

# Change Notice

# B Series

## Change to B Illuminated Toggles LED Specifications

Type of Change:

- Engineering     Part Number
- Product         Appearance



LED Changes for B Illuminated Toggles

The B Illuminated Toggles will have a change to the LED specifications for Red, Amber, Green, and bicolor Red/Green. The change will effect all illuminated models, both standard and custom. The specification changes are outlined below, followed by effected standard part numbers.

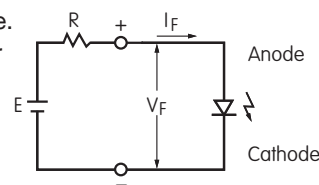
### LED COLORS & SPECIFICATIONS

LEDs are supplied as an integral part of illuminated devices and are not available separately. The electrical specifications shown here are determined at a basic temperature of 25°C.

Color	Before Change				After Change			
	C	D	F	CF	C	D	F	CF
	Red	Amber	Green	Red/Green	Red	Amber	Green	Red/Green
Maximum Forward Current $I_{FM}$	30mA	30mA	20mA	30mA/20mA	30mA	30mA	25mA	30mA/25mA
Typical Forward Current $I_F$	20mA	20mA	10mA	20mA/10mA	20mA	20mA	20mA	20mA/20mA
Forward Voltage $V_F$	1.9V	1.9V	3.4V	1.9V/3.4V	1.95V	2.0V	3.3V	1.95V/3.3V
	( $I_F = 20$ )	( $I_F = 20$ )	( $I_F = 10$ )	( $I_F = 20/10$ )	( $I_F = 20$ )	( $I_F = 20$ )	( $I_F = 20$ )	( $I_F = 20/20$ )
Maximum Reverse Voltage $V_{RM}$	5V	5V	5V	5V/5V	5V	5V	5V	5V/ 5V
Current Reduction Rate Above 25°C $\Delta I_F$	0.43 mA/°C	0.43 mA/°C	0.28 mA/°C	0.43mA/°C/ 0.28mA/°C	0.40 mA/°C	0.40 mA/°C	0.33 mA/°C	0.40mA/°C/ 0.33mA/°C
Ambient Temperature Range	-25°C ~ +55°C				-25°C ~ +55°C			

Notes

- The 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 shown here.
- The changes to LED specifications do not effect any external dimensions of the switches.
- Contact the factory if further details are needed.



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

Where: R = Resistor Value (Ohms)  
E = Source Voltage (V)  
 $V_F$  = Forward Voltage (V)  
 $I_F$  = Forward Current (A)

### PART NUMBERS EFFECTED BY B ILLUMINATED TOGGLES REVISIONS

B12JJPC	B12JJPD	B12JJPF	B12JJPCF	B13JJPCF
B12JJHC	B12JJHD	B12JJHF	B12JJHCF	B13JJHCF
B12JJVC	B12JJVD	B12JJVF	B12JJVCF	B13JJVCF

Effective Date

Changes to B Illuminated Toggles will be effective September 2016.

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# Change Notice

# GB Series

## Change to GB Illuminated Pushbuttons LED Specifications

Type of Change:

- Engineering     Part Number
- Product         Appearance

The GB Illuminated Pushbuttons will have a change to the LED specifications for Red, Amber and Green. The change will effect all illuminated models, both standard and custom. The specification changes are outlined below, followed by effected standard part numbers.



**LED Changes for GB Illuminated Pushbuttons**

### LED COLORS & SPECIFICATIONS

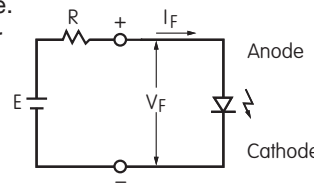
LEDs are supplied as an integral part of illuminated devices and are not available separately. The electrical specifications shown here are determined at a basic temperature of 25°C.

	Color	Before Change			After Change		
		<b>C</b> Red	<b>D</b> Amber	<b>F</b> Green	<b>C</b> Red	<b>D</b> Amber	<b>F</b> Green
Maximum Forward Current	$I_{FM}$	30mA	30mA	25mA	30mA	30mA	30mA
Typical Forward Current	$I_F$	20mA	20mA	20mA	20mA	20mA	20mA
Forward Voltage	$V_F$	1.9V	1.9V	2.1V	1.95V	2.0V	2.1V
		$I_F = 20$	$I_F = 20$	$I_F = 20$	$I_F = 20$	$I_F = 20$	$I_F = 20$
Maximum Reverse Voltage	$V_{RM}$	5V	5V	5V	5V	5V	5V
Current Reduction Rate Above 25°C	$\Delta I_F$	0.43 mA/°C	0.43 mA/°C	0.36 mA/°C	0.40 mA/°C	0.40 mA/°C	0.40 mA/°C
Ambient Temperature Range		-25°C ~ +55°C			-25°C ~ +55°C		



**Notes**

- The 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 shown here.
- The changes to LED specifications do not effect any external dimensions of the switches.
- Contact the factory if further details are needed.



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

Where: R = Resistor Value (Ohms)  
 E = Source Voltage (V)  
 $V_F$  = Forward Voltage (V)  
 $I_F$  = Forward Current (A)

### PART NUMBERS EFFECTED BY G ILLUMINATED PUSHBUTTONS REVISIONS

GB15JPC	GB15JHC	GB15JVC
GB15JPD	GB15JHD	GB15JVD
GB15JPF	GB15JHF	GB15JVF

**Effective Date**

Changes to GB Illuminated Pushbuttons will be effective September 2016.

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