

# Switching Spark Gap

## UN2K8 Series

### Description

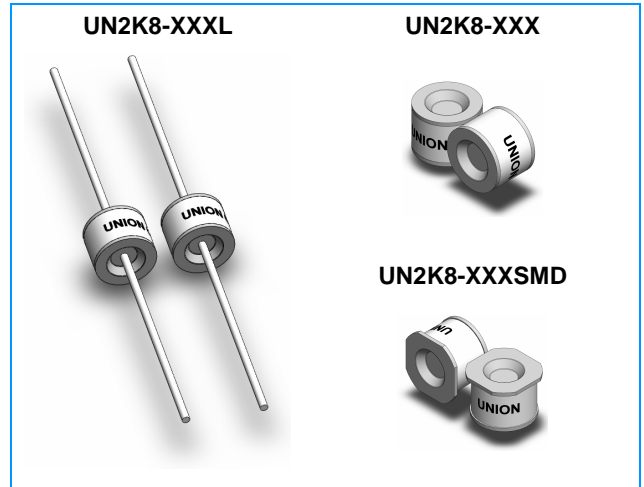
The 2K8 series is a two-terminal, bi-directional, voltage triggered switch, specifically for ignition circuits used in high pressure HID lighting. The gas plasma trigger technology offers very fast switch speeds with improved di/dt values compared to similar function silicon based devices. Switching voltages are fixed depending on the part number selected.

### Features

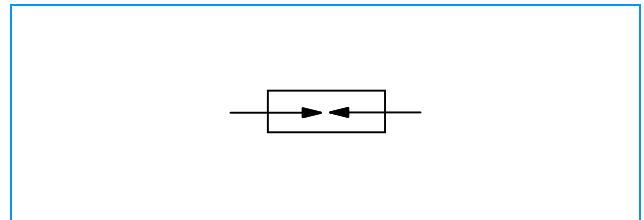
- u Non-Radioactive
- u RoHS Compliant
- u Fast breakdown-time
- u Very high switch speed when switch voltage achieved, High di/dt allows for optimum performance of ignition transformers.
- u Long service life

### Applications

- u HID Xenon discharge lamps ignite
- u Gas stoves
- u Detonating devices(EBW)
- u Transient Power
- u Other electronic ignition circuit



### Schematic Symbol



### Product Characteristics

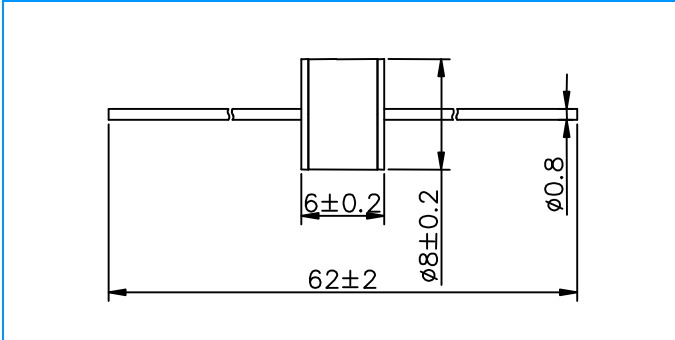
<b>Materials</b>	<b>Leaded Device:</b> Nickel-plated with Tinplated wires <b>Without wire and Surface Mount:</b> Dull Tin-plated	
<b>Product Marking</b>	<b>UNION XXXK</b> XXX -Nominal voltage K - Switch Spark Gap	
<b>Max Load Current</b>	50mA	
<b>Breakdown Time</b>	≤50mS	
<b>Insulation Resistance at DC100 V</b>	>1GΩ	
<b>Capacitance</b>	1.5pF	
<b>Storage Temperature</b>	-40 to +90°C	
<b>Operational Temperature</b>	-20 to +125°C	
<b>Weight</b>	<b>UN2K8-XXXL</b>	~1.5g
	<b>UN2K8-XXX</b>	~1.35g
	<b>UN2K8-XXXSMD</b>	~1.5g

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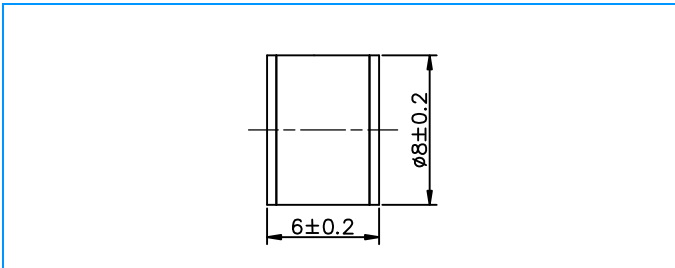
## UN2K8 Series

Dimensions Unit: mm

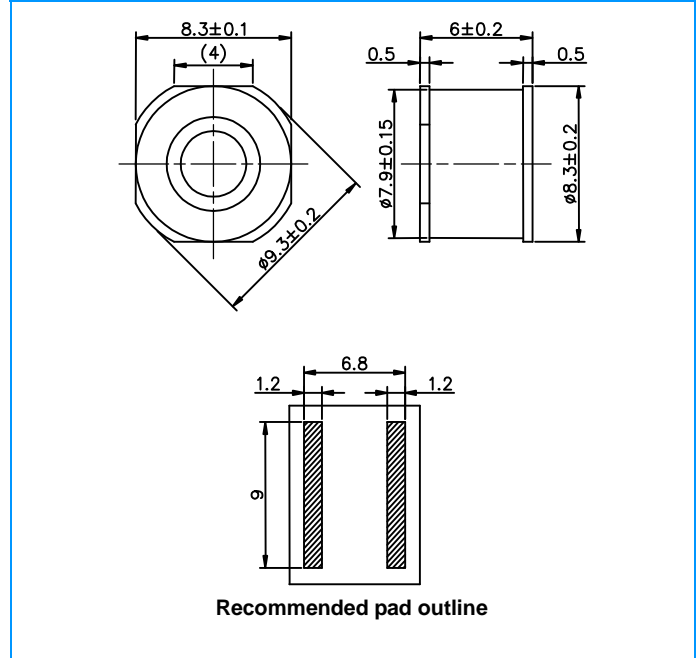
### Axial Leaded Devices (UN2K8-XXXL)



### Without wire Devices (UN2K8-XXX)



### Surface Mount Devices (UN2K8-XXXSMD)



## Electrical Specifications

Part Number	UN2K8-230L UN2K8-230 UN2K8-230SMD	UN2K8-300L UN2K8-300 UN2K8-300SMD	UN2K8-350L-1 UN2K8-350-1 UN2K8-350SMD-1	UN2K8-350L UN2K8-350 UN2K8-350SMD	UN2K8-350L-2 UN2K8-350-2 UN2K8-350SMD-2	UN2K8-400L UN2K8-400 UN2K8-400SMD
Nominal breakdown voltage	230V	300V	320V	350V	370V	400V
Initial values <sup>2)</sup>						
Static breakdown voltage <sup>1)</sup>						
First ignition value after 24 hours in darkness	≤260V	≤340V	≤360V	≤400V	≤420V	≤450V
Following ignition values	195~240V	260~310V	275~330V	300~365V	325~385V	340~420V
Electrical life <sup>3)</sup>						
Breakdown voltage						
After life test first ignition value after 24 hours in darkness	≤270V	≤360V	≤380V	≤430V	≤450V	≤480V
Following ignition values	195~265V	260~330V	275~350V	300~385V	325~405V	340~440V
Switching operations	200000 Ignitions	200000 Ignitions	200000 Ignitions	200000 Ignitions	200000 Ignitions	200000 Ignitions
Life test Circuit						
Open Circuit Voltage V <sub>0</sub>	230V <sub>AC</sub>	350V	400V	450V	450V	500V
Loading Resistance R	15KΩ	10KΩ	10KΩ	10KΩ	10KΩ	10KΩ
Discharge Capacitance C	2.2μF	680nF	680nF	680nF	680nF	680nF
Inductance L	10μH	0.5μH	0.5μH	0.5μH	0.5μH	0.5μH
Discharge Peak Current I <sub>P</sub>	~300A	~500A	~500A	~500A	~500A	~500A
Maximum switching frequency	100Hz	100Hz	100Hz	100Hz	100Hz	100Hz

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## UN2K8 Series

### Electrical Specifications (Continue)

Part Number	UN2K8-450L UN2K8-450 UN2K8-450SMD	UN2K8-500L UN2K8-500 UN2K8-500SMD	UN2K8-600L-1 UN2K8-600-1 UN2K8-600SMD-1	UN2K8-600L UN2K8-600 UN2K8-600SMD	UN2K8-800L-1 UN2K8-800-1 UN2K8-800SMD-1	UN2K8-800L UN2K8-800 UN2K8-800SMD
Nominal breakdown voltage	450V	500V	550V	600V	730V	800V
Initial values <sup>2)</sup>						
Static breakdown voltage <sup>1)</sup>						
First ignition value after 24 hours in darkness	≤510V	≤570V	≤620V	≤720V	≤850V	≤920V
Following ignition values	400~475V	450~530V	500~585V	550~640V	640~810V	705~860V
Electrical life <sup>3)</sup>						
Breakdown voltage						
After life test first ignition value after 24 hours in darkness	≤540V	≤600V	≤650V	≤750V	≤900V	≤950V
Following ignition values	400~495V	450~560V	500~620V	550~680V	640~840V	705~900V
Switching operations	200000 Ignitions	200000 Ignitions	200000 Ignitions	200000 Ignitions	200000 Ignitions	200000 Ignitions
Life test Circuit						
Open Circuit Voltage $V_0$	550V	600V	650V	750V	900V	1000V
Loading Resistance R	10KΩ	13KΩ	13KΩ	13KΩ	68KΩ	68KΩ
Discharge Capacitance C	680nF	470nF	470nF	470nF	100nF	100nF
Inductance L	0.5μH	0.1μH	0.1μH	0.1μH	0.4μH	0.4μH
Discharge Peak Current $I_p$	~500A	Max.1000A	Max.1000A	Max.1000A	~650A	~650A
Maximum switching frequency	100Hz	200Hz	200Hz	200Hz	200Hz	200Hz

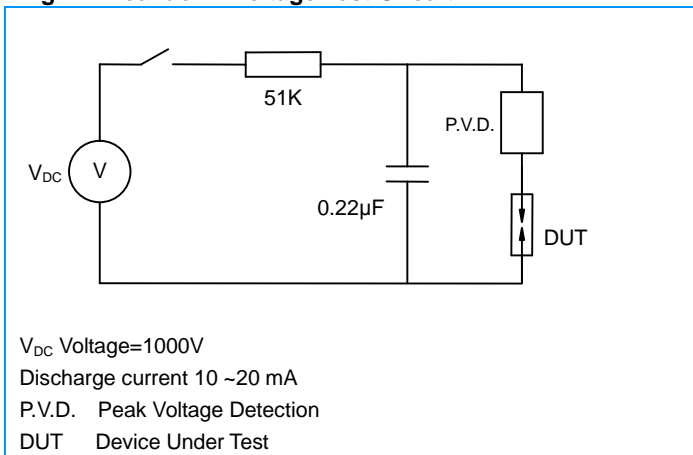
1). At delivery AQL 0,65 level II, DIN ISO 2859

2). Fig. 1

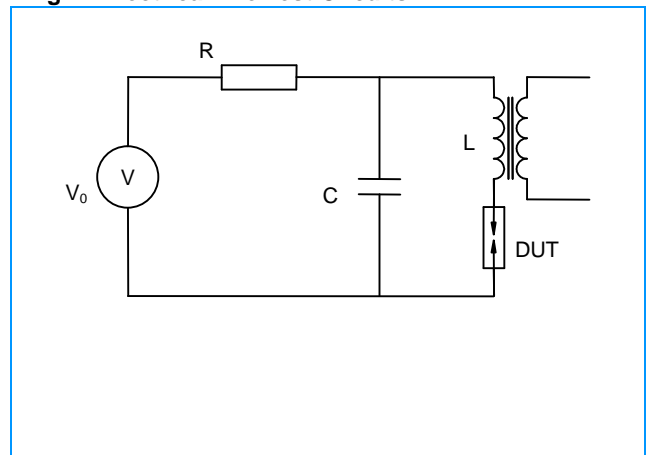
3). Fig. 2

### Test Circuit

**Fig. 1: Breakdown Voltage Test Circuit**



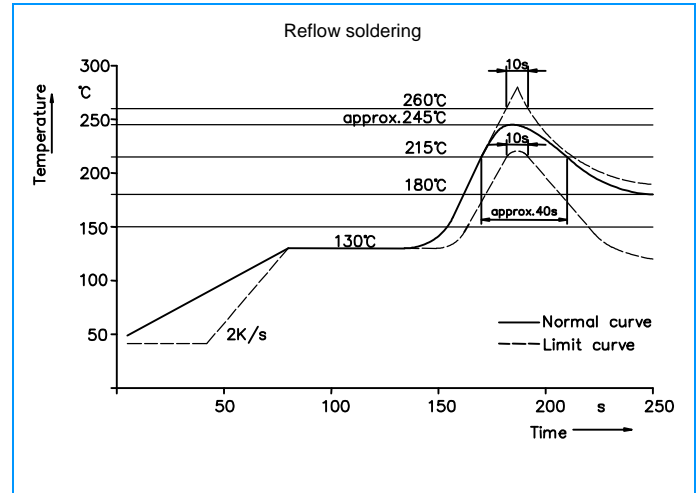
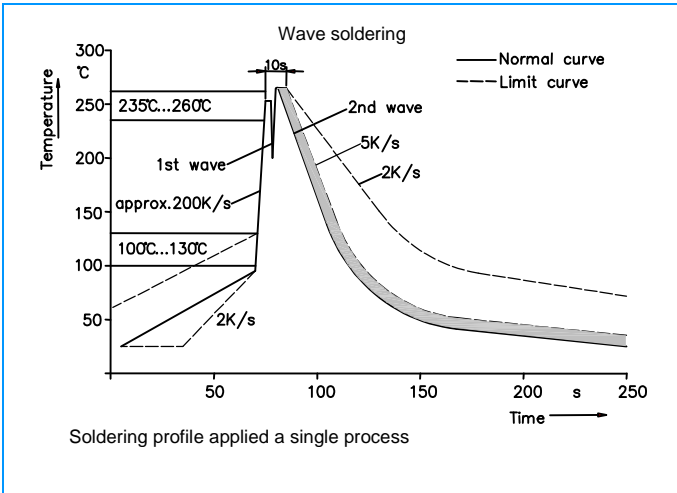
**Fig. 2: Electrical Life Test Circuits**



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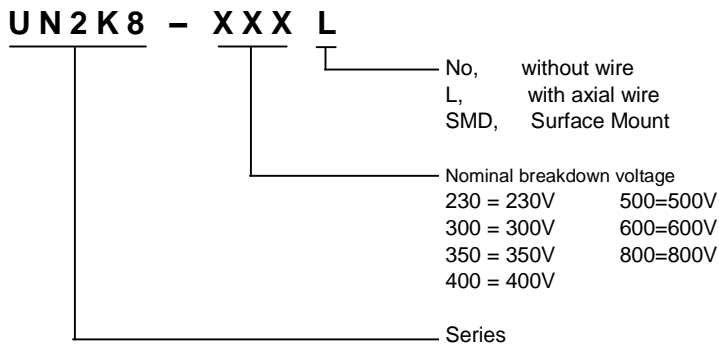
### Recommended Soldering Profile



### Soldering Parameters - Hand Soldering

Solder Iron Temperature: 350°C +/-5°C  
 Heating Time: 5 seconds max.

### Part Numbering



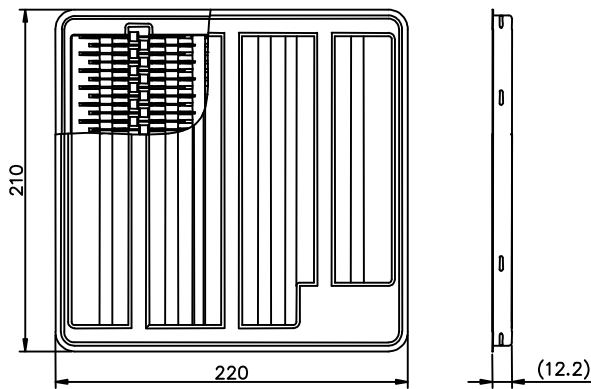
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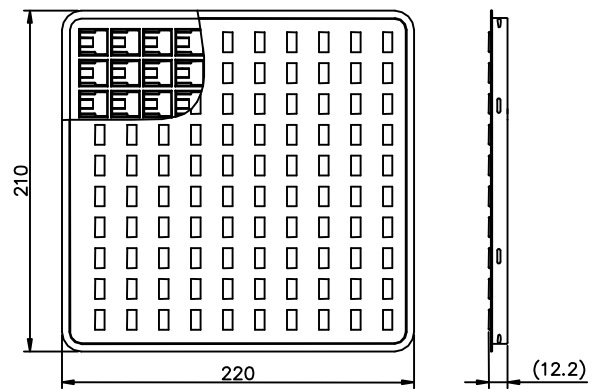
### Packaging Information Unit: mm

Part Number	Description	Quantity
UN2K8-XXXL	100PCS per Tray, 10 Trays / Inner Carton	1000
UN2K8-XXX	100PCS per Tray, 10 Trays / Inner Carton	1000
UN2K8-XXXSMD	100PCS per Tray, 10 Trays / Inner Carton	1000
	Tape & Reel -16mm tape/13"Reel	500

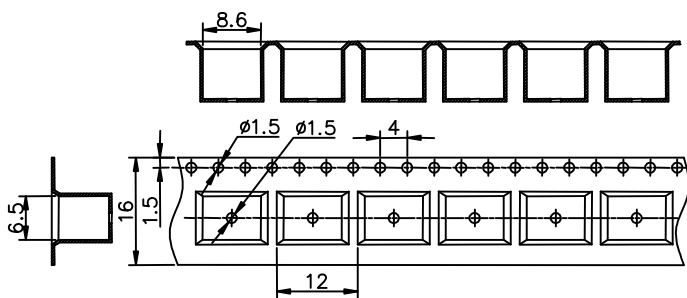
Tray used in UN2K8-XXXL



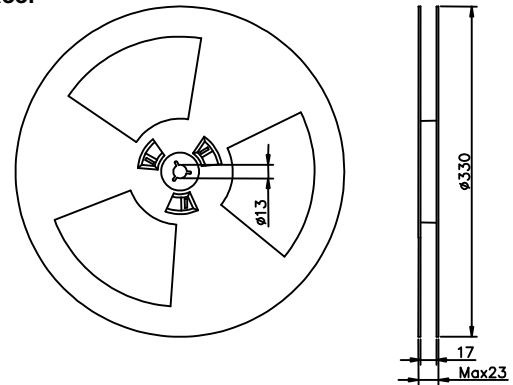
Tray used in UN2K8-XXX / UN2K8-XXXSMD



Tape Used in UN2K8-XXXSMD



Reel



### Cautions and warnings

- Switching spark gaps may be used only within their specified values.
- Damaged switching spark gaps must not be re-used.