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PTC预热启动技术存在一个固有缺陷：PTC作为一种热敏元件，在启动电路中始终有功耗。WEILIN-WECC早年采取的解决方案是“一个PTC加串一个压敏电阻”，现行解决方案是“选用一个匹配得当的PTC”。选用匹配得当的PTC能成功地将功耗值控制在Ballast / CFL功率的1.5%以下，对光通量等参数的影响极为有限。相比之下，早年方案虽能解决功耗问题，但成本较高；现行方案则更为经济、简便、可靠，且行之有效，更具实际意义。

PTC预热启动技术的核心问题在于如何协调“功耗过大”、“预热充分”这一对矛盾。就某一特定Ballast / CFL而言，所选用的PTC阻值越大、体积越小、开关温度越低，其功耗就越小，预热时间亦越短；反之，所选用的PTC阻值越小、体积越大、开关温度越高，其功耗就越大，预热时间亦越长。为启动电流较小的Ballast / CFL（其功率较小、功率因素较高）匹配PTC，应主要考虑如何尽量避免功耗过大；对启动电流较大者（其功率较大、功率因素较低）则应主要考虑如何确保充分预热。电阻率过低的PTC，其耐电压能力亦较低，选用时应特别慎重。

应用PTC预热启动技术之成败关键在于PTC与 Ballast / CFL是否匹配得当。WMZ11A系列PTC专门针对不同电压、不同功率及功率因素等各种Ballast / CFL的不同要求，开发了100多个品种。对任何一种Ballast / CFL，WMZ11A系列几乎都有相应的品种与之匹配

PTC preheatstarting technology has an intrinsic drawback. That is, as a kind of thermal element, the power consumption of PTC is hard to eliminate in start circuit. The pervious solve of WEILIN-WECC is a PTC mixed with a varistor , the present solve is choose a suitable PTC . With the later way we can control the power consumption under 15% of Ballast / CFL's power and won't influence light flux substancely . Although the previous way can also solve the power consumption problem but the cost is high. In comparison, the present way is easier, more economical, reliable and feasible. As a whole, it is more practical.

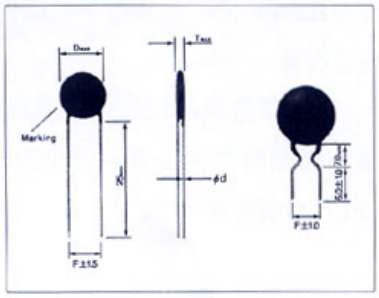
The core problem of PTC preheatsarting technology is how to coordinate “ too high of power consumption” and “preheat sufficiently . As to a definite kind of Ballast / CFL , if resistance of the chose PTC is higher , bulk is smaller and temperature of switch is lower, then the power consumption is lower and preheating time is shorter. On the contrary, if resistance of the chose PTC is lower, bulk is bigger and temperature of switch is higher, then the power consumption is higher and preheating time is longer. When mate PTC with Ballast / CFL whose start current is low ( its power is low and power factor is high ) , the most important consideration is how to avoid too high of power consumption; as to mate PTC with Ballast / CFL whose start current is high ( its power is high and power factor is how), the most important considerations is how to ensure preheat sufficiently . The PTC whose resistance rate is too low has to be carefully to choose because if resistance rate is too low then the voltage resistance level will also be too low.

The success or failure of applying PTC preheatstarting technology lie in the mating of PTC with Ballast / CFL. More than one hundred kinds of WMZ11A series PTC have been developed in accordance with different kinds of Ballast / CFL because of their different voltage, power and power factor, WMZ11A series almost have corresponding product for any kinds of Ballast / CFL.

## ■NUMBERING SYSTEM 产品编号

| WMZ11A | - | 75 | HV | 102 | N | U |
|---|---|---|---|---|---|---|
| | | ① | ② | ③ | ④ | ⑤ |

① Temperature of switch 开关温度：50 - 50℃ 75 - 75℃ 85 - 85℃ 105 - 105℃ 120 - 120℃
② Type类型： HV- High voltage type 高压型 (φ6.0×5.0) A - Basic type 基本型 (φ5.5×4.5)
B- Strengthen type 加强型 (φ8.0×4.5) S - Small type 微小型 (φ4.0×4.5)
BHV-Super strong type 超强型 (φ8.0×4.5)
③ Rated zero power resistance 额定零功率电阻：102 - 1000Ω 68R - 68Ω
④ Tol. of resistance 电阻允差: N - ±30% V - ±25% M - ±20%
K - ±10% X - else 其它
⑤ Shape of lead 引线形状：U- In-formed 内弯 S-Straight 直形 A- Axis wind 轴弯



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## ■ SPECIFICATIONS 规格参数

最大工作电压 Max. W.V. : $V_{max} = 265V_{AC}$

| 序号 No. | 产品编号 Part No. | 额定零功率电阻 Rated Zero-power Resistance Rn (Ω) | 耐电压 Break Down Vol. $V_b$ ($V_{AC}$) | 最大工作电流 Max. W.C. $I_{max}$ ( mA ) | 开关温度 Switch Temp. $T_{sw}$ (℃ ) | 外形尺寸 Dimensions (mm) | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | $D_{max}$ | $T_{max}$ | d |
| 01 | WMZ11A - 50S68RNU | 68±30% | 360 | 200 | 50±7 | 4 | 4.5 | 0.5 |
| 02 | WMZ11A - 50S101NU | 100±30% | 400 | | | | | |
| 03 | WMZ11A - 50S151NU | 150±30% | 400 | | | | | |
| 04 | WMZ11A - 50S221NU | 220±30% | 500 | | | | | |
| 05 | WMZ11A - 50S331NU | 330±30% | 500 | | | | | |
| 06 | WMZ11A - 50S471NU | 470±30% | 600 | | | | | |
| 07 | WMZ11A - 50S681NU | 680±30% | 600 | | | | | |
| 08 | WMZ11A - 50S102NU | 1000±30% | 600 | | | | | |
| 09 | WMZ11A - 50S152NU | 1500±30% | 600 | 100 | | | | |
| 10 | WMZ11A - 50S222NU | 2200±30% | 600 | | | | | |
| 11 | WMZ11A - 50S332NU | 3300±30% | 600 | 70 | | | | |
| 12 | WMZ11A - 50S472NU | 4700±30% | 600 | 50 | | | | |
| 13 | WMZ11A - 75S68RNU | 68±30% | 360 | 200 | 75±7 | | | |
| 14 | WMZ11A - 75S101NU | 100±30% | 400 | | | | | |
| 15 | WMZ11A - 75S151NU | 150±30% | 400 | | | | | |
| 16 | WMZ11A - 75S221NU | 220±30% | 500 | | | | | |
| 17 | WMZ11A - 75S331NU | 330±30% | 500 | | | | | |
| 18 | WMZ11A - 75S471NU | 470±30% | 600 | | | | | |
| 19 | WMZ11A - 75S681NU | 680±30% | 600 | | | | | |
| 20 | WMZ11A - 75S102NU | 1000±30% | 600 | | | | | |
| 21 | WMZ11A - 75S152NU | 1500±30% | 600 | 100 | | | | |
| 22 | WMZ11A - 75S222NU | 2200±30% | 600 | | | | | |
| 23 | WMZ11A - 75S332NU | 3300±30% | 600 | 70 | | | | |
| 24 | WMZ11A - 75S472NU | 4700±30% | 600 | 50 | | | | |
| 25 | WMZ11A - 105S68RNU | 68±30% | 360 | 200 | 105±7 | | | |
| 26 | WMZ11A - 105S101NU | 100±30% | 400 | | | | | |
| 27 | WMZ11A - 105S151NU | 150±30% | 400 | | | | | |
| 28 | WMZ11A - 105S221NU | 220±30% | 400 | | | | | |
| 29 | WMZ11A - 105S331NU | 330±30% | 500 | | | | | |
| 30 | WMZ11A - 105S471NU | 470±30% | 500 | | | | | |
| 31 | WMZ11A - 105S681NU | 680±30% | 600 | | | | | |
| 32 | WMZ11A - 105S102NU | 1000±30% | 600 | | | | | |
| 33 | WMZ11A - 105S152NU | 1500±30% | 600 | 100 | | | | |
| 34 | WMZ11A - 120S68RNU | 68±30% | 360 | 200 | 120±7 | | | |
| 35 | WMZ11A - 120S101NU | 100±30% | 400 | | | | | |
| 36 | WMZ11A - 120S151NU | 150±30% | 400 | | | | | |
| 37 | WMZ11A - 120S221NU | 220±30% | 400 | | | | | |
| 38 | WMZ11A - 120S331NU | 330±30% | 500 | | | | | |
| 39 | WMZ11A - 120S471NU | 470±30% | 500 | | | | | |
| 40 | WMZ11A - 120S681NU | 680±30% | 600 | | | | | |

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# WMZ11A SERIES PTC THERMISTOR

| 序号 No. | 产品编号 Part No. | 额定零功率电阻 Rated Zero-power Resistance Rn (Ω) | 耐电压 Break Down Vol. $V_b$ ($V_{AC}$) | 最大工作电流 Max. W.C. $I_{max}$ ( mA ) | 开关温度 Switch Temp. $T_{sw}$ (℃ ) | 外形尺寸 Dimensions (mm) | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | $D_{max}$ | $T_{max}$ | d |
| 41 | WMZ11A - 50A68RNU | 68±30% | 420 | 400 | 50±7 | 5.5 | 4.5 | 0.6 |
| 42 | WMZ11A - 50A101NU | 100±30% | 420 | | | | | |
| 43 | WMZ11A - 50A151NU | 150±30% | 500 | | | | | |
| 44 | WMZ11A - 50A221NU | 220±30% | 500 | | | | | |
| 45 | WMZ11A - 50A331NU | 330±30% | 600 | | | | | |
| 46 | WMZ11A - 50A471NU | 470±30% | 600 | | | | | |
| 47 | WMZ11A - 50A681NU | 680±30% | 600 | 300 | | | | |
| 48 | WMZ11A - 50A102NU | 1000±30% | 600 | | | | | |
| 49 | WMZ11A - 50A152NU | 1500±30% | 600 | 150 | | | | |
| 50 | WMZ11A - 50A222NU | 2200±30% | 600 | 100 | | | | |
| 51 | WMZ11A - 75A68RNU | 68±30% | 420 | 400 | 75±7 | | | |
| 52 | WMZ11A - 75A101NU | 100±30% | 420 | | | | | |
| 53 | WMZ11A - 75A151NU | 150±30% | 500 | | | | | |
| 54 | WMZ11A - 75A221NU | 220±30% | 500 | | | | | |
| 55 | WMZ11A - 75A331NU | 330±30% | 600 | | | | | |
| 56 | WMZ11A - 75A471NU | 470±30% | 600 | | | | | |
| 57 | WMZ11A - 75A681NU | 680±30% | 600 | 300 | | | | |
| 58 | WMZ11A - 75A102NU | 1000±30% | 600 | | | | | |
| 59 | WMZ11A - 75A152NU | 1500±30% | 600 | 150 | | | | |
| 60 | WMZ11A - 75A222NU | 2200±30% | 600 | 100 | | | | |
| 61 | WMZ11A - 105A68RNU | 68±30% | 400 | 400 | 105±7 | | | |
| 62 | WMZ11A - 105A101NU | 100±30% | 400 | | | | | |
| 63 | WMZ11A - 105A151NU | 150±30% | 400 | | | | | |
| 64 | WMZ11A - 105A221NU | 220±30% | 500 | | | | | |
| 65 | WMZ11A - 105A331NU | 330±30% | 600 | | | | | |
| 66 | WMZ11A - 105A471NU | 470±30% | 600 | | | | | |
| 67 | WMZ11A - 105A681NU | 680±30% | 600 | 300 | | | | |
| 68 | WMZ11A - 105A102NU | 1000±30% | 600 | | | | | |
| 69 | WMZ11A - 120A68RNU | 68±30% | 400 | 400 | 120±7 | | | |
| 70 | WMZ11A - 120A101NU | 100±30% | 400 | | | | | |
| 71 | WMZ11A - 120A151NU | 150±30% | 400 | | | | | |
| 72 | WMZ11A - 120A221NU | 220±30% | 500 | | | | | |
| 73 | WMZ11A - 120A331NU | 330±30% | 600 | | | | | |
| 74 | WMZ11A - 120A471NU | 470±30% | 600 | | | | | |
| 75 | WMZ11A - 50HV68RNU | 68±30% | 600 | 400 | 50±7 | 6 | 5.0 | 0.6 |
| 76 | WMZ11A - 50HV101NU | 100±30% | 600 | | | | | |
| 77 | WMZ11A - 50HV151NU | 150±30% | 750 | | | | | |
| 78 | WMZ11A - 50HV221NU | 220±30% | 750 | | | | | |
| 79 | WMZ11A - 50HV331NU | 330±30% | 800 | | | | | |
| 80 | WMZ11A - 50HV471NU | 470±30% | 900 | | | | | |
| 81 | WMZ11A - 50HV681NU | 680±30% | 900 | 250 | | | | |
| 82 | WMZ11A - 50HV102NU | 1000±30% | 900 | | | | | |
| 83 | WMZ11A - 50HV152NU | 1500±30% | 900 | 150 | | | | |

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# WMZ11A SERIES PTC THERMISTOR

| 序号 No. | 产品编号 Part No. | 额定零功率电阻 Rated Zero-power Resistance Rn (Ω) | 耐电压 Break Down Vol. $V_b$ ($V_{AC}$) | 最大工作电流 Max. W.C. $I_{max}$ ( mA ) | 开关温度 Switch Temp. $T_{sw}$ (℃ ) | 外形尺寸 Dimensions (mm) $D_{max}$ | $T_{max}$ | d |
|---|---|---|---|---|---|---|---|---|
| 84 | WMZ11A - 75HV68RNU | 68±30% | 600 | 400 | 75±7 | 6 | 5.0 | 0.6 |
| 85 | WMZ11A - 75HV101NU | 100±30% | 600 | | | | | |
| 86 | WMZ11A - 75HV151NU | 150±30% | 750 | | | | | |
| 87 | WMZ11A - 75HV221NU | 220±30% | 750 | | | | | |
| 88 | WMZ11A - 75HV331NU | 330±30% | 800 | | | | | |
| 89 | WMZ11A - 75HV471NU | 470±30% | 900 | | | | | |
| 90 | WMZ11A - 75HV681NU | 680±30% | 900 | 250 | | | | |
| 91 | WMZ11A - 75HV102NU | 1000±30% | 900 | | | | | |
| 92 | WMZ11A - 75HV152NU | 1500±30% | 900 | 150 | | | | |
| 93 | WMZ11A - 75HV222NU | 2200±30% | 900 | 100 | | | | |
| 94 | WMZ11A - 75HV332NU | 3300±30% | 900 | 70 | | | | |
| 95 | WMZ11A - 50B68RNU | 68±30% | 400 | 800 | 50±7 | 8 | 4.5 | 0.6 |
| 96 | WMZ11A - 50B101NU | 100±30% | 500 | | | | | |
| 97 | WMZ11A - 50B151NU | 150±30% | 500 | | | | | |
| 98 | WMZ11A - 50B221NU | 220±30% | 600 | | | | | |
| 99 | WMZ11A - 50B331NU | 330±30% | 600 | 600 | | | | |
| 100 | WMZ11A - 50B471NU | 470±30% | 600 | 450 | | | | |
| 101 | WMZ11A - 50B681NU | 680±30% | 600 | 300 | | | | |
| 102 | WMZ11A - 50B102NU | 1000±30% | 600 | 200 | | | | |
| 103 | WMZ11A - 85B68RNU | 68±30% | 400 | 800 | 85±7 | | | |
| 104 | WMZ11A - 85B101NU | 100±30% | 500 | | | | | |
| 105 | WMZ11A - 85B151NU | 150±30% | 500 | | | | | |
| 106 | WMZ11A - 85B221NU | 220±30% | 600 | | | | | |
| 107 | WMZ11A - 85B331NU | 330±30% | 600 | 600 | | | | |
| 108 | WMZ11A - 85B471NU | 470±30% | 600 | 450 | | | | |
| 109 | WMZ11A - 85B681NU | 680±30% | 600 | 300 | | | | |
| 110 | WMZ11A - 85B102NU | 1000±30% | 600 | 200 | | | | |
| 111 | WMZ11A - 105B68RNU | 68±30% | 400 | 800 | 105±7 | | | |
| 112 | WMZ11A - 105B101NU | 100±30% | 500 | | | | | |
| 113 | WMZ11A - 105B151NU | 150±30% | 500 | | | | | |
| 114 | WMZ11A - 105B221NU | 220±30% | 600 | | | | | |
| 115 | WMZ11A - 105B331NU | 330±30% | 600 | 600 | | | | |
| 116 | WMZ11A - 105B471NU | 470±30% | 600 | 450 | | | | |
| 117 | WMZ11A - 105B681NU | 680±30% | 600 | 300 | | | | |
| 118 | WMZ11A - 105B102NU | 1000±30% | 600 | 200 | | | | |
| 119 | WMZ11A - 75BHV68RNU | 68±30% | 600 | 800 | 75±7 | 8 | 5.0 | 0.6 |
| 120 | WMZ11A - 75BHV101NU | 100±30% | 600 | | | | | |
| 121 | WMZ11A - 75BHV151NU | 150±30% | 750 | | | | | |
| 122 | WMZ11A - 75BHV221NU | 220±30% | 900 | | | | | |
| 123 | WMZ11A - 75BHV331NU | 330±30% | 900 | 600 | | | | |
| 124 | WMZ11A - 75BHV471NU | 470±30% | 900 | 450 | | | | |
| 125 | WMZ11A - 75BHV681NU | 680±30% | 900 | 300 | | | | |
| 126 | WMZ11A - 75BHV102NU | 1000±30% | 900 | 200 | | | | |
| 127 | WMZ11A - 75BHV152NU | 1500±30% | 900 | 140 | | | | |
| 128 | WMZ11A - 75BHV222NU | 2200±30% | 900 | 100 | | | | |