

# 200 Series T-1 3/4 Sub-Miniature LED Replacement Lamp



True replacement for a filament bulb. Suitable for both new-build and retro-fit, (sometimes in very old systems), a wide range of illuminated push button switches and lamp holders can be encountered.



## Applications

- Transportation
- Industrial Equipment
- Status indication
- Trucks
- General Purpose Lighting
- Automotive
- Electronics
- Appliances
- Audio/Video

## Key Features

- T-1 3/4 sub-miniature LED lamp (light bulb)
- Voltage: 2-28 VDC, 120VAC
- Base options: bi-pin, flange, groove, screw, and wedge
- Direct replacement for standard bulb fitting
- Wide angle LED option (NFX)
- MF200C option for center cathode
- Available in six LED single colors: red, amber, green, orange, blue, and white
- Available in one bi-color option: red/green
- Mounts directly into industry standard sockets
- Single chip based LED
- Direct incandescent replacement
- Low power consumption - uses up to 90% less energy than an incandescent lamp
- Low heat generation, LEDs operate significantly cooler than traditional lamps
- Designed for quick installation and reduces overall cost due to less-frequent replacements
- Outstanding reliability
- Fast on/off cycling, shock resistance and long operating life
- For custom colors contact VCC
- Compliant with RoHS and REACH

## Ordering Data

### MF200 (Flange)



Example:  
**MF200-BCA15H**  
 MF200 Series Flange, Amber LED, 15V

### MF200 (Flange - Wide Angle LED)



Example:  
**MF200-NFB12H**  
 MF200 Series Flange, Blue LED, 12V,  
 Wide Angle LED

Part Number	Color	Encapsulation	$\lambda_{pk}$ (nm)	Iv (mcd)	Viewing Angle	Lamp Base	LED Style	Voltage	Max Voltage
MF200-NWA2	Amber	Waterclear	592	2800	30	Flange	Dome	2V	-
MF200-BCG2	Green	Tinted	565	80	24	Flange	Dome	2V	-
MF200-BCR2	Red	Tinted	635	120	35	Flange	Dome	2V	-
MF200-NWR2	Red	Waterclear	634	2800	30	Flange	Dome	2V	-
MF200-LRG2	Red/Green	Waterclear	565/660	90/40	60	Flange	Dome	2V	-
MF200-NWW2	White	Waterclear	-	2500	50	Flange	Dome	2V	-
MF200-BCA5H	Amber	Tinted	583	100	35	Flange	Dome	5V	5.5V
MF200-NWB5H	Blue	Waterclear	465	700	45	Flange	Dome	5V	5.5V
MF200-BCG5H	Green	Tinted	565	80	24	Flange	Dome	5V	5.5V
MF200-NWG5H	Green	Waterclear	520	2400	45	Flange	Dome	5V	5.5V
MF200-GLP5H	Green	-	565	2.3	50	Flange	Dome	5V	-
MF200-NWR5H	Red	Waterclear	634	2800	30	Flange	Dome	5V	5.5V
MF200-BCR5H	Red	Tinted	635	120	35	Flange	Dome	5V	5.5V
MF200-RLP5H	Red	-	635	2.3	50	Flange	Dome	5V	5.5V
MF200-LRG5H	Red/Green	Waterclear	565/660	90/40	60	Flange	Dome	5V	5.5V
MF200-NWW5H	White	Waterclear	-	2500	50	Flange	Dome	5V	5.5V
MF200C-NWW5H	White	Waterclear	-	2500	50	Flange	Dome	5V	5.5V
MF200-BCG12H	Green	Tinted	565	80	24	Flange	Dome	12V	14V
MF200-NWG12H	Green	Waterclear	520	2400	45	Flange	Dome	12V	14V
MF200-LRG12H	Red/Green	Waterclear	565/660	90/40	60	Flange	Dome	12V	14V

## Ordering Data

Part Number	Color	Encapsulation	$\lambda_{pk}$ (nm)	Iv (mcd)	Viewing Angle	Lamp Base	LED Style	Voltage	Max Voltage
MF200-NWW12H	White	Waterclear	-	2500	50	Flange	Dome	12V	14V
MF200C-NWW12H	White	Waterclear	-	2500	50	Flange	Dome	12V	14V
MF200-BCA15H	Amber	Tinted	583	100	35	Flange	Dome	15V	16.5V
MF200-BCG15H	Green	Tinted	565	80	24	Flange	Dome	15V	16.5V
MF200-NWO15H	Orange	Waterclear	605	2000	30	Flange	Dome	15V	16.5V
MF200-BCR15H	Red	Tinted	635	120	35	Flange	Dome	15V	16.5V
MF200-NWA24H	Amber	Waterclear	592	2800	30	Flange	Dome	24V	26V
MF200-BCG24H	Green	Tinted	565	80	24	Flange	Dome	24V	26V
MF200-NWG24H	Green	Waterclear	520	2400	45	Flange	Dome	24V	26V
MF200-NWR24H	Red	Waterclear	634	2800	30	Flange	Dome	24V	26V
MF200-NWW24H	White	Waterclear	-	2500	50	Flange	Dome	24V	26V
MF200-NWA28H	Amber	Waterclear	592	2800	30	Flange	Dome	28V	30V
MF200-NKB28H	Blue	Waterclear	465	3000	15	Flange	Dome	28V	30V
MF200-NWB28H	Blue	Waterclear	465	700	45	Flange	Dome	28V	30V
MF200-BCG28H	Green	Tinted	565	80	24	Flange	Dome	28V	30V
MF200-NWG28H	Green	Waterclear	520	2400	45	Flange	Dome	28V	30V
MF200-NWR28H	Red	Waterclear	634	2800	30	Flange	Dome	28V	30V
MF200-BCR28H	Red	Tinted	635	120	35	Flange	Dome	28V	30V
MF200-NWW28H	White	Waterclear	-	2500	50	Flange	Dome	28V	30V
MF200C-NWW28H	White	Waterclear	-	2500	50	Flange	Dome	28V	30V
MF200-NKG120	Green	Waterclear	520	10000	15	Flange	Dome	120V	130V
MF200-NWR120	Red	Waterclear	634	2800	30	Flange	Dome	120V	-
MF200-NWW120	White	Waterclear	-	2500	50	Flange	Dome	120V	-

## Ordering Data

Part Number	Color	Encapsulation	$\lambda_{pk}$ (nm)	Iv (mcd)	Viewing Angle	Lamp Base	LED Style	Voltage	Max Voltage
MF200-NFR2-R-	Red	Waterclear	634	780	75	Flange	Flat	2V	-
MF200-NFR2	Red	Waterclear	634	780	75	Flange	Flat	2V	4V
MF200-NFW2	White	Waterclear	-	280	75	Flange	Flat	2V	-
MF200-NFA5H	Amber	Waterclear	592	600	75	Flange	Flat	5V	5.5V
MF200-NFB5H	Blue	Waterclear	465	168	75	Flange	Flat	5V	5.5V
MF200-NFG5H	Green	Waterclear	520	780	75	Flange	Flat	5V	5.5V
MF200-NFR5H	Red	Waterclear	634	780	75	Flange	Flat	5V	5.5V
MF200-NFW5H	White	Waterclear	-	280	75	Flange	Flat	5V	5.5V
MF200C-NFW5H	White	Waterclear	-	280	75	Flange	Flat	5V	5.5V
MF200-NFR6H	Red	Waterclear	634	780	75	Flange	Flat	6V	7V
MF200-NFA12H	Amber	Waterclear	592	600	75	Flange	Flat	12V	14V
MF200-NFB12H	Blue	Waterclear	465	168	75	Flange	Flat	12V	14V
MF200-NFG12H	Green	Waterclear	520	780	75	Flange	Flat	12V	14V
MF200-NFR12H	Red	Waterclear	634	780	75	Flange	Flat	12V	14V
MF200-NFW12H	White	Waterclear	-	280	75	Flange	Flat	12V	14V
MF200-NFO15H	Orange	Waterclear	-	-	75	Flange	Flat	15V	16.5V
MF200-NFR15H	Red	Waterclear	634	780	75	Flange	Flat	15V	16.5V
MF200-NFW15H	White	Waterclear	-	280	75	Flange	Flat	15V	16.5V
MF200-NFA24H	Amber	Waterclear	592	600	75	Flange	Flat	24V	26V
MF200-NFG24H	Green	Waterclear	520	780	75	Flange	Flat	24V	26V
MF200-NFR24H	Red	Waterclear	634	780	75	Flange	Flat	24V	26V
MF200-NFW24H-R-	White	Waterclear	-	280	75	Flange	Flat	24V	26V
MF200-NFW24H	White	Waterclear	-	280	75	Flange	Flat	24V	26V

## Ordering Data

Part Number	Color	Encapsulation	$\lambda_{pk}$ (nm)	Iv (mcd)	Viewing Angle	Lamp Base	LED Style	Voltage	Max Voltage
MF200-NFA28H	Amber	Waterclear	592	600	75	Flange	Flat	28V	30V
MF200C-NFA28H	Amber	Waterclear	592	600	75	Flange	Flat	28V	30V
MF200-NFB28H	Blue	Waterclear	465	168	75	Flange	Flat	28V	30V
MF200-NFG28H-R-	Green	Waterclear	520	780	75	Flange	Flat	28V	30V
MF200-NFG28H	Green	Waterclear	520	780	75	Flange	Flat	28V	30V
MF200C-NFG28H	Green	Waterclear	520	780	75	Flange	Flat	28V	30V
MF200-NFO28H	Orange	Waterclear	-	-	75	Flange	Flat	28V	30V
MF200-NFR28H	Red	Waterclear	634	780	75	Flange	Flat	28V	30V
MF200C-NFR28H	Red	Waterclear	634	780	75	Flange	Flat	28V	30V
MF200-NFW28H	White	Waterclear	-	280	75	Flange	Flat	28V	30V
MF200C-NFW28H	White	Waterclear	-	280	75	Flange	Flat	28V	30V
MF200-NFA120	Amber	Waterclear	592	600	75	Flange	Flat	120V	-
MF200-NFR120	Red	Waterclear	634	780	75	Flange	Flat	120V	-
MF200-NFW120	White	Waterclear	-	280	75	Flange	Flat	120V	-

## Ordering Data

### MG200 (Groove)



Example:  
**MG200-LRG12H**  
 MG200 Series Groove, Red/Green LED,  
 12V

### MG200 (Groove - Wide Angle LED)



Example:  
**MG200-NFR12H**  
 MG200 Series Groove, Red LED, 12V,  
 Wide Angle LED

Part Number	Color	Encapsulation	$\lambda_{pk}$ (nm)	Iv (mcd)	Viewing Angle	Lamp Base	LED Style	Voltage	Max Voltage
MG200-LRG12H	Red/Green	Waterclear	565/660	90/40	60	Groove	Dome	12V	14V
MG200-LRG15H	Red/Green	Waterclear	565/660	90/40	60	Groove	Dome	15V	16.5V
MG200-NWA24H	Amber	Waterclear	592	2800	30	Groove	Dome	24V	26V
MG200-NWG120	Green	Waterclear	520	2400	45	Groove	Dome	120V	-
MG200-NFA12H	Amber	Waterclear	592	600	75	Groove	Flat	12V	14V
MG200-NFR12H	Red	Waterclear	634	780	75	Groove	Flat	12V	14V

### MS200 (Screw)



Example:  
**MS200-NKW2**  
 MS200 Series Screw, White LED, 2V

Part Number	Color	Encapsulation	$\lambda_{pk}$ (nm)	Iv (mcd)	Viewing Angle	Lamp Base	LED Style	Voltage	Max Voltage
MS200-NKW2	White	Waterclear	-	5600	20	Screw	Dome	2V	-
MS200-NFW2	White	Waterclear	-	280	75	Screw	Flat	2V	4V

## Ordering Data

### WB201 (Wedge)



Example:

#### WB201-NWA24H

WB201 Series Wedge, Amber LED, 24V

### WB201 (Wedge - Wide Angle LED)



Example:

#### WB201-NFG24H

WB201 Series Wedge, Green LED, 24V,  
Wide angle LED

Part Number	Color	Encapsulation	$\lambda_{pk}$ (nm)	Iv (mcd)	Viewing Angle	Lamp Base	LED Style	Voltage	Max Voltage
WB201-NWB24H	Blue	Waterclear	465	700	45	Wedge	Dome	24V	26V
WB201-NWA24H	Amber	Waterclear	592	2800	30	Wedge	Dome	24V	26V
WB201-NWG24H	Green	Waterclear	520	2400	45	Wedge	Dome	24V	26V
WB201-NWW24H	White	Waterclear	-	2500	50	Wedge	Dome	24V	26V
WB201-NWL28H	Warm White	Waterclear	-	1800	50	Wedge	Dome	28V	30V
WB201-NWR28H	Red	Waterclear	634	2800	30	Wedge	Dome	28V	30V
WB201-NWW28H	White	Waterclear	-	2500	50	Wedge	Dome	28V	30V
WB201-NFA24H	Amber	Waterclear	592	600	75	Wedge	Flat	24V	26V
WB201-NFG24H	Green	Waterclear	520	780	75	Wedge	Flat	24V	26V
WB201-NFG24H-BP	Green	Waterclear	520	780	75	Wedge	Flat	24V	26V
WB201-NFR24H	Red	Waterclear	634	780	75	Wedge	Flat	24V	26V
WB201-NFR24H-BP	Red	Waterclear	634	780	75	Wedge	Flat	24V	26V
WB201-NFW24H-BP	White	Waterclear	-	280	75	Wedge	Flat	24V	26V
WB201-NFW28H	White	Waterclear	-	280	75	Wedge	Flat	28V	30V
WB201-NFR120	Red	Waterclear	634	780	75	Wedge	Flat	120V	-

## Ordering Data

### BP202 (B-Pin)



Example:

**BP202-BCA24H**

BP202 Series Bi-Pin, Amber LED, 24V

### BP202 (Bi-Pin - Wide Angle LED)



Example:

**BP202-NFG24H**

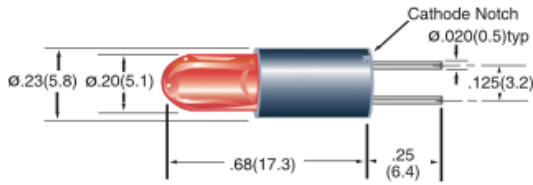
BP202 Series Bi-Pin, Green LED, 24V,  
Wide Angle LED

Part Number	Color	Encapsulation	$\lambda_{pk}$ (nm)	Iv (mcd)	Viewing Angle	Lamp Base	LED Style	Voltage	Max Voltage
BP202-BCA24H	Amber	Tinted	583	100	35	Bi-Pin	Dome	24V	26V
BP202-BCG24H	Green	Tinted	565	80	24	Bi-Pin	Dome	24V	26V
BP202-NWG24H	Green	Waterclear	520	2400	45	Bi-Pin	Dome	24V	26V
BP202-NWR24H	Red	Waterclear	634	2800	30	Bi-Pin	Dome	24V	26V
BP202-BCR24H	Red	Tinted	635	120	35	Bi-Pin	Dome	24V	26V
BP202-NFR12H	Red	Waterclear	634	780	75	Bi-Pin	Flat	12V	14V
BP202-NFA24H	Amber	Waterclear	592	600	75	Bi-Pin	Flat	24V	26V
BP202-NFB24H	Blue	Waterclear	465	168	75	Bi-Pin	Flat	24V	26V
BP202-NFG24H	Green	Waterclear	520	780	75	Bi-Pin	Flat	24V	26V
BP202-NFR24H	Red	Waterclear	634	780	75	Bi-Pin	Flat	24V	26V
BP202-NFA28H	Amber	Waterclear	592	600	75	Bi-Pin	Flat	28V	30V
BP202-NFG28H	Green	Waterclear	520	780	75	Bi-Pin	Flat	28V	30V
BP202-NFR28H	Red	Waterclear	634	780	75	Bi-Pin	Flat	28V	30V
BP202-NFW28H	White	Waterclear	-	280	75	Bi-Pin	Flat	28V	30V

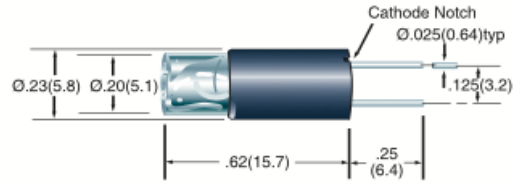


# Product Dimensions

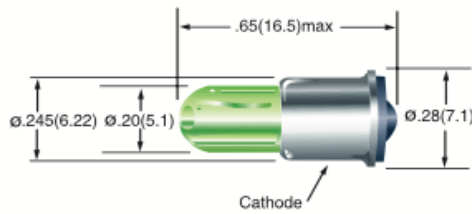
## BP202 (Bi-Pin)



## BP202 (Bi-Pin - Wide Angle)

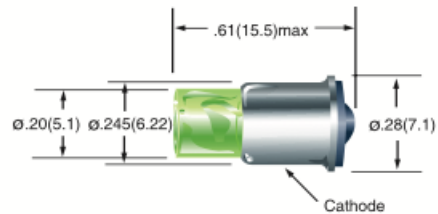


## MF200 (Flange)



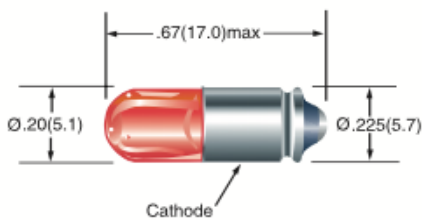
Available with Center Cathode

## MF200 (Flange - Wide Angle)

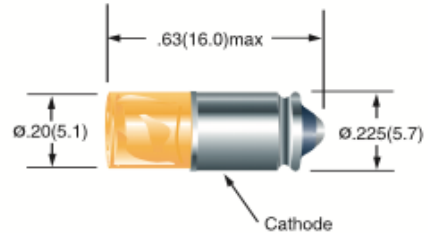


Available with Center Cathode

## MG200 (Groove)



## MG200 (Groove - Wide Angle)

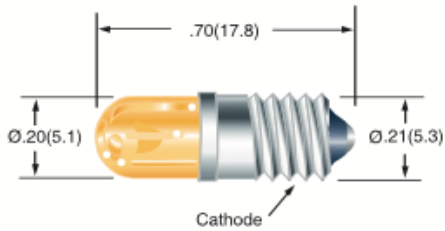


### Notes:

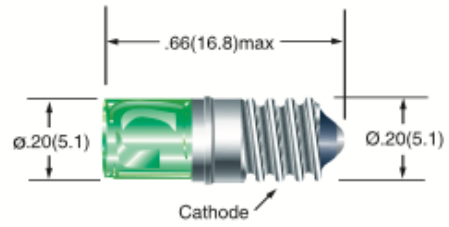
1. All dimensions are in inches (millimeters)
2. Tolerance is  $\pm 0.25''$  unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

## Product Dimensions

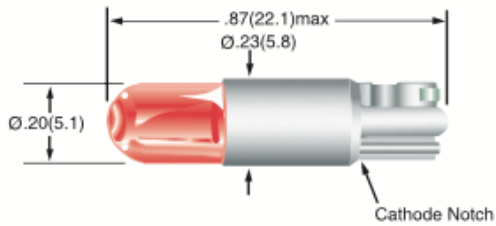
### MS200 (Screw - Wide Angle)



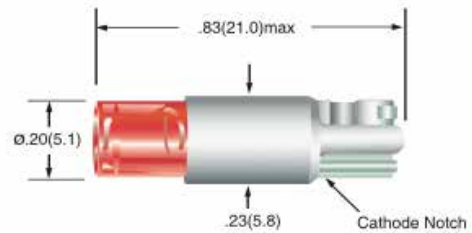
### MS200 (Screw - Wide Angle)



### WB201 (Wedge)



### WB201 (Wedge - Wide Angle)



Refer to WB201 Drawing for WB200

#### Notes:

1. All dimensions are in inches (millimeters)
2. Tolerance is  $\pm 0.25''$  unless otherwise noted.
3. The specifications, characteristics and technical data described in the datasheet are subject to change without prior notice.

## Lamp Cross-reference

Part Number	Design Voltage	Base Description	VCC Model Number	Suggested VCC Part Number
17	28	Sub-Miniature Wedge	WB201	WB201-NFX28H
18	14	Sub-Miniature Wedge	WB201	WB201-NFX15H
37	14	Sub-Miniature Wedge	WB201	WB201-NFX15H
56	5	Sub-Miniature Wedge	WB201	WB201-NFX5H
73	14	Sub-Miniature Wedge	WB201	WB201-NFX15H
74	14	Sub-Miniature Wedge	WB201	WB201-NFX15H
79	6	Sub-Miniature Wedge	WB201	WB201-NFX6H
84	6.3VAC	Sub-Miniature Wedge	Wb201	WB201-NFX6H
85	28	Sub-Miniature Wedge	WB201	WB201-NFX28H
86	6.3VAC	Sub-Miniature Wedge	WB201	WB201-NFX6H
327	28	Sub-Miniature Flange	MF200	MF200-NFX28H
328	6	Sub-Miniature Flange	MF200	MF200-NFX6H
330	14	Sub-Miniature Flange	MF200	MF200-NFX15H
334	28	Sub-Miniature Groove	MG200	MG200-NFX28H
335	28	Sub-Miniature Screw	MS200	MS200-NFX28H
336	14	Sub-Miniature Groove	MG200	MG200-NFX15H
337	6	Sub-Miniature Groove	MG200	MG200-NFX6H
342	6	Sub-Miniature Screw	MS200	MS200-NFX6H
345	6	Sub-Miniature Flange	MF200	MF200-NFX6H
349	6.3VAC	Sub-Miniature Flange	MF200	MF200-NFX6H
350	6.3VAC	Sub-Miniature Flange	MF200	MF200-NFX6H
369	28	Sub-Miniature Screw	MS200	MS200-NFX28H
370	18	Sub-Miniature Flange	MF200	MF200-NFX24H
373	14	Sub-Miniature Screw	MS200	MS200-NFX15H
376	28	Sub-Miniature Flange	MF200	MF200-NFX28H
377	6.3VAC	Sub-Miniature Flange	MF200	MF200-NFX6H
378	6.3VAC	Sub-Miniature Screw	MS200	MS200-NFX6H
379	6.3VAC	Sub-Miniature Groove	MG200	MG200-NFX6H
380	6.3VAC	Sub-Miniature Flange	MF200	MF200-NFX6H
381	6.3VAC	Sub-Miniature Flange	MF200	MF200-NFX6H
382	14	Sub-Miniature Flange	MF200	MF200-NFX15H
383	14	Sub-Miniature Screw	MS200	MS200-NFX15H
385	28	Sub-Miniature Flange	MF200	MF200-NFX28H
386	14	Sub-Miniature Groove	MG200	MG200-NFX15H
387	28	Sub-Miniature Flange	MF200	MF200-NFX28H
388	28	Sub-Miniature Groove	MG200	MG200-NFX28H
394	12	Sub-Miniature Flange	MF200	MF200-NFX12H
398	6.3VAC	Sub-Miniature Groove	MG200	MG200-NFX6H
399	28	Sub-Miniature Screw	MS200	MS200-NFX28H
459	22	Sub-Miniature Flange	MF200	MF200-NFX24H
1768	6	Sub-Miniature Screw	MS200	MS200-NFX6H
1775	6.3VAC	Sub-Miniature Screw	MS200	MS200-NFX6H
2314	28	Sub-Miniature Bi-Pin	BP202	BP202-NFX28H
2324	28	Sub-Miniature Bi-Pin	BP202	BP202-NFX28H

## Lamp Cross-reference

Part Number	Design Voltage	Base Description	VCC Model Number	Suggested VCC Part Number
2335	14	Sub-Miniature Bi-Pin	BP202	BP202-NFX15H
2337	6.3VAC	Sub-Miniature Bi-Pin	BP202	BP202-NFX6H
3149	5	Sub-Miniature Bi-Pin	BP202	BP202-NFX5H
7001	24	Sub-Miniature Bi-Pin	BP202	BP202-NFX24H
7003	24	Sub-Miniature Bi-Pin	BP202	BP202-NFX24H
7327	28	Sub-Miniature Bi-Pin	BP202	BP202-NFX28H
7328	6	Sub-Miniature Bi-Pin	BP202	BP202-NFX6H
7330	14	Sub-Miniature Bi-Pin	BP202	BP202-NFX15H
7332	5	Sub-Miniature Flange	MF200	MF200-NFX5H
7333	5	Sub-Miniature Flange	MF200	MF200-NFX5H
7335	5	Sub-Miniature Flange	MF200	MF200-NFX5H
7341	28	Sub-Miniature Flange	MF200	MF200-NFX28H
7349	6.3VAC	Sub-Miniature Bi-Pin	BP202	BP202-NFX6H
7361	5	Sub-Miniature Bi-Pin	BP202	BP202-NFX5H
7371	12	Sub-Miniature Bi-Pin	BP202	BP202-NFX12H
7373	14	Sub-Miniature Bi-Pin	BP202	BP202-NFX15H
7376	28	Sub-Miniature Bi-Pin	BP202	BP202-NFX28H
7377	6.3VAC	Sub-Miniature Bi-Pin	BP202	BP202-NFX6H
7380	6.3VAC	Sub-Miniature Bi-Pin	BP202	BP202-NFX6H
7381	6.3VAC	Sub-Miniature Bi-Pin	BP202	BP202-NFX6H
7382	14	Sub-Miniature Bi-Pin	BP202	BP202-NFX15H
7387	28	Sub-Miniature Bi-Pin	BP202	BP202-NFX28H
7876	28	Sub-Miniature Bi-Pin	BP202	BP202-NFX28H
7945	6	Sub-Miniature Bi-Pin	BP202	BP202-NFX6H
8362	14	Sub-Miniature Screw	MS200	MS200-NFX15H
8369	28	Sub-Miniature Screw	MS200	MS200-NFX28H
8384	28	Sub-Miniature Screw	MS200	MS200-NFX28H
8918	14	Sub-Miniature Flange	MF200	MF200-NFX15H

## Compliances and Approvals

