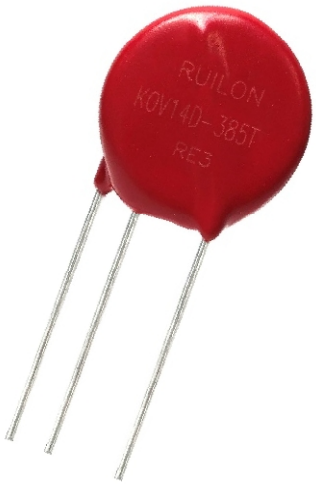
热保护型压敏电阻 KOV @Thermal Link

热保护型压敏电阻(Thermal Link & Varistors 简称 KOV@T)是合金型温度保险丝与压敏电阻通过内部有效热耦合结构实现即时取热的产品，具有过电压、浪涌和过温多重保护功能；本产品使用的压敏电阻具有高热容量和优良的过电压耐受能力，温度保险丝采 用低阻抗的易熔合金，具有与压敏电阻相符的通流容量，且无接触电阻，在高浪涌电流冲击时不会发生永久性短路，在异常情况下 确保压敏电阻失效后能迅速从电路中脱离，有效避免了火险隐患。



KOV@T 符合 UL 1449（第四版），IEC/EN 61643-11，IEC 61051-2 等标准，同时满足 RoHS、REACH 等环保要求，适用于通讯电源、LED 电源、电力设备、电源防雷器、防雷插座、电源适配器及太阳能、风能等领域。

Thermal Link& Varistors (KOV@T) is a patented product in which the in-built Thermal Link and Varistors are able to achieve timely heat conducting owing to the effective thermo-coupling structure. KOV@T has over voltage protection, surge protection and multi- ple protection functions. The in-built Varistors has very high surge capacity and over voltage withstanding ability, the in-built Thermal Fuse's fusible alloy with low impedance has the same surge capacity as Varistors, furthermore, there is no contact impedance be- tween Varistors and Thermal Fuse, therefore, KOV@T will not be permanent short circuit under high surge impact, and Varistors is able to be disconnected from the circuit under abnormal situations, to avoid any fire risk.

KOV@T complies with UL 1449 4th edition, IEC/EN 61643-11, IEC 61051-2 standards and RoHS & REACH. KOV@T is applicable for Telecom Power, LED Power, Electrical Equipment, Surge Protective Device, Power Strips (Surge Protector), Power Adapter, Solar Energy, Wind Energy, Railway, Military Field and so on.

特性 Features

- 占用电路板面积小，节省空间 SPACE SAVING
- 遥信功能可选 Optional Remote Signal Function
- 使用环境：温度(-40 - 85)°C, 湿度≤95%RH
  Operating Condition: -40 °C to 85 °C, ≤95%RH
- 封闭的热保护动作空间，安全可靠. Enclosed Space Of Thermal Protection, Safe And Reliable
- 具热保护功能，避免压敏电阻劣化引起火灾. Thermal Protection Function, No Fire Rise Caused By Varistors's Degradation
- 可选的状态指示接入点. Optional Status Indication

应用 Applications

- 电表 Electricity Meter
- 充电桩 Charging Pole
- 光伏 PV System
- 漏电保护器 GFCI
- 家用电器 Home Electrical Appliance
- 工业电源 Industrial Power Supply
- 通讯电源 Telecom Power
- 防雷插座 Surge Protecto

认证信息 Agency Information

认证信息 Agency Information		标准 Standards		认证号 File NO .	
		温度保险丝（TL: Thermal Link）	压敏电阻 Varistors	温度保险丝（TL: Thermal Link）	压敏电阻 Varistors
	UL	UL 60691	UL 1449 4th Edition	E504471	E479668
	TUV	EN60691	EN 61643-11	R50442308 / R50497745	J50541477
	TUV	IEC 61643-11 : 2011		J 50602155	
	CQC	NA	GB4943.1-2011, GB8898-2011; GB/T 10193-1997, GB/T 10194-1997	NA	CQC22001337054

关键特性 Key Features

安全失效的压敏电阻
Fail-safe Structure

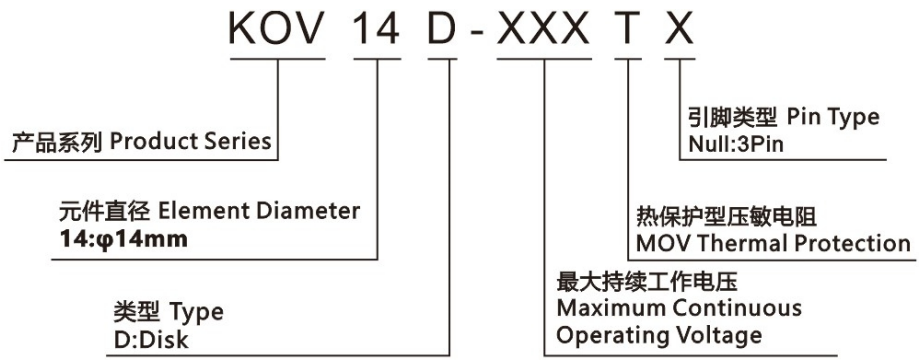
泄放电流
Current Discharging
钳制电压
Voltage Limiting

热保护
Thermal Protection

热设计
Thermo- coupling

项目 Item	定义 Description
	1. 具有 Varistors 的功能；With the function of Varistors. 2. 劣化后失效时利用压敏电阻的热量转化为开路. When Varistors fails, the heat transferred from Varistors makes the circuit open.
	1. 具有非线性的 V-I 特性曲线； With nonlinear V-I characteristic curve. 2. 转移冲击电流，限制冲击电压幅值；Discharging impact current, limiting the amplitude of impulse voltage. 3. 劣化后失效时发热、短路，易引发着火危险. Heating or short circuit caused by Varistors failure easily leads to fire hazard.
	1. 过温后断开电路；Disconnect the circuit when overheating. 2. 无触点，通过较大冲击电流. Without contact impedance, be able to handle high impact current.
热设计 Thermo-coupling	1. 高导热、耐高温材料；High thermal conductivity, high temperature resistant material. 2. 高效率的热传导路径. Efficient heat conduction paths.

型号说明 Part Number Code



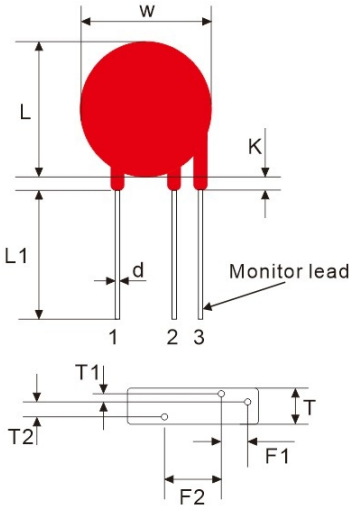
性能参数 Performance Parameters

产品型号 Type Number	最大持续工作电压 Uc Maximum Continuous Operating Voltage		浪涌电流 (8/20μs) Current Impulse		压敏电压 Varistors Voltage @1mA dc		限制电压 Clamping Voltage (Max.)		最大能量 Max. Energy (10/1000μs)	静态电容量 Typical Capacitance (Reference) @1 kHz	符合标准 Comply with safety standards IEC62368-1:2018 GB4943.1-2022
	U_C (Vac)	U_{CPV} (Vdc)	In (kA)	Imax (kA)	Min.(V)	Max.(V)	V_C(V)	I_P(A)	(J)	(pF)	Vr
KOV14D-050T	50	65	3	6	75	92	135	50	27	2400	50
KOV14D-060T	60	85	3	6	90	110	165	50	33	2000	60
KOV14D-130T	130	170	3	6	185	225	340	50	70	1000	130
KOV14D-140T	140	180	3	6	198	242	360	50	78	900	140
KOV14D-150T	150	200	3	6	216	264	395	50	84	830	150
KOV14D-175T	175	225	3	6	243	297	455	50	99	740	175
KOV14D-190T	190	250	3	6	270	330	500	50	108	670	190
KOV14D-210T	210	275	3	6	297	363	550	50	115	610	210
KOV14D-230T	230	300	3	6	324	396	595	50	130	560	230
KOV14D-250T	250	320	3	6	351	429	650	50	140	510	250
KOV14D-275T	275	350	3	6	387	473	710	50	155	460	275
KOV14D-300T	300	385	3	6	423	517	775	50	175	430	300
KOV14D-320T	320	415	3	6	459	561	845	50	180	390	320
KOV14D-350T	350	460	3	6	504	616	925	50	185	360	350
KOV14D-385T	385	505	3	6	558	682	1025	50	190	320	385
KOV14D-420T	420	560	3	6	612	748	1120	50	200	290	420
KOV14D-460T	460	615	3	6	675	825	1240	50	210	270	460
KOV14D-510T	510	670	3	6	738	902	1355	50	235	240	510
KOV14D-550T	550	745	3	6	819	1001	1500	50	255	220	550
KOV14D-620T	620	820	3	6	900	1100	1650	50	280	200	620
KOV14D-680T	680	890	3	6	990	1210	1815	50	310	180	680
KOV14D-750T	750	990	3	6	1080	1320	1980	50	324	160	750

术语 Glossary

项目 Item	定义 Description
标称压敏电压 Nominal Varistors Voltage (*VN*)	在规定持续时间的脉冲电流下测得 Varistors 两端的电压。注：由 Varistors 制造商规定电流值，否则通常采用 1 mA。除非另有规定，脉冲持续时间应小于 400 ms。通常制造商规定的标 称值范围为±10%。—(GB 18802.331) Voltage, at specified d.c. current used as a reference point in the component characteristic . ---（IEC 61051-1）
漏电流 Leakage Current (*IL*)	在 25 °C 或规定的其它温度下，施加最大直流电压时，通过压 敏电阻器中的电流。 —(GB/T 10193) Current passing through the Varistors at the max. d.c. volt- age, and at a temp. of 25 °C, or any other specified temp. ---（IEC 61051-1）
上限类别温度 Upper Category Temp. (UCT)	压敏电阻器设计所确定的能够连续工作的最高环境温度。 —(GB/T 10193) Max. ambient temp. for which a Varistors has been designed to operate continuously. ---（IEC 61051-1）
下限类别温度 Lower Category Temp. (LCT)	压敏电阻器设计所确定的能够连续工作的最低环境温度。 —(GB/T 10193) Minimum ambient temp. at which a Varistors has been de- signed to operate continuously.---（IEC 61051-1）
最大峰值电流 Max. Peak Current	在环境温度 25 °C 时，对于规定的脉冲次数而言，压敏电阻器中允许通过的每个规定脉冲的最大电流值。 —(GB/T 10193) Max. current per pulse, which may be passed by a Varistors at an ambient temp. of 25 °C, for a given number of pulses. ---（IEC 61051-1）
箝制电压 Clamping Voltage (*VC*)	规定脉冲峰值电流(*IP*)及规定波形下测得 Varistors 两端的电压峰值。 —(GB 18802.331) Peak voltage developed across the Varistors terminations under standard atmospheric conditions, when passing an 8/20 μs class current pulse. ---（IEC 61051-1）
耐电压 Voltage Proof	连续可施加在压敏电阻器引出端和导电性安装之间的最大峰值电压。 —(GB/T 10193) Max. peak voltage, which may be applied under continuous operating conditions between the Varistors terminations and any conducting mounting surface. (Applicable only to insulated Varistors) ---（IEC 61051-1）
电容量 Capacitance (*CV*)	两端间的电容量，其测量应在规定的正弦频率和电压以 及规定的温度下进行。除非另有规定，推荐采用 25 °C 下、1$V_{r.m.s}$、1 kHz 的信号。 —(GB 18802.331) Capacitance across the Varistors measured at a specified frequency and voltage. ---（IEC 61643-331）
最大连续交流电压 Max. Continuous a.c. Voltage (*V* r.m.s.)	在环境温度 25 °C 时，可以施加在元件上连续工作的、波形基 本上是正弦波（总谐波畸变小于 5%）的最大交流电压有效 值。当温度高于 25 °C 时，详细规范应给出降额曲线。 —(GB/T 10193) Max. a.c. r.m.s. voltage of a substantially sinusoidal wave- form (less than 5% total harmonic distortion) which can be applied to the component under continuous operating conditions at 25 °C. ---（IEC 61051-1）
最大连续直流电压 Max. Continuous d.c. Voltage (V_{dc})	在环境温度 25 °C 时，可以施加在元件上连续工作的最大直流 电压（纹波小于 5%）。当温度高于 25 °C 时，详细规范应给 出降额曲线。—(GB/T 10193) Max. d.c. voltage (with less than 5% ripple) which can be applied to the component under continuous operating conditions at an ambient temp. of 25 °C. ---（IEC 61051-1）
热熔断体 Thermal-link	也称为热断路器或温度保险丝，是装有热元件的不可复位的器件，当它暴露在超过所设计的温度下达到一个足够长的时间时就会 将电路断开。— (GB 9816) Thermal-link / Thermal Cutoff (TCO) / thermal fuse. A non-resettable device incorporating a TCO which will open a circuit once only when exposed for a sufficient length of time to a temp. in excess of that which it has been designed.---（IEC 60691）
额定动作温度 Rated Functioning Temp. (T)	通不超过 10mA 的探测电流时，测得的使温度保险丝导电状态改变的温度。 — (GB 9816) The Temp of the TCO which causes it to change its state of conductivity with a detection current up to 10mA as the only load. ---（IEC 60691） 实测动作温度：置于油池中，通 10mA 以下的负载电流，每分钟升温(0.5 - 1)°C ，测得的使温度保险丝导电状态改变的温度。— (GB 9816) Fusing Temp.: The Temp. of the TCO which causes it to change its state of conductivity with a detection current up to 10mA as the only load. It is measured with a silicone oil bath in which the Temp. is increased at the rate of (0.5 - 1) °C /min. ---（IEC 60691） 允许偏差 Tolerance: Tf +0/-10 °C (GB 9816, UL 60691, EN 60691, K60691) 允许偏差 Tolerance: Tf ±7 °C （J60691）

尺寸 Dimensions



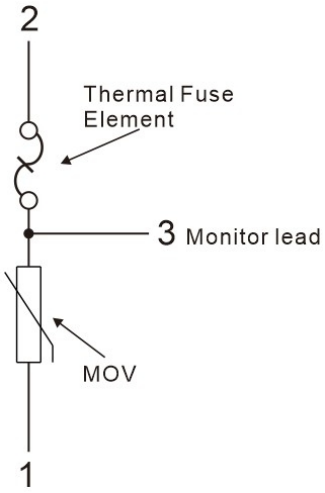
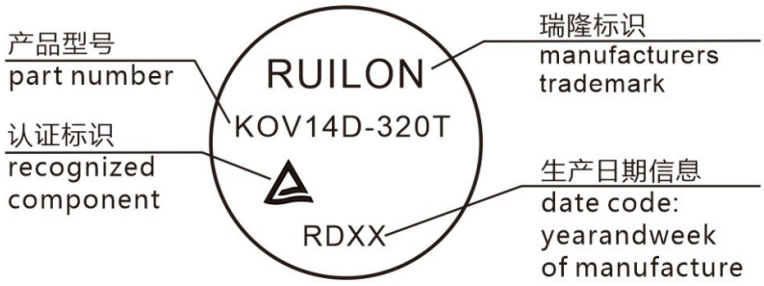


TABLE 1		
Symbol	**Millimeters**	**Inches**
W(max)	19.0	0.748
L(max)	21.0	0.827
L1(min)	15.0	0.591
F1(± 0.5)	5.0	0.197
F2(± 1.0)	7.5	0.295
T1(± 0.3)	1.3	0.059
K(max)	3.0	0.118
d(+0.05)	Φ0.8	0.031
T ,T2	TABLE 2	

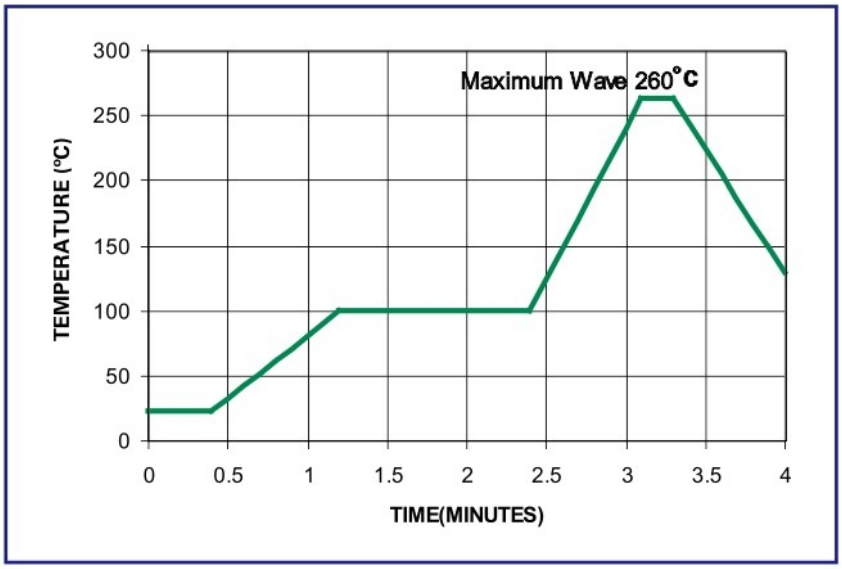
TABLE 2

产品型号 Type Number	T (max)		T2 (±0.8)	
	Millimeters	**Inches**	**Millimeters**	**Inches**
KOV14D-050T	7.4	0.291	1.8	0.071
KOV14D-060T	7.4	0.291	1.8	0.071
KOV14D-130T	7.4	0.291	1.8	0.071
KOV14D-140T	7.5	0.295	1.9	0.075
KOV14D-150T	7.6	0.299	2.0	0.079
KOV14D-175T	7.8	0.305	2.2	0.085
KOV14D-190T	7.9	0.311	2.3	0.091
KOV14D-210T	8.1	0.317	2.5	0.096
KOV14D-230T	8.2	0.323	2.6	0.102
KOV14D-250T	8.4	0.329	2.8	0.108
KOV14D-275T	8.6	0.337	3.0	0.116
KOV14D-300T	8.8	0.344	3.2	0.124
KOV14D-320T	9.0	0.352	3.4	0.132
KOV14D-350T	9.2	0.362	3.6	0.142
KOV14D-385T	9.5	0.374	3.9	0.154
KOV14D-420T	9.8	0.386	4.2	0.165
KOV14D-460T	10.2	0.400	4.6	0.179
KOV14D-510T	10.5	0.413	4.9	0.193
KOV14D-550T	10.9	0.429	5.3	0.209
KOV14D-620T	11.4	0.449	5.8	0.228
KOV14D-680T	11.9	0.469	6.3	0.248
KOV14D-750T	12.4	0.488	6.8	0.268

标识 Logotype



波峰焊参数（参考）Wave Soldering Parameters (For Reference Only)



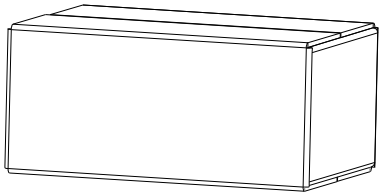
项目 Items	温度 Temp (°C)	时间 Time (s)
预热 Preheating	80 to 100	60 to150
过锡 Dwelling	250 to 260	2 to 4

推荐的手工焊参数 Recommended Hand-Soldering Parameters

项目 Items	条件 Condition
洛铁头温度 Lron Temperature	350℃（Max.）
焊接时间 Soldering Time	4 seconds（Max.）
焊接点距产品底部的距离 Distance Between Soldering Point And The Battom Of Product	2mm（Min.）

包装信息Packaging Information - 14 mm Disc

散装 BULK:

Inner box size	Outer box size	Quantity
Size：260*208*55(mm) 	Size：435*275*200(mm) 	• 2400 pcs. per carton • 200 pcs. per bag • 2 bags per inner box • 6 inner boxes per carton