

LED



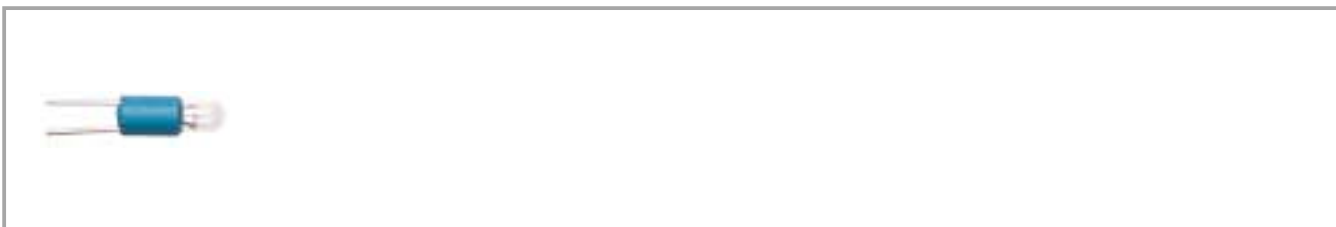
LED W 2 x 4.6d superbright



Socket	Colour	Forward voltage typ. U_F at I_F	Max. current, I_F	Light intensity	Order no. complete	Accessory lamp extractor
W 2 x 4.6d	red	24 V	12 mA	70 mcd	1.90.690.361/0000	1.90.900.003/0000
W 2 x 4.6d	green	24 V	12 mA	600 mcd	1.90.690.362/0000	1.90.900.003/0000
W 2 x 4.6d	yellow	24 V	12 mA	80 mcd	1.90.690.363/0000	1.90.900.003/0000
W 2 x 4.6d	blue	24 V	12 mA	300 mcd	1.90.690.364/0000	1.90.900.003/0000
W 2 x 4.6d	white	24 V	12 mA	400 mcd	1.90.690.365/0000	1.90.900.003/0000

All LEDs are provided with a protective diode. Operating temperature - 30 °C ... + 65 °C.
For more intensive colours, please combine coloured lenses with suitable LED colours.

LED Bi-Pin T 1



Socket	Colour	Forward voltage typ. U_F at I_F	Max. current, I_F	Light intensity	Order no. complete	Accessory lamp extractor
Bi-Pin T 1	red	2 V	10 mA	26-52 mcd	1.90.691.026/0000	1.90.900.001/0000
Bi-Pin T 1	green	2 V	10 mA	9-33 mcd	1.90.691.027/0000	1.90.900.001/0000
Bi-Pin T 1	yellow	2 V	10 mA	26-52 mcd	1.90.691.028/0000	1.90.900.001/0000

Voltage U_B : External resistor: $R_V = (U_B - U_F) : I_F$

A suitable series resistor must be fitted externally.

Recommended resistor ratings:

- for 5 - 7 V = 270 Ω 0.25 W
- for 12 - 14 V = 680 Ω 0.50 W
- for 24 - 28 V = 1500 Ω 1.00 W

Forward voltage U_F : 2 V (3 V max.)

Reverse voltage U_R : 5 V

Reverse current I_R : 100 μ A.

Forward current: 10 mA

Operating temperature: -20°C ... +60°C

Storage temperature: -30°C ... +80°C

Operating life: 100,000 h (at $T_U = 25^\circ\text{C}$)

LED Bi-Pin T 1 superbright



Socket	Colour	Forward voltage typ. U_F at I_F	Max. current, I_F	Light intensity	Order no. complete	Accessory lamp extractor
Bi-Pin T 1	red	24	11 mA	70 mcd	1.90.690.351/0000	1.90.900.001/0000
Bi-Pin T 1	green	24 V	11 mA	600 mcd	1.90.690.352/0000	1.90.900.001/0000
Bi-Pin T 1	yellow	24 V	11 mA	80 mcd	1.90.690.353/0000	1.90.900.001/0000
Bi-Pin T 1	blue	24 V	11 mA	300 mcd	1.90.690.354/0000	1.90.900.001/0000
Bi-Pin T 1	white	24 V	11 mA	400 mcd	1.90.690.355/0000	1.90.900.001/0000

All LEDs are provided with a protective diode. Operating temperature - 30 °C ... + 65 °C.
For more intensive colours, please combine coloured lenses with suitable LED colours.

LED T 4.5



Socket	Colour	Forward voltage typ. U_F at I_F	Max. current, I_F	Light intensity	Order no. complete	Accessory lamp extractor
T 4.5	red	2 - 3 V	10 mA	26-52 mcd	1.90.692.001/0000	1.90.900.001/0000
T 4.5	green	2 - 3 V	10 mA	9-33 mcd	1.90.692.002/0000	1.90.900.001/0000
T 4.5	yellow	2 - 3 V	10 mA	26-52 mcd	1.90.692.003/0000	1.90.900.001/0000

Voltage U_B : External resistor: $R_V = (U_B - U_F) : I_F$

A suitable series resistor must be fitted externally.

Recommended resistor ratings:

- for 5 - 7 V = 270 Ω 0.25 W
- for 12 - 14 V = 680 Ω 0.50 W
- for 24 - 28 V = 1500 Ω 1.00 W

Forward voltage U_F : 2 V (3 V max.)

Reverse voltage U_R : 5 V

Reverse current I_R : 100 μ A.

Forward current: 10 mA

Operating temperature: -20°C ... +60°C

Storage temperature: -30°C ... +80°C

Operating life: 100,000 h (at $T_U = 25^\circ\text{C}$)

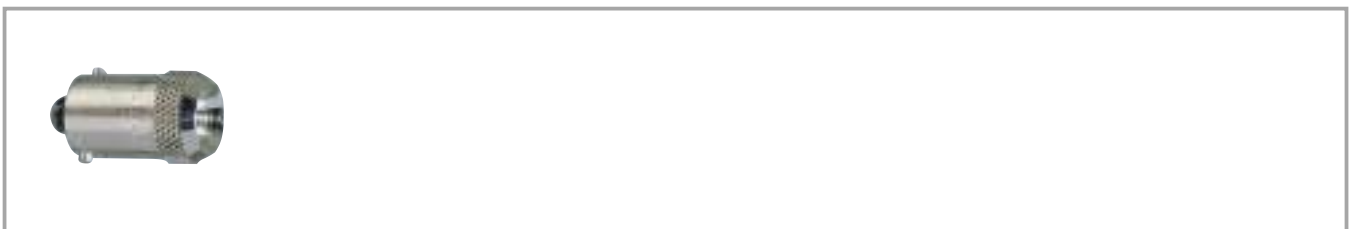
LED T 4.5 superbright



Socket	Colour	Forward voltage typ. U_F at I_F	Max. current, I_F	Light intensity	Order no. complete	Accessory lamp extractor
T 4.5	red	24 V	13 mA	90 mcd	1.90.690.331/0000	1.90.900.004/0000
T 4.5	green	24 V	13 mA	700 mcd	1.90.690.332/0000	1.90.900.004/0000
T 4.5	yellow	24 V	13 mA	100 mcd	1.90.690.333/0000	1.90.900.004/0000
T 4.5	blue	24 V	13 mA	380 mcd	1.90.690.334/0000	1.90.900.004/0000
T 4.5	white	24 V	13 mA	500 mcd	1.90.690.335/0000	1.90.900.004/0000

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For more intensive colours, please combine coloured lenses with suitable LED colours.

LED BA 9s (MBC/MCC) superbright



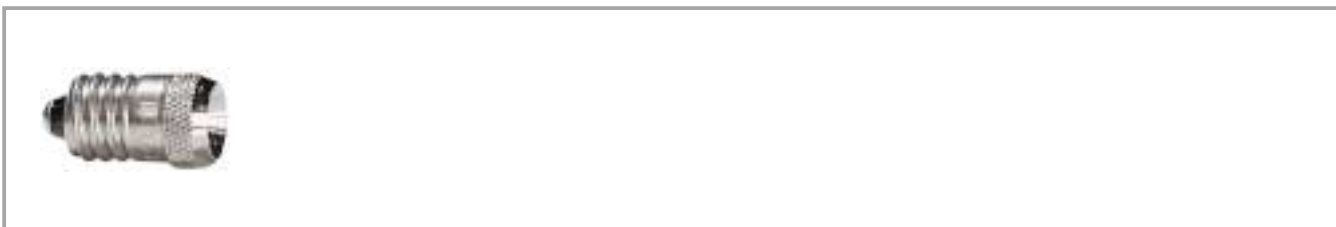
Socket	Colour	Forward voltage typ. U_F at I_F	Max. current, I_F	Light intensity	Order no. complete	Accessory lamp extractor
BA 9 s	red	24 V	15 mA	250 mcd	1.90.690.341/0000	1.90.900.007/0000
BA 9 s	green	24 V	15 mA	1000 mcd	1.90.690.342/0000	1.90.900.007/0000
BA 9 s	yellow	24 V	15 mA	250 mcd	1.90.690.343/0000	1.90.900.007/0000
BA 9 s	blue	24 V	15 mA	450 mcd	1.90.690.344/0000	1.90.900.007/0000
BA 9 s	white	24 V	15 mA	600 mcd	1.90.690.345/0000	1.90.900.007/0000

All LEDs are provided with a protective diode. Operating temperature - 30 °C ... + 65 °C.
For more intensive colours, please combine coloured lenses with suitable LED colours.

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Lamps

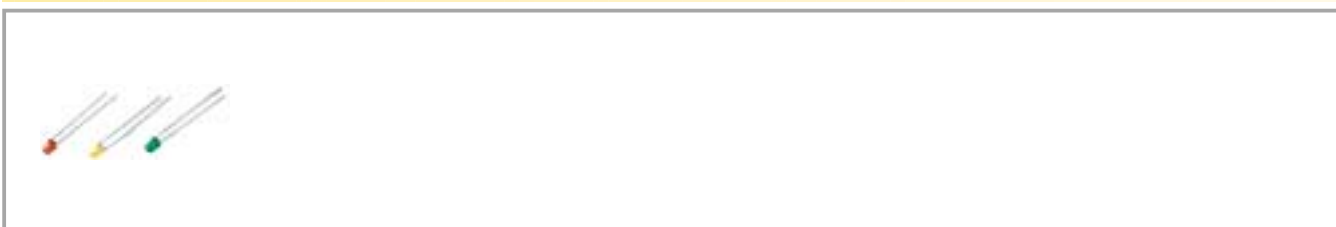
LED E 10 (MES) superbright



Socket	Colour	Forward voltage typ. U_F at I_F	Max. current, I_F	Light intensity	Order no. complete	Accessory lamp extractor
E 10	red	24 V	15 mA	250 mcd	1.90.690.371/0000	1.90.900.007/0000
E 10	green	24 V	15 mA	1000 mcd	1.90.690.372/0000	1.90.900.007/0000
E 10	yellow	24 V	15 mA	250 mcd	1.90.690.373/0000	1.90.900.007/0000
E 10	blue	24 V	15 mA	450 mcd	1.90.690.374/0000	1.90.900.007/0000
E 10	white	24 V	15 mA	600 mcd	1.90.690.375/0000	1.90.900.007/0000

All LEDs are provided with a protective diode. Operating temperature - 30 °C ... + 65 °C.
For more intensive colours, please combine coloured lenses with suitable LED colours.

LED 3 mm, without base



Socket	Colour	Forward voltage typ. U_F at I_F	Max. current, I_F	Light intensity	Order no. complete	Accessory lamp extractor
without socket	red	1.6 V/1 mA	30 mA		1.90.690.228/0000	
without socket	yellow	2 V/10 mA	20 mA		1.90.690.103/0000	
without socket	yellow	1.9 V/20 mA	50 mA		1.90.690.267/0000	
without socket	red	1.9 V/20 mA	50 mA		1.90.690.269/0000	
without socket	blue	3.6 V/20 mA	30 mA		1.90.690.282/0000	
without socket	green	3.5 V/20 mA	30 mA		1.90.690.285/0000	
without socket	white	3.6 V/20 mA	30 mA		1.90.690.295/0000	