

MZ11A 型 PTC 热敏电阻

● 应用范围

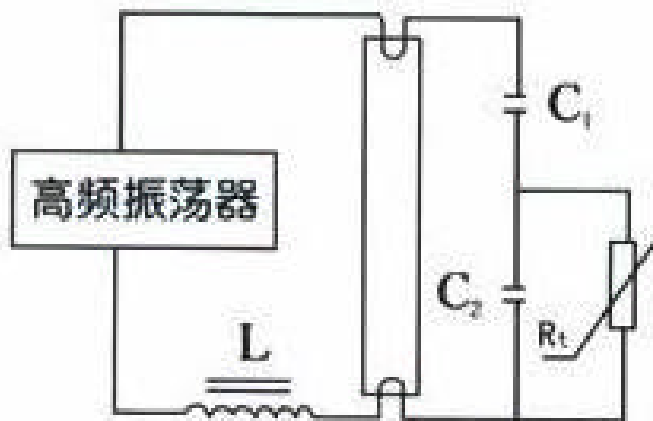
MZ11A 系列产品可应用于各种荧光灯电子镇流器，电子节能灯中，不必改动线路将产品直接跨接在灯管的谐振电容两端，可以改变电子镇流器、电子节能灯的硬启动为预热启动，灯丝的预热时间达 0.4-2.0 秒，可延长灯管寿命四倍以上。

● 特点：

利用材料 PTC 特性制作而成，产品体积小、耐电压高、寿命长、正常工作时功耗小。

● 应用原理：

应用 PTC 热敏电阻器实现预热启动原理如右图所示：刚接通开关时， R_t 处于常温态，其阻值远远低于 C_2 阻值，电流通过 C_1 ， R_t 自热温度超过居里点温度 T_c 跃入高阻态，其阻值远远高于 C_2 阻值，电流通过 C_1 、 C_2 形成回路导致 LC 谐振，产生高压点亮灯管。



● 产品标志说明：



① ② ③ ④ ⑤ ⑥

注：①型号

②开关温度 50-50℃ 75-75℃ 85-85℃ 105-105℃ 120-120℃

③类型代号

S-微型 A-基本型 HV-高压型

④额定零功率电阻 102-1000Ω 68R-68Ω

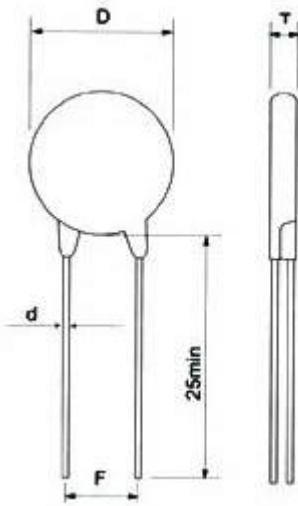
⑤电阻允差

M-±30% V-±25% N-±20% K-±10% X-其它

⑥引线形状

U-内弯 S-直形 A-轴弯

● 外型结构和尺寸：



| 类型代号 | Dmax | Tmax | F ± 1 | d ± 0.05 |
|------|------|------|-------|----------|
| S | 4 | 4.5 | 5 | 0.5 |
| L | 5 | 4.5 | 5 | 0.6 |
| A | 6 | 4.5 | 5 | 0.6 |
| HV | 6 | 5 | 5 | 0.6 |
| B | 8 | 4.5 | 5 | 0.6 |
| BHV | 8 | 5 | 5 | 0.6 |
| LV | 9 | 4.5 | 5 | 0.6 |
| M | 11.5 | 5 | 5 | 0.6 |
| SL | 14.5 | 5 | 7.5 | 0.8 |
| ML | 18.5 | 5 | 7.5 | 0.8 |
| LL | 21 | 5 | 7.5 | 0.8 |

● 主要技术参数

| 序号 | 型号 | 额定零功率 电阻值() | 耐电压 (VAC) | 最大工作电流 (mA) | 开关温度 () | 外形尺寸 (mm) | | | |
|----|----------------|-----------------|---------------|-----------------|-------------|-------------|------|-----|-----|
| | | | | | | Dmax | Tmax | d | |
| 01 | MZ11A-50S68RNU | 68 ± 30% | 360 | 200 | 50 ± 7 | 4 | 4.5 | 0.5 | |
| 02 | MZ11A-50S101NU | 100 ± 30% | 400 | | | | | | |
| 03 | MZ11A-50S151NU | 150 ± 30% | 400 | | | | | | |
| 04 | MZ11A-50S221NU | 220 ± 30% | 500 | | | | | | |
| 05 | MZ11A-50S331NU | 330 ± 30% | 500 | | | | | | |
| 06 | MZ11A-50S471NU | 470 ± 30% | 600 | | | | | | |
| 07 | MZ11A-50S681NU | 680 ± 30% | 600 | | | | | | |
| 08 | MZ11A-50S102NU | 1000 ± 30% | 600 | | | | | | |
| 09 | MZ11A-50S152NU | 1500 ± 30% | 600 | | | | | | 100 |
| 10 | MZ11A-50S222NU | 2200 ± 30% | 600 | | | | | | |
| 11 | MZ11A-50S332NU | 3300 ± 30% | 600 | | | | | | |
| 12 | MZ11A-50S472NU | 4700 ± 30% | 600 | | | | | | 50 |
| 13 | MZ11A-75S68RNU | 68 ± 30% | 360 | 200 | 75 ± 7 | | | | |

| | | | | | | | | |
|----|----------------|------------|-----|-----|--|--|--|--|
| 14 | MZ11A-75S101NU | 100 ± 30% | 400 | | | | | |
| 15 | MZ11A-75S151NU | 150 ± 30% | 400 | | | | | |
| 16 | MZ11A-75S221NU | 220 ± 30% | 500 | | | | | |
| 17 | MZ11A-75S331NU | 330 ± 30% | 500 | | | | | |
| 18 | MZ11A-75S471NU | 470 ± 30% | 600 | | | | | |
| 19 | MZ11A-75S681NU | 680 ± 30% | 600 | | | | | |
| 20 | MZ11A-75S102NU | 1000 ± 30% | 600 | | | | | |
| 21 | MZ11A-75S152NU | 1500 ± 30% | 600 | 100 | | | | |
| 22 | MZ11A-75S222NU | 2200 ± 30% | 600 | | | | | |
| 23 | MZ11A-75S332NU | 3300 ± 30% | 600 | 70 | | | | |
| 24 | MZ11A-75S472NU | 4700 ± 30% | 600 | 50 | | | | |

| 序号 | 型号 | 额定零功率 电阻值 () | 耐电压 (VAC) | 最大工作 电流 (mA) | 开关温度 () | 外形尺寸 (mm) | | | | | | | |
|----|-----------------|------------------|--------------|-----------------|----------|-----------|------|-----|-----|--|--|--|--|
| | | | | | | Dmax | Tmax | d | | | | | |
| 25 | MZ11A-105S68RNU | 68 ± 30% | 360 | 200 | 105 ± 7 | 4 | 4.5 | 0.5 | | | | | |
| 26 | MZ11A-105S101NU | 100 ± 30% | 400 | | | | | | | | | | |
| 27 | MZ11A-105S151NU | 150 ± 30% | 400 | | | | | | | | | | |
| 28 | MZ11A-105S222NU | 220 ± 30% | 400 | | | | | | | | | | |
| 29 | MZ11A-105S331NU | 330 ± 30% | 500 | | | | | | | | | | |
| 30 | MZ11A-105S471NU | 470 ± 30% | 500 | | | | | | | | | | |
| 31 | MZ11A-105S681NU | 680 ± 30% | 600 | | | | | | | | | | |
| 32 | MZ11A-105S102NU | 1000 ± 30% | 600 | | | | | | | | | | |
| 33 | MZ11A-105S152NU | 1500 ± 30% | 600 | 100 | | | | | | | | | |
| 34 | MZ11A-120S68RNU | 68 ± 30% | 360 | 200 | 120 ± 7 | | | | | | | | |
| 35 | MZ11A-120S101NU | 100 ± 30% | 400 | | | | | | | | | | |
| 36 | MZ11A-120S151NU | 150 ± 30% | 400 | | | | | | | | | | |
| 37 | MZ11A-120S221NU | 220 ± 30% | 400 | | | | | | | | | | |
| 38 | MZ11A-120S331NU | 330 ± 30% | 500 | | | | | | | | | | |
| 39 | MZ11A-120S471NU | 470 ± 30% | 500 | | | | | | | | | | |
| 40 | MZ11A-120S681NU | 680 ± 30% | 600 | | | | | | | | | | |
| 41 | MZ11A-50A68RNU | 68 ± 30% | 420 | 400 | 50 ± 7 | 6 | 4.5 | 0.6 | | | | | |
| 42 | MZ11A-50A101NU | 100 ± 30% | 420 | | | | | | | | | | |
| 43 | MZ11A-50A151NU | 150 ± 30% | 500 | | | | | | | | | | |
| 44 | MZ11A-50A221NU | 220 ± 30% | 500 | | | | | | | | | | |
| 45 | MZ11A-50A331NU | 330 ± 30% | 600 | | | | | | | | | | |
| 46 | MZ11A-50A471NU | 470 ± 30% | 600 | | | | | | | | | | |
| 47 | MZ11A-50A681NU | 680 ± 30% | 600 | | | | | | 300 | | | | |
| 48 | MZ11A-50S102NU | 1000 ± 30% | 600 | | | | | | | | | | |
| 49 | MZ11A-50A152NU | 1500 ± 30% | 600 | | | | | | 150 | | | | |
| 50 | MZ11A-50A222NU | 2200 ± 30% | 600 | | | | | | 100 | | | | |
| 51 | MZ11A-75A68RNU | 68 ± 30% | 420 | 400 | 75 ± 7 | | | | | | | | |
| 52 | MZ11A-75A101NU | 100 ± 30% | 420 | | | | | | | | | | |
| 53 | MZ11A-75A151NU | 150 ± 30% | 500 | | | | | | | | | | |

| | | | | | | | | |
|----|-----------------|------------|-----|-----|--|--|--|--|
| 54 | MZ11A-75A221NU | 220 ± 30% | 500 | | | | | |
| 55 | MZ11A-75A331NU | 330 ± 30% | 600 | | | | | |
| 56 | MZ11A-75A471NU | 470 ± 30% | 600 | | | | | |
| 57 | MZ11A-75A681NU | 680 ± 30% | 600 | 300 | | | | |
| 58 | MZ11A-75A102NU | 1000 ± 30% | 600 | | | | | |
| 59 | MZ11A-75A152NU | 1500 ± 30% | 600 | 150 | | | | |
| 60 | MZ11A-75A102NU | 220 ± 30% | 600 | 100 | | | | |
| 61 | MZ11A-105A68RNU | 68 ± 30% | 400 | | | | | |
| 62 | MZ11A-105A101NU | 100 ± 30% | 400 | | | | | |
| 63 | MZ11A-105A151NU | 150 ± 30% | 400 | 400 | | | | |
| 64 | MZ11A-105A221NU | 220 ± 30% | 500 | | | | | |
| 65 | MZ11A-105A331NU | 330 ± 30% | 600 | | | | | |
| 66 | MZ11A-105A471NU | 470 ± 30% | 600 | | | | | |
| 67 | MZ11A-105A681NU | 680 ± 30% | 600 | 300 | | | | |
| 68 | MZ11A-105A102NU | 1000 ± 30% | 600 | | | | | |
| 69 | MZ11A-120A68RNU | 68 ± 30% | 400 | 400 | | | | |
| 70 | MZ11A-120A101NU | 100 ± 30% | 400 | | | | | |

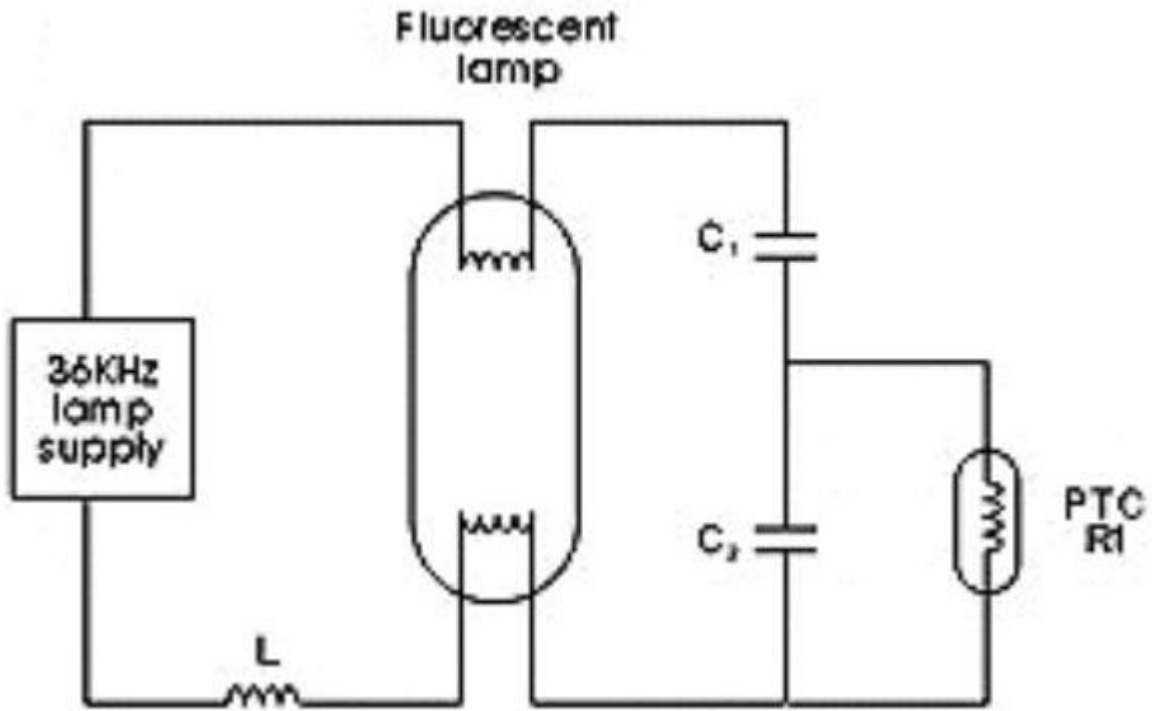
| 序号 | 型号 | 额定零功率 电阻值 () | 耐电压 (VAC) | 最大工作电流 (mA) | 开关温度 () | 外形尺寸 (mm) | | |
|-----|-----------------|------------------|--------------|----------------|-------------|-----------|------|-----|
| | | | | | | Dmax | Tmax | d |
| 71 | MZ11A-120A151NU | 150 ± 30% | 400 | | | | | |
| 72 | MZ11A-120A221NU | 220 ± 30% | 500 | 400 | 120 ± 7 | 6 | 4.5 | 0.6 |
| 73 | MZ11A-120A331NU | 330 ± 30% | 600 | | | | | |
| 74 | MZ11A-120A471NU | 470 ± 30% | 600 | | | | | |
| 75 | MZ11A-50HV68RNU | 68 ± 30% | 600 | | | 6 | 5.0 | 0.6 |
| 76 | MZ11A-50HV101NU | 100 ± 30% | 600 | | | | | |
| 77 | MZ11A-50HV151NU | 150 ± 30% | 750 | 400 | | | | |
| 78 | MZ11A-50HV221NU | 220 ± 30% | 750 | | | | | |
| 79 | MZ11A-50HV331NU | 330 ± 30% | 800 | | 50 ± 7 | | | |
| 80, | MZ11A-50HV471NU | 470 ± 30% | 900 | | | | | |
| 81 | MZ11A-50HV681NU | 680 ± 30% | 900 | 250 | | | | |
| 82 | MZ11A-50HV102NU | 1000 ± 30% | 900 | | | | | |
| 83 | MZ11A-50HV152NU | 1500 ± 30% | 900 | 150 | | | | |
| 84 | MZ11A-75HV68RNU | 68 ± 30% | 600 | | 75 ± 7 | | | |
| 85 | MZ11A-75HV101NU | 100 ± 30% | 660 | | | | | |
| 86 | MZ11A-75HV151NU | 150 ± 30% | 750 | 400 | | | | |
| 87 | MZ11A-75HV221NU | 220 ± 30% | 750 | | | | | |
| 88 | MZ11A-75HV331NU | 330 ± 30% | 800 | | | | | |
| 89 | MZ11A-75HV471NU | 470 ± 30% | 900 | | | | | |
| 90 | MZ11A-75HV681NU | 680 ± 30% | 900 | 250 | | | | |
| 91 | MZ11A-75HV102NU | 1000 ± 30% | 900 | | | | | |
| 92 | MZ11A-75HV152NU | 500 ± 30% | 900 | 150 | | | | |
| 93 | MZ11A-75HV222NU | 2200 ± 30% | 900 | 100 | | | | |

| | | | | | | | | | | | | | |
|-----|-----------------|------------|-----|-----|---------|---|-----|-----|-----|--------|---|-----|-----|
| 94 | MZ11A-75HV332NU | 3300 ± 30% | 900 | 70 | | | | | | | | | |
| 95 | MZ11A-50B68RNU | 68 ± 30% | 400 | 800 | 50 ± 7 | 8 | 4.5 | 0.6 | | | | | |
| 96 | MZ11A-50B101NU | 100 ± 30% | 500 | | | | | | | | | | |
| 97 | MZ11A-50B151NU | 150 ± 30% | 500 | | | | | | | | | | |
| 98 | MZ11A-50B221NU | 220 ± 30% | 600 | | | | | | | | | | |
| 99 | MZ11A-50B331NU | 330 ± 30% | 600 | | | | | | | | | | |
| 100 | MZ11A-50B471NU | 470 ± 30% | 600 | | | | | | | | | | |
| 101 | MZ11A-50B681NU | 680 ± 30% | 600 | | | | | | | | | | |
| 102 | MZ11A-50B102NU | 1000 ± 30% | 600 | | | | | | | | | | |
| 103 | MZ11A-85B68RNU | 68 ± 30% | 400 | | | | | | 800 | 85 ± 7 | 8 | 4.5 | 0.6 |
| 104 | MZ11A-85B101NU | 100 ± 30% | 500 | | | | | | | | | | |
| 105 | MZ11A-85B151NU | 150 ± 30% | 500 | | | | | | | | | | |
| 106 | MZ11A-85B221NU | 220 ± 30% | 600 | | | | | | | | | | |
| 107 | MZ11A-85B331NU | 330 ± 30% | 600 | | | | | | | | | | |
| 108 | MZ11A-85B471NU | 470 ± 30% | 600 | | | | | | | | | | |
| 109 | MZ11A-85B681NU | 680 ± 30% | 600 | | | | | | | | | | |
| 110 | MZ11A-85B102NU | 1000 ± 30% | 600 | | | | | | | | | | |
| 111 | MZ11A-105B68RNU | 68 ± 30% | 400 | 800 | 105 ± 7 | 8 | 4.5 | 0.6 | | | | | |
| 112 | MZ11A-105B101NU | 100 ± 30% | 500 | | | | | | | | | | |
| 113 | MZ11A-105B151NU | 150 ± 30% | 500 | | | | | | | | | | |
| 114 | MZ11A-105B221NU | 220 ± 30% | 600 | | | | | | | | | | |
| 115 | MZ11A-105B331NU | 330 ± 30% | 600 | | | | | | | | | | |
| 116 | MZ11A-105B471NU | 470 ± 30% | 600 | | | | | | | | | | |

| 序号 | 型号 | 额定零功率 电阻值 () | 耐电压 (VAC) | 最大工作电 流 (mA) | 开关温度 () | 外形尺寸 (mm) | | |
|-----|------------------|------------------|--------------|-----------------|-------------|-----------|------|-----|
| | | | | | | Dmax | Tmax | d |
| 117 | MZ11A-105B681NU | 680 ± 30% | 600 | 300 | | 8 | 4.5 | 0.6 |
| 118 | MZ11A-105B102NU | 1000 ± 30% | 600 | 200 | | | | |
| 119 | MZ11A-75BHV68RNU | 68 ± 30% | 600 | 800 | 75 ± 7 | 8 | 5.0 | 0.6 |
| 120 | MZ11A-75BHV101NU | 100 ± 30% | 600 | | | | | |
| 121 | MZ11A-75BHV151NU | 150 ± 30% | 750 | | | | | |
| 122 | MZ11A-75BHV221NU | 220 ± 30% | 900 | | | | | |
| 123 | MZ11A-75BHV331NU | 330 ± 30% | 900 | | | | | |
| 124 | MZ11A-75BHV471NU | 470 ± 30% | 900 | | | | | |
| 125 | MZ11A-75BHV681NU | 680 ± 30% | 900 | | | | | |
| 126 | MZ11A-75BHV102NU | 1000 ± 30% | 900 | 200 | | | | |
| 127 | MZ11A-75BHV152NU | 1500 ± 30% | 900 | 140 | | | | |
| 128 | MZ11A-75BHV222NU | 2200 ± 30% | 900 | 100 | | | | |

● 应用举例

应用 PTC 热敏电阻实现预热启动如下图：刚接通开关时， R_t 处于常温态，其阻值远远低于 C_2 阻值，电流通过 C_1 、 R_t 形成回路预热灯丝。约 0.4-2 秒后， R_t 焦耳热温度超过居里温度 T_c 跃入高阻态，其阻值远远高于 C_2 阻抗，电流通过 C_1 、 C_2 形成回路导致 L 谐振，产生高压点亮灯管。



对某一特定的电子镇流器、电子节能灯而言，所选用的 PTC 阻值越大、体积越小、居里温度越低，其功耗就越小、预热时间亦越短；反之功耗就越大，预热时间亦越长。