

A Sampling of NKK's Vast Array of Switches

This kit contains 20 of NKK's numerous series of switches and represents over 65 years of manufacturing experience in the electromechanical switch industry. Our customer base has grown with each new product as NKK has remained devoted to the core goal of exceeding customers' expectations with value, integrity and pride of craftsmanship. We are committed to pursuing quality and excellence while utilizing the latest in technology and presenting our most excellent effort to our customers.

We stand behind our brand, and offer far beyond our products, from complete design solutions to value added services. Contact us for support and assistance, and you will understand why our customers return to NKK Switches for all their needs. It will be our pleasure to serve you.

A13AP PROCESS SEALED TOGGLE

Characteristics & Specifications

A Series Subminiature Toggle

- .394" (10.0mm) brass bat lever with bright nickel finish
- Compact size saves space on PC boards
- Straight PC terminals with spacing conforming to standard board grid of .100" x .100" (2.54mm x 2.54mm)
- Specifically designed for logic-level applications
- Sealed body construction prevents contact contamination, enabling time-saving automated soldering and cleaning
- Award-winning STC contact mechanism delivers smoother, positive detent actuation, increased contact stability and unparalleled logic-level reliability

Logic Level: 0.4VA max @ 28V AC/DC max

Contact Resistance: 50 milliohms max

Insulation Resistance: 500 megohms min @ 500V DC

Dielectric Strength: 500V AC min between contacts for 1 minute min;
500V AC min between contacts & case for 1 minute min

Mechanical Life: 100,000 operations min

Electrical Life: 50,000 operations min

Nominal Operating Force: 1.18N

Angle of Throw: 26°

Operating Temperature Range: -30°C ~ +85°C (-22°F ~ +185°F)

A12K1H-DA PROCESS SEALED ROCKER

Characteristics & Specifications

A Series Subminiature Rocker

- Snap top actuator for .250" (6.35mm) wide black rocker cap
- Right angle PC terminals with bracket
- Compact size saves space on PC boards
- Specifically designed for logic-level applications
- Sealed body construction prevents contact contamination, enabling time-saving automated soldering and cleaning
- Award-winning STC contact mechanism delivers smoother, positive detent actuation, increased contact stability and unparalleled logic-level reliability
- Matching indicator available

Logic Level: 0.4VA max @ 28V AC/DC max

Contact Resistance: 50 milliohms max

Insulation Resistance: 500 megohms min @ 500V DC

Dielectric Strength: 500V AC min for 1 minute min

Mechanical Life: 100,000 operations min

Electrical Life: 50,000 operations min

Nominal Operating Force: 1.84N

Angle of Throw: 26°

Operating Temperature Range: -30°C ~ +85°C (-22°F ~ +185°F)

BB15AB PROCESS SEALED PUSHBUTTON

Characteristics & Specifications

BB Series Subminiature Antistatic Pushbutton

- Compact size saves space on PC boards
- Straight PC terminals with bracket (ESD protected)
- Smooth, 6.0mm diameter bushing simplifies panel layout
- Antistatic superstructure of carbon impregnated bushing and support bracket prevents static discharge to contacts
- Award-winning STC contact mechanism delivers smoother, positive detent actuation, increased contact stability and unparalleled logic-level reliability
- Sealed body construction prevents contact contamination and allows time- and money-saving soldering and cleaning

Logic Level: 0.4VA max @ 28V AC/DC max

Contact Resistance: 50 milliohms max

Insulation Resistance: 500 megohms min @ 500V DC

Dielectric Strength: 500V AC min for 1 minute min

Mechanical Life: 50,000 operations min

Electrical Life: 50,000 operations min

Nominal Operating Force: 2.55N

Travel: Pretravel .028" (0.7mm); Overtravel .016" (0.4mm);
Total Travel .043" (1.1mm)

Operating Temperature Range: -30°C ~ +85°C (-22°F ~ +185°F)

CB315FP PROCESS SEALED TACTILE

Characteristics & Specifications

CB3 Series SMT Tactile

- Sealed construction prevents contact contamination and allows automated soldering and cleaning
- .244" (6.2mm) square body perfect for compact mounting
- Heat tolerant resin for actuator and base meets UL94V-0, maintains switch reliability through vapor phase and infrared convection reflow soldering
- Dome contact delivers crisp tactile feedback positively indicating circuit transfer, assures high reliability and long life
- Gull-winged terminals ensure mechanical stability during soldering and simplify solder joint inspection

Low/Logic Level: 50mA @ 24V DC max

Contact Resistance: 100 milliohms max

Insulation Resistance: 100 megohms min @ 250V DC

Dielectric Strength: 250V AC min between contacts & between contacts & case for 1 minute min

Mechanical Life: 100,000 operations min

Electrical Life: 100,000 operations min

Nominal Operating Force: 1.57N

Total Travel: .010" (.250mm)

Operating Temperature Range: -25°C ~ +70°C (-13°F ~ +158°F)

CWSA11AAN1S MINIATURE POWER ROCKER

Characteristics & Specifications

CW Series Low Cost Molded Rocker

- Black cap with horizontal IEC ON-OFF symbols inscribed in white
- See-saw contact mechanism
- Stable stationary contact construction for high reliability
- Easy installation with snap-in mounting
- Solder lug terminals with large terminal holes dimensioned .067" x .098" (1.7mm x 2.5mm) simplifies wiring and soldering
- Panel cutout .508" (12.9mm) x .756" (19.2mm) with a thickness range of .030" ~ .079" (0.75mm ~ 2.0mm)

Power Level: 6A @ 250V AC (Resistive Load)

Contact Resistance: 20 milliohms max

Insulation Resistance: 500 megohms min @ 500V DC

Dielectric Strength: 1,500V AC min between contacts for 1 minute min;
3,000V AC minimum between contacts & case for 1 minute minimum

Mechanical Life: 30,000 operations min

Electrical Life: 10,000 operations min (Resistive Load)

Nominal Operating Force: 2.50N

Angle of Throw: 30°

Operating Temperature Range: -10°C ~ +70°C (+14°F ~ +158°F)

DSBA1H TILT SWITCH

Characteristics & Specifications

DS Series Tilt Switch with Photo Interrupter

- Right angle PC terminals, crimped to ensure secure mounting
- High reliability with minimum of 1 million operations
- Sealed construction protects from environment, including hydrogen sulfide, sulfur dioxide, nitrogen hydroxide. Terminals are made of ammonia-resistant materials.
- Totally sealed body permits process compatibility for time- and money-saving automatic soldering and cleaning
- Well-suited to meet product safety concerns due to normally closed (on) status
- Space-conserving compact dimensions allow for high density mounting
- Internal steel ball movement allows functionality of 360° circumference rotation
- Triggered when tilted beyond $\pm 30^\circ$ of the horizontal

Mechanical Life: 1,000,000 operations min

Electrical Life: 1,000,000 operations min using applicable circuit

Operating Temperature Range: $-25^\circ\text{C} \sim +80^\circ\text{C}$ ($-13^\circ\text{F} \sim +176^\circ\text{F}$)

Absolute Maximum Ratings with Temperature at 25°C

		Symbol	Rating
Input	Forward Current	I_F	50mA
	Reverse Voltage	V_R	5V
	Power Dissipation	P_D	75mW
Output	Collector-Emitter Voltage	V_{CEO}	30V
	Emitter-Collector Voltage	V_{ECO}	3V
	Collector Current	I_C	20mA
	Collector Power Dissipation	P_C	50mW
Total Power Dissipation		P_{tot}	100mW

FR01FC16H DIP ROTARY

Characteristics & Specifications

FR01 Series 10mm Rotary

- Screwdriver actuation, fully rotational in both directions
- Complement coded with Yellow actuator; hexadecimal
- Highly visible legends with arrow position indication provide trouble-free code setting.
- Right angle PC terminals crimped to ensure secure mounting and prevent dislodging during soldering
- Compact dimensions and low profile allow high density mounting and close stacking of PC boards
- Cam activated movable contact and gold contacts assure contact reliability and continuity

Switching Rating: 100mA @ 5V DC

Nonswitching Rating: 100mA @ 50V DC

Contact Resistance: 100 milliohms max;
30 milliohms max for contact point

Insulation Resistance: 1,000 megohms min @ 250V DC

Dielectric Strength: 250V AC min for 1 minute min

Mechanical Life: 10,000 detent operations min

Electrical Life: 10,000 detent operations min

Nominal Operating Torque: 0.01Nm

Operating Temperature Range: $-25^\circ\text{C} \sim +85^\circ\text{C}$ ($-13^\circ\text{F} \sim +185^\circ\text{F}$)

G13AH PROCESS SEALED TOGGLE

Characteristics & Specifications

G Series Ultra-Miniature Toggle

- Sealed body construction prevents contact contamination, allows time-saving automated soldering and cleaning
- Right angle PC terminals are epoxy sealed to lock out flux, solvents and other contaminants
- Compact size compatible with high density mounting
- Award-winning STC contact mechanism delivers smooth, positive detent actuation, contact stability, logic-level reliability
- .100" x .100" (2.54mm x 2.54mm) terminal spacing conforms to standard PC board grid spacing.

Logic Level: 0.4VA max @ 28V AC/DC max

Contact Resistance: 80 milliohms max

Insulation Resistance: 500 megohms min @ 500V DC

Dielectric Strength: 500V AC min for 1 minute min

Mechanical Life: 100,000 operations min

Electrical Life: 100,000 operations min

Nominal Operating Force: 1.20N

Angle of Throw: 28°

Operating Temperature Range: $-25^\circ\text{C} \sim +85^\circ\text{C}$ ($-13^\circ\text{F} \sim +185^\circ\text{F}$)

G3B15AH PROCESS SEALED SMT PUSHBUTTON

Characteristics & Specifications

G3B Series Ultra-Miniature Pushbutton

- Gull wing terminals for right angle mount
- Compact size perfect for high density mounting
- Extremely light weight of 0.6 gram combines ideally with handheld equipment
- Heat resistant resin for housing, base and plunger allows vapor phase and infrared convection reflow soldering
- Design features achieve total seal while permitting automated processing techniques, including flux cleaning procedures
- Tape-reel and stick-tube packaging enable rapid automated placement of surface mount devices. Tape-reel packaging meets EIA-481-D Standard.

Logic Level: 0.4VA max @ 28V AC/DC max
Contact Resistance: 80 milliohms max
Insulation Resistance: 500 megohms min @ 500V DC
Dielectric Strength: 500V AC min for 1 minute min
Mechanical Life: 50,000 operations min
Electrical Life: 50,000 operations min
Nominal Operating Force: 2.0N
Travel: Pretravel .024" (0.6mm); Overtravel .019" (0.5mm); Total Travel .043" (1.1mm)
Operating Temperature Range: -30°C ~ +85°C (-22°F ~ +185°F)

GW12RBH ULTRA-THIN ROCKER

Characteristics & Specifications

GW Series Ultra-Miniature Rocker

- Extremely thin size allows high density PCB mounting, ideal for handheld equipment
- White rocker, case, base meet UL94V-0 flammability rating
- Combination of dust cover and closely fit housing, actuator, and interior pivot provides protection for contacts
- Detent mechanism design of coil spring, plunger and plastic detent results in crisp, positive actuation
- Award-winning STC contact mechanism with smoother, positive detent actuation, contact stability, logic-level reliability
- Right angle PC terminals are molded-in to lock out flux and other contaminants

Logic Level: 0.4VA max @ 28V AC/DC max
Contact Resistance: 80 milliohms max
Insulation Resistance: 500 megohms min @ 500V DC
Dielectric Strength: 500V AC min for 1 minute min
Mechanical Life: 50,000 operations min
Electrical Life: 50,000 operations min
Nominal Operating Force: 1.70N
Angle of Throw: 28°
Operating Temperature Range: -30°C ~ +85°C (-22°F ~ +185°F)

JB15LPE-JE PROCESS SEALED TACTILE

Characteristics & Specifications

JB Series Illuminated Low Profile Tactile

- Brilliant yellow LED and full-face illumination
- Dome contact gives crisp, tactile feedback and positively indicates circuit transfer
- High reliability and long life of up to 5,000,000 operations
- Rubber seal construction prevents contact contamination and allows automated soldering and cleaning
- Slanted terminals ensure secure mounting, prevent dislodging
- Materials for case and base of switch meet flammability standards of UL94V-0 rating

Low/Logic Level: 50mA @ 24V DC max
Contact Resistance: 50 milliohms max
Insulation Resistance: 500 megohms min @ 250V DC
Dielectric Strength: 250V AC min for 1 minute min
Mechanical Life: 5,000,000 operations min
Electrical Life: 5,000,000 operations min
Nominal Operating Force: 1.76N
Total Travel: .010" (.254mm)
Operating Temperature Range: -25°C ~ +70°C (-13°F ~ +158°F)

JF15CP2F PROCESS SEALED TACTILE

Characteristics & Specifications

JF Series Ultra-Thin Tactile

- Round housing and green round actuator
- Extremely low profile of only 5mm from PCB to top of switch
- Rubber seal construction prevents contact contamination, allows automated soldering and cleaning
- Dome contact provides crisp tactile and audible feedback, indicating circuit transfer and assuring high reliability, long life
- Crimped PC terminals ensure secure mounting and prevent dislodging during wave soldering
- Terminal spacing conforms to standard .100" (2.54mm) PCB grid

Low/Logic Level: 50mA @ 24V DC

Contact Resistance: 50 milliohms max

Insulation Resistance: 500 megohms min @ 250V DC

Dielectric Strength: 250V AC min for 1 minute min

Mechanical Life: 500,000 operations min

Electrical Life: 500,000 operations min

Nominal Operating Force: 3.0N

Total Travel: .016" (0.4mm)

Operating Temperature Range: -25°C ~ +85°C (-13°F ~ +185°F)

M2B15AA5G03-FC PROCESS SEALED PUSHBUTTON

Characteristics & Specifications

M2 Series Miniature Pushbutton

- .250" (6.35mm) double flatted bushing, .201" (5.1mm) diameter red cap
- Snap-acting contact mechanism gives short travel, sensitive actuation, light touch, audible feedback, longer electrical life
- Single unit construction of bushing and top of housing provides protection against cleaning fluids or other liquids
- O-ring surrounding actuator at top of bushing interior prevents liquids from reaching switch mechanism
- Ultrasonic welding of upper and lower housing seals out contaminants, permits automated soldering and cleaning
- Epoxy sealed PC terminals prevent entry of flux or solvents

Logic Level: 0.4VA max @ 28V AC/DC max

Contact Resistance: 30 milliohms max

Insulation Resistance: 1,000 megohms min @ 500V DC

Dielectric Strength: 1,000V AC min between contacts for 1 minute min; 1,500V AC min between contacts & case for 1 minute min

Mechanical Life: 200,000 operations min

Electrical Life: 100,000 operations min

Nominal Operating Force: 2.94N

Travel: Pretravel .023" (0.6mm); Overtravel .016" (0.4mm); Total Travel .039" (1.0mm)

Operating Temperature Range: -30°C ~ +85°C (-22°F ~ +185°F)

M2012TJW01-FC-3A-CF SNAP-IN MOUNT ROCKER

Characteristics & Specifications

M Series Miniature Rocker

- .450" (11.43mm) wide red rocker
- Black bezel with 2 round LEDs: top LED red, bottom LED green
- Ease of installation with snap-in frame
- Molded diallyl phthalate case with UL 94V-0 rating
- Prominent external insulating barriers increase insulation resistance and dielectric strength
- Solder lug terminals are epoxy sealed, hindering entry of flux, solvents and other contaminants
- Bias guard prevents contact misalignment; interlocking of actuator block with rocker and internal guide disallows transmission of diagonal force on rocker to reach contact mechanism.

Power Level: 6A @ 125V AC & 3A @ 250V AC

Contact Resistance: 10 milliohms max

Insulation Resistance: 1,000 megohms min @ 500V DC

Dielectric Strength: 1,000V AC min between contacts for 1 minute min; 1,500V AC min between contacts & case for 1 minute min

Mechanical Life: 50,000 operations min

Electrical Life: 25,000 operations min

Angle of Throw: 25°

Operating Temperature Range: -30°C ~ +85°C (-22°F ~ +185°F)

MS12AFW01 PROCESS SEALED SLIDE

Characteristics & Specifications

MS Series Miniature Slide with Flat Frame

- Panel mount with .150" (3.8mm) wide actuator and epoxy sealed solder lug terminals
- Over-center actuator block and plunger design gives crisp actuation with clear indication of circuit status; construction lends to diminished sparking and increased operating life
- Guide interlocked with actuator block prevents window locking and maintains correct plunger alignment
- Antijamming design protects contacts from damage due to excessive downward force on the actuator
- Prominent external insulating barriers increase insulation resistance and dielectric strength

Power Level: 6A @ 125V AC or 3A @ 250V AC

Contact Resistance: 10 milliohms max

Insulation Resistance: 1,000 megohms min @ 500V DC

Dielectric Strength: 1,000V AC min between contacts for 1 minute min;
1,500V AC min between contacts & case for 1 minute min

Mechanical Life: 100,000 operations min

Electrical Life: 25,000 operations min

Total Travel: .087" (2.2mm)

Operating Temperature Range: -30°C ~ +85°C (-22°F ~ +185°F)

ND3KR16H PROCESS SEALED SMT DIP ROTARY

Characteristics & Specifications

ND3 Series 8mm Rotary

- White shaft actuated, real coded, hexadecimal positions
- Right angle mount with gull wing terminals ensures stability
- Sealed construction prevents contact contamination and allows vapor phase and IR reflow soldering; seals between actuator/housing and housing/base
- Detent mechanism designed for crisp, positive action for accurate switch setting
- Heat tolerant resin for body meets UL94V-0 standards
- Epoxy sealed terminals lock out flux, solvents and other contaminants

Switching Rating: 100mA @ 5V DC

Nonswitching Rating: 100mA @ 50V DC

Contact Resistance: 80 milliohms max for circuit;
30 milliohms max for contact point

Insulation Resistance: 1,000 megohms min @ 250V DC

Dielectric Strength: 250V AC min for 1 minute min

Mechanical Life: 20,000 detent operations min

Electrical Life: 20,000 detent operations min

Nominal Operating Torque: .061 kgf/cm (.846 oz/in)

Operating Temperature Range: -25°C ~ +85°C (-13°F ~ +185°F)

SB4011NOM MOMENTARY PUSHBUTTON

Characteristics & Specifications

SB Series 3A Miniature Pushbutton

- Black plunger and metric threaded M12 P1 bushing
- Low operating force for ease of actuation
- Rear panel bushing mount, compact behind panel dimension
- Internal antijamming feature protects contacts from damage due to excessive force on plunger
- Low cost device with rugged one-piece bushing and housing construction
- Reliability reinforced with an internal guide to maintain contact alignment
- Optional slip-on caps in a variety of colors

Power Level: 3A @ 125V AC or 2A @ 250V AC

Contact Resistance: 10 milliohms max

Insulation Resistance: 200 megohms min @ 500V DC

Dielectric Strength: 1,000V AC min between contacts & between contacts & case for 1 minute min

Mechanical Life: 30,000 operations min

Electrical Life: 10,000 operations min

Nominal Operating Force: 4.90N

Travel: Total Travel .088" (2.24mm)

Operating Temperature Range: -10°C ~ +70°C (+14°F ~ +158°F)

SK15BG30 PROCESS SEALED KEYLOCK

Characteristics & Specifications

SK Series Keylock with Bracket

- Right angle PC terminals .100" x .100" (2.54mm X 2.54mm) spacing conforms to standard PC board grid spacing
- Sealed body construction and disposable boot (supplied with each switch) protect contacts, allow automated processing
- Two antistatic plastic handle keys provided with each switch
- 12mm smooth bushing and space-saving short body size
- Detent mechanism, with spring-operated steel ball, furnishes crisp, positive action for accurate switch setting
- Bifurcated, self-wiping contact mechanism provides unequalled logic-level reliability and smoother actuation

Logic Level: 0.4VA max @ 28V AC/DC max
Contact Resistance: 80 milliohms max
Insulation Resistance: 100 megohms min @ 500V DC
Dielectric Strength: 500V AC min for 1 minute min
Mechanical Life: 30,000 cycles min
Electrical Life: 10,000 cycles min
Nominal Operating Torque: .026Nm (.234 lb•in)
Angle of Throw: 90° (2-position)
Operating Temperature Range: -25°C ~ +70°C (-13°F ~ +158°F)

SS314MAH4 ULTRA-MINIATURE SLIDE

Characteristics & Specifications

SS3 Series SMT Slide

- Compact dimensions, low profile allow high density mounting
- Crisp actuation on side positively indicates circuit status
- Heat resistant resin allows vapor phase and infrared convection reflow soldering
- Award-winning STC mechanism delivers smoother detent actuation, increased contact stability, logic-level reliability
- Gull wing terminals provide mechanical stability during soldering and simplified solder joint inspection
- Metric terminal spacing of 2.0mm x 2.0mm for standard PC board grid

Logic Level: 0.4VA max @ 28V AC/DC max
Contact Resistance: 50 milliohms max
Insulation Resistance: 100 megohms min @ 500V DC
Dielectric Strength: 500V AC min for 1 minute min
Mechanical Life: 10,000 operations min
Electrical Life: 10,000 operations min
Total Travel: .079" (2.0mm)
Operating Temperature Range: -25°C ~ +85°C (-13°F ~ +185°F)

UB15NBKW015C-JC MINIATURE PUSHBUTTON

Characteristics & Specifications

UB Series Illuminated Pushbutton

- Rectangular snap-in mount with built-in side barriers
- Red, bright LED and cap with clear lens and red diffuser
- Small behind panel dimension for mounting in tight spaces
- Snap-acting contact mechanism provides sensitive actuation with audible feedback; quick-make, quick-break feature limits arcing and prolongs electrical life
- Epoxy sealed solder lug terminals lock out flux, solvents, and other contaminants
- Matching indicator available

Power Level: 5A @ 125/250V AC or 5A @ 30V DC
Contact Resistance: 50 milliohms max
Insulation Resistance: 200 megohms min @ 500V DC
Dielectric Strength: 1,000V AC min between contacts for 1 minute min; 1,500V AC min between contacts & case for 1 minute min
Mechanical Life: 1,000,000 operations min
Electrical Life: 10,000 operations min
Nominal Operating Force: 1.9N
Travel: Pretravel .067" (1.7mm); Overtravel .024" (0.6mm); Total Travel .091" (2.3mm)
Operating Temperature Range: -25°C ~ +50°C (-13°F ~ +122°F)

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