

# 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.

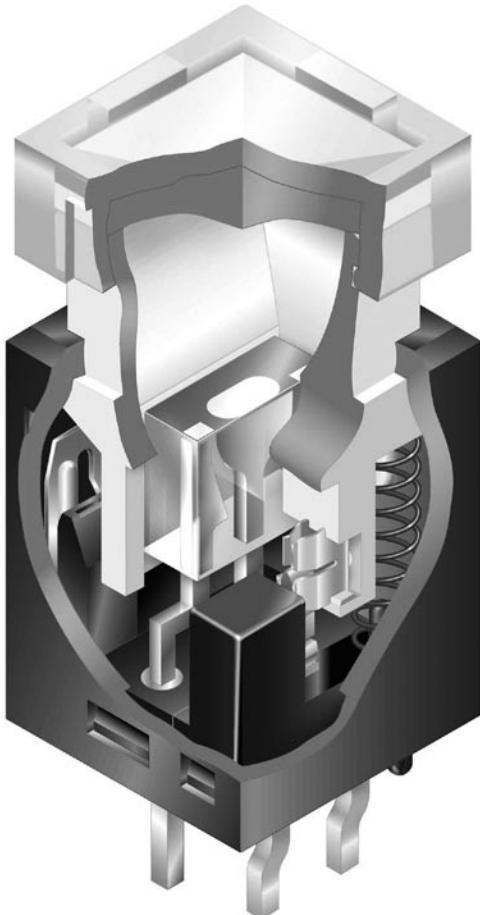
Option of legends on caps or film insert.

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

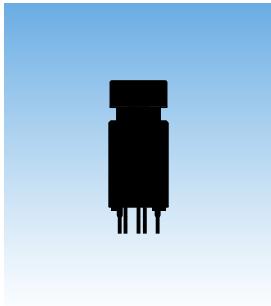
Sliding Twin Crossbar (STC) mechanism provides unequalled logic-level reliability, contact stability, smooth positive detent actuation, and long life.

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



# General Specifications

## Electrical Capacity (Resistive Load)

**Logic Level (code G):** 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 Temp 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

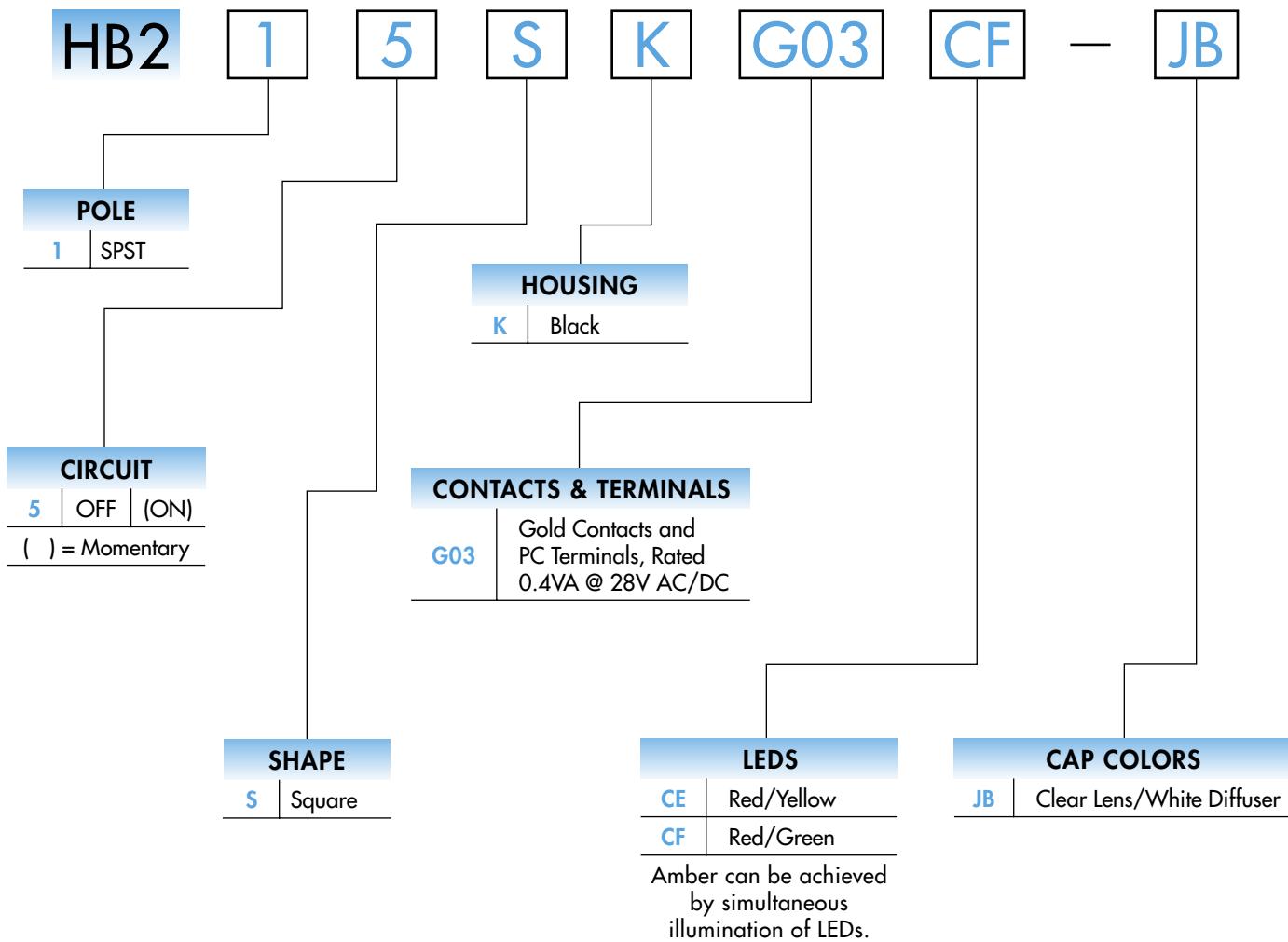
## PCB Processing

**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

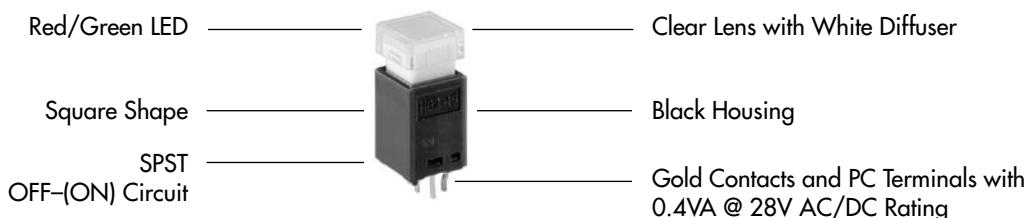
**UL Recognized:  
or CSA Certified:** The HB2 pushbuttons have not been tested for UL recognition or CSA certification.  
These switches are designed for use in a low-voltage, low-current, logic-level circuit.  
When used as intended in a logic-level circuit, the results do not produce hazardous energy.

## TYPICAL SWITCH ORDERING EXAMPLE



## DESCRIPTION FOR TYPICAL ORDERING EXAMPLE

HB215SKG03CF-JB



## POLE &amp; CIRCUIT

		Plunger Position ( ) = Momentary		Connected Terminals		Throw & Switch/Lamp Schematics		
Pole	Model	Normal	Down	Normal	Down	Notes:		
SP	HB215	OFF	(ON)	OPEN	1-2	SPST	 Red LED terminal is marked with "R". Lamp circuit is isolated and requires external power source.	

## HOUSING SHAPE &amp; COLOR



.307" (7.8mm) Square Body



Black Housing

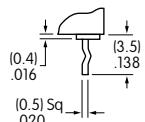
## CONTACT MATERIALS, RATINGS &amp; TERMINALS

G03

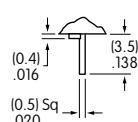
Gold Contacts

Logic Level

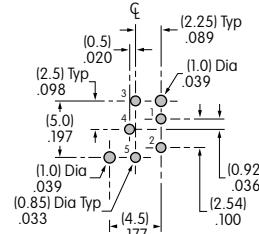
0.4VA maximum @ 28V AC/DC maximum



Switch Terminal

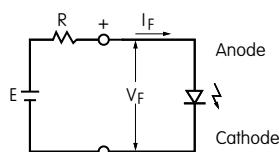


Lamp Terminal



PCB Footprint

## BICOLOR LEDS &amp; 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			Unit
Forward Peak Current	I <sub>FM</sub>	30/30	mA
Continuous Forward Current	I <sub>F</sub>	20/20	mA
Forward Voltage	V <sub>F</sub>	2.0/2.1	V
Reverse Peak Voltage	V <sub>RM</sub>	4/4	V
Current Reduction Rate Above 25°C	ΔI <sub>F</sub>	0.33/0.33	mA/°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 external power source.

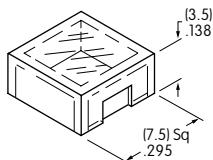
If the source voltage exceeds the rated voltage, a ballast resistor is required.

The resistor value can be calculated by using the formula in the Supplement section.

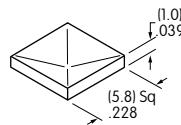
## CAP COLORS

**J**

Clear Transparent Lens

AT3081  
Square Lens**B**

White Translucent Diffuser

AT3082  
Square Diffuser

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

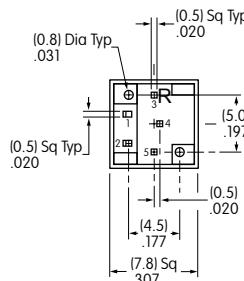
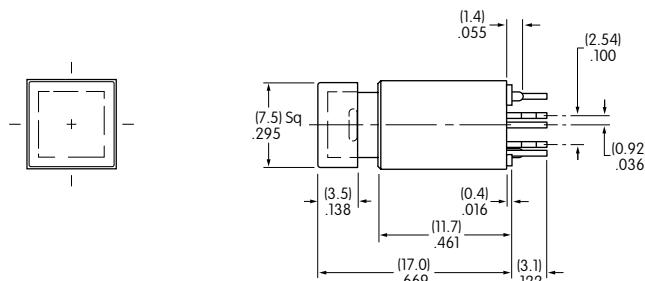
## TYPICAL SWITCH DIMENSIONS

## Square



HB215SKG03CF-JB

## Single Pole



## LEGENDS



Easily create and submit your own legends using our new on-line Legend Maker.

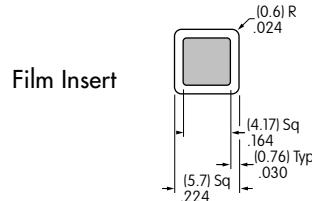
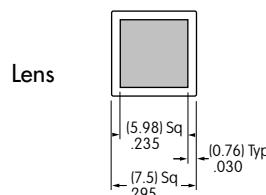
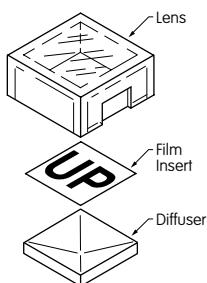
Visit [www.nkkswitches.com](http://www.nkkswitches.com)

For other legend support options, customers may either contact the factory or utilize the general information and basic specifications presented below.

## Suggested Printable Area for HB2 Lens &amp; Film Insert

**Recommended Methods:** Laser Etch, Screen Print, or Pad Print on Lens; Screen Print on Film Insert.

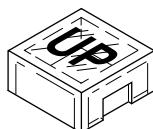
Epoxy based ink is recommended.



Shaded areas are printable areas.

Film Insert: Clear Polyester, 4 mil max. thickness

## Additional Methods



Additional methods for legends are engraving the lens and laser printing on film inserts.

Maximum depth for engraving is .012" (0.3mm) on the cap lens. Enamel paint is recommended to fill the engraved area.