目录

1 适用范围 Scope

本承认书适用于型号为 EZ25SXXXK-(x)M-(x) 系列的热保护型压敏电阻。

The specification is applicable for EZ25SXXXK-(x)M-(x) Series varistors with thermal protection.

2 术语 Glossary

参考标准 Reference Standards

UL1449 5th ed (2021), GB/T18802.11-2020

IEC 61643-11:2011,IEC 61051-1:2007,IEC 61051-2:1991

3 型号说明 Part Number System

EZ25S XXX K - (x)M - (x)

台基电涌保护器
Ceramate Surge Protective Devices

压敏电压标称值 Nominal Varistor Voltage

公差值 Tolerance±10%

品种 Model,
M: In 10kA/Imax 25kA
DM: In 10kA/Imax 20kA
HM: In 10kA/Imax 25kA or In15kA

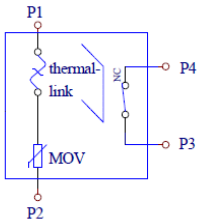
遥信引脚型式 Remote Signal Tab Lead Type
Nil: 無引腳 No position Lead
A:高位引腳 far position Lead
B:低位引腳 near position Lead

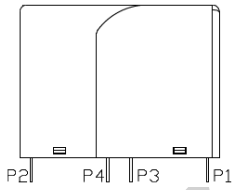
4 安规认证 Agency Approvals

认证机构 Agency		标准 Standards	认证号 File No.	类别 Category
	UL	UL 1449 5th	E315429	4CA
	cUL	CSA C22.2 NO.269.5-17	E315429	4CA
CE		低压指令 Low Voltage Directive 2014/35/EU	自我宣告 Declaration by manufacturer	附录Ⅰ，Ⅳ Annex Ⅰ，Ⅳ

5 结构尺寸 Structure and Dimension

5.1 电路图 Circuit Diagrams



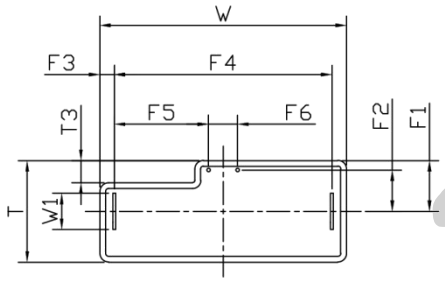


注意：安装时若是弯折引脚可能导致内部结构损坏,产品将失去质量保证若有弯折引脚需求可客制化。

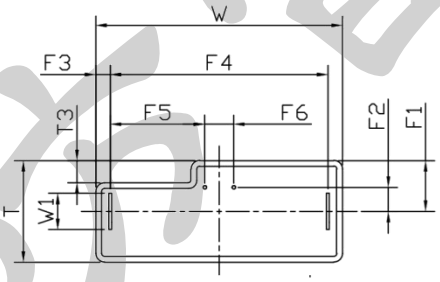
Caution：Bending of bottom leads during installation may cause internal damage and will vold manufacturer's product warranty.
Bending of bottom leads requirements could be customized.

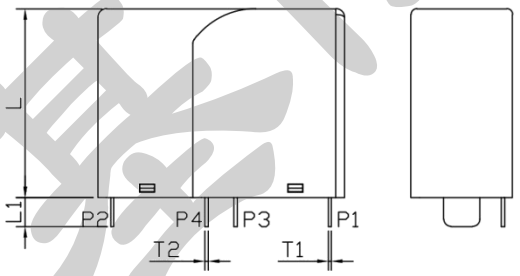
5.2 尺寸 Dimension (mm)

EZ25SxxxK-(x)M-A



EZ25SxxxK-(x)M-B





Unit: mm

L	L1	T	T1	T2
26±1.0	4±0.5	14±1.0	0.4±0.2	ø0.5±0.2
T3	W	W1	F1	F3
3.05±0.5	34±1.0	5±0.5	7±0.5	2±0.5
F4	F5	F6		
30±0.5	13±0.5	4±0.5		

遥信引脚型式 Remote Signal Tab Lead Type

F2				
A型 高位引脚 Far position lead	B型 低位引脚 Near position Lead			
5.7±0.5	3.3±0.5			

6 技术参数 Specifications

技术术语 Glossary of Terms	技术参数 Specifications	参照标准 Reference Standards
工作温度 Operation Temp. Range	-40℃~+85℃	IEC 61051
存储温度 Storage Temp. Range	-40℃~+125℃	IEC 61051
压敏电压 Varistor Voltage (Vn)	* V	IEC 61051
最大连续工作电压 Maximum Continuous Operating Voltage	AC: * V/DC: * V	IEC 61051
标称放电电流 Nominal Discharge Current (In)	* V	UL 1449
最大放电电流 Maximum Discharge Current, (Imax)	* kA (8/20μs)	UL 1449
电压保护水平 Voltage protection level	* kA (8/20μs)	IEC 61643-11 GB/T 18802.11
绝缘电压 (引脚与外壳间) Dielectric Voltage(Between Leads and Enclosure)	≥2500V,1minute	IEC 61051
遥信开关额定值 Remote Controll Switch Rating	30Vdc, 0.2A	IEC 61643-11

型号 PART NUMBER	最大连续工作电压 Maximum Continuous Operating Vltage		压敏电压 Varistor Voltage		同时宣告 In 与 I max Both In and Imax declared					仅宣告 In Only In declared	
					标称放电电流 Nominal Discharge Current	测量限制电压 Measured Limiting Voltage	电压保护水平 Voltage Protection Level	最大放电电流 Maximum Discharge Current		标称放电电流 Nominal Discharge Current	电压保护水平 Voltage Protection Level
					DM / M / HM	DM	M / HM	DM	M / HM	HM	
	Uc		Vn		In	MLV	Up	Imax		In	Up
	AC (V)	DC (V)	(V) Min.	(V) Max.	(V)	(V)		(kA)		(kA)	(V)
25S820K	50	65	74	500	10	420	500	20	25	15	600
25S101K	60	85	90	500		450	500				600
25S241K	150	200	222	800		730	800				900
25S271K	180	225	256	900		800	900				1000
25S331K	210	275	297	900		870	900				1100
25S391K	250	320	362	1100		1000	1100				1300
25S431K	275	350	387	1200		1100	1200				1400
25S471K	300	385	423	1300		1200	1300				1500
25S511K	320	415	459	1300		1280	1300				1500
25S561K	350	460	504	1500		1400	1500				1700
25S621K	385	505	558	1500		1490	1500				1700
25S681K	420	560	612	1600		1570	1600				1800
25S821K	510	670	738	1800		1790	1800				2100
25S911K	550	745	819	2000		1900	2000				2300
25S102K	625	825	900	2200		2060	2200				2500
25S112K	680	895	990	2300		2260	2300				2500

7 检验 Inspection

7.1 大气条件 Atmospheric Conditions

温度 Temperature： 15 ℃ - 35 ℃

相对湿度 Relative Humidity： 45%-75%

大气压力 Air pressure: 86 kPa to 106 kPa

7.2 常规检验项目 Routine Inspection Items

序号 No.	项目 Items	试验要求 Test Requirement	参考标准 Reference Standards	抽样频率和接受标准 AQL
1	外观 Appearance	壳体无穿孔,飞边;引脚镀层良好,无氧化发黑等情况。 The case without perforation, flash; the pin coating is good and no oxidative blackening.	ISO 2768-1 GB/T 1804	G-Ⅱ AQL=1.0
2	尺寸 Dimension	用游标卡尺测量引脚外露长度,尺寸范围参照 5.2。 Use vernier caliper to measure the Pin out Length, size range reference 5.2.	ISO 2768-1 GB/T 1804	S-2 AQL=0.65
3	压敏电压 Varistor Voltage	1 mA 的直流电流通过压敏电阻时测压敏电阻两端的电压,需满足在电压范围内。 The Voltage shall be to meet the specified value when it across the varistor measured at 1 mA of DC current.	IEC 61051	G-Ⅱ AQL=0.25
5	介电耐压 Dielectric Voltage	在引脚和外壳间施加工频电压≥2500 V,1 分钟。 Subject the voltage no less than 2500 V, last for 1 minute between leads and enclosure.	IEC 61051	S-2 AQL=1.0
6	标称放电电流试验 Nominal Discharge Current Test	参见第 7 章节《检验》第 7.3 条 Reference 7.3 of the chapter 7《Inspection》	UL 1449	3 PCS/Lot AC=0
7	最大放电电流试验 Maximum Discharge Current Test	参见第 7 章节《检验》第 7.4 条 Reference 7.4 of the chapter 7《Inspection》	UL 1449	3 PCS/Lot AC=0
8	动作负载试验 Operating Duty Test	参见第 7 章节《检验》第 7.5 条 Reference 7.5 of the chapter 7 《Inspection》	IEC 61643-11	3 PCS/Lot AC=0
9	电压保护水平测试 Voltage Protection Level Test	参见第 7 章节《检验》第 7.6 条 Reference 7.6 of the chapter 7 《Inspection》	IEC 61643-11 GB/T 18802.11	3 PCS/Lot AC=0

7.3 标称放电电流试验 Nominal Discharge Current Test

电涌保护器施加 15 次 8/20us 电流电涌。在施加此电涌电流波时，样品不加交流电。施加 15 次电涌时应分成 3 个序次，每个序次 5 次电涌。在每次施加电涌后的 1 秒钟之内必须施加 MCOV 60 ±15 秒。每个序次 5 次电涌施加后，样品应停留 30 ±5 分钟。第 15 次电涌施加后，应重新施加 MCOV 至少 15 分钟。每次施加电涌时量测测量限制电压(MLV)，计算 15 次数值的平均值（10V 位数四舍五入）。

The samples shall be subjected to fifteen 8/20us current surges. During the application of these surges the samples are unenergized. Surges shall be applied in three groups of five surges. Within 1 second after the application of each surge, the specified MCOV shall be applied for 60 seconds ±5 seconds. After each group of 5 surges, the samples shall rest for 30 minutes±5 minutes. After the 15th surge, the MCOV shall be re-applied for at least 15 minutes. Measure Measured Limiting Voltage (MLV) during each surge and compute the average of the 15 values to obtain the MLV rating (rounding to the nearest 10 V).

判定标准：产品在测试中与测试后不能有可见可闻的损坏，且每只样品的每个 MLV 值在平均 MLV 的±10%以内。

Pass Criteria: During and following the surge test, there shall not have visible or smelt (or both) damage, and each Measured Limiting Voltage (MLV) per sample was within +/-10% of the Average MLV of the 15 MLVs for that specific sample.

7.4 最大放电电流试验 Maximum Discharge Current Test

未测试过的电涌保护器应施加 1 次 8/20us 电流电涌。在施加此电涌电流波时，样品不加交流电。在施加电涌后重新施加 MCOV 至少 15 分钟。

Previously untested sample shall be subjected to one 8/20us current surges. During the application of these surges the samples are unenergized. After the application of surge, the specified MCOV shall be applied for at least 15 minutes.

7.4.1 EZ25SXXXK-DM-(x) /EZ25SXXXK-HM-(x)

判定标准：产品在测试中与测试后不能有可见可闻的损坏，且测试前后 MOV 压敏电压的变化率<10%。

Pass Criteria: During and following the surge test, there shall not have visible or smelt (or both) damage, and the variation rate of the varistor voltage shall be less than 10%

7.4.2 EZ25SXXXK-M-(x)

判定标准：产品在测试中与测试后不能有可见可闻的损坏，且测试前后 MOV 压敏电压的变化率<20%。

Pass Criteria: During and following the surge test, there shall not have visible or smelt (or both) damage, and the variation rate of the varistor voltage shall be less than 20%

7.5 动作负载试验 Operating Duty Test

测试方法：将浪涌保护器接入测试端,冲击 2 次 In（正、负极各 1 次）测试限制电压,再施加 15 次 In 冲击,分成 3 组,每组 5 次冲击。每次冲击应与电源频率同步。从 0°角开始,同步角应以 30°±5°的间隔逐级增加。两次冲击之间的间隔时间为 50s~60s,两组之间的间隔时间为 30min~35min。两组冲击之间试品无需施加电压。在施加每组冲击之后,需继续加电至少一分钟来检查复燃。在最后一组冲击和继续加电一分种后,SPD 保持加电,或在少于 30 秒内加电到 Uc,保持 15 分钟来检查稳定性。30 分钟后再重复进行测试限制电压的程序。

Test Method: Terminal wires of the SPD shall be subjected to one sequence of positive polarity and one sequence of negative polarity to determine the measured limiting voltage. And then three groups of five impulses of 8/20 current impulses with positive polarity shall be applied. Starting from 0° the synchronization angle shall be increased in steps of 30° with a tolerance of ± 5° for each synchronization angle. The interval between the impulses is 50 s ~ 60 s, the interval between the groups is 30 min~35 min. It is not required that the test sample is energized between the groups. The SPD shall be energized at Uc. After the application of each group of impulses, the SPD shall remain energized without interruption for at least 1 min to check for reignition. After the last group of impulses and the 1 min period the SPD either remains applied or is reapplied within less than 30 s to Uc for another 15 min to check for stability. 30 minutes later, the SPD shall be subjected to sequences to determine the measured limiting voltage repeatedly.

判定标准：产品在测试中不能有可见可闻的损坏,测试前后限制电压应小于或等于 Up。

Pass Criteria: During and following the surge test, there shall not have visible or smelt (or both) damage, and the .values for measured limiting voltage before and after the test shall be below or equal to Up.

7.6 电压保护水平测试 Voltage Protection Level Test

测试方法:将浪涌保护器接入测试端,冲击 2 次 In（正、负极性各 1 次）测试限制电压。若有宣告 Imax, In 测试后再施加 2 次 Imax 冲击（正、负极性各 1 次）测试限制电压,每次冲击的间隔时间应足以使试品冷却到环境温度。

Test Method: Terminal wires of the SPD shall be subjected to one sequence of positive polarity and one sequence of negative polarity to determine the measured limiting voltage. When Imax is declared,after In test, 2 times impulse of Imax (one time of positive and one of negative polarity) are applied to determine the measured limiting voltage. After each impulse, the rest time should be let samples cooled to the ambient temperature.

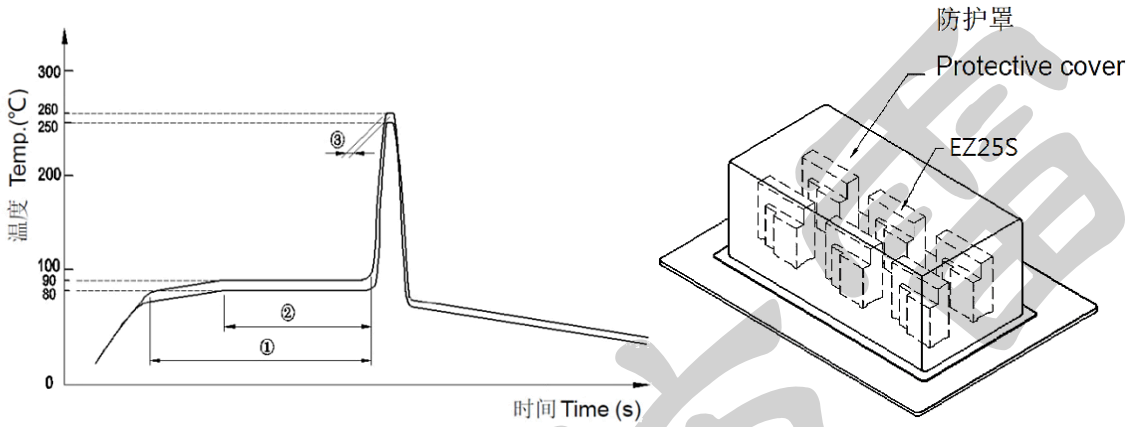
判定标准：电压和电流波形图及目测检测试品应没有击穿或闪络的现象;试验过程中不应发生可见损害;不应对人员或设备产生爆炸或其他危险;试验后试品限制电压值小于或等于 Up。

Pass Criteria: Voltage and current records and visual inspection shall show no indication of puncture or flashover. No visible damage shall occur during the test. Values for measured limiting voltage after the test shall be below or equal to Up .

8 推荐焊接条件 Soldering Conditions

8.1 本产品可满足波峰焊,注意产品引脚超出 PCB 焊盘长度不要大于 3 mm,预热温度控制于 90 ℃以内,波峰温度小于 260℃,过锡时间≤4s,进行焊接时建议：增加防护罩减少产品吸热、产品过波峰后加降温设施使温度快速降至室温。推荐按下面焊接曲线图设置：

The product is available for wave soldering, the length of exposed pins should be less than 3 mm and do keep the preheat temperature below 90℃. soldering temperature should be less than 260℃,tinning time should be less than 4s,During wave soldering, a protective cover can be applied to protect the product from the heat, or after wave soldering cooling equipment is recommended to rapidly reduce the product to room temperature. Recommend as following graph.



① 预热时间 Preheat time：(① < 150 s ② < 100 s) ③过锡时间 Dip time≤4 s

以上曲线仅供参考 This curve is our recommendation and reference only

8.2 如采用烙铁焊接,请注意烙铁温度与焊接时间,推荐焊接条件为：

If you use iron to weld, please pay attention to the iron temperature and soldering time：

项目 Item	条件 Condition
烙铁头温度 Iron Temperature	350 ℃ (Max.)
焊接时间 Soldering Time	4 s (Max.)
焊锡点位置离产品底部 Space Between Soldering Point and the Bottom of Product	2 mm (Min.)

9 注意事项 Important Note

9.1 该产品为内置低熔点合金型脱扣装置的压敏电阻,当使用波峰焊或手工焊接工艺时,生产前应该做充分前期工艺验证,预防内部低温合金受热冲击损伤。

The TcoMOV contains a low melting point alloy type thermal-link inside. When waving soldering or hand soldering applied, the earlier stage process verification should be carried to avoid the thermal-link damaged by thermal shock.

9.2 装配时不要用丙酮等溶剂清洗本产品,以免破坏本产品的封装层。

When assembly, please don't use acetone and other solvents to clean products, so as not to destroy enclosure.

9.3 装配时应避免出现如敲击等作业方式,避免造成本产品出现机械损伤。

When assembly, please avoid knocking and such practices, so as not to make mechanical damage on products.

9.4 安装时若是弯折引脚可能导致内部结构损坏,产品将失去质量保证。若有弯折引脚需求可客制化

Bending of bottom leads during installation may cause internal damage and will vold manufacturer's product warranty. Bending of bottom leads requirements could be customized.

9.5 产品应用系统中出现的暂态过电压应小于 UT,否则需进行其他设计以避免暂态过电压下的失效。

The temporary overvoltage value in product application system should be less than UT, if not some other designs are needed to avoid failure which caused by the temporary overvoltage.

10 标示 Marks

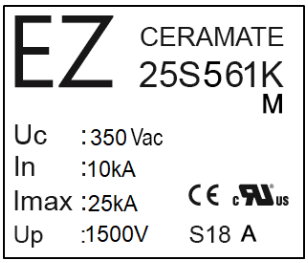
10.1 本体标示 Product Marking:

25S270K~25S561K　　25S621K~25S112K

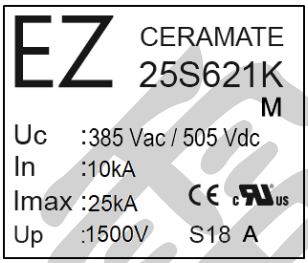
例如：

产品型号：

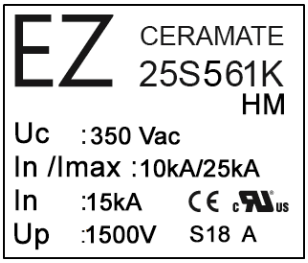
EZ25S561K-M-(x)



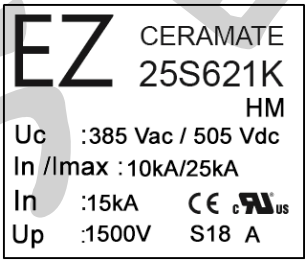
EZ25S621K-M-(x)



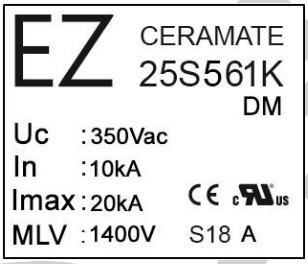
EZ25S561K-HM-(x)



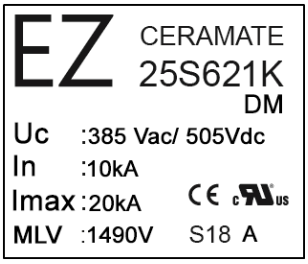
EZ25S621K-HM-(x)



EZ25S561K-DM-(x)



EZ25S621K-DM-(x)



10.2 包装标签 Package Marking:

(a). 产品编号 ID No.

(b). 品名规格 Part No.

(c). 品种 Model

(d). 批号 Lot No.

(e). 数量 Quantity

(f) 生产周期 Date Code

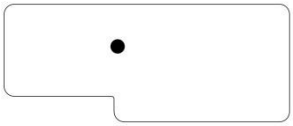
圆点颜色标注

Dot Color Labeling

白色 White-DM

橙色 Orange-HM

上视图 Top View



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