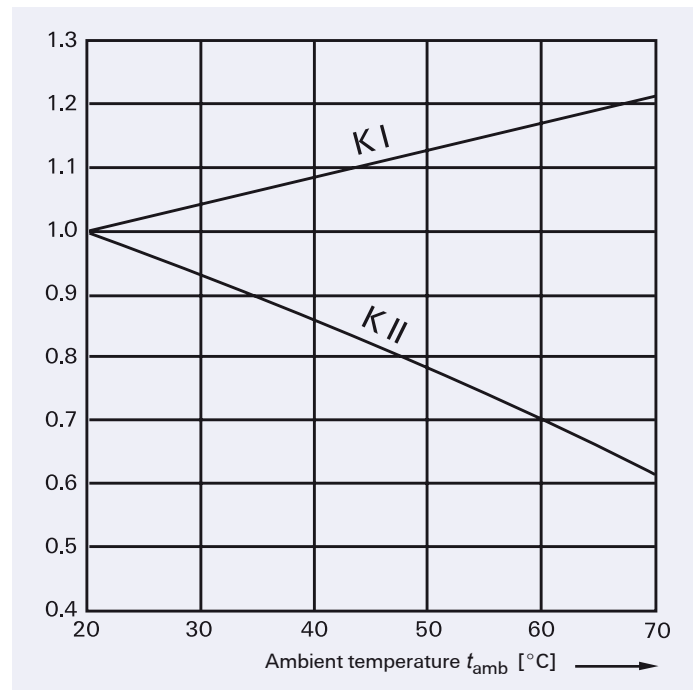
$U$  = Operating voltage

$U_{I \text{ t amb}}$  = Minimum voltage at ambient temperature,  $t_{\text{amb}}$

$U_{II \text{ t amb}}$  = Maximum voltage at ambient temperature,  $t_{\text{amb}}$

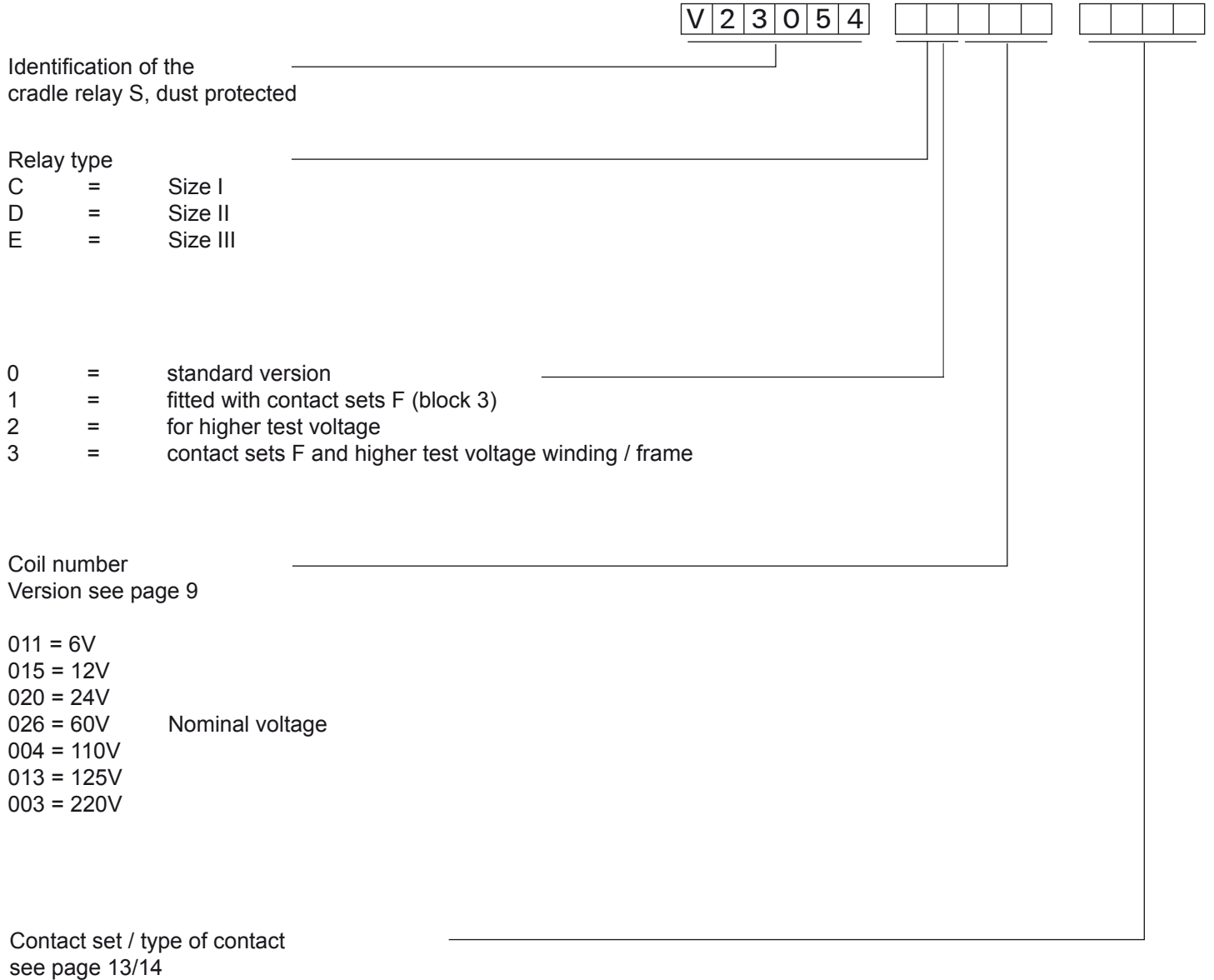
$k_I$  and  $k_{II}$  = Factors

Note: Instructions for impulse operation  
see data sheet cradle relay N



## Cradle Relay S V23054/V23062

### Relay Code



**Ordering example:**

V23054-D0020-B110

Cradle relay S, size II, standard version, coil 24 Vdc, 4 changeover contact set, single contacts, contact material silver, gold-flashed

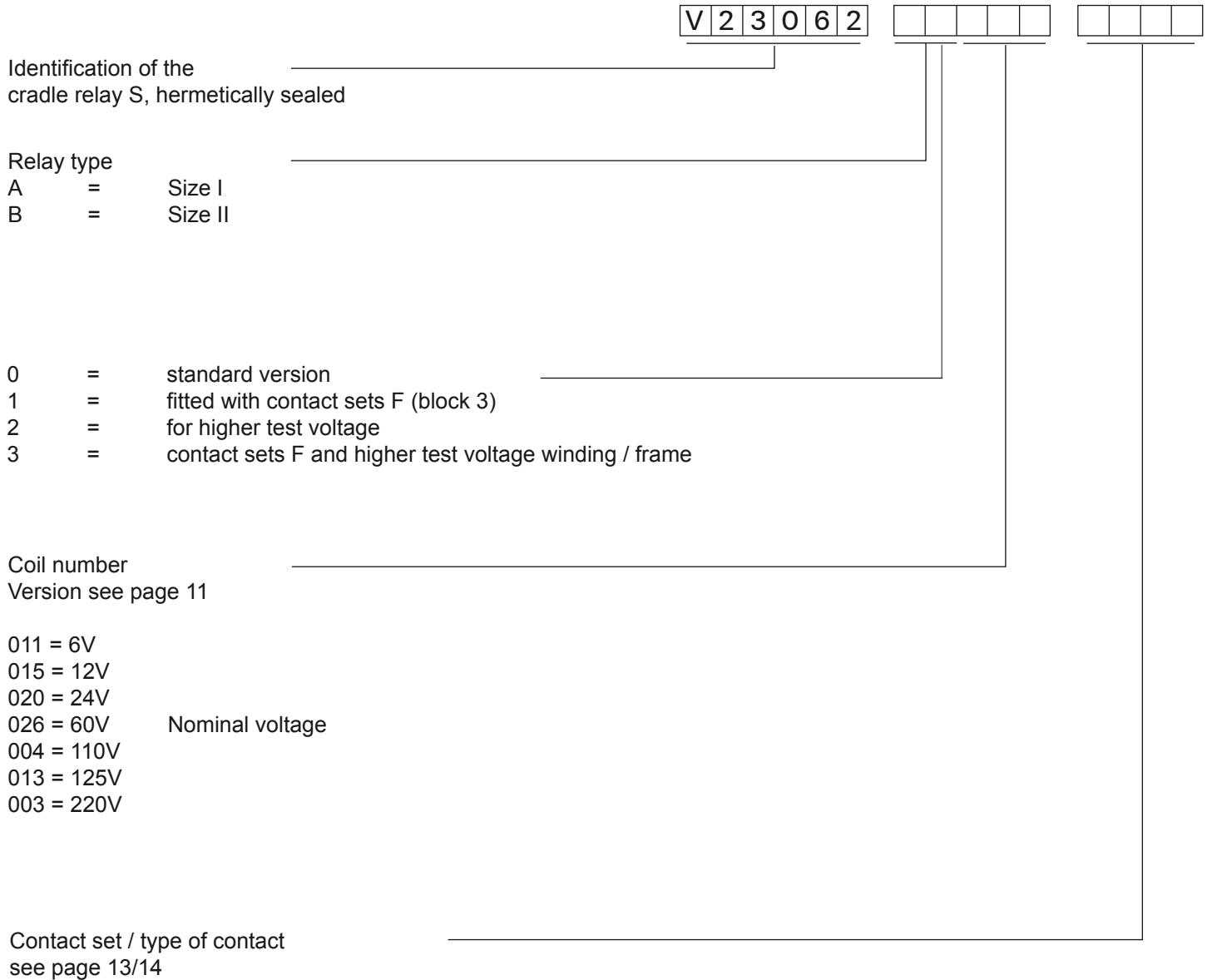
**Note:**

The ordering scheme enables a multitude of variations. However, not all variations are defined as construction specifications (ordering code) and thus in the current delivery program.

Special design can be carried out to customer specifications. Please contact your local representative.

## Cradle Relay S V23054/V23062

### Relay Code



Ordering example:  
V23062-B0020-C110  
Cradle relay S, size II, standard version, coil 24 Vdc, 4 changeover contact set, bifurcated contacts, contact material silver, gold-flashed

Note:  
The ordering scheme enables a multitude of variations. However, not all variations are defined as construction specifications (ordering code) and thus in the current delivery program.

Special design can be carried out to customer specifications. Please contact your local representative.



## Cradle Relay S V23054/V23062

### Coil Data (values at 23 °C)

### Ordering Information

Nominal voltage Unom	Operate/set voltage range		Coil power	Coil Resistance	Relay code	Tyco part number
	Minimum voltage Umin	Maximum voltage Umax				
Vdc	Vdc	Vdc	mW	$\Omega / \pm 15 \%$		

#### V23054-CXXXX standard, size I

125	59	190	1'008	15500	V23054C13B104	2-1419172-8
12	4.7	18	1'108	130	V23054C15B104	1393812-6
12.5	5.4	21.5	845	185	V23054C16B104	1393812-7
20	10.5	31	1'026	390	V23054C19C104	1422019-3
220	98	240	1'936	25000	V23054C2003C404	3-1393812-2
110	44	145	1'315	9200	V23054C2004B104	3-1393812-3
125	59	190	1'008	15500	V23054C2013B104	3-1393812-4
24	10.5	39	914	630	V23054C2020B104	3-1393812-5
60	36	94	947	3800	V23054C2026C104	3-1393812-6
24	10.5	39	914	630	V23054C20B104	1-1393812-0
24	13	39	914	630	V23054C20C104	1-1393812-1
32	14.5	50	975	1050	V23054C21B104	1-1393812-2
32	17.5	50	975	1050	V23054C21C104	1-1393812-3
32	17.5	50	975	1050	V23054C21C404	1-1393812-4
45	19	66	1'066	1900	V23054C22B104	1-1393812-5
45	24	66	1'066	1900	V23054C22C104	1-1393812-6
60	29	94	947	3800	V23054C26B104	2-1393812-0
60	36	94	947	3800	V23054C26C104	2-1393812-3
60	36	94	947	3800	V23054C26C404	2-1393812-4
220	79	240	1'936	25000	V23054C3B104	1393812-2
220	98	240	1'936	25000	V23054C3C104	1393812-3
110	44	145	1'315	9200	V23054C4B104	1393812-4
110	53.5	145	1'315	9200	V23054C4C104	1393812-5

#### V23054-CXXXX 5A, size I

32	14.5	50	975	1050	V23054C1021F106	3-1393812-0
45	19	66	1'066	1900	V23054C1022F105	3-1393812-1
12	4.7	18	1'108	130	V23054C3015F105	1422019-5
32	14.5	50	975	1050	V23054C3021F106	3-1393812-7

Further coil versions are available on request.

## Cradle Relay S V23054/V23062

### Coil Data (values at 23 °C)

### Ordering Information

Nominal voltage U <sub>nom</sub>	Operate/set voltage range		Coil power	Coil Resistance	Relay code	Tyco part number
	Minimum voltage U <sub>min</sub>	Maximum voltage U <sub>max</sub>				
Vdc	Vdc	Vdc	mW	Ω / ± 15 %		

#### V23054-DXXXX standard, size II

125	59	190	1'008	15500	V23054D13B110	4-1419172-5
12	4.7	18	1'108	130	V23054D15B112	6-1422019-5
12.5	5.4	21.5	845	185	V23054D16C110	4-1393812-2
16	7	25.5	948	270	V23054D17B110	4-1393812-3
16	7	25.5	948	270	V23054D17B110	4-1393812-4
20	10.5	31	1'026	390	V23054D19B110	4-1393812-6
20	10.5	31	1'026	390	V23054D19C110	4-1393812-7
20	10.5	31	1'026	390	V23054D19C410	5-1393812-0
220	79	240	1'936	25000	V23054D2003B110	1393813-1
125	59	190	1'008	15500	V23054D2013B110	1393813-2
24	10.5	39	914	630	V23054D2020B110	1393813-3
32	14.5	50	975	1050	V23054D2021B110	1393813-4
32	14.5	50	975	1050	V23054D2021B112	1393813-5
60	29	94	947	3800	V23054D2026B110	1393813-6
60	29	94	947	3800	V23054D2026B112	1393813-7
24	10.5	39	914	630	V23054D20B110	5-1393812-1
24	10.5	39	914	630	V23054D20B112	5-1393812-2
24	13	39	914	630	V23054D20C110	5-1393812-3
24	13	39	914	630	V23054D20C410	3-1419137-7
32	14.5	50	975	1050	V23054D21B110	5-1393812-4
32	17.5	50	975	1050	V23054D21C112	5-1393812-5
45	19	66	1'066	1900	V23054D22B110	5-1393812-8
45	24	66	1'066	1900	V23054D22C110	5-1393812-9
60	29	94	947	3800	V23054D26B110	6-1393812-2
60	29	94	947	3800	V23054D26B112	6-1393812-3
60	43	94	947	3800	V23054D26C110	6-1393812-4
60	36	94	947	3800	V23054D26C112	6-1393812-5
60	29	94	947	3800	V23054D26C114	6-1393812-6
220	79	240	1'936	25000	V23054D3B110	3-1393812-8
110	44	145	1'315	9200	V23054D4C110	3-1393812-9

#### V23054-DXXXX 5A, size II

220	98	240	1'936	25000	V23054D1003F104	8-1393812-6
110	53.5	145	1'315	9200	V23054D1004F104	8-1393812-7
6	2.9	9	1'091	33	V23054D1011F104	8-1393812-8
8.4	4.4	13	1'008	70	V23054D1012F104	8-1393812-9
12	5.8	18	1'108	130	V23054D1015F104	9-1393812-0
16	8.7	25.5	948	270	V23054D1017F104	9-1393812-1
20	10.5	31	1'026	390	V23054D1019F104	9-1393812-2
24	13	39	914	630	V23054D1020F104	9-1393812-3
32	17.5	50	975	1050	V23054D1021F104	9-1393812-4
45	24	66	1'066	1900	V23054D1022F104	9-1393812-5
60	36	94	947	3800	V23054D1026F104	9-1393812-8
220	98	240	1'936	25000	V23054D3003F104	1393813-9
110	53.5	145	1'315	9200	V23054D3004F104	1-1393813-1
24	13	39	914	630	V23054D3020F104	1-1393813-4
60	36	94	947	3800	V23054D3026F104	1-1393813-6

Further coil versions are available on request.

## Cradle Relay S V23054/V23062

### Coil Data (values at 23 °C)

### Ordering Information

Nominal voltage U <sub>nom</sub>	Operate/set voltage range		Coil power	Coil Resistance	Relay code	Tyco part number
	Minimum voltage U <sub>min</sub>	Maximum voltage U <sub>max</sub>				
V <sub>dc</sub>	V <sub>dc</sub>	V <sub>dc</sub>	mW	Ω / ± 15 %		

#### V23054-EXXXX standard, size III

8.4	4.4	13	1'008	70	V23054E12B133	2-1393813-5
12	5.8	18	1'108	130	V23054E15B133	2-1393813-6
12	8.8	18	1'108	130	V23054E15C133	2-1393813-7
12.5	6.9	21.5	845	185	V23054E16B133	2-1393813-8
12.5	10	21.5	845	185	V23054E16C133	3-1393813-0
16	8.7	25.5	948	270	V23054E17B133	3-1393813-1
16	13	25.5	948	270	V23054E17C133	3-1393813-2
20	10.5	31	1'026	390	V23054E19B133	3-1393813-3
20	15.5	31	1'026	390	V23054E19C133	3-1393813-4
20	15.5	31	1'026	390	V23054E19C433	3-1393813-5
110	53.5	145	1'315	9200	V23054E2004B133	9-1393813-0
125	73	190	1'008	15500	V23054E2013B133	1422019-2
60	36	94	947	3800	V23054E2026B133	9-1393813-4
24	13	39	914	630	V23054E20B133	3-1393813-6
24	13	39	914	630	V23054E20B533	3-1393813-9
24	13	39	914	630	V23054E20B633	4-1393813-0
24	20	39	914	630	V23054E20C133	4-1393813-1
24	20	39	914	630	V23054E20C433	4-1393813-2
32	17.5	50	975	1050	V23054E21B133	4-1393813-3
45	24	66	1'066	1900	V23054E22B133	4-1393813-4
45	24	66	1'066	1900	V23054E22B633	4-1393813-5
45	35	66	1'066	1900	V23054E22C133	4-1393813-6
60	36	94	947	3800	V23054E26B133	4-1393813-8
60	55	94	947	3800	V23054E26C133	4-1393813-9
60	43	94	947	3800	V23054E26C148	5-1393813-2

#### V23054-EXXXX 5A, size III

220	118	240	1'936	25000	V23054E1003F110	5-1393813-9
110	66	145	1'315	9200	V23054E1004F110	6-1393813-0
6	3.5	9	1'091	33	V23054E1011F110	6-1393813-1
8.4	5.3	13	1'008	70	V23054E1012F110	6-1393813-2
12	7	18	1'108	130	V23054E1015F110	6-1393813-3
12.5	8.1	21.5	845	185	V23054E1016F110	6-1393813-6
16	10.5	25.5	948	270	V23054E1017F110	6-1393813-8
20	13	31	1'026	390	V23054E1019F110	7-1393813-2
24	15.5	39	914	630	V23054E1020F110	7-1393813-6
32	21	50	975	1050	V23054E1021F110	8-1393813-1
45	29	66	1'066	1900	V23054E1022F110	8-1393813-2
60	43	94	947	3800	V23054E1026F110	8-1393813-5
24	15.5	39	914	630	V23054E3020F110	1-1393814-0

#### V23062-AXXXX standard, size I

76	32	110	996	5800	V23062A14C404	1393815-1
28	15	40	980	800	V23062A25C104	1393815-2
29	13	43	945	890	V23062A46C104	1393815-3

#### V23062-BXXXX standard, size II

20	13	31	1'026	390	V23062B19C410	1393815-4
24	15.5	39	914	630	V23062B20C110	1393815-5
45	29	66	1'066	1900	V23062B22C110	1393815-7
60	29	94	947	3800	V23062B26B610	1393815-8

#### V23062-BXXXX 5A, size II

110	53.5	145	1'315	9200	V23062B1004F104	1-1393815-1
60	36	94	947	3800	V23062B1026F104	1-1393815-7

Further coil versions are available on request.

## Cradle Relay S V23054/V23062

### Instructions for Impulse Operation

The maximum voltage stated in the table (page 6) can be increased for impulse operation as follows:

$$\begin{aligned}
 U_{II \text{ Impuls}} &= U_{II \text{ tamb}} \cdot q \\
 U_{II \text{ tamb}} &= \text{Maximum continuous voltage at ambient temperature } t_{\text{amb}} \\
 q &= \text{Factor}
 \end{aligned}$$

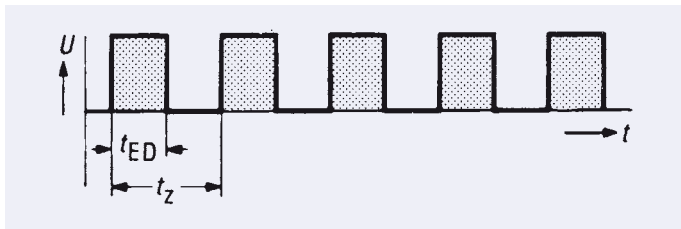
The impulse voltage must not exceed 80% of the test voltage (winding/frame or winding/winding) or not to exceed the max. voltage as listed in the table (page 6) by no more than 2.3 fold.

$$\text{If } t_{ED} \leq 3 \text{ s then } q = \sqrt{\frac{t_z}{t_{ED}}}$$

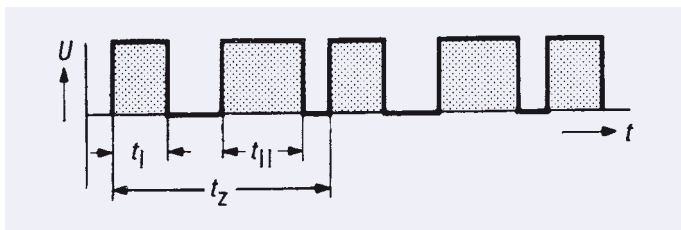
$$\begin{aligned}
 t_{ED} &= \text{Pulse width} \\
 t_z &= \text{Cycle time} \\
 \text{If } t_{ED} > 3 \text{ s the value of } q &\text{ must be obtained from the nomograph (next page).}
 \end{aligned}$$

Examples of various periodic pulse trains (energizing side)

1. Periodic recurrence of one energizing pulse



2. Periodic recurrence of two unequal energizing pulses



$$\begin{aligned}
 t_{ED} &= t_I + t_{II} \\
 t_I + t_{II} &= \text{Pulse widths within one cycle}
 \end{aligned}$$

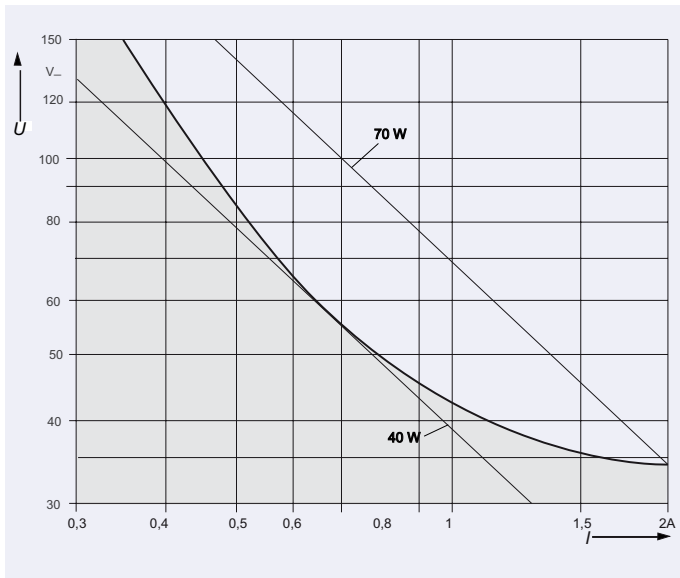
## Cradle Relay S V23054/V23062

### Contact Data

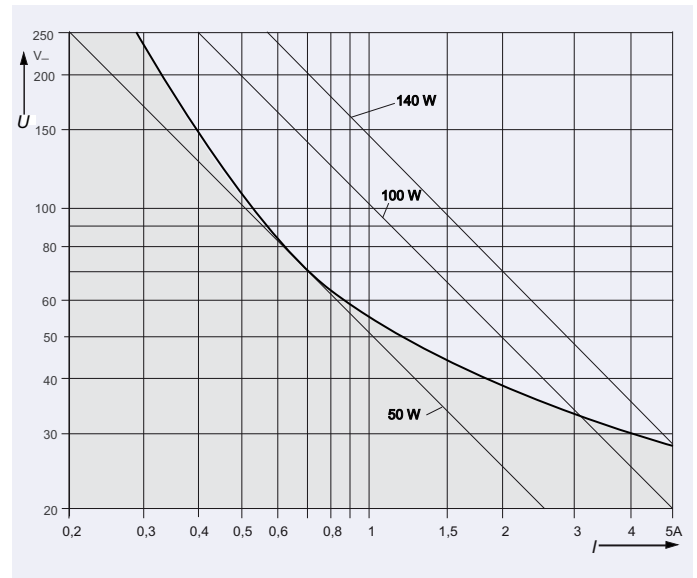
Ordering code block 3	B104/B110/ B112/B133	B604/B610/ B612/B633	C104/C110/ C112/C133	C404/C410 C412/C433	F104/F105 F110
Number of contacts and Type	max. 6 changeover contacts or 6 make contacts				
Contact assembly	single contacts		bifurcated contacts		single contacts
Contact material	silver, gold-flashed	gold F	silver, gold-flashed	gold F	silver, gold-flashed
Max. switching voltage	150 Vdc	36 Vdc	150 Vdc	36 Vdc	260 Vdc
	125 Vac	30 Vac	125 Vac	30 Vac	250 Vac
Max. switching current	2 A	0.2 A	2 A	0.2 A	5 A
Max. switching capacity	35 to 70 W see load limit curve below 50 VA	5 W 5 VA	35 to 70 W see load limit curve below 50 VA	5 W 5 VA	50 to 140 W see load limit curve below 500 VA
Max. continuous current at max. ambient temperature	2 A				5 A

### Max. DC Load Breaking Capacity

for contact sets B1xx and C1 xx



for contact sets F1xx



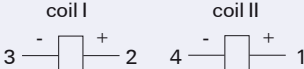
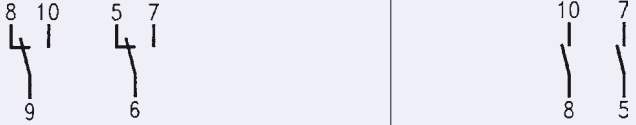
Safe breaking, no stationary arc  
Contact material silver, gold-flashed

$I$  = switching current  
 $U$  = switching voltage


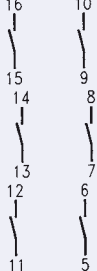
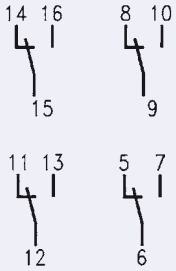
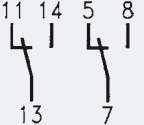
## Cradle Relay S V23054/V23062

### Contact sets

#### Size I

Number of contacts and type	2 changeover contacts		2 make contacts
Symbols with base connections  Contacts in release condition, coil polarity to set the relay			
Contact assembly	single contacts	bifurcated contacts	single contacts
Contact material silver, gold-flashed Ordering code block 3	B104	C104	F105
Contact material gold F Ordering code block 3	B604	C404	

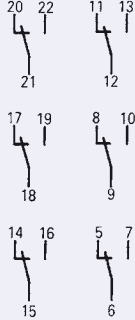
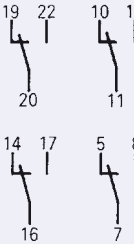
#### Size II

Number of contacts and type	6 make contacts		4 changeover contacts		2 changeover contacts
Symbols with base connections  Contacts in release condition, coil polarity to set the relay					
Contact assembly	single contacts	bifurcated contacts	single contacts	bifurcated contacts	single contacts
Contact material silver, gold-flashed Ordering code block 3	B112	C112	B110	C110	F104
Contact material gold F Ordering code block 3	B612	C412	B610	C410	

## Cradle Relay S V23054/V23062

### Contact sets

#### Size III

Number of contacts and type	6 changeover contacts		4 changeover contacts
<p>Symbols with base connections</p> <p>coil I                  coil II</p> <p>3 - [ ] + 2      4 - [ ] + 1</p> <p>Contacts in release condition, coil polarity to set the relay</p>			
Contact assembly	single contacts	bifurcated contacts	single contacts
Contact material silver, gold-flashed Ordering code block 3	B133	C133	F110
Contact material gold F Ordering code block 3	B633	C433	

## Cradle Relay S V23054/V23062

### Insulation

Ordering code block 3	B1xx	B6xx	C1xx	C4xx	F1xx
Test voltage (1 min) winding / frame contact / contact contact / frame		500 Vac <sub>rms</sub> 500 Vac <sub>rms</sub> 500 Vac <sub>rms</sub>			500 Vac <sub>rms</sub> 1000 Vac <sub>rms</sub> 1000 Vac <sub>rms</sub>

### General Data

Ordering code block 3	B1xx	B6xx	C1xx	C4xx	F1xx
Operate time at $U_{nom}$ and 20 °C, typical	16 ms				
Reset time typical	2 ms				
Maximum switching rate without load	50 operations/s				10 operations/s
Ambient temperature range acc. to EN 61810-1 / IEC 61810-1 and VDE 0435 part 201	-40 °C ... +70 °C				
Thermal resistance	40 K/W				
Maximum temperature	100 °C				
Continuous thermal load	2.1 W				
Degree of protection acc. to EN 60529 / IEC 60529 / VDE 0470 part 1	dust-protected IP 30 or hermetically sealed IP 67				
Mechanical endurance	approx. 10 <sup>8</sup> operations				approx. 10 <sup>7</sup> operations
Mounting position	any				
Weight					
V23054					
Size I	approx. 20 g				
Size II	approx. 25 g				
Size III	approx. 27 g				
V23062					
Size I	approx. 30 g				
Size II	approx. 35 g				



## Cradle Relay S V23054/V23062

### IM Relays

4th generation slim line – low profile polarized 2 c/o telecom signal relay with bifurcated contacts, available as non latching or latching relay with 1 coil. Nominal voltage range from 1.5 ... 24 V, coil power consumption of 50 ... 200 mW, latching relays with 1 coil 100 mW. The IM relay is available as through hole and surface mount type (J-Legs and Gull Wings) and capable to switch loads up to 60 W/62,5 VA. It is currently the only 2 A rated 4G relay on the market. Dielectric strength fulfills the Telcordia requirements according GR 1089 (2,5 kV – 2 / 10  $\mu$ s) and FCC part 68 (1,5 kV – 10 / 160  $\mu$ s). The IM relay is tested according CECC/IECQ and certified in accordance with IEC/EN 60950 and UL 60950.

Dimensions approx. 10 x 6 mm board space and 5.65 mm height.

### P2 Relays

3rd generation polarized 2 c/o telecom relay with bifurcated contacts, available as non latching or latching relay with 1 or 2 coils. Nominal voltage range from 3 ... 24 V, coil power consumption 140 mW, latching relays with 1 coil 70 mW. The P2 Relay is available as through hole or surface mount type and capable to switch currents up to 5 A. Dielectric strength fulfills the Telcordia requirements according GR 1089 (2,5 kV – 2 / 10  $\mu$ s) and FCC part 68 (1,5 kV – 10 / 160  $\mu$ s). The P2 relay is tested according CECC/IECQ and certified in accordance with IEC/EN 60950 and UL 60950. Dimensions approx. 15 x 7,5 mm board space and 10 mm height.

### FX2 Relays

3rd generation polarized 2 c/o telecom relay with bifurcated contacts, available as non latching or latching relay with 1 coil. Nominal voltage range from 3 ... 48 V, coil power consumption of 80 ... 260 mW for the high sensitive version, 140... 300 mW for the standard version, latching relays with 1 coil 100 mW. The FX2 relay is available as through hole type and capable to switch loads up to 60 W/62,5 VA. Dielectric strength fulfills the Telcordia requirements according GR 1089 (2,5 kV – 2 / 10  $\mu$ s) and FCC part 68 (1,5 kV – 10 / 160  $\mu$ s). The FX2 relay is tested according CECC/IECQ and certified in accordance with IEC/EN 60950 and UL 60950. Dimensions approx. 15 x 7,5 mm board space and 10,7 mm height.

### FT2 / FU2 Relays

3rd generation non polarized, non latching 2 c/o telecom relay with bifurcated contacts. Nominal voltage range from 3 ... 48 V, coil power consumption 200 ... 300 mW. Most sensitive 48 V relay. Available as through hole and surface mount type. Dielectric strength fulfills the Telcordia requirements according GR 1089 (2,5 kV – 2 / 10  $\mu$ s) and FCC part 68 (1,5 kV – 10 / 160  $\mu$ s). The FT2/FU2 relay is tested according CECC/IECQ and certified in accordance with IEC/EN 60950 and UL 60950. Dimensions approx. 15 x 7,5 mm board space and 10 mm height.

### FP2 Relays

3rd generation polarized 2 c/o telecom relay with bifurcated contacts, available as non latching or latching relay with 1 or 2 coils. Nominal voltage range from 3 ... 48 V, coil power consumption of 80 ... 260 mW for the high sensitive version, 140... 300 mW for the standard version, latching relays with 1 coil 100 mW. The FP2 Relay is available as through hole type and capable to switch loads up to 60 W/62,5 VA. Dielectric strength fulfills FCC part 68 (1,5 kV – 10 / 160  $\mu$ s). The FP2 is tested according CECC/IECQ approved.

Dimensions approx. 14 x 9 mm board space and 5 mm height.

### MT2

2nd generation non polarized, non latching 2 c/o telecom and signal relay with bifurcated contacts. Nominal voltage range from 3 ... 48 V, coil power consumption 150/200/300/400 and 550 mW. Dielectric strength fulfills the requirements according FCC part 68 (1,5 kV – 10 / 160  $\mu$ s).

Dimensions approx. 20 x 10 mm board space and 11 mm height.

### D2n Relays

2nd generation non polarized 2 c/o relay for telecom and various other applications. Nominal voltage range from 3 ... 48 V, coil power consumption from 150 ... 500 mW. The D2n relay is capable to switch currents up to 3 A. Dielectric strength fulfills the requirements according FCC part 68 (1,5 kV – 10 / 160  $\mu$ s). Dimensions approx. 20 x10 mm board space and 11 mm height.

### P1 Relays

Extremely sensitive, polarized 1 c/o relay with bifurcated contacts for a wide range of applications, available as non latching or latching relay with 1 or 2 coils. Nominal voltage range from 3 ... 24 V, coil power consumption 65 mW, latching relays with 1 coil 30 mW. The P1 relay is available as through hole or surface mount type and capable to switch currents up to 1 A. Dielectric strength fulfills the requirements according FCC part 68 (1,5 kV – 10 / 160  $\mu$ s). Dimensions approx. 13 x 7,6 mm board space and 7 mm height for THT or 8 mm height for SMT version.

### W11 Relays

Low cost, non polarized 1 c/o relay for various applications. Nominal voltage range from 3 ... 24 V, coil power consumption 450 mW, sensitive versions 200 mW. The W11 relay is capable to switch currents up to 3 A. Dielectric strength 1000 Vrms. Dimensions approx. 15,6 x 10,6 mm board space and 11,5 mm height.

### Reed Relays

High sensitive, non polarized relay for telecom and various other applications, available with 1 n/o, 2 n/o or 1c/o contacts. Nominal voltage range from 5 ... 24 V, coil power consumption 50...280 mW for 1 n/o and 125 ... 280 mW for 2 n/o or 1 c/o versions. Reedrelays are available in DIP or SIL housing and capable to switch currents up to 0,5 A. Integrated diode and/or electrostatic shield optional. Dielectric strength 1500 Vdc. Dimensions approx. 19,3 x 7 mm board space and 5 ... 7,5 mm height for DIP or 19,8 x 5 mm board space and 7,8 mm height for SIL version.

### Cradle Relays

Extremely reliable and mature relay family of 1st generation for various signal switching applications. Available as non polarized, polarized / latching and relay with AC coil. The benefit is the possibility of combining various contact sets from 1 up to 6 poles, single and bifurcated contacts, different contact materials with a coil voltage range from 1,5 Vdc to 220 Vac. Cradle relays are available as dust protected and hermetically sealed versions, with plug in or solder terminals and are capable to switch currents up to 5 A. Forcibly guided (linked) contact sets optional. Dielectric strength 500 Vrms. Dimensions from approx. 19 x 24 to 19x35 mm board space and 30 mm height.

### Other Relays

We offer a variety of different relay families for maintenance and replacement purposes. These relays are up to 60 years old now, such as Card Relay SN (V23030 series), Small General Purpose Relay (V23006 series), Small Polarized Relay (V23063 ... V23067 and V23163 ... V23167 series). Accessories like sockets, hold down springs, etc. optional.

### High Frequency Relays

HF3 / HF3S / HF6 series RF relays offering excellent RF characteristics in a small package. All HF series relays are suitable for SMD soldering processes. Available as non latching or latching versions with 1 or 2 coils and a nominal coil voltage range from 3 ... 24 V, a coil power consumption of 140 mW or 70 mW (single coil latching types).

**HF3:** Low cost RF relay suitable up to 3 GHz. Impedance 50 and 75 Ohm. 50 W hot switching and 50 W RF power carry capability. Dimensions 14.6 x 7.3 x 10.3 mm.

**HF3S:** High performance, high power RF relay suitable up to 3 GHz, 50 W hot switching and 150 W RF power carry capability. Dimensions 15 x 7.6 x 10.6 mm.

**HF6:** High performance, high power RF relay suitable up to 6 GHz, 50 W hot switching and 50 W RF power carry capability. Dimensions 15 x 7.6 x 10.6 mm.



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