



**THE DATASHEET OF
VLZ3V0B-GS08**



Small Signal Zener Diodes



FEATURES

- Very sharp reverse characteristic
- Low reverse current level
- Very high stability
- Low noise
- High reliability
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912


RoHS
COMPLIANT

| PRIMARY CHARACTERISTICS | | |
|------------------------------|---------------|------|
| PARAMETER | VALUE | UNIT |
| V _Z range nom. | 2.4 to 56 | V |
| Test current I _{ZT} | 10; 5 | mA |
| V _Z specification | Pulse current | |
| Int. construction | Single | |

TYPICAL APPLICATIONS

- Voltage stabilization

| ORDERING INFORMATION | | | |
|----------------------|-----------------|--------------------------------|------------------------|
| DEVICE NAME | ORDERING CODE | TAPED UNITS PER REEL | MINIMUM ORDER QUANTITY |
| VLZ-series | VLZ-series-GS18 | 10 000 (8 mm tape on 13" reel) | 10 000 |
| VLZ-series | VLZ-series-GS08 | 2500 (8 mm tape on 7" reel) | 12 500 |

| PACKAGE | | | | |
|-------------------|--------|---|--------------------------------------|--------------------------|
| PACKAGE NAME | WEIGHT | MOLDING COMPOUND FLAMMABILITY RATING | MOISTURE SENSITIVITY LEVEL | SOLDERING CONDITIONS |
| QuadroMELF SOD-80 | 34 mg | UL 94 V-0 | MSL level 1 (according J-STD-020) | 260 °C/10 s at terminals |

| ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified) | | | | |
|---|------------------------------------|-------------------|----------------------------------|------|
| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
| Power dissipation | R _{thJA} ≤ 300 K/W | P _{tot} | 500 | mW |
| Junction to ambient air | On PC board 50 mm x 50 mm x 1.6 mm | R _{thJA} | 500 | K/W |
| Junction temperature | | T _j | 175 | °C |
| Storage temperature range | | T _{stg} | -65 to +175 | °C |
| Zener current | | I _Z | P _{tot} /V _Z | mA |
| Forward voltage (max.) | I _F = 200 mA | V _F | 1.5 | V |



| ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified) | | | | | | | | |
|---|------------------------------------|-------|------------------|------------------|----------------------------------|------|------------------------------------|-------------------------------------|
| PART NUMBER | ZENER VOLTAGE RANGE | | TEST CURRENT | | REVERSE LEAKAGE CURRENT | | DYNAMIC RESISTANCE f = 1 kHz | |
| | V _Z at I _{ZT1} | | I _{ZT1} | I _{ZT2} | I _R at V _R | | Z _Z at I _{ZT1} | Z _{ZK} at I _{ZT2} |
| | V | | mA | | μA | V | Ω | |
| | MIN. | MAX. | | | MAX. | | MAX. | MAX. |
| VLZ2V4A | 2.33 | 2.52 | 20 | 1 | 70 | 1 | 100 | 2000 |
| VLZ2V4B | 2.43 | 2.63 | 20 | 1 | 70 | 1 | 100 | 2000 |
| VLZ2V7A | 2.54 | 2.75 | 20 | 1 | 50 | 1 | 100 | 1000 |
| VLZ2V7B | 2.69 | 2.91 | 20 | 1 | 50 | 1 | 100 | 1000 |
| VLZ3V0A | 2.85 | 3.07 | 20 | 1 | 50 | 1 | 80 | 1000 |
| VLZ3V0B | 3.01 | 3.22 | 20 | 1 | 10 | 1 | 80 | 1000 |
| VLZ3V3A | 3.16 | 3.38 | 20 | 1 | 10 | 1 | 70 | 1000 |
| VLZ3V3B | 3.32 | 3.53 | 20 | 1 | 10 | 1 | 70 | 1000 |
| VLZ3V6A | 3.455 | 3.695 | 20 | 1 | 5 | 1 | 60 | 1000 |
| VLZ3V6B | 3.6 | 3.845 | 20 | 1 | 5 | 1 | 60 | 1000 |
| VLZ3V9A | 3.74 | 4.01 | 20 | 1 | 3 | 1 | 50 | 1000 |
| VLZ3V9B | 3.89 | 4.16 | 20 | 1 | 3 | 1 | 50 | 1000 |
| VLZ4V3A | 4.04 | 4.29 | 20 | 1 | 3 | 1 | 40 | 1000 |
| VLZ4V3B | 4.17 | 4.43 | 20 | 1 | 3 | 1 | 40 | 1000 |
| VLZ4V3C | 4.3 | 4.57 | 20 | 1 | 3 | 1 | 40 | 1000 |
| VLZ4V7A | 4.44 | 4.68 | 20 | 1 | 10 | 2 | 25 | 900 |
| VLZ4V7B | 4.55 | 4.8 | 20 | 1 | 6 | 2 | 25 | 900 |
| VLZ4V7C | 4.68 | 4.93 | 20 | 1 | 3 | 2 | 25 | 900 |
| VLZ5V1A | 4.81 | 5.07 | 20 | 1 | 2 | 2 | 20 | 800 |
| VLZ5V1B | 4.94 | 5.2 | 20 | 1 | 2 | 2 | 20 | 800 |
| VLZ5V1C | 5.09 | 5.37 | 20 | 1 | 2 | 2 | 20 | 800 |
| VLZ5V6A | 5.28 | 5.55 | 20 | 1 | 1 | 2 | 13 | 500 |
| VLZ5V6B | 5.45 | 5.73 | 20 | 1 | 1 | 2 | 13 | 500 |
| VLZ5V6C | 5.61 | 5.91 | 20 | 1 | 1 | 2 | 13 | 500 |
| VLZ6V2A | 5.78 | 6.09 | 20 | 1 | 3 | 4 | 10 | 300 |
| VLZ6V2B | 5.96 | 6.27 | 20 | 1 | 3 | 4 | 10 | 300 |
| VLZ6V2C | 6.12 | 6.44 | 20 | 1 | 3 | 4 | 10 | 300 |
| VLZ6V8A | 6.29 | 6.63 | 20 | 0.5 | 2 | 4 | 8 | 150 |
| VLZ6V8B | 6.49 | 6.83 | 20 | 0.5 | 2 | 4 | 8 | 150 |
| VLZ6V8C | 6.66 | 7.01 | 20 | 0.5 | 2 | 4 | 8 | 150 |
| VLZ7V5A | 6.85 | 7.22 | 20 | 0.5 | 3 | 6.5 | 8 | 120 |
| VLZ7V5B | 7.07 | 7.45 | 20 | 0.5 | 3 | 6.73 | 8 | 120 |
| VLZ7V5C | 7.29 | 7.67 | 20 | 0.5 | 3 | 6.93 | 8 | 120 |
| VLZ8V2A | 7.53 | 7.92 | 20 | 0.5 | 7.5 | 7.15 | 8 | 120 |
| VLZ8V2B | 7.78 | 8.19 | 20 | 0.5 | 7.5 | 7.39 | 8 | 120 |
| VLZ8V2C | 8.03 | 8.45 | 20 | 0.5 | 7.5 | 7.63 | 8 | 120 |
| VLZ9V1A | 8.29 | 8.73 | 20 | 0.5 | 0.04 | 7.88 | 8 | 120 |
| VLZ9V1B | 8.57 | 9.01 | 20 | 0.5 | 0.04 | 8.14 | 8 | 120 |
| VLZ9V1C | 8.83 | 9.3 | 20 | 0.5 | 0.04 | 8.39 | 8 | 120 |
| VLZ10A | 9.12 | 9.59 | 20 | 0.5 | 0.04 | 8.66 | 8 | 120 |
| VLZ10B | 9.41 | 9.9 | 20 | 0.5 | 0.04 | 8.94 | 8 | 120 |
| VLZ10C | 9.7 | 10.2 | 20 | 0.5 | 0.04 | 9.22 | 8 | 120 |
| VLZ10D | 9.94 | 10.44 | 20 | 0.5 | 0.04 | 9.44 | 8 | 120 |
| VLZ11A | 10.18 | 10.71 | 10 | 0.5 | 0.04 | 9.67 | 10 | 120 |
| VLZ11B | 10.5 | 11.05 | 10 | 0.5 | 0.04 | 9.98 | 10 | 120 |



| ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified) | | | | | | | | |
|---|------------------------------------|-------|------------------|------------------|----------------------------------|-------|------------------------------------|-------------------------------------|
| PART NUMBER | ZENER VOLTAGE RANGE | | TEST CURRENT | | REVERSE LEAKAGE CURRENT | | DYNAMIC RESISTANCE f = 1 kHz | |
| | V _Z at I _{ZT1} | | I _{ZT1} | I _{ZT2} | I _R at V _R | | Z _Z at I _{ZT1} | Z _{ZK} at I _{ZT2} |
| | V | | mA | | µA | V | Ω | |
| | MIN. | MAX. | | | MAX. | | MAX. | MAX. |
| VLZ11C | 10.82 | 11.38 | 10 | 0.5 | 0.04 | 10.28 | 10 | 120 |
| VLZ12A | 11.13 | 11.71 | 10 | 0.5 | 0.04 | 10.6 | 12 | 110 |
| VLZ12B | 11.44 | 12.03 | 10 | 0.5 | 0.04 | 10.9 | 12 | 110 |
| VLZ12C | 11.74 | 12.35 | 10 | 0.5 | 0.04 | 11.2 | 12 | 110 |
| VLZ13A | 12.11 | 12.75 | 10 | 0.5 | 0.04 | 11.5 | 14 | 110 |
| VLZ13B | 12.55 | 13.21 | 10 | 0.5 | 0.04 | 11.9 | 14 | 110 |
| VLZ13C | 12.99 | 13.66 | 10 | 0.5 | 0.04 | 12.3 | 14 | 110 |
| VLZ15A | 13.44 | 14.13 | 10 | 0.5 | 0.04 | 12.8 | 16 | 110 |
| VLZ15B | 13.89 | 14.62 | 10 | 0.5 | 0.04 | 13.2 | 16 | 110 |
| VLZ15C | 14.35 | 15.09 | 10 | 0.5 | 0.04 | 13.6 | 16 | 110 |
| VLZ16A | 14.8 | 15.57 | 10 | 0.5 | 0.04 | 14.1 | 18 | 150 |
| VLZ16B | 15.25 | 16.04 | 10 | 0.5 | 0.04 | 14.5 | 18 | 150 |
| VLZ16C | 15.69 | 16.51 | 10 | 0.5 | 0.04 | 14.9 | 18 | 150 |
| VLZ18A | 16.22 | 17.06 | 10 | 0.5 | 0.04 | 15.4 | 23 | 150 |
| VLZ18B | 16.82 | 17.7 | 10 | 0.5 | 0.04 | 16 | 23 | 150 |
| VLZ18C | 17.42 | 18.33 | 10 | 0.5 | 0.04 | 16.5 | 23 | 150 |
| VLZ20A | 18.02 | 18.96 | 10 | 0.5 | 0.04 | 17.1 | 28 | 200 |
| VLZ20B | 18.63 | 19.59 | 10 | 0.5 | 0.04 | 17.7 | 28 | 200 |
| VLZ20C | 19.23 | 20.22 | 10 | 0.5 | 0.04 | 18.3 | 28 | 200 |
| VLZ20D | 19.72 | 20.72 | 10 | 0.5 | 0.04 | 18.7 | 28 | 200 |
| VLZ22A | 20.15 | 21.2 | 5 | 0.5 | 0.04 | 19.1 | 30 | 200 |
| VLZ22B | 20.64 | 21.71 | 5 | 0.5 | 0.04 | 19.6 | 30 | 200 |
| VLZ22C | 21.08 | 22.17 | 5 | 0.5 | 0.04 | 20 | 30 | 200 |
| VLZ22D | 21.52 | 22.63 | 5 | 0.5 | 0.04 | 20.4 | 30 | 200 |
| VLZ24A | 22.05 | 23.18 | 5 | 0.5 | 0.04 | 20.9 | 35 | 200 |
| VLZ24B | 22.61 | 23.77 | 5 | 0.5 | 0.04 | 21.5 | 35 | 200 |
| VLZ24C | 23.12 | 24.31 | 5 | 0.5 | 0.04 | 22 | 35 | 200 |
| VLZ24D | 23.63 | 24.85 | 5 | 0.5 | 0.04 | 22.4 | 35 | 200 |
| VLZ27A | 24.26 | 25.52 | 5 | 0.5 | 0.04 | 23 | 45 | 250 |
| VLZ27B | 24.97 | 26.26 | 5 | 0.5 | 0.04 | 23.7 | 45 | 250 |
| VLZ27C | 25.63 | 26.95 | 5 | 0.5 | 0.04 | 24.3 | 45 | 250 |
| VLZ27D | 26.29 | 27.64 | 5 | 0.5 | 0.04 | 25 | 45 | 250 |
| VLZ30A | 26.99 | 28.39 | 5 | 0.5 | 0.04 | 25.6 | 55 | 250 |
| VLZ30B | 27.7 | 29.13 | 5 | 0.5 | 0.04 | 26.3 | 55 | 250 |
| VLZ30C | 28.36 | 29.82 | 5 | 0.5 | 0.04 | 26.9 | 55 | 250 |
| VLZ30D | 29.02 | 30.51 | 5 | 0.5 | 0.04 | 27.6 | 55 | 250 |
| VLZ33A | 29.68 | 31.22 | 5 | 0.5 | 0.04 | 28.2 | 65 | 250 |
| VLZ33B | 30.32 | 31.88 | 5 | 0.5 | 0.04 | 28.8 | 65 | 250 |
| VLZ33C | 30.9 | 32.5 | 5 | 0.5 | 0.04 | 29.4 | 65 | 250 |
| VLZ33D | 31.49 | 33.11 | 5 | 0.5 | 0.04 | 29.9 | 65 | 250 |
| VLZ36A | 32.14 | 33.79 | 5 | 0.5 | 0.04 | 30.5 | 75 | 250 |
| VLZ36B | 32.79 | 34.49 | 5 | 0.5 | 0.04 | 31.2 | 75 | 250 |
| VLZ36C | 33.4 | 35.13 | 5 | 0.5 | 0.04 | 31.7 | 75 | 250 |
| VLZ36D | 34.01 | 35.77 | 5 | 0.5 | 0.04 | 32.3 | 75 | 250 |
| VLZ39A | 34.68 | 36.47 | 5 | 0.5 | 0.04 | 32.9 | 85 | 250 |



| ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified) | | | | | | | | |
|---|------------------------------------|-------|------------------|------------------|----------------------------------|------|------------------------------------|-------------------------------------|
| PART NUMBER | ZENER VOLTAGE RANGE | | TEST CURRENT | | REVERSE LEAKAGE CURRENT | | DYNAMIC RESISTANCE f = 1 kHz | |
| | V _Z at I _{ZT1} | | I _{ZT1} | I _{ZT2} | I _R at V _R | | Z _Z at I _{ZT1} | Z _{ZK} at I _{ZT2} |
| | V | | mA | | μA | V | Ω | |
| | MIN. | MAX. | | | MAX. | | MAX. | MAX. |
| VLZ39B | 35.36 | 37.19 | 5 | 0.5 | 0.04 | 33.6 | 85 | 250 |
| VLZ39C | 36 | 37.85 | 5 | 0.5 | 0.04 | 34.2 | 85 | 250 |
| VLZ39D | 36.63 | 38.52 | 5 | 0.5 | 0.04 | 34.8 | 85 | 250 |
| VLZ39E | 37.36 | 39.29 | 5 | 0.5 | 0.04 | 35.5 | 85 | 250 |
| VLZ39F | 38.14 | 40.11 | 5 | 0.5 | 0.04 | 36.2 | 85 | 250 |
| VLZ39G | 38.94 | 40.8 | 5 | 0.5 | 0.04 | 37 | 85 | 250 |
| VLZ43 | 40 | 45 | 5 | - | 0.04 | 38 | 90 | - |
| VLZ47 | 44 | 49 | 5 | - | 0.04 | 41.8 | 90 | - |
| VLZ51 | 48 | 54 | 5 | - | 0.04 | 45.6 | 100 | - |
| VLZ56 | 53 | 60 | 5 | - | 0.04 | 50.4 | 100 | - |

BASIC CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

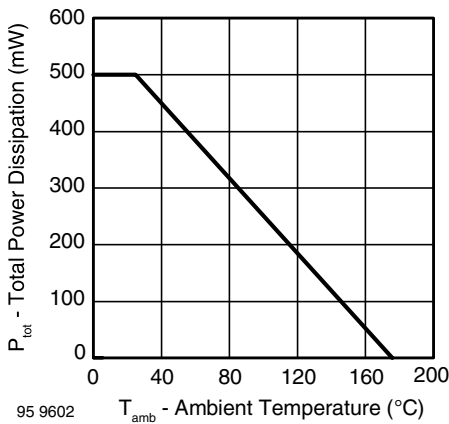


Fig. 1 - Total Power Dissipation vs. Ambient Temperature

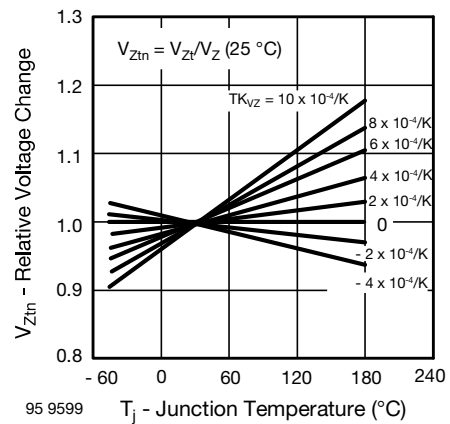


Fig. 3 - Typical Change of Working Voltage vs. Junction Temperature

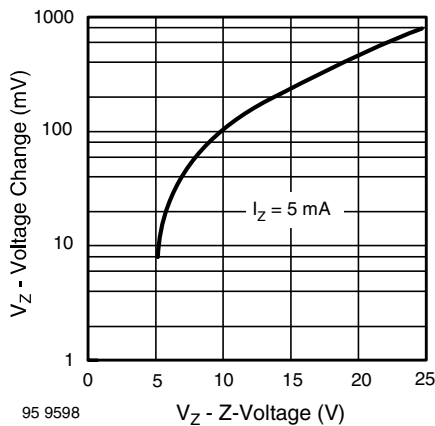


Fig. 2 - Typical Change of Working Voltage under Operating Conditions at T_{amb} = 25 °C

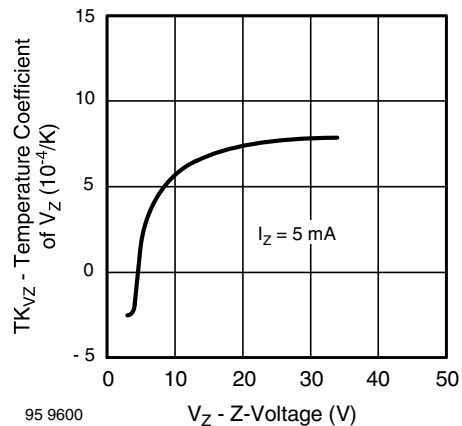


Fig. 4 - Temperature Coefficient of V_Z vs. Z-Voltage

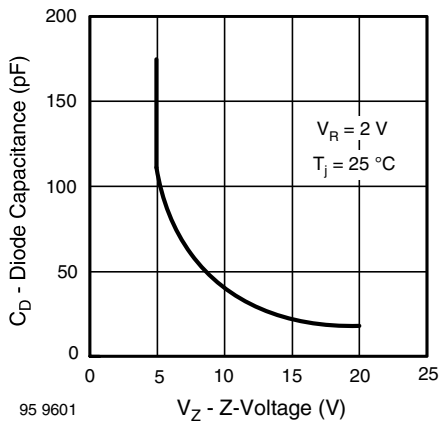


Fig. 5 - Diode Capacitance vs. Z-Voltage



Fig. 8 - Z-Current vs. Z-Voltage

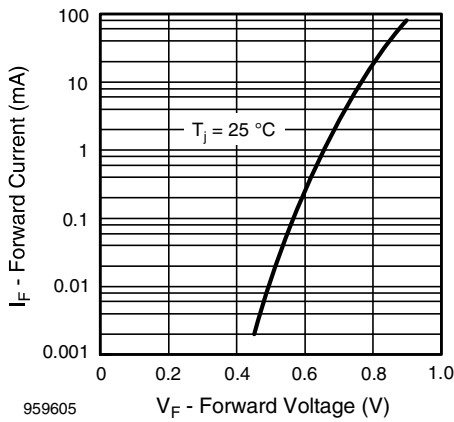


Fig. 6 - Forward Current vs. Forward Voltage

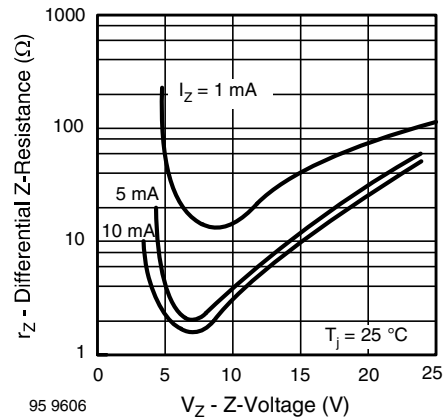


Fig. 9 - Differential Z-Resistance vs. Z-Voltage

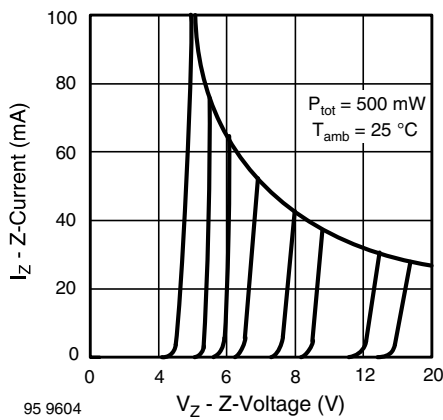
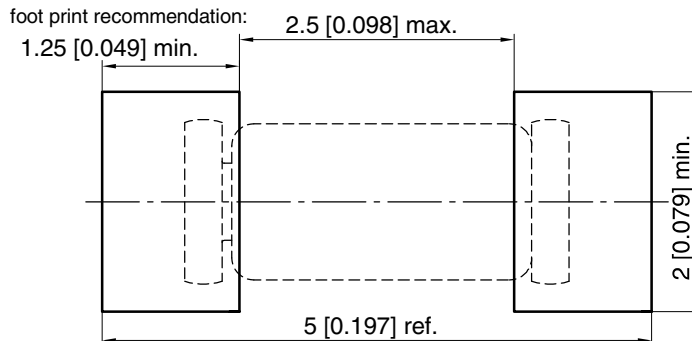
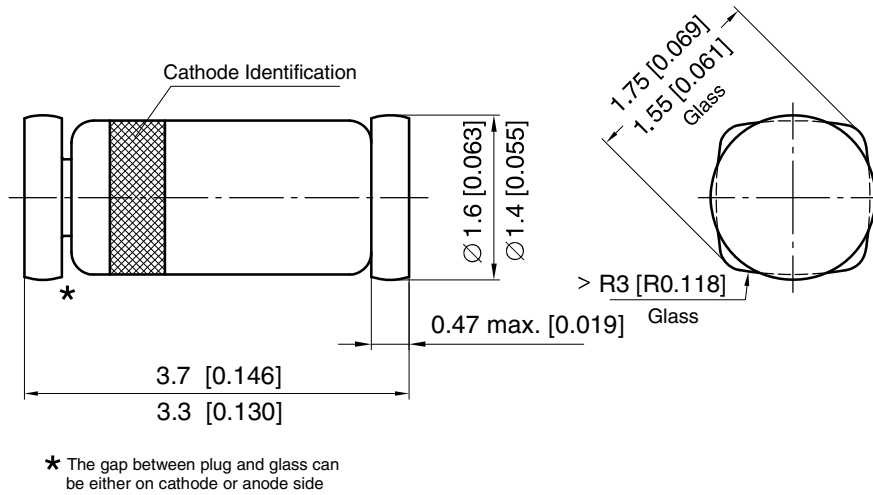


Fig. 7 - Z-Current vs. Z-Voltage



Fig. 10 - Thermal Response

PACKAGE DIMENSIONS in millimeters (inches): **QuadroMELF SOD-80**



20909
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