Series HB2
Subminiature Audio/Video Pushbuttons

General Specifications

Electrical Capacity (Resistive Load)
Logic Level (gold): 0.4VA maximum @ 28V AC/DC maximum
(Applicable Range 0.1mA ~ 0.1A @ 20mV ~ 28V)
Note: Find additional explanation of operating range in Supplement section.

Other Ratings
Contact Resistance: 80 milliohms maximum
Insulation Resistance: 500 megohms minimum @ 500V DC
Dielectric Strength: 500V AC minimum for 1 minute minimum
Mechanical Life: 100,000 operations minimum for momentary;
Electrical Life: 100,000 operations minimum
Nominal Operating Force: 1.8N
Travel: Pretravel .051” (1.3mm); Overtravel .020” (0.5mm); Total Travel .071” (1.8mm)

Materials & Finishes
Housing: Glass fiber reinforced polyamide
Base: Glass fiber reinforced polyamide
Movable Contact: Phosphor bronze with gold plating
Switch Terminals: Brass with gold plating
Lamp Terminals: Steel with silver plating

Environmental Data
Operating Temperature Range: –25°C through +50°C (~–13°F through +122°F)
Humidity: 90 ~ 95% humidity for 240 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: 15.0N (3.37 lbf) maximum downward force on cap

PCB Processing
Soldering: Wave Soldering: See Profile A in Supplement section.
Cleaning: These devices are not process sealed. Hand clean locally using alcohol based solution.

Standards & Certifications
The HB2 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

Quiet actuation combined with crisp tactile feedback suited for broadcast equipment.

Full face illumination with choice of red/green or red/yellow bicolor LEDs, as well as simultaneous bicolor illumination which produces amber.

Option of legends on caps or film insert.

Compact design with short body .669” (17.0mm) from PCB to top of cap and .295” (7.5mm) square cap.

Sliding Twin Crossbar (STC) mechanism provides unequalled logic-level reliability, contact stability, smooth positive detent actuation, and long life.

Crimped power terminals ensure secure PCB mounting and prevent dislodging during soldering.

Suitable applications include broadcast, telecommunication, and medical equipment, as well as measuring instruments, etc.
Series HB2 Subminiature Audio/Video Pushbuttons

TYPICAL SWITCH ORDERING EXAMPLE

HB2 1 5 S K G03 CF — JB

Pole | Model | Normal | Down | Normal | Down
---|---|---|---|---|---
1 | SPST |

Contacts & Terminals
G03 Gold Contacts and PC Terminals, Rated 0.4VA @ 28V AC/DC

Cap Colors
JB Clear Lens/White Diffuser

Housing
K Black

Circuit
5 OFF (ON) { } = Momentary

LEDs
CE Red/Yellow
CF Red/Green

DESCRIPTION FOR TYPICAL ORDERING EXAMPLE
HB215SKG03CF-JB

Red/Green LED
Clear Lens with White Diffuser
Square Shape
Black Housing
SPST OFF–(ON) Circuit
Gold Contacts & PC Terminals with 0.4VA @ 28V AC/DC Rating

POLE & CIRCUIT

Plunger Position ( ) = Momentary
Connected Terminals
Throw & Switch/Lamp Schematics
Notes: Switch terminals are not marked on the switch. Red LED terminal is marked with “R”. Lamp circuit is isolated and requires external power source.

SP | HB215 | OFF (ON) OPEN 1-2 SPST

HOUSING SHAPE & COLOR

S .307" (7.8mm) Square Body
K Black Housing

CONTACT MATERIALS, RATINGS & TERMINALS

G03 Gold Contacts Logic Level 0.4VA maximum @ 28V AC/DC maximum

Switch Terminal
Lamp Terminal
PCB Footprint

www.nkkswitches.com
Subminiature Audio/Video Pushbuttons

Series HB2

BICOLOR LEDS & SPECIFICATIONS

LED is an integral part of the switch.

<table>
<thead>
<tr>
<th>Color</th>
<th>CE</th>
<th>CF</th>
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<tbody>
<tr>
<td>Red/Yellow</td>
<td>Red</td>
<td>Yellow</td>
</tr>
<tr>
<td>Maximum Forward Current $I_{FM}$</td>
<td>* 30mA</td>
<td>* 25mA</td>
</tr>
<tr>
<td>Typical Forward Current $I_{T}$</td>
<td>20mA</td>
<td>20mA</td>
</tr>
<tr>
<td>Forward Voltage $V_f$</td>
<td>2.0V</td>
<td>2.2V</td>
</tr>
<tr>
<td>Maximum Reverse Voltage $V_{RM}$</td>
<td>5V</td>
<td>5V</td>
</tr>
<tr>
<td>Current Reduction Rate Above 25°C $\Delta I_f$</td>
<td>0.40mA/°C</td>
<td>0.33mA/°C</td>
</tr>
<tr>
<td>Ambient Temperature Range</td>
<td>–25° ~ +50°C</td>
<td></td>
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</tbody>
</table>

The electrical specifications shown are determined at a basic temperature of 25°C. LED circuit is isolated and requires an external power source. If the source voltage exceeds the rated voltage, a ballast resistor is required. The resistor value can be calculated by using the formula in the Supplement section.

* Value applies to single color illumination for either Red or Yellow or Red or Green. When both colors are illuminated simultaneously, the sum of the currents should not exceed the smallest value of the maximum forward current.

CAP COLORS

<table>
<thead>
<tr>
<th>J</th>
<th>Clear Transparent Lens</th>
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<tbody>
<tr>
<td>AT3081</td>
<td>Square Lens</td>
</tr>
<tr>
<td>B</td>
<td>White Translucent Diffuser</td>
</tr>
<tr>
<td>AT3082</td>
<td>Square Diffuser</td>
</tr>
</tbody>
</table>

Lens & Diffuser Material: Polycarbonate  
Lens Finish: Glossy  
Diffuser Finish: Frosted

TYPICAL SWITCH DIMENSIONS

LEGENDS

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

Suggested Printable Area for HB2 Lens & Film Insert

Recommended Methods: Screen Print or Pad Print on Lens; Laser Print on Film Insert. Epoxy based ink is recommended. Film Insert: Clear Polyester, 4 mil max. thickness

Shaded areas are printable areas.