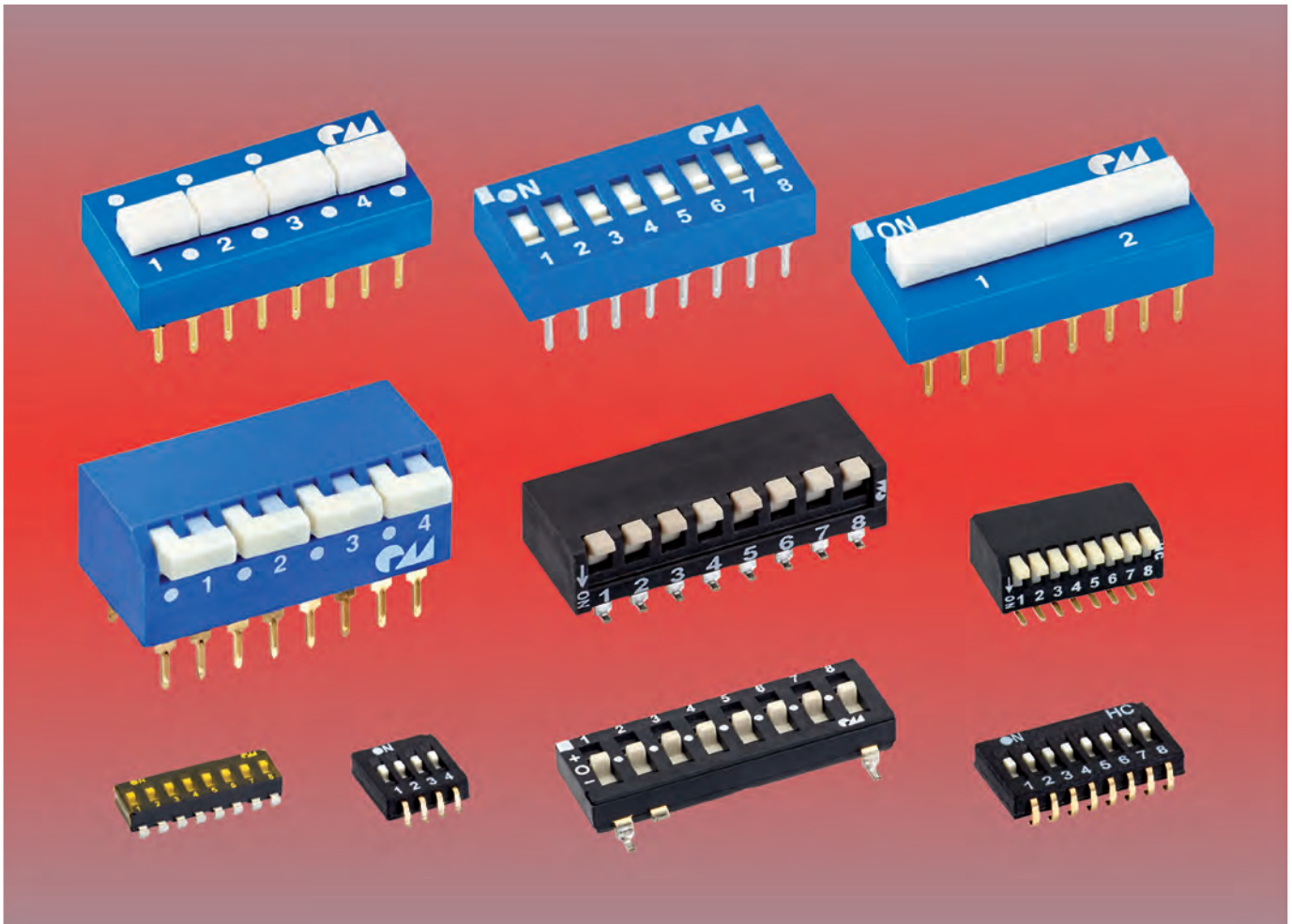


DIP-Schalter

DIP-Switches



DIP-Schalter sind in verschiedenen Baugrößen, Rastermaßen und Polzahlen mit THT-, SMJ- oder SMT-Pins lieferbar.

Unser Lieferprogramm enthält auch Schaltervarianten, die mehrere Pole gleichzeitig schalten oder Öffner-Schließer-Varianten bieten, z.B. DPST, TPST, SPDT usw.

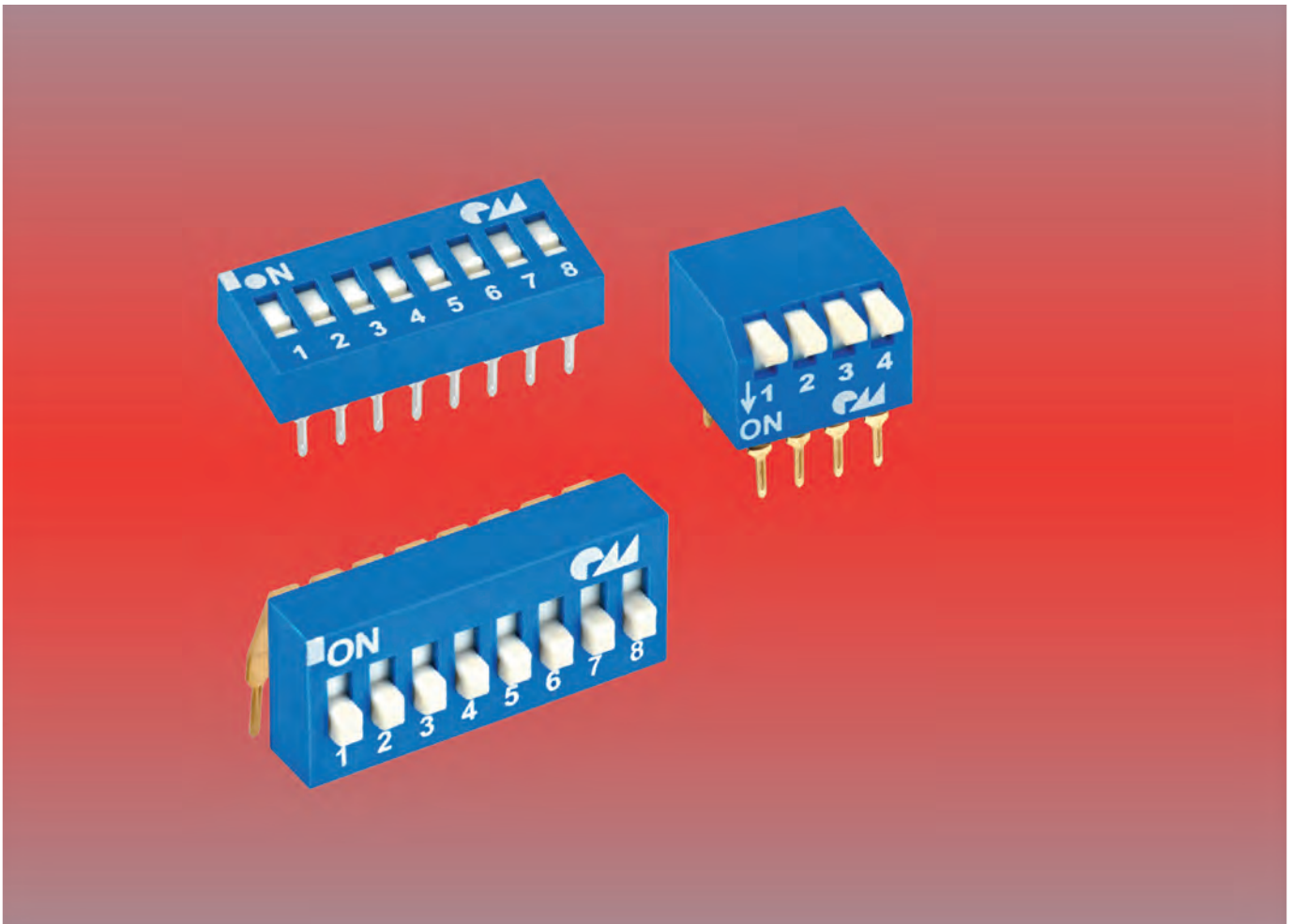
Tri-State-Schalter sind Dipschalter mit einer besonderen Funktionsweise. Bei diesen Schaltern werden die Pins der hinteren Reihe von der Ausgangsstellung (0) entweder auf den linken (+) oder rechten (-) Pin der vorderen Reihe geschaltet.

DIP-switches are available in different sizes, pitches and pole numbers with THT-, SMJ- or SMT-pins.

Our product range offers DPST, TPST, SPDT switches and many other variations that switch 2 to 4 pins with NC or NO.

Tri-state switches offer a special function: the pins of the back row can be switched from home position (0) to the left (+) or right (-) front row pin.

D11A...



MECHANISCHE KENNWERTE	MECHANICAL DATA	
Befestigungsart	Fixation mode	THT
Schaltstellungen	Switching positions	2
Rastermaß der Anschlüsse	Pitch of solderpins	2,54mm
Schaltart	Switching mode	Wischkontakt, öffnen und schließen / Contact wiping on make and break
Schaltung	Circuit	SPST
Schiebekraft	Operating force	8N
Betriebstemperatur	Operating temperature	-25... +70°C
Lagertemperatur	Storage temperature	-40... +85°C
Luftfeuchtigkeit	Humidity	95% RH, 40°C, 96h
Lötwärmebeständigkeit	Resistance to soldering heat	260±5°C, 5±1s
Löten	Solderability	Nach Flussmittel 230±5°C, für 5±0,5s, 95% deckend / After flux 230±5°C, für 5±0,5s, 95% coverage
Temperatur für bleifreies Löten	Solder bath temp. for lead-free soldering	245±5°C für 5±0,5s / 245±5°C for 5±0.5s
Achtung	Warning	Während des Lötens Schalter auf OFF-Position stellen / Keep contacts in OFF-position during wave soldering
ELEKTRISCHE KENNWERTE	ELECTRICAL DATA	
Schaltspannung max.	Operating voltage max.	24V
Schaltstrom max.	Operating current max.	25mA
Ruhestrom	Standby current	100mA
Prüfspannung	Test voltage	500VDC min., 60s
Durchgangswiderstand neu	Contact resistance initial	50mΩ
Durchgangswiderstand nach Lebensdauertest	Contact resistance after life test	100mΩ
Kapazität zwischen benachbarten Schaltern	Capacitance between adjacent switches	5pF max.
MATERIAL	MATERIAL	
Gehäuse	Housing	UL 94V-0
Kontaktoberfläche	Contact material	vergoldet / gold plated

DIP-Schalter DIP-Switches

D11 D11AT

Über Hartmann Codier
Inside Hartmann Codier

Drehradschalter
Thumb Wheel Switches

Drehcodierschalter
Rotary Code Switches

DIP-Schalter
DIP-Switches

Schiebeschalter
Slide Switches

Microschalter
Micro Switches

Tastenschalter
Tact Switches

Anschlussklemmen
PCB terminal blocks

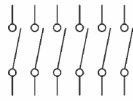
Buchsenleisten
PCB connectors

Stiftleisten
Pinheader

Schnittstellenblöcke
Interface Pin Blocks

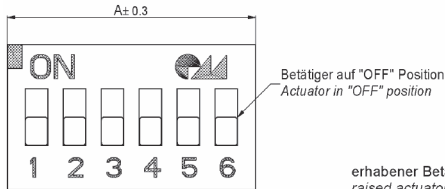
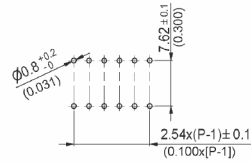
Anhang
Appendix

Schaltbild
Circuit diagram



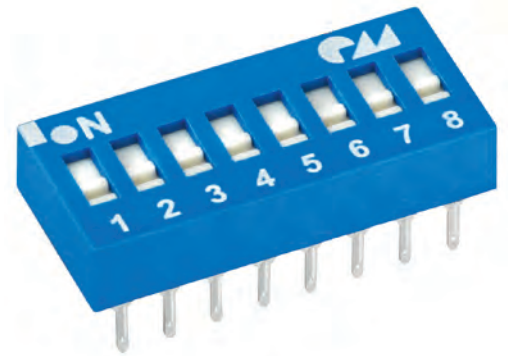
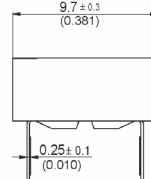
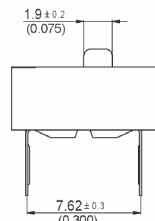
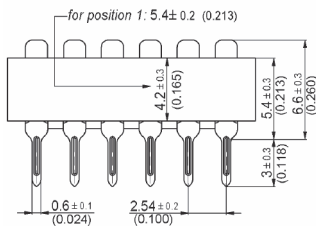
Einheit / Unit: mm (inch)

Leiterplatten - PCB - Layout
(Top view)



erhabener Betätiger
raised actuator

niedriger Betätiger
low actuator



en



512

de

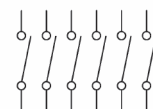


512

■ Single Pole Single Throw THT

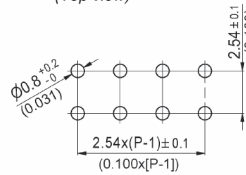
D11ATL

Schaltbild
Circuit diagram

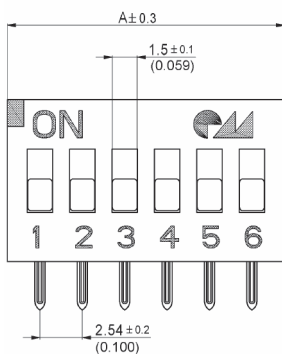


Einheit / Unit: mm (inch)

Leiterplatten - PCB - Layout
(Top view)

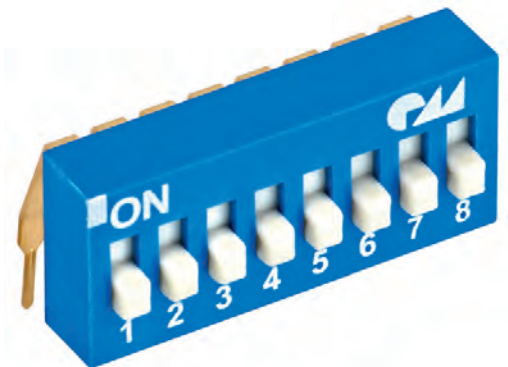
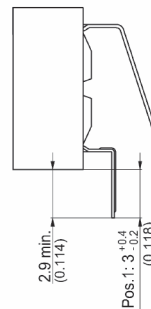
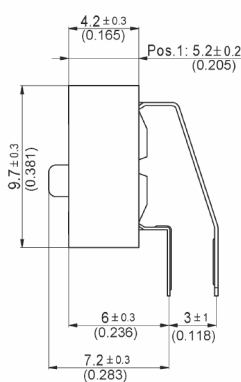


Betätiger auf "OFF" Position
Actuator in "OFF" position



erhabener Betätiger
raised actuator

niedriger Betätiger
low actuator



en



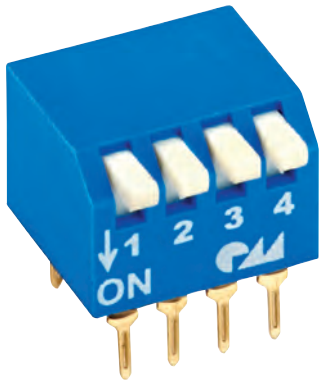
511

de

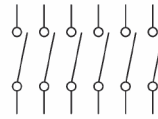


511

■ Single Pole Single Throw THT

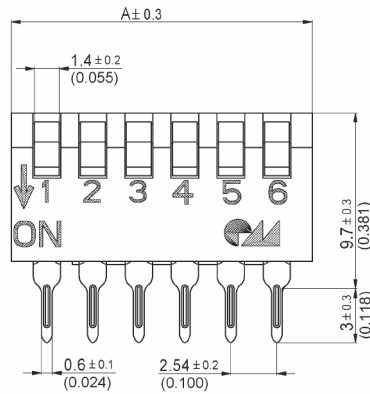


Schaltbild
Circuit diagram

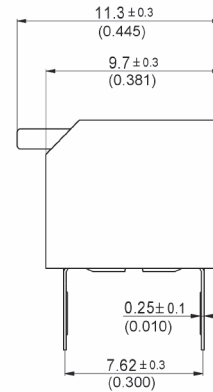
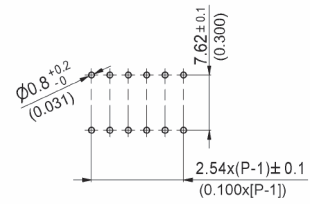


Hier dargestellt:
Oben - Betätiger in "OFF" Position
Shown here:
Top side - Actuator in "OFF" position

Einheit / Unit: mm (inch)



Leiterplatten - PCB - Layout
(Top view)



en



513

de

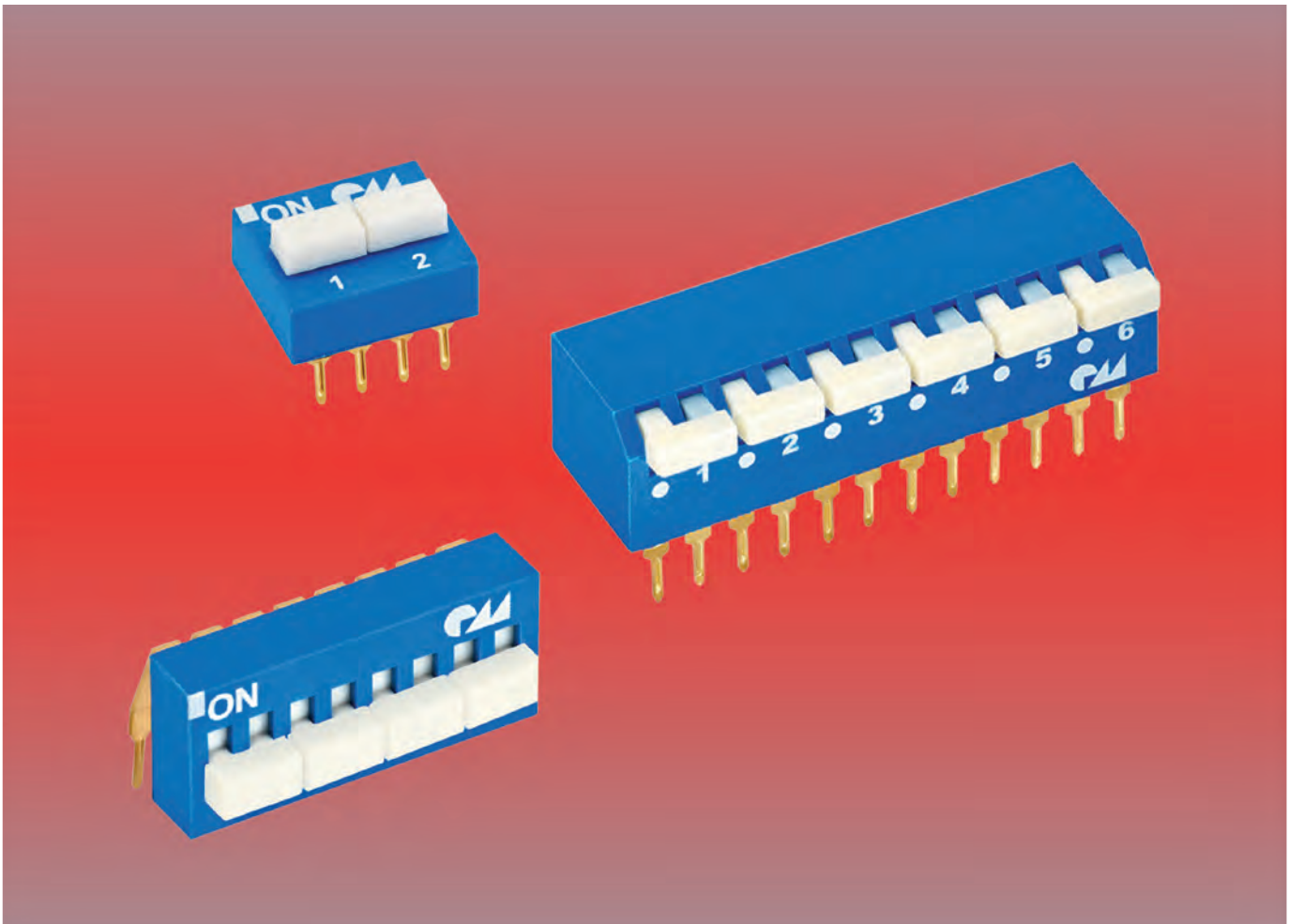


513

■ Single Pole Single Throw THT



D11B...



MECHANISCHE KENNWERTE	MECHANICAL DATA	
Befestigungsart	Fixation mode	THT
Schaltstellungen	Switching positions	2
Schaltart	Switching mode	Wischkontakt, öffnen & schließen / Contact wiping on make & break
Rastermaß der Anschlüsse	Pitch of solderpins	2,54mm
Schaltung	Contact form	DPST
Schiebekraft	Operating force	16N
Betriebstemperatur	Operating temperature	-25... +70°C
Lagertemperatur	Storage temperature	-40... +85°C
Luftfeuchtigkeit	Humidity	95% RH, 40°C, 96h
Lötwärmebeständigkeit	Resistance to soldering heat	260±5°C, 5±1s
Löten	Solderability	Nach Flussmittel 230±5°C, für 5±0,5s, 95% deckend / After flux 230±5°C, für 5±0,5s, 95% coverage
Temperatur für bleifreies Löten	Solder bath temp. for lead-free soldering	245±5°C für 5±0,5s / 245±5°C for 5±0,5s
Achtung	Warning	Während des Lötens Schalter auf OFF-Position stellen / Keep contacts in OFF-position during wave soldering

ELEKTRISCHE KENNWERTE	ELECTRICAL DATA	
Schaltspannung max.	Operating voltage max.	24V
Schaltstrom max.	Operating current max.	25mA
Ruhestrom	Standby current	100mA
Prüfspannung	Test voltage	500VDC min., 60s
Durchgangswiderstand neu	Contact resistance initial	50mΩ
Durchgangswiderstand nach Lebensdauertest	Contact resistance after life test	100mΩ
Kapazität zwischen benachbarten Schaltern	Capacitance between adjacent switches	5pF max.

MATERIAL	MATERIAL	
Gehäuse	Housing	UL 94V-0
Lötpinoberfläche	Solder pins	Flashgold / Au flash
Kontaktoberfläche	Contact material	vergoldet / gold plated

DIP-Schalter DIP-Switches

D11 D11BT

Über Hartmann Codier
Inside Hartmann Codier

Drehwheelschalter
Thumb Wheel Switches

Drehcodierschalter
Rotary Code Switches

DIP-Schalter
DIP-Switches

Schiebeschalter
Slide Switches

Microschalter
Micro Switches

Tastenschalter
Tact Switches

Anschlussklemmen
PCB terminal blocks

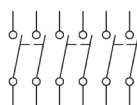
Buchsenleisten
PCB connectors

Stiftleisten
Pinheader

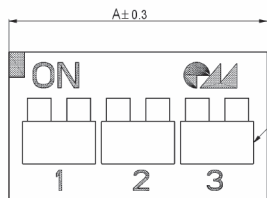
Schnittstellenblöcke
Interface Pin Blocks

Anhang
Appendix

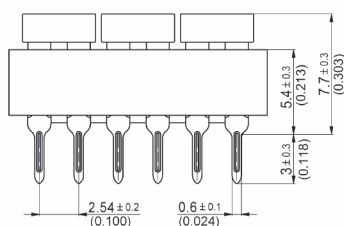
Schaltbild
Circuit diagram



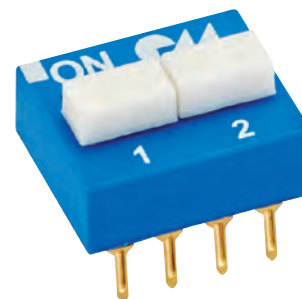
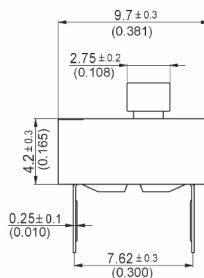
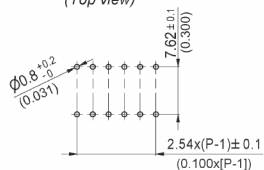
Einheit / Unit: mm (inch)



Betätiger auf "OFF" Position
Actuator in "OFF" position



Leiterplatten - PCB - Layout
(Top view)

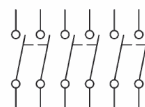


■ Double Pole Single Throw THT



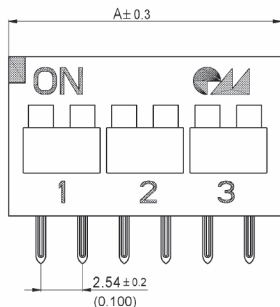
D11BTL

Schaltbild
Circuit diagram

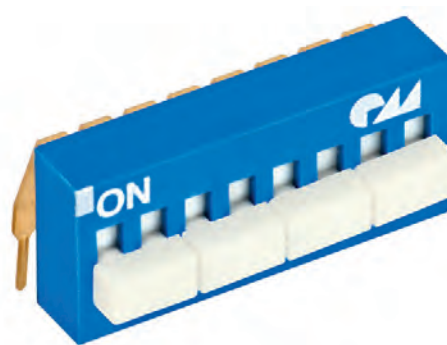
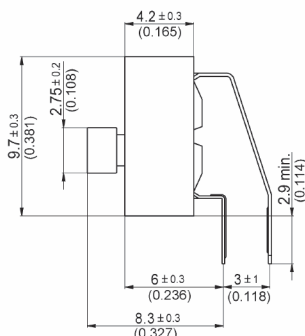
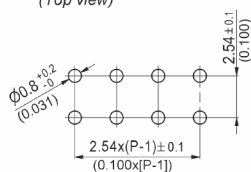


Einheit / Unit: mm (inch)

Betätiger auf "OFF" Position
Actuator in "OFF" position

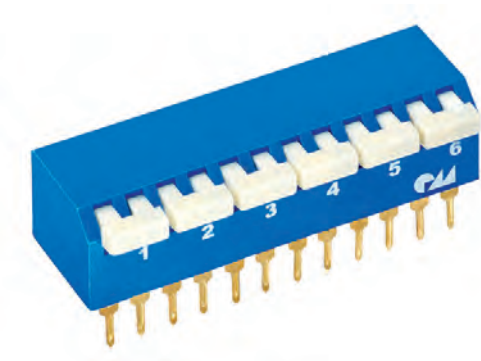


Leiterplatten - PCB - Layout
(Top view)

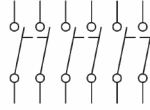


■ Double Pole Single Throw THT



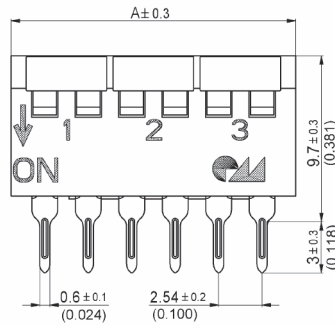


Schaltbild
Circuit diagram

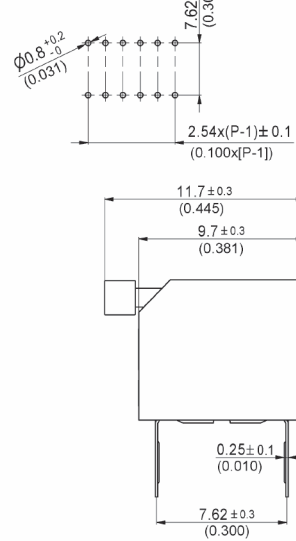


Einheit / Unit: mm (inch)

Hier dargestellt:
Oben - Betätiger in "OFF" Position
Shown here:
Top side - Actuator in "OFF" position



Leiterplatten - PCB - Layout
(Top view)



en



522

de

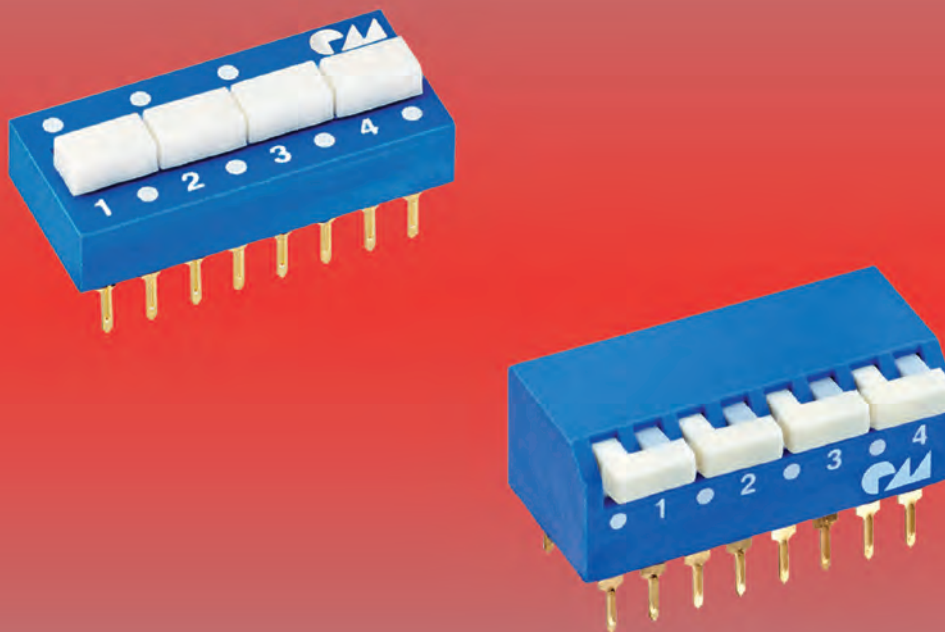


522

- Double Pole Single Throw THT



D11C...



MECHANISCHE KENNWERTE

Befestigungsart	Fixation mode	THT
Schaltstellungen	Switching positions	2
Rastermaß der Anschlüsse	Pitch of solderpins	2,54mm
Schaltung	Contact form	SPDT
Schaltart	Switching mode	Wischkontakt, öffnen & schließen / Contact wiping on make & break
Schiebekraft	Operating force	8N
Betriebstemperatur	Operating temperature	-25... +70°C
Lagertemperatur	Storage temperature	-40... +85°C
Luftfeuchtigkeit	Humidity	95% RH, 40°C, 96h
Lötwärmebeständigkeit	Resistance to soldering heat	260±5°C, 5±1s
Löten	Solderability	Nach Flussmittel 230±5°C, für 5±0,5s, 95% deckend / After flux 230±5°C, für 5±0,5s, 95% coverage
Temperatur für bleifreies Löten	Solder bath temp. for lead-free soldering	245±5°C für 5±0,5s / 245±5°C for 5±0,5s

ELEKTRISCHE KENNWERTE

ELEKTRISCHE KENNWERTE	ELECTRICAL DATA	
Schaltspannung max.	Operating voltage max.	24V
Schaltstrom max.	Operating current max.	25mA
Ruhestrom	Standby current	100mA
Prüfspannung	Test voltage	500VDC min., 60s
Durchgangswiderstand neu	Contact resistance initial	50mΩ
Durchgangswiderstand nach Lebensdauertest	Contact resistance after life test	100mΩ
Kapazität zwischen benachbarten Schaltern	Capacitance between adjacent switches	5pF max.

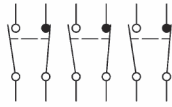
MATERIAL

MATERIAL	MATERIAL	
Gehäuse	Housing	UL 94V-0
Lötpinoberfläche	Solder pins	Flashgold / Au flash
Kontaktoberfläche	Contact material	vergoldet / gold plated

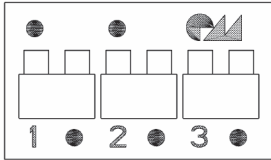
DIP-Schalter DIP-Switches

D11 D11CT

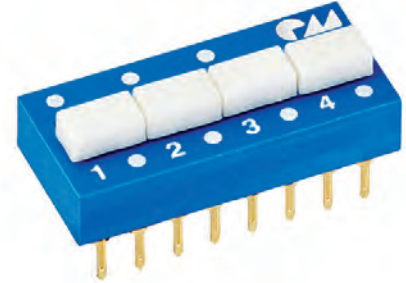
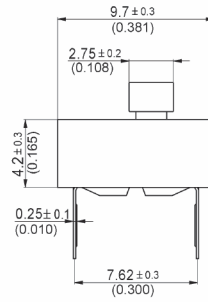
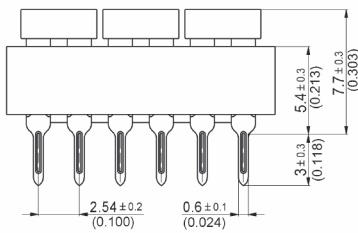
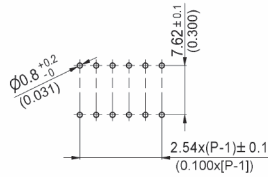
Schaltbild
Circuit diagram



Einheit / Unit: mm (inch)



Leiterplatten - PCB - Layout
(Top view)



en



515

de

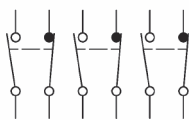


515

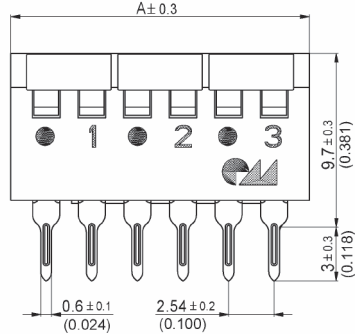
■ Single Pole Double Throw THT

D11CTP

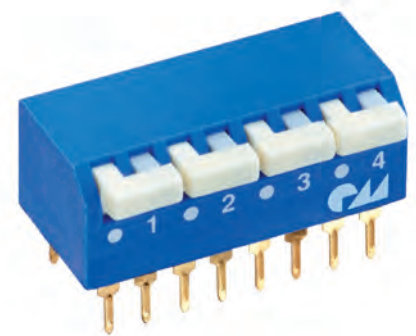
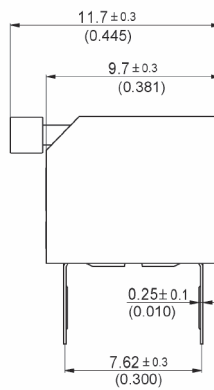
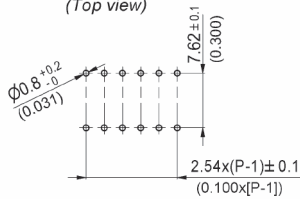
Schaltbild
Circuit diagram



Einheit / Unit: mm (inch)



Leiterplatten - PCB - Layout
(Top view)



en



526

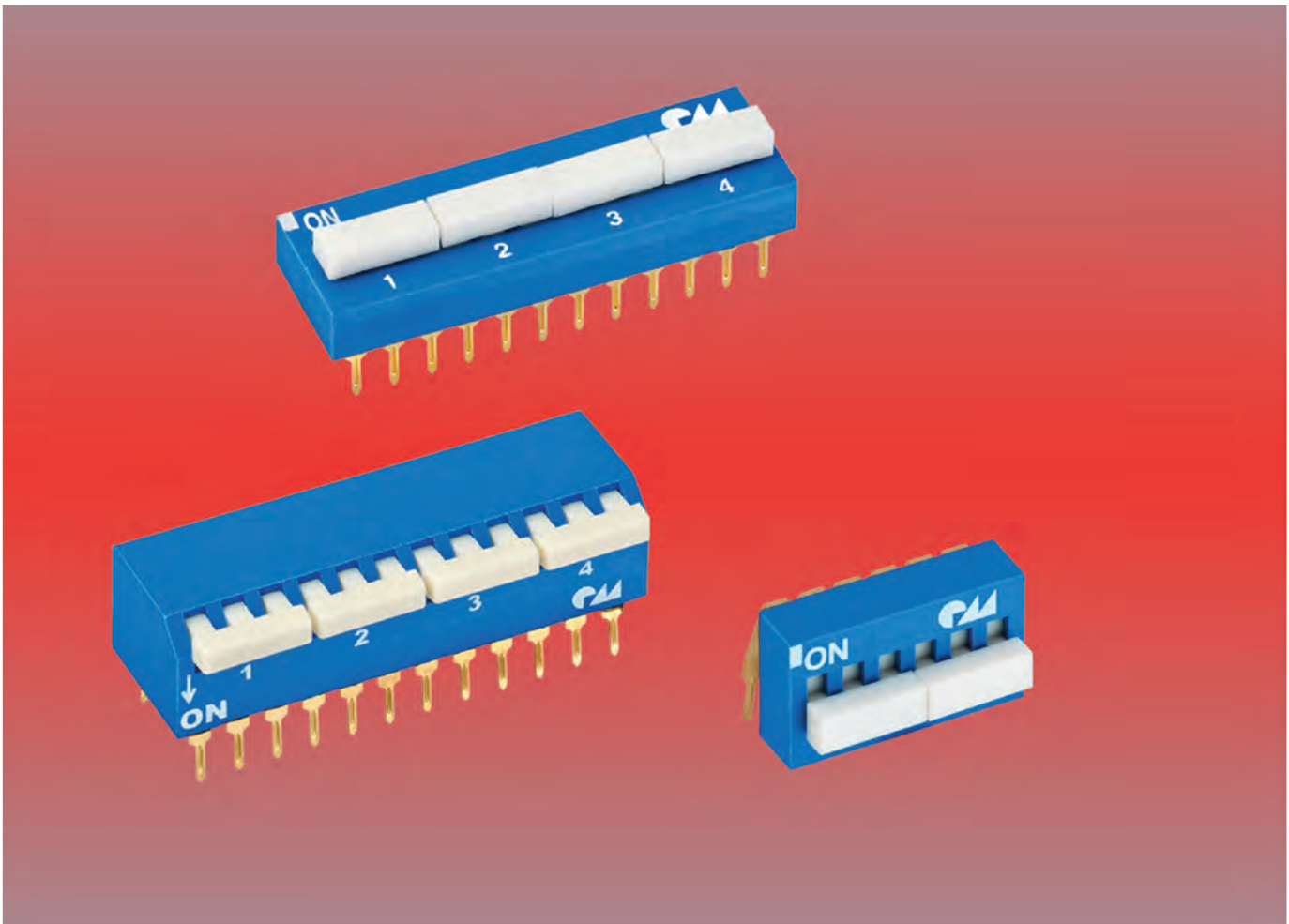
de



526

■ Single Pole Double Throw THT

D11D...



MECHANISCHE KENNWERTE	MECHANICAL DATA	
Befestigungsart	Fixation mode	THT
Schaltstellungen	Switching positions	2
Rastermaß der Anschlüsse	Pitch of solderpins	2,54mm
Schaltung	Contact form	3PST
Schaltart	Switching mode	Wischkontakt, öffnen & schließen / Contact wiping on make & break
Schiebekraft	Operating force	24N
Betriebstemperatur	Operating temperature	-25... +70°C
Lagertemperatur	Storage temperature	-40... +85°C
Luftfeuchtigkeit	Humidity	95% RH, 40°C, 96h
Lötwärmebeständigkeit	Resistance to soldering heat	260±5°C, 5±1s
Löten	Solderability	Nach Flussmittel 230±5°C, für 5±0,5s, 95% deckend / After flux 230±5°C, für 5±0,5s, 95% coverage
Temperatur für bleifreies Löten	Solder bath temp. for lead-free soldering	245±5°C für 5±0,5s / 245±5°C for 5±0,5s
Achtung	Warning	Während des Lötens Schalter auf OFF-Position stellen / Keep contacts in OFF-position during wave soldering
ELEKTRISCHE KENNWERTE	ELECTRICAL DATA	
Schaltspannung max.	Operating voltage max.	24V
Schaltstrom max.	Operating current max.	25mA
Ruhestrom	Standby current	100mA
Prüfspannung	Test voltage	500VDC min., 60s
Durchgangswiderstand neu	Contact resistance initial	50mΩ
Durchgangswiderstand nach Lebensdauertest	Contact resistance after life test	100mΩ
Kapazität zwischen benachbarten Schaltern	Capacitance between adjacent switches	5pF max.
MATERIAL	MATERIAL	
Gehäuse	Housing	UL 94V-0
Lötpinoberfläche	Solder pins	Flashgold / Au flash
Kontaktoberfläche	Contact material	vergoldet / gold plated

DIP-Schalter DIP-Switches

D11 D11DT

Über Hartmann Codier
Inside Hartmann Codier

Drehradschalter
Thumb Wheel Switches

Drehcodierschalter
Rotary Code Switches

DIP-Schalter
DIP-Switches

Schiebeschalter
Slide Switches

Microschalter
Micro Switches

Tastenschalter
Tact Switches

Anschlussklemmen
PCB terminal blocks

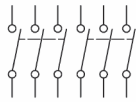
Buchsenleisten
PCB connectors

Stiftleisten
Pinheader

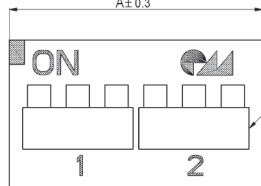
Schnittstellenblöcke
Interface Pin Blocks

Anhang
Appendix

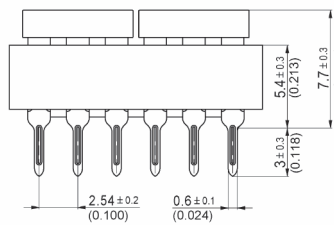
Schaltbild
Circuit diagram



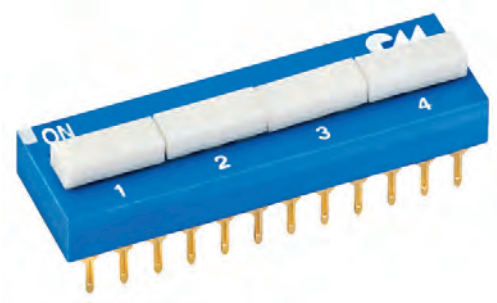
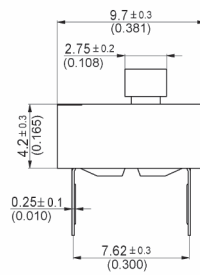
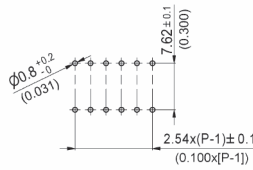
Einheit / Unit: mm (inch)



Betätiger auf "OFF" Position
Actuator in "OFF" position



Leiterplatten - PCB - Layout
(Top view)



■ 3 Pole Single Throw THT



en

516

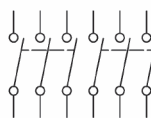


de

516

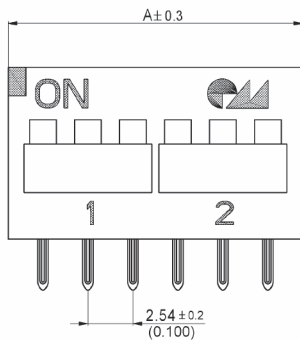
D11DTL

Schaltbild
Circuit diagram

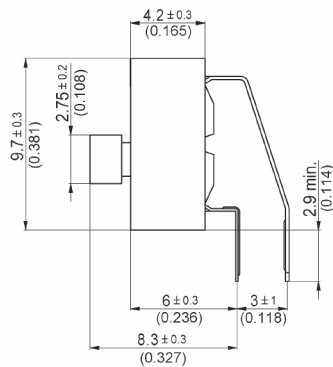
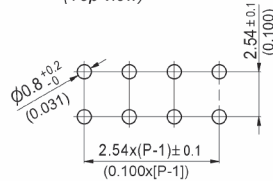


Einheit / Unit: mm (inch)

Betätiger auf "OFF" Position
Actuator in "OFF" position



Leiterplatten - PCB - Layout
(Top view)



■ 3 Pole Single Throw THT



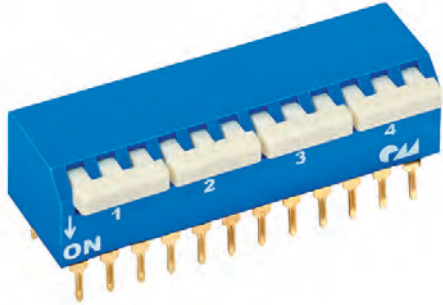
en

520

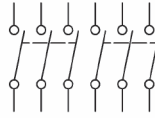


de

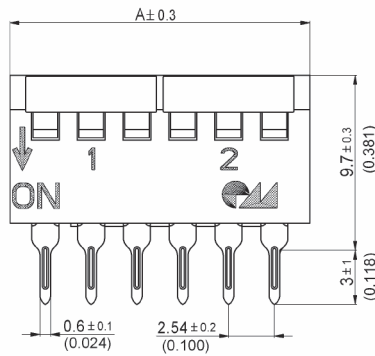
520



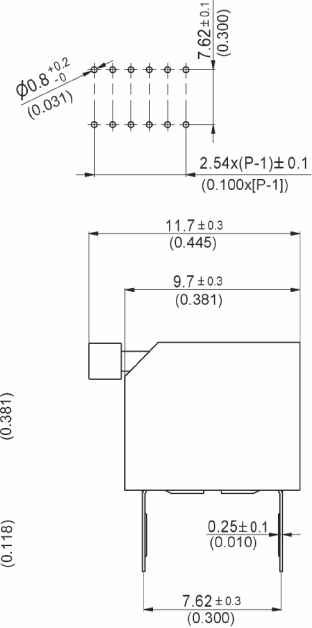
Schaltbild
Circuit diagram



Hier dargestellt:
Oben - Betätiger in "OFF" Position
Shown here:
Top side - Actuator in "OFF" position
Einheit / Unit: mm (inch)



Leiterplatten - PCB - Layout
(Top view)



en



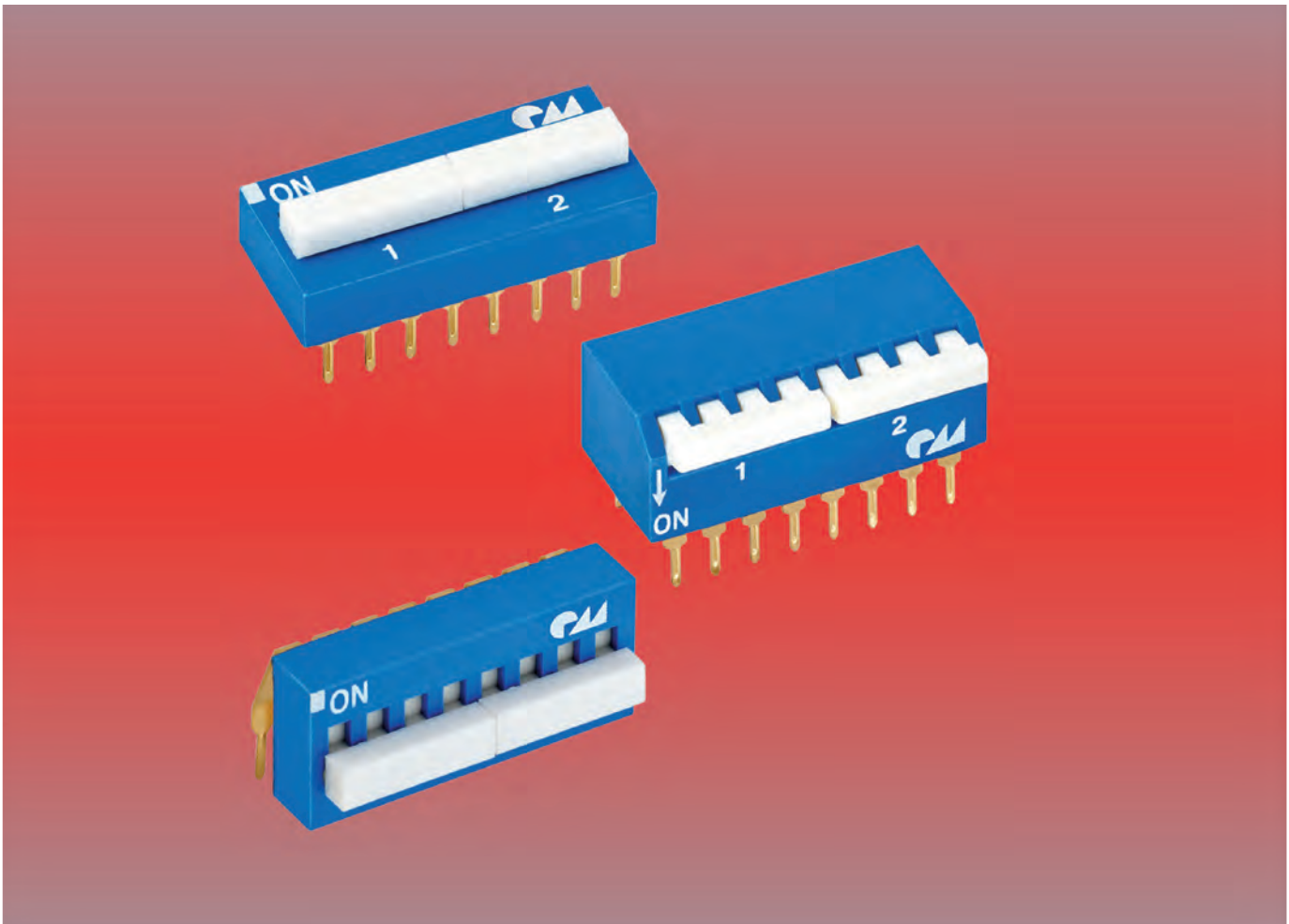
de



■ 3 Pole Single Throw THT



D11E...

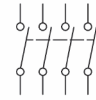


MECHANISCHE KENNWERTE	MECHANICAL DATA	
Befestigungsart	Fixation mode	THT
Schaltstellungen	Switching positions	2
Rastermaß der Anschlüsse	Pitch of solderpins	2,54mm
Schaltung	Contact form	4PST
Schaltart	Switching mode	Wischkontakt, öffnen & schließen / Contact wiping on make & break
Schiebekraft	Operating force	32N
Betriebstemperatur	Operating temperature	-25... +70°C
Lagertemperatur	Storage temperature	-40... +85°C
Luftfeuchtigkeit	Humidity	95% RH, 40°C, 96h
Lötwärmebeständigkeit	Resistance to soldering heat	260±5°C, 5±1s
Löten	Solderability	Nach Flussmittel 230±5°C, für 5±0,5s, 95% deckend / After flux 230±5°C, für 5±0,5s, 95% coverage
Temperatur für bleifreies Löten	Solder bath temp. for lead-free soldering	245±5°C für 5±0,5s / 245±5°C for 5±0,5s
Achtung	Warning	Während des Lötens Schalter auf OFF-Position stellen / Keep contacts in OFF-position during wave soldering
ELEKTRISCHE KENNWERTE	ELECTRICAL DATA	
Schaltspannung max.	Operating voltage max.	24V
Schaltstrom max.	Operating current max.	25mA
Ruhestrom	Standby current	100mA
Prüfspannung	Test voltage	500VDC min., 60s
Durchgangswiderstand neu	Contact resistance initial	50mΩ
Durchgangswiderstand nach Lebensdauertest	Contact resistance after life test	100mΩ
Kapazität zwischen benachbarten Schaltern	Capacitance between adjacent switches	5pF max.
MATERIAL	MATERIAL	
Gehäuse	Housing	UL 94V-0
Lötpinoberfläche	Solder pins	Flashgold / Au flash
Kontaktoberfläche	Contact material	vergoldet / gold plated

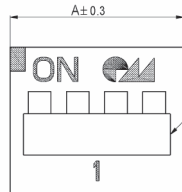
DIP-Schalter DIP-Switches

D11 D11ET

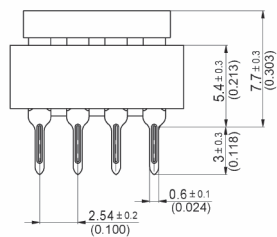
Schaltbild
Circuit diagram



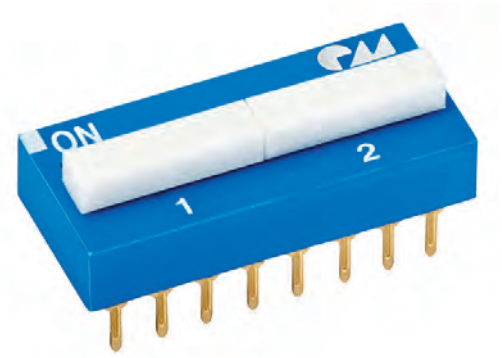
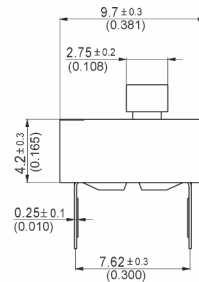
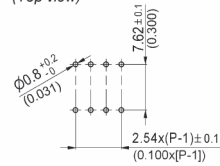
Einheit / Unit: mm (inch)



Betätiger auf "OFF" Position
Actuator in "OFF" position



Leiterplatten - PCB - Layout
(Top view)



en



517

de

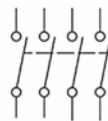


517

■ 4 Pole Single Throw THT

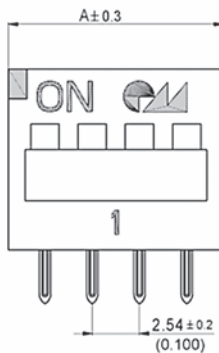
D11ETL

Schaltbild
Circuit diagram

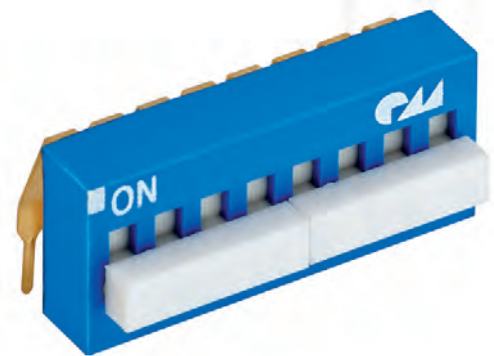
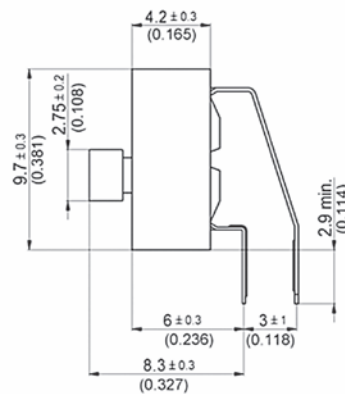
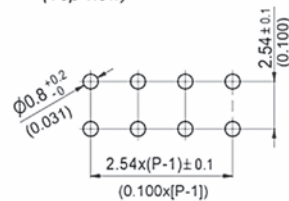


Einheit / Unit: mm (inch)

Betätiger auf "OFF" Position
Actuator in "OFF" position



Leiterplatten - PCB - Layout
(Top view)



en



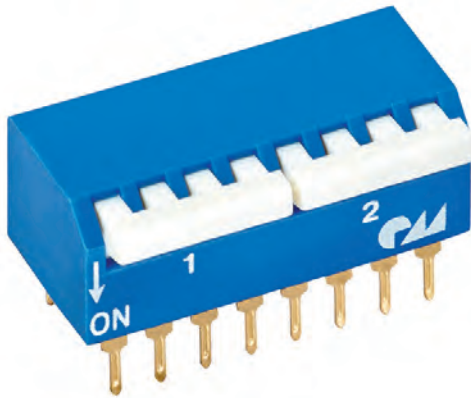
521

de

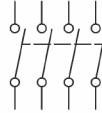


521

■ 4 Pole Single Throw THT

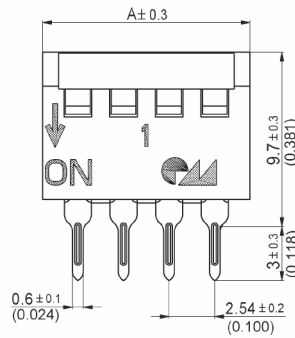


Schaltbild
Circuit diagram

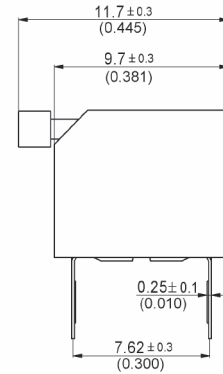
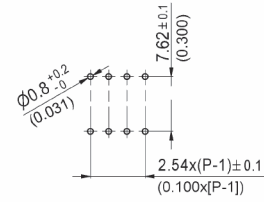


Hier dargestellt:
Oben - Betätiger in "OFF" Position
Shown here:
Top side - Actuator in "OFF" position

Einheit / Unit: mm (inch)



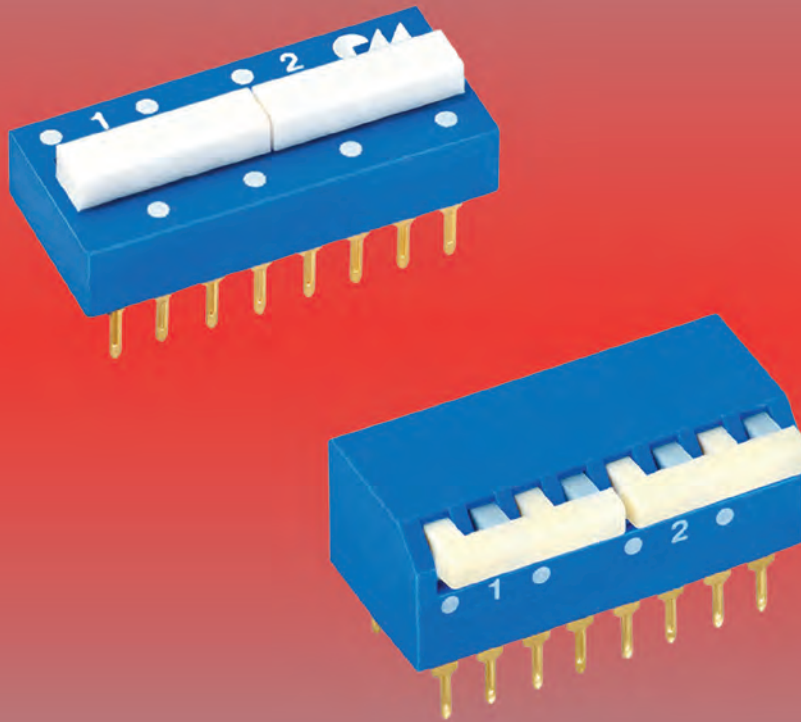
Leiterplatten - PCB - Layout
(Top view)



■ 4 Pole Single Throw THT



D11F...



MECHANISCHE KENNWERTE

Befestigungsart	Fixation mode	THT
Schaltstellungen	Switching positions	2
Rastermaß der Anschlüsse	Pitch of solderpins	2,54mm
Schaltung	Contact form	DPDT
Schaltart	Switching mode	Wischkontakt, öffnen & schließen / Contact wiping on make & break
Schiebekraft	Operating force	16N
Betriebstemperatur	Operating temperature	-25... +70°C
Lagertemperatur	Storage temperature	-40... +85°C
Luftfeuchtigkeit	Humidity	95% RH, 40°C, 96h
Lötwärmebeständigkeit	Resistance to soldering heat	260±5°C, 5±1s
Löten	Solderability	Nach Flussmittel 230±5°C, für 5±0,5s, 95% deckend / After flux 230±5°C, für 5±0,5s, 95% coverage
Temperatur für bleifreies Löten	Solder bath temp. for lead-free soldering	245±5°C für 5±0,5s / 245±5°C for 5±0,5s

ELEKTRISCHE KENNWERTE

ELEKTRISCHE KENNWERTE		ELECTRICAL DATA
Schaltspannung max.	Operating voltage max.	24V
Schaltstrom max.	Operating current max.	25mA
Ruhestrom	Standby current	100mA
Prüfspannung	Test voltage	500VDC min., 60s
Durchgangswiderstand neu	Contact resistance initial	50mΩ
Durchgangswiderstand nach Lebensdauertest	Contact resistance after life test	100mΩ
Kapazität zwischen benachbarten Schaltern	Capacitance between adjacent switches	5pF max.

MATERIAL

MATERIAL		MATERIAL
Gehäuse	Housing	UL 94V-0
Lötpinoberfläche	Solder pins	Flashgold / Au flash
Kontaktoberfläche	Contact material	vergoldet / gold plated

DIP-Schalter DIP-Switches

D11 D11FT

Über Hartmann Codier
Inside Hartmann Codier

Drehradschalter
Thumb Wheel Switches

Drehcodierschalter
Rotary Code Switches

DIP-Schalter
DIP-Switches

Schiebeschalter
Slide Switches

Microschalter
Micro Switches

Tastenschalter
Tact Switches

Anschlussklemmen
PCB terminal blocks

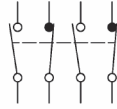
Buchsenleisten
PCB connectors

Stiftleisten
Pinheader

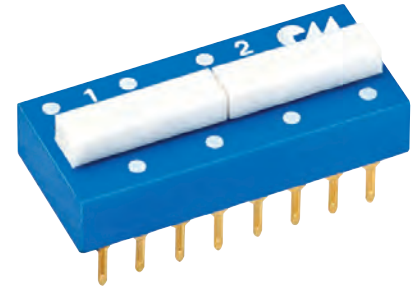
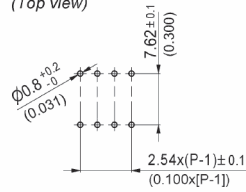
Schnittstellenblöcke
Interface Pin Blocks

Anhang
Appendix

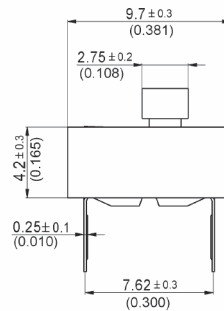
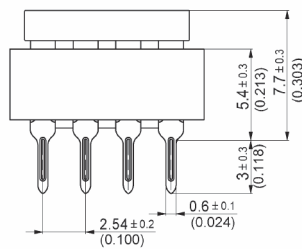
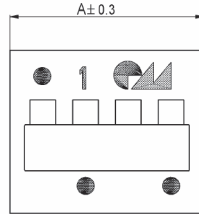
Schaltbild
Circuit diagram



Leiterplatten - PCB - Layout
(Top view)



Einheit / Unit: mm (inch)



■ Double Pole Double Throw THT

en



518

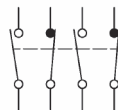
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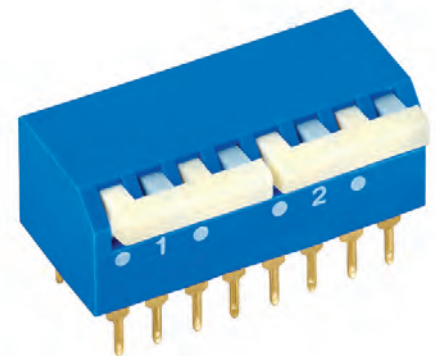
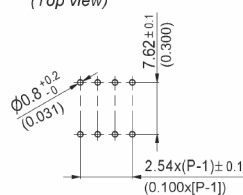
518

D11FTP

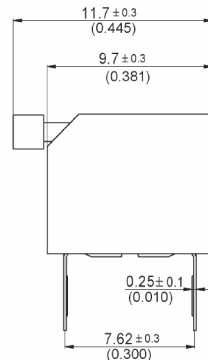
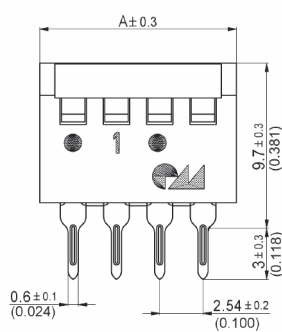
Schaltbild
Circuit diagram



Leiterplatten - PCB - Layout
(Top view)



Einheit / Unit: mm (inch)



■ Double Pole Double Throw THT

en



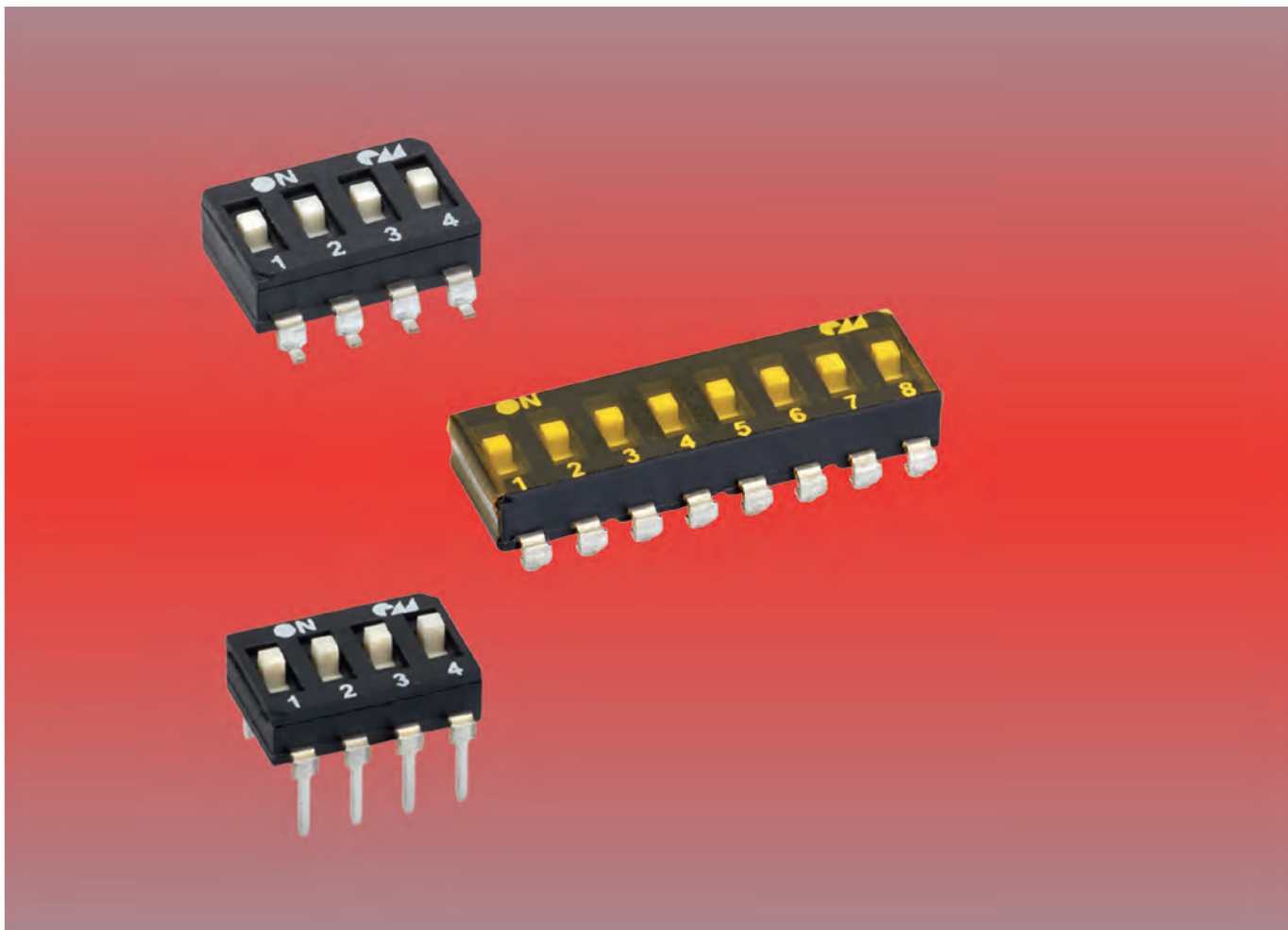
532

de



532

D12A...

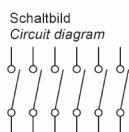


MECHANISCHE KENNWERTE		MECHANICAL DATA	
Schaltstellungen	Switching positions		2
Rastermaß der Anschlüsse	Pitch of solderpins		2,54mm
Lebensdauer, mechanisch	Mechanical life		2000 Betätigungen / 2000 operations
Schaltart	Switching mode		Wischkontakt, öffnen und schließen / Contact wiping on make and break
Schaltung	Contact form		SPST
Schiebekraft	Operating force		8N
Betriebstemperatur	Operating temperature		-25... +70°C
Lagertemperatur	Storage temperature		-40... +85°C
Luftfeuchtigkeit	Humidity		95% RH, 40°C, 96h
Erschütterung	Vibration		MIL-STD-202F, method 204D
ELEKTRISCHE KENNWERTE		ELECTRICAL DATA	
Schaltspannung max.	Operating voltage max.		24V
Schaltstrom max.	Operating current max.		25mA
Ruhestrom	Standby current		100mA
Prüfspannung	Test voltage		500VDC min., 60s
Durchgangswiderstand neu	Contact resistance initial		50mΩ
Durchgangswiderstand nach Lebensdauertest	Contact resistance after life test		100mΩ
Kapazität zwischen benachbarten Schaltern	Capacitance between adjacent switches		5pF max.
MATERIAL		MATERIAL	
Gehäuse	Housing		UL 94V-0
Lötpinoberfläche	Solder pins		verzinkt / tin plated
Kontaktoberfläche	Contact material		vergoldet / gold plated

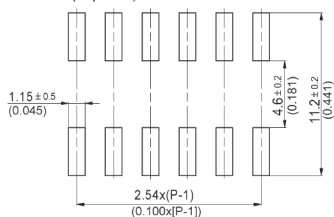
DIP-Schalter DIP-Switches

D12 D12AJ

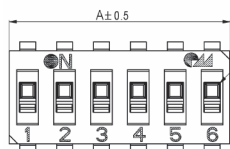
Über Hartmann Codier
Inside Hartmann Codier
Drehcodierschalter
Thumb Wheel Switches
Drehradschalter
Thumb Wheel Switches
Drehcodierschalter
Rotary Code Switches



Leiterplatten - PCB - Layout
(Top view)



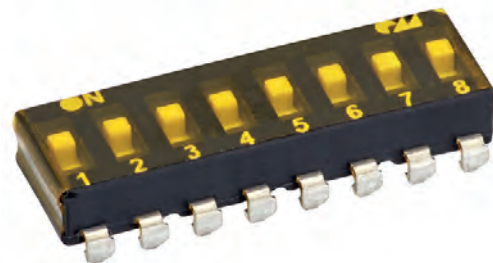
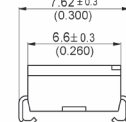
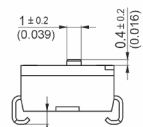
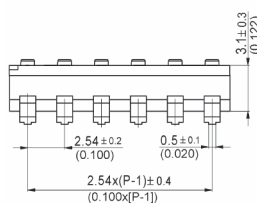
Einheit / Unit: mm (inch)



Betätiger auf "ON" Position
Actuator in "ON" position

erhabener Betätiger
raised actuator

niedriger Betätiger
low actuator



en



495

de



495

■ Single Pole Single Throw SMJ

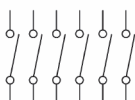
DIP-Schalter
DIP-Switches

Schiebeschalter
Slide Switches

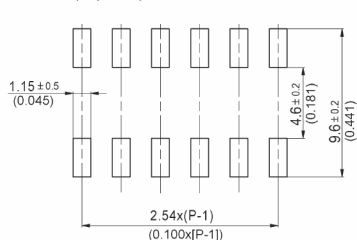
Microschalter
Micro Switches

D12AS

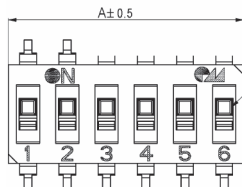
Schaltbild
Circuit diagram



Leiterplatten - PCB - Layout
(Top view)



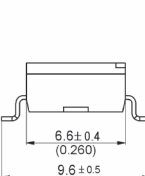
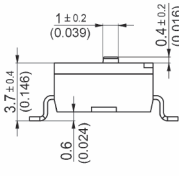
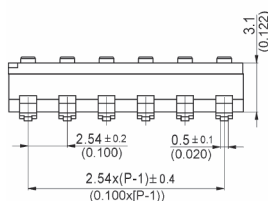
Einheit / Unit: mm (inch)



Betätiger auf "ON" Position
Actuator in "ON" position

erhabener Betätiger
raised actuator

niedriger Betätiger
low actuator



en



504

de



504

■ Single Pole Single Throw SMT

Tastenschalter
Tact Switches

Anschlussklemmen
PCB terminal blocks

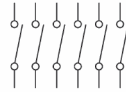
Buchsenleisten
PCB connectors

Stiftleisten
Pinheader

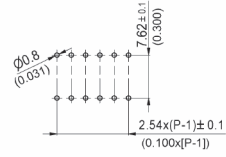
Schnittstellenblöcke
Interface Pin Blocks



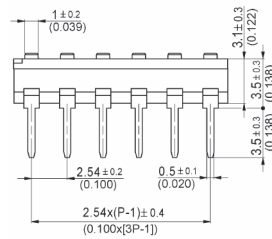
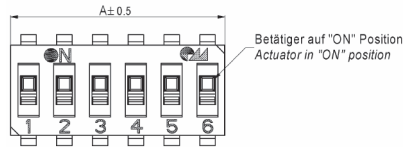
Schaltbild
Circuit diagram



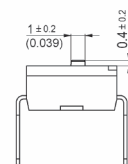
Leiterplatten - PCB - Layout
(Top view)



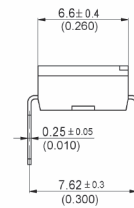
Einheit / Unit: mm (inch)



erhabener Betätiger
raised actuator



niedriger Betätiger
low actuator



en



505

de

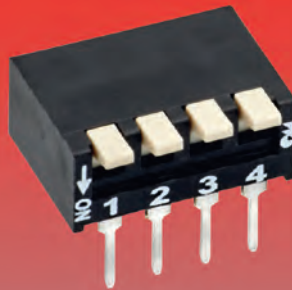
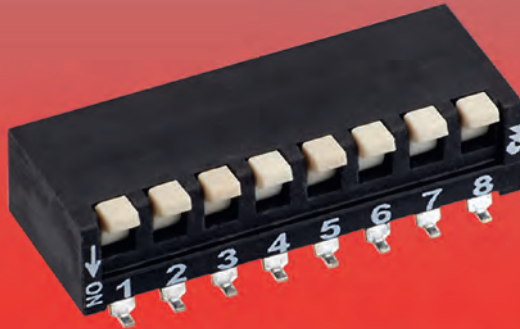


505

■ Single Pole Single Throw THT



D13A...



MECHANISCHE KENNWERTE

Schaltstellungen	Switching positions	2
Rastermaß der Anschlüsse	Pitch of solderpins	2,54mm
Schaltart	Switching mode	Wischkontakt, öffnen und schließen / Contact wiping on make and break
Schaltung	Contact form	SPST
Lebensdauer, mechanisch	Mechanical life	1000 Betätigungen / 1000 operations
Schiebekraft	Operating force	8N
Betriebstemperatur	Operating temperature	-25... +70°C
Lagertemperatur	Storage temperature	-40... +85°C
Luftfeuchtigkeit	Humidity	95% RH, 40°C, 96h
Erschütterung	Vibration	10 - 55Hz, 6h

ELEKTRISCHE KENNWERTE

ELEKTRISCHE KENNWERTE	ELECTRICAL DATA	
Schaltspannung max.	Operating voltage max.	24V
Schaltstrom max.	Operating current max.	25mA
Ruhestrom	Standby current	100mA
Prüfspannung	Test voltage	500VDC min., 60s
Durchgangswiderstand nach Lebensdauertest	Contact resistance after life test	100mΩ
Kapazität zwischen benachbarten Schaltern	Capacitance between adjacent switches	5pF max.
Ableitstrom max.	Leakage current max.	2mA

MATERIAL

MATERIAL	MATERIAL	
Gehäuse	Housing	UL 94V-0
Lötpinoberfläche	Solder pins	verzinkt / tin plated
Kontaktoberfläche	Contact material	vergoldet / gold plated

DIP-Schalter DIP-Switches

D13 D13ASP

Über Hartmann Codier
Inside Hartmann Codier

Drehradsschalter
Thumb Wheel Switches

Drehcodierschalter
Rotary Code Switches

DIP-Schalter
DIP-Switches

Schiebeschalter
Slide Switches

Microschalter
Micro Switches

Tastenschalter
Tact Switches

Anschlussklemmen
PCB terminal blocks

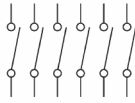
Buchsenleisten
PCB connectors

Stiftleisten
Pinheader

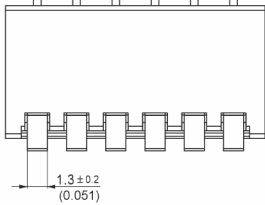
Schnittstellenblöcke
Interface Pin Blocks

Anhang
Appendix

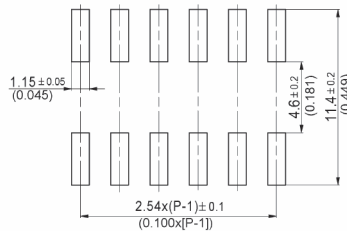
Schaltbild
Circuit diagram



Einheit/Unit: mm (inch)



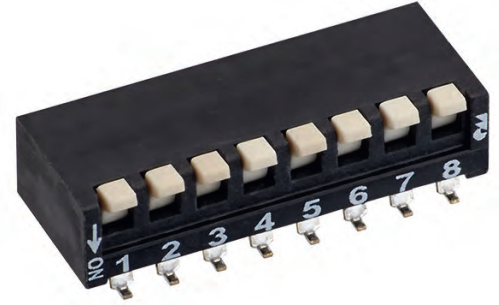
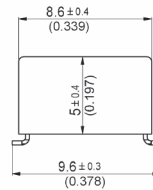
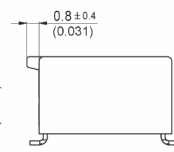
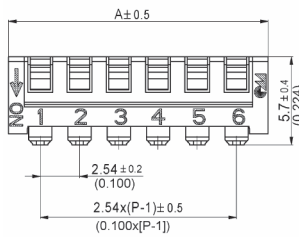
Leiterplatten - PCB - Layout
(Top view)



Betätiger auf "OFF" Position
Actuator in "OFF" Position

erhabener Betätiger
raised actuator

niedriger Betätiger
low actuator



en



533

de

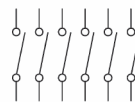


533

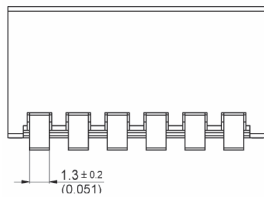
■ Single Pole Single Throw SMT

D13ATP

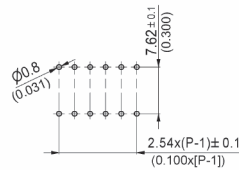
Schaltbild
Circuit diagram



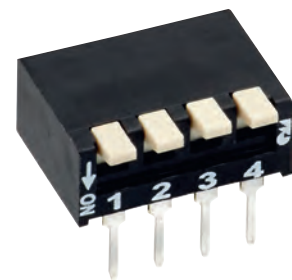
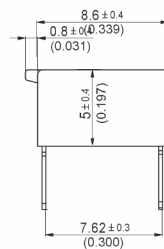
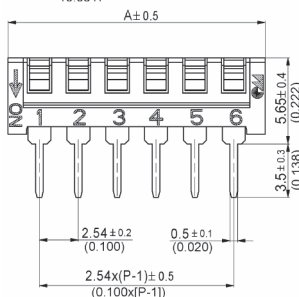
Einheit/Unit: mm (inch)



Leiterplatten - PCB - Layout
(Top view)



Betätiger auf "OFF" Position
Actuator in "OFF" Position



en



555

de



555

■ Single Pole Single Throw THT

D14A...



MECHANISCHE KENNWERTE

Schaltstellungen	Switching positions	3
Rastermaß der Anschlüsse	Pitch of solderpins	2,54mm
Schaltung	Contact form	Tri-State (1, Z, 0)
Lebensdauer, mechanisch	Mechanical life	2000 Betätigungen / 2000 operations
Schiebekraft	Operating force	8N
Betriebstemperatur	Operating temperature	-25... +70°C
Lagertemperatur	Storage temperature	-40... +85°C
Luftfeuchtigkeit	Humidity	95% RH,40°C, 96h
Erschütterung	Vibration	MIL-STD-202F, method 204D

ELEKTRISCHE KENNWERTE

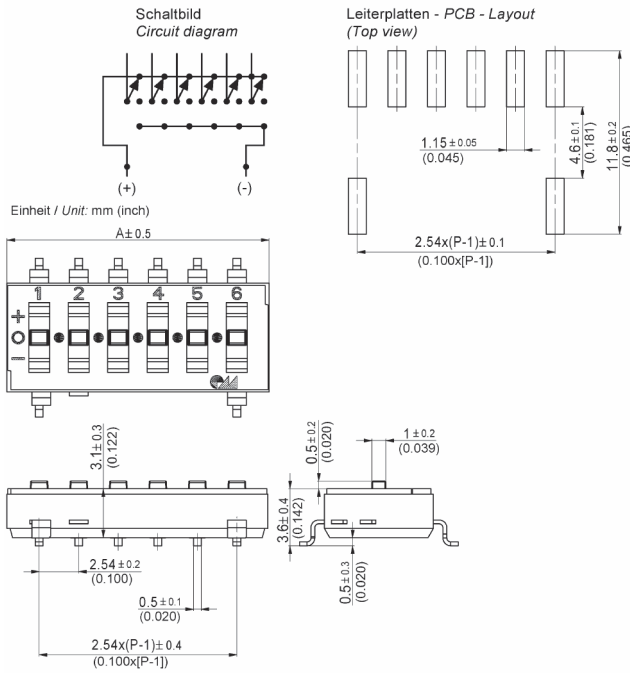
ELECTRICAL DATA		
Schaltspannung max.	Operating voltage max.	24V
Schaltstrom max.	Operating current max.	25mA
Ruhestrom	Standby current	100mA
Prüfspannung	Test voltage	500VDC min., 60s
Durchgangswiderstand neu	Contact resistance initial	50mΩ
Durchgangswiderstand nach Lebensdauertest	Contact resistance after life test	100mΩ
Kapazität zwischen benachbarten Schaltern	Capacitance between adjacent switches	5pF max.

MATERIAL

MATERIAL		
Gehäuse	Housing	UL 94V-0
Lötpinoberfläche	Solder pins	verzinkt / tin plated
Kontaktoberfläche	Contact material	vergoldet / gold plated

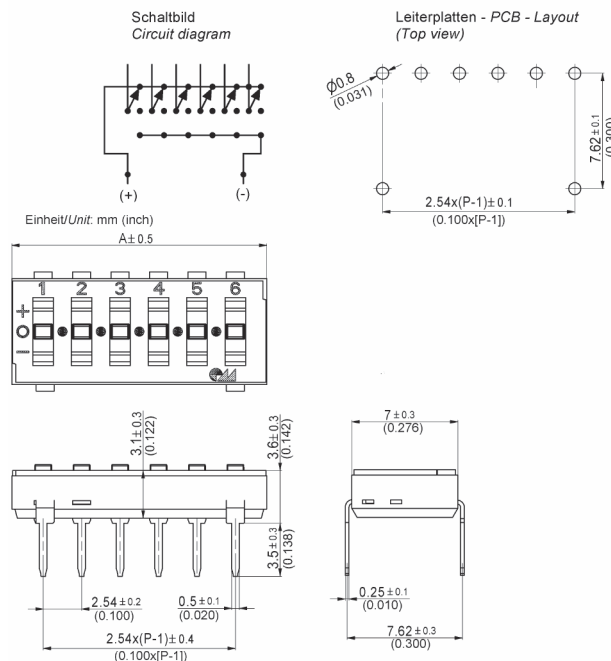
DIP-Schalter DIP-Switches

D14 D14AS



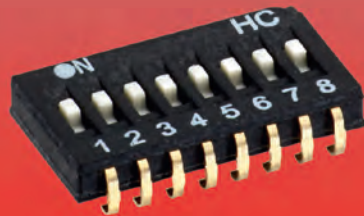
■ Tri-State (1, Z, 0) SMT

D14AT



■ Tri-State (1, Z, 0) THT

D15A...



MECHANISCHE KENNWERTE

Schaltstellungen	Switching positions	2
Rastermaß der Anschlüsse	Pitch of solderpins	1,27mm
Lebensdauer, mechanisch	Mechanical life	1000 Betätigungen / 1000 operations
Schaltart	Switching mode	Wischkontakt, öffnen und schließen / Contact wiping on make and break
Schaltung	Contact form	SPST
Schiebekraft	Operating force	8N
Betriebstemperatur	Operating temperature	-25... +70°C
Lagertemperatur	Storage temperature	-40... +85°C
Luftfeuchtigkeit	Humidity	95% RH, 40°C, 96h
Erschütterung	Vibration	10-55Hz, 10Hz für 6h / 10-55Hz, 10Hz for 6h
Reflowtemperaturprofil (nur Richtwert)	Reflow soldering profile (reference only)	max. 20s / 240°C, max. 260°C

ELEKTRISCHE KENNWERTE

ELECTRICAL DATA		
Schaltspannung max.	Operating voltage max.	24V
Schaltstrom max.	Operating current max.	25mA
Ruhestrom	Standby current	100mA
Prüfspannung	Test voltage	300VAC min., 60s
Durchgangswiderstand neu	Contact resistance initial	100mΩ
Kapazität zwischen benachbarten Schaltern	Capacitance between adjacent switches	5pF max.

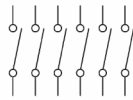
MATERIAL

MATERIAL		
Gehäuse	Housing	UL 94V-0
Lötpinoberfläche	Solder pins	Flashgold / Au flash
Kontaktoberfläche	Contact material	vergoldet / gold plated

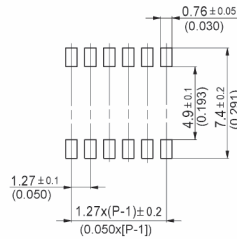
DIP-Schalter DIP-Switches

D15 D15AJ

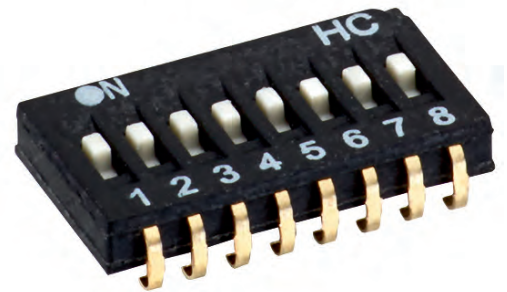
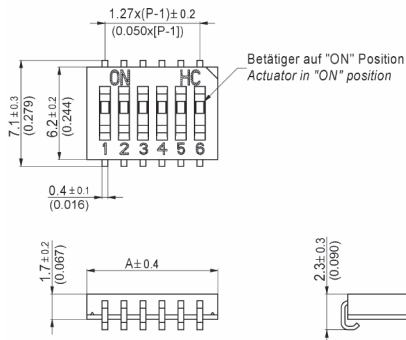
Schaltbild
Circuit diagram



Leiterplatten - PCB - Layout
(Top view)



Einheit / Unit: mm (inch)

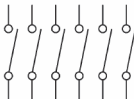


■ Single Pole Single Throw SMJ

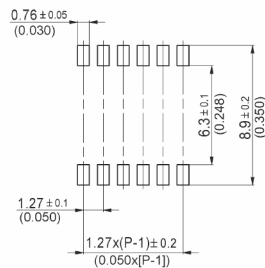


D15AS

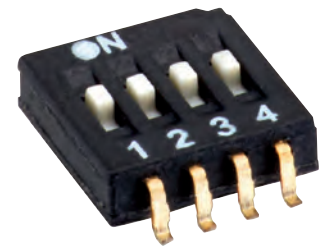
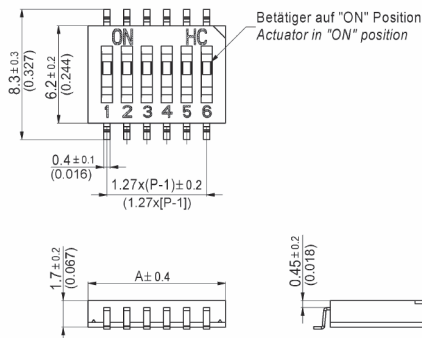
Schaltbild
Circuit diagram



Leiterplatten - PCB - Layout
(Top view)

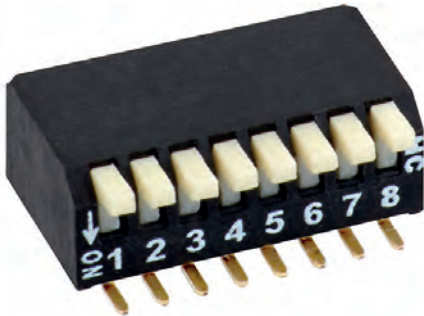


Einheit / Unit: mm (inch)

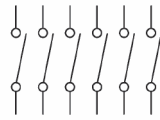


■ Single Pole Single Throw, SMT

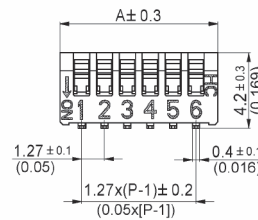
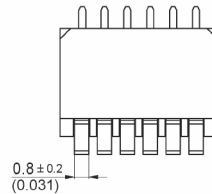




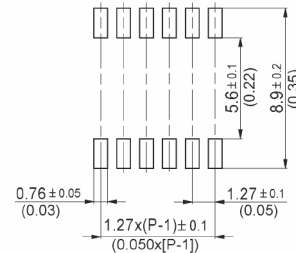
Schaltbild
Circuit diagram



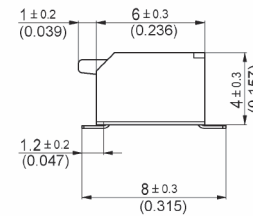
Einheit / Unit: mm (inch)



Leiterplatten - PCB - Layout
(Top view)



Betätiger auf "OFF" Position
Actuator in "OFF" Position



■ Single Pole Single Throw SMT

MECHANISCHE KENNWERTE	MECHANICAL DATA	
Befestigungsart	Fixation mode	SMT
Bauform	Type	Piano
Schaltstellungen	Switching positions	2
Rastermaß der Anschlüsse	Pitch of solderpins	1,27mm
Schaltart	Switching mode	Wischkontakt, öffnen und schließen / Contact wiping on make and break
Schaltung	Contact form	SPST
Lebensdauer, mechanisch	Mechanical life	1000 Betätigungen / 1000 operations
Schiebekraft	Operating force	8N
Betriebstemperatur	Operating temperature	-25... +70°C
Lagertemperatur	Storage temperature	-40... +85°C
Luftfeuchtigkeit	Humidity	95% RH, 40°C, 96h
Erschütterung	Vibration	10-55Hz, 6h
Reflowtemperaturprofil (nur Richtwert)	Reflow soldering profile (reference only)	max. 20s /240°C, max. 260°C
Achtung	Warning	Während des Lötprozesses die Kontaktpos. auf "off" stellen / Please keep contacts in "off" positions during reflow soldering

ELEKTRISCHE KENNWERTE	ELECTRICAL DATA	
Schaltspannung max.	Operating voltage max.	24V
Schaltstrom max.	Operating current max.	25mA
Ruhestrom	Standby current	100mA
Prüfspannung	Test voltage	300VAC min., 60s
Durchgangswiderstand neu	Contact resistance initial	100mΩ
Durchgangswiderstand nach Lebensdauertest	Contact resistance after life test	200mΩ
Kapazität zwischen benachbarten Schaltern	Capacitance between adjacent switches	5pF max.

MATERIAL	MATERIAL	
Gehäuse	Housing	UL 94V-0
Lötpinoberfläche	Solder pins	Flashgold / Au flash
Kontaktoberfläche	Contact material	vergoldet / gold plated