General Specifications

Electrical Capacity (Resistive Load)
Logic Level: 0.4VA maximum @ 28V AC/DC maximum
(Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)

Other Ratings
Contact Resistance: 50 milliohms maximum
Insulation Resistance: 500 megohms minimum @ 250V DC
Dielectric Strength: 250V AC minimum between contacts for 1 minute minimum
Mechanical Life: 500,000 operations minimum
Electrical Life: 500,000 operations minimum
Nominal Operating Force: Standard: 1.5N ±0.5 Newtons
High: 2.5N ±0.8 Newtons
Stroke: 1.5mm (.059")

Materials & Finishes
Actuator: Silicon rubber
Case: Polycarbonate resin
Base: Glass fiber reinforced polyamide resin
Movable Contact: Silver over nickel with gold plating
Stationary Contacts: Brass with gold plating
Switch Terminals: Brass with gold plating

Environmental Data
Operating Temperature Range: -25°C through +50°C (-13°F through +122°F) for Illuminated
-25°C through +70°C (-13°F through +158°F) for Nonilluminated
Humidity: 90 ~ 95% humidity for 96 hours @ 40°C (104°F)
Vibration: 10 ~ 55Hz with peak-to-peak amplitude of 1.5mm traversing the frequency range & returning in 1 minute; 3 right angled directions for 2 hours
Shock: 50G (490m/s²) acceleration (tested in 6 right angled directions, with 5 shocks in each direction)

Installation
Cap Installation Force: 5.0N maximum downward force on actuator

PCB Processing
Soldering: Wave Soldering: 270°C maximum @ 6 seconds maximum
Manual Soldering: 390°C maximum @ 4 seconds maximum
Cleaning: These devices are not process sealed. Hand clean locally using alcohol based solution.

Standards & Certifications
The NP01 Series pushbuttons have not been tested for UL recognition or CSA certification.
These switches are designed for use in a low-voltage, low-current, logic-level circuit.
When used as intended in a logic-level circuit, the results do not produce hazardous energy.
Distinctive Characteristics

Soft touch actuation achieved by mechanical silicon rubber structure.

Distinct, long stroke of 1.5mm (.059”).

Entire cap is fully illuminated with single or bicolor LED.

Compact design with dimension of 12.5mm (.492”) from PC board to top of cap.

Alternating legend options with bicolor LED.

Available in both high (2.5N) or standard (1.5N) operating force.

Gold plated contacts provide high reliability.

Crimped terminals ensure secure PC mounting and prevent dislodging during soldering.

Molded-in terminals prevent entry of flux, solvents, and other contaminants.
### TYPICAL SWITCH ORDERING EXAMPLE

**NP0115HG03LF-JF**

- **Pole & Circuit**: 15 SPST OFF (ON)
- **Contacts & Terminals**: Gold Contacts and PC Terminals, Rated 0.4VA @ 28V AC/DC
- **Illumination**: Illuminated
- **Packaging**: Partitioned Tray, Any Quantity (With or without caps installed)
- **LEDs**: Single or Bicolor LED
- **Cap Types & Colors**: Solid Color Cap
- **Bicolor Alternating Legend Caps**: Clear Lens with Green Diffuser
- **Operating Force**: Standard (1.5N) (Black Switch Body)
- **Nonilluminated**: No LED

### Contacts & Terminals

<table>
<thead>
<tr>
<th>Color</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Red/Green</td>
<td>AT3023JCF11 ~ AT3023JCF14</td>
</tr>
<tr>
<td>Amber/Blue</td>
<td>AT3023JDG11 ~ AT3023JDG14</td>
</tr>
</tbody>
</table>

Refer to Ordering Table for Alternating Legend that corresponds with last 2 digits of part number.

### DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

- **High (2.5N) Operating Force**
- **SPST OFF-Momentary ON Circuit**
- **Normally Open Contacts**
- **Clear Lens with Green Diffuser**
- **Green LED**
- **Gold Contacts with 0.4VA Rating**
- **Straight PC Terminals**
# Subminiature Smooth Actuation Pushbuttons

## Series NP01

### POLE & CIRCUIT

#### Illuminated Models

<table>
<thead>
<tr>
<th>Pole</th>
<th>Model</th>
<th>Plunger Position</th>
<th>Connected Terminals</th>
<th>Throw &amp; Switch Schematic</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>NP0115AG03L</td>
<td>OFF (ON)</td>
<td>Normally Open</td>
<td>SPST</td>
</tr>
<tr>
<td></td>
<td>NP0115HG03L</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes: Switch is marked with LC1, 1, L3, L4, L1, L2, 2, LC2. Lamp circuit is isolated and requires an external power source.

#### Nonilluminated Models

<table>
<thead>
<tr>
<th>Pole</th>
<th>Model</th>
<th>Plunger Position</th>
<th>Connected Terminals</th>
<th>Throw &amp; Switch Schematic</th>
</tr>
</thead>
<tbody>
<tr>
<td>SP</td>
<td>NP0115AG03N</td>
<td>OFF (ON)</td>
<td>Normally Open</td>
<td>SPST</td>
</tr>
<tr>
<td></td>
<td>NP0115HG03N</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: Switch is marked with LC1, 1, L3, L4, L1, L2, 2, LC2.

### OPERATING FORCE

- **A**: Standard Nominal Operating Force
  - 1.5 ±0.5N
  - Switch base is Black
- **H**: High Nominal Operating Force
  - 2.5 ±0.8N
  - Switch base is Gray

### CONTACTS, TERMINALS, & RATING

- **G03**: Gold Contacts
- **Straight PC Terminals**: 0.4VA maximum @ 28V AC/DC maximum

### ILLUMINATION

- **Illuminated**: L
- **Nonilluminated**: N

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D77
LEDS are an integral part of the switch and not available separately. The electrical specifications shown are determined at a basic temperature of 25°C.

If the source voltage exceeds the forward voltage, a ballast resistor is required. Specifications in parentheses ( ) below for Bicolor LED denote simultaneous illumination of Red and Green.
**Series NP01**

**CAP TYPES & COLORS (CONTINUED)**

Solid Color Cap for Nonilluminated

**Solid Color Cap for Nonilluminated**

AT3024
12mm Square Cap
Material: Polycarbonate Resin

- **A** Black
- **B** White
- **C** Red
- **H** Gray

**TYPICAL SWITCH DIMENSIONS**

[Illuminated • Straight PC]

**PACKAGING**

- **No Code**
  - Partitioned Tray
    - Any quantity. No code is required. Switches may be packaged with or without caps installed.

- **S** Stick-Tube Packaging
  - 50 pieces per stick
  - Switches must be ordered in 50-piece increments when stick-tube packaging is selected. This packaging is for the switch body only. Caps will be packaged separately.

**LEGAL ORIENTATION**

<table>
<thead>
<tr>
<th>Top View</th>
<th>Bottom View</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPEN</td>
<td>LC2</td>
</tr>
</tbody>
</table>

Orient cap with legend as shown here, and “LC2” at lower right of switch body.

Orders for switches with legends will be assembled as illustrated.

**PRECAUTIONS FOR HANDLING & STORAGE**

1. NP01 Pushbuttons are electrostatically sensitive. To prevent damage to LED, devices must be properly isolated from static electricity.
2. Once the cap is installed onto the switch body, it cannot be removed.
3. When assembling cap, align projection on switch body to slot on inside of cap. (Refer to illustration at right.)
4. *Legends may be printed on the lens with laser etch, screen print or pad print methods. Epoxy based ink is recommended.
5. Do not use excessive force during installation on PC board or for cap installation.

* NKK Switches can provide custom legends for caps. Contact factory for more information.