

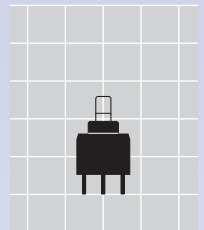
New Product

CONTACT No.104

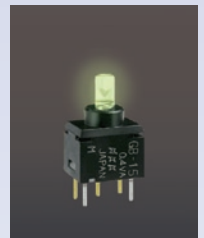


Series **G**

Illuminated-Status Series Fully Illuminated Pushbutton Switch



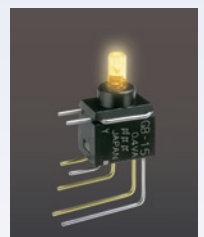
Actual Size



GB15CPF



GB15CHC



GB-15CVD

Creator of a comfortable environment between people and switches

Nihon Kaiheiki Ind. Co., Ltd.

Brilliant Illumination

Fully Illuminated Pushbutton Switch Illuminated-Status Series

Series G

The actuator is entirely illuminated for outstanding visibility. *(Patent pending)*

Actuator with Excellent Visibility
Fully illuminated pushbutton for highly visible status indication with single color LED of green, red, or amber. *(Patent pending)*

Washable
Totally sealed body construction prevents contact contamination and allows time- and money-saving automated soldering and washing.

Insert-molded Terminals
Insert-molded terminals prevent the entry of flux, solvents, and other contaminants and prevent loosening of terminals.

Standard PCB Spacing
Terminal-to-terminal spacing (2.54 mm) matches standard PC board grid spacing.

Environmentally Friendly

- Suited to lead-free solder processing applications because of heat resistant resin materials.
- Components and packaging materials meet RoHS Directive of March 31, 2004, restricting use of hazardous materials such as lead, cadmium, mercury, hexavalent chromium, PBB, and PBDE.

Bright LED
The switch features a bright LED to maximize the visibility of the actuator.

Full Mold Design
Single-mold bushing and body provides superior electrostatic strength.

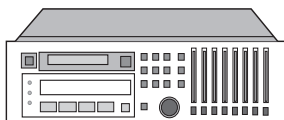
Light Touch
Specially designed mechanism gives reliable switching and a light sense of touch.

Award-winning Contact Mechanism
The sliding twin crossbar (STC) contact mechanism results in smoother, positive detent actuation, increased contact stability, and unparalleled logic-level reliability.



► Applications

Office equipment, video camcorders, electrical measuring instruments, control panels, etc.



Consumer electronics



Office equipment

► Release date

May 26, 2004

► Specifications

Switch Specifications			
Electrical Capacity Common to AC/DC	<ul style="list-style-type: none"> ► Recommended range 0.4 VA max., 28 V max. (Applicable voltage range: 20 mV to 28 V) (Applicable current range: 0.1 mA to 0.1 A) ► For 28 V max. at 0.1 A: life is 10,000 operations. ► Operation is possible at the minimum of 20 mV, 0.1 μA. (For a current of less than 0.1 mA, the specified contact resistance will not be applied.) 	Insulation Resistance	500 MΩ min. at 500 V DC
		Dielectric Strength	500 V AC for one minute min.
		Mechanical Life	50,000 operations min.
		Electrical Life	50,000 operations min.
		Operating Temp. Range	-25 to +55°C
Contact Resistance	80 mΩ or less (at 20 mV, 10 mA) (Contacts not including conductor resistance show 50 mΩ or less.)	Soldering Time & Temperature	<ul style="list-style-type: none"> ► Manual Solder: 4 seconds max. at 390°C max. ► Solder Pot: 6 seconds max. at 265°C max. (Preheating: 40 seconds max. at 110°C max.)

► LED Specifications

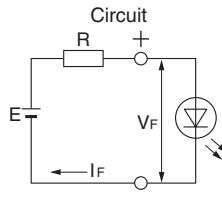
Bright LED Ambient temperature Ta = 25°C				
LED Specification	Single-color Illumination			
LED Color	Green (F)	Red (C)	Amber (D)	Unit
Maximum Operating Current I _{FM}	25	30	30	mA
Recommended Operating Current I _F	20	20	20	mA
Forward Voltage (Typical Value) V _F	2.1	1.9	1.9	V
Maximum Reverse Voltage V _{RM}	5	5	5	V
Current Reduction Ratio at an Operating Temp. of 25°C, ΔI _F	0.36	0.43	0.43	mA/°C
Operating Temp. Range	-25 to +55			°C

LED Circuit Ballast Resistance

To calculate the ballast resistance [R] of the LED circuit, substitute the forward voltage V_F and recommended operating current I_F of each LED's specifications into the following equation.

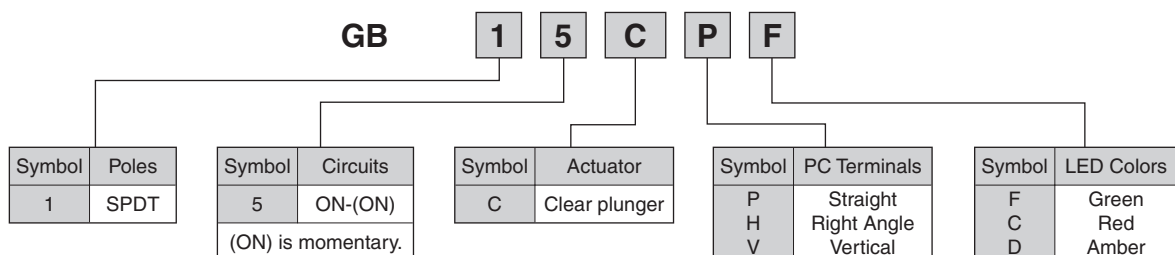
$$R = \frac{E - V_F}{I_F \text{ (recommended value)}}$$

where : E = source voltage
V_F = forward voltage
I_F = recommended operating current
R = ballast resistance



The wattage of resistance R should be twice to three times greater than usual as a safety margin such as for operating ambient temperature.

► Structure of Part Number



► Fully Illuminated Pushbutton Switches

Pushbutton Position (ON) is momentary.		Straight PC Part No.	Right-angle PC Part No.	Vertical PC Part No.	Contact Terminal Number		
		SPDT	SPDT	SPDT	Circuit		
ON	<ON>	GB15CP	GB15CH	GB15CV	SPDT	5-6	4-5

Symbol in : F (green), C (red), or D (amber)

Straight PC terminal

► The terminal numbers are not indicated on the case.

SPDT

► The LED circuit is isolated and requires external power source.

Right-angle PC terminal

► The terminal numbers are not indicated on the case.

SPDT

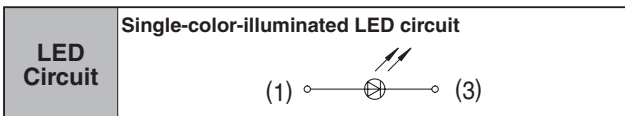
► The LED circuit is isolated and requires external power source.

Vertical PC terminal

► The terminal numbers are not indicated on the case.

SPDT

► The LED circuit is isolated and requires external power source.



► **Handling Instructions**

Flux Removal:

- Alcohol-based cleaning fluid is recommended.
- Do not use an organic solvent.
- Use of high-purity alcohol (an alcohol concentration of 50% or more) may damage the plunger.

Cleaning Conditions:

- Liquid bath 5 cm deep
- Cleaning time 5 minutes maximum
- Do not actuate the switch or exert force on the actuator.

*Note that the specifications are subject to change without notice.

