

# 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:** Phosphor bronze 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/s<sup>2</sup>) 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.  
Manual Soldering: See Profile B 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.

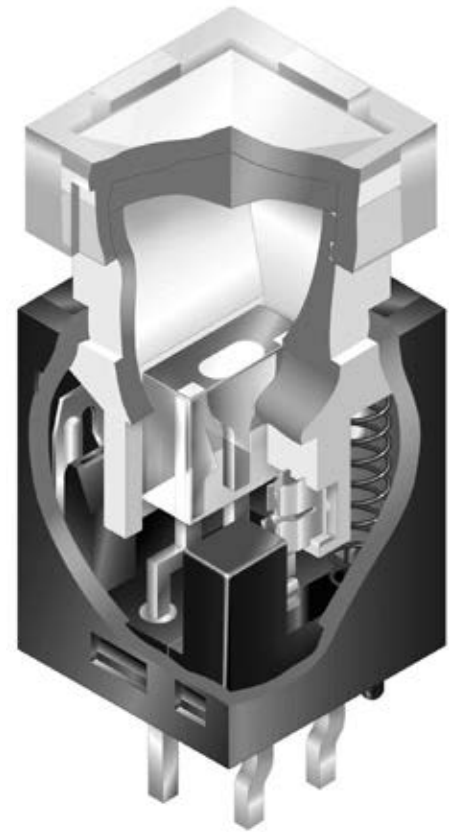
Option of legends on caps or film insert.

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

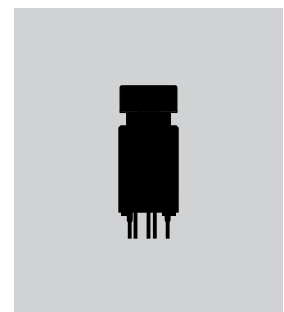
Sliding Twin Crossbar (STC) mechanism provides unequalled logic-level reliability, contact stability, smooth positive detent actuation, and long life.

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.

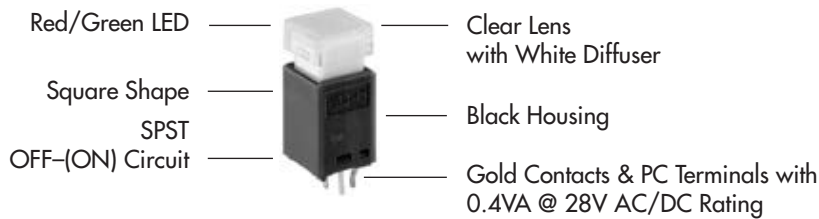
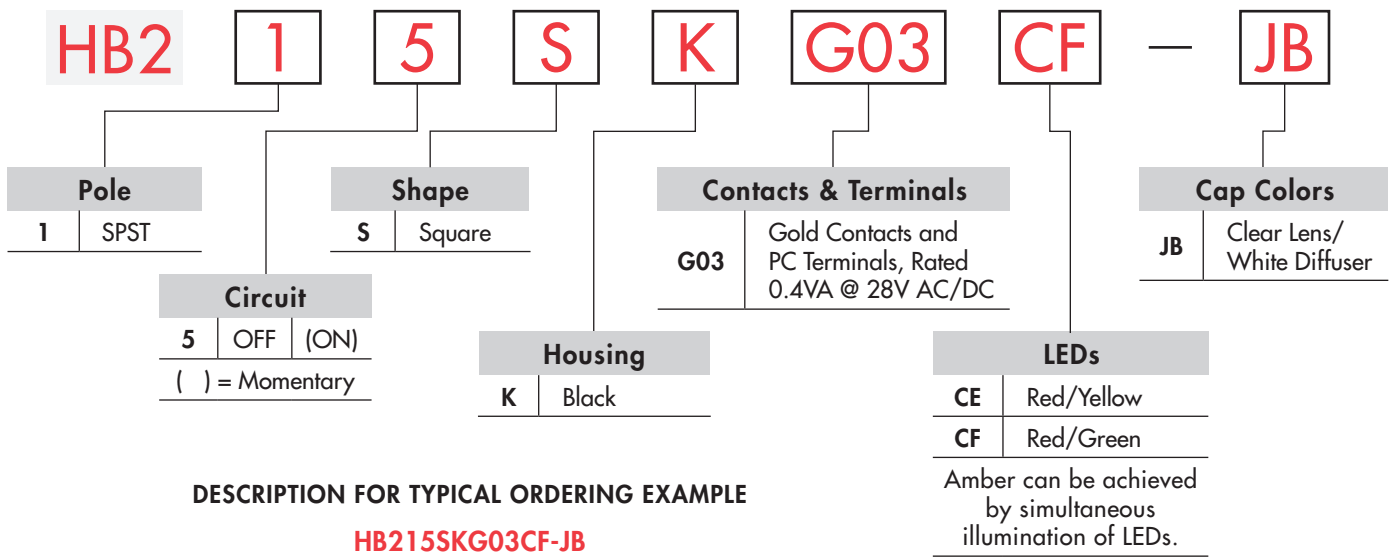


Actual Size



- Supplement
- Accessories
- Indicators
- Touch
- Tilt
- Tactiles
- Slides
- Rotaries
- Keylocks
- Programmable
- D Illuminated PB**
- Pushbuttons
- Rockers
- Toggles

### TYPICAL SWITCH ORDERING EXAMPLE



### POLE & CIRCUIT

Pole	Model	Plunger Position ( ) = Momentary		Connected Terminals		Throw & Switch/Lamp Schematics
		Normal	Down	Normal	Down	
SP	HB215	OFF	(ON)	OPEN	1-2	SPST

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.

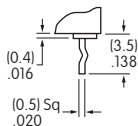
### HOUSING SHAPE & COLOR



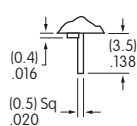
### CONTACT MATERIALS, RATINGS & TERMINALS



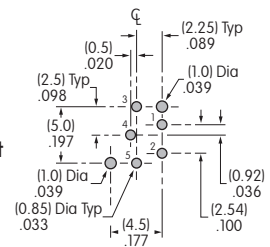
Switch Terminal



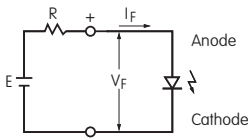
Lamp Terminal



PCB Footprint



## BICOLOR LEDS & SPECIFICATIONS



$$R = \frac{E - V_F}{I_F}$$

Where: R = Resistor Value (Ohms)  
 E = Source Voltage (V)  
 V<sub>F</sub> = Forward Voltage (V)  
 I<sub>F</sub> = Forward Current (A)

LED is an integral part of the switch.

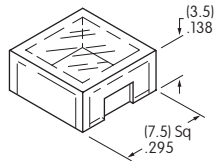
Color	CE		CF	
	Red	Yellow	Red	Green
Maximum Forward Current	I <sub>FM</sub> * 30mA	* 25mA	* 30mA	* 25mA
Typical Forward Current	I <sub>F</sub> 20mA	20mA	20mA	20mA
Forward Voltage	V <sub>F</sub> 2.0V	2.2V	2.0V	2.25V
Maximum Reverse Voltage	V <sub>RM</sub> 5V	5V	5V	5V
Current Reduction Rate Above 25°C	ΔI <sub>F</sub> 0.40mA/°C	0.33mA/°C	0.40mA/°C	0.33mA/°C
Ambient Temperature Range	-25° ~ +50°C			

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.

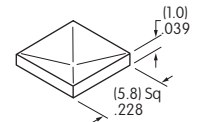
\* Value applies to single color illumination for either Red or Yellow or Red or Green. When both colors are illuminated simultaneously, the sum of the currents should not exceed the smallest value of the maximum forward current.

## CAP COLORS

**J** Clear Transparent Lens  
**AT3081**  
**Square Lens**

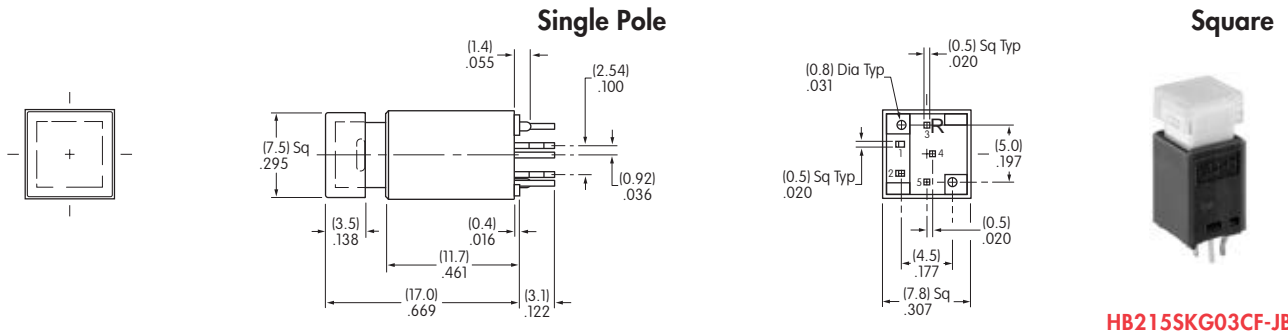


**B** White Translucent Diffuser  
**AT3082**  
**Square Diffuser**



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

## TYPICAL SWITCH DIMENSIONS

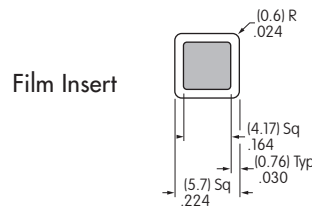
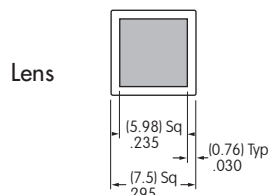
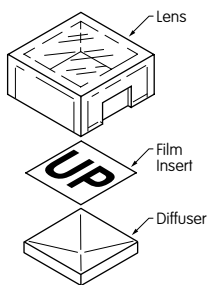


## LEGENDS

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.

Toggle  
 Rockers  
 Pushbuttons  
**D** Illuminated PB  
 Programmable  
 Keylocks  
 Rotaries  
 Slides  
 Tactiles  
 Tilt  
 Touch  
 Indicators  
 Accessories  
 Supplement