

## 3-Electrode Gas Discharge Tube (GDT)

### UN3E5 Series

#### Description

Gas discharge Tubes (GDT) are classical components for protecting the installations of the telecommunications. It is essential that IT and telecommunications systems -with their high-grade but sensitive electronic circuits - be protected by arresters. They are thus fitted at the input of the power supply system together with varistors and at the connection points to telecommunication lines. They have become equally indispensable for protecting base stations in mobile telephone systems as well as extensive cable television (CATV) networks with their repeaters and distribution systems.

These protective components are also indispensable in other sectors, In AC power transmission systems, they are often used with current-limiting varistors, In customer premises equipment such as DSL modems, WLAN routers, TV sets and cable modems In air-conditioning equipment, the integral black-box concept offers graduated protection by combining arresters with varistors, PTC, diodes and inductor.

#### Features

- u Non-Radioactive
- u RoHS compliant
- u Low insertion loss
- u Excellent response to fast rising transients
- u Ultra low capacitance
- u 5KA surge capability tested with 8/20µs pulse as defined by IEC 61000-4-5

#### Applications

- u Communication equipment
- u CATV equipment
- u Test equipment
- u Data lines
- u Power supplies
- u Telecom SLIC protection
- u Broadband equipment
- u ADSL equipment, including ADSL2+
- u XDSL equipment
- u Satellite and CATV equipment
- u Consumer electronics

UN3E5-XXXLM



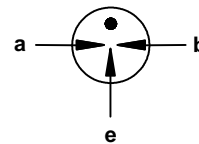
UN3E5-XXXL



UN3E5-XXXLSMD




#### Schematic Symbol



a = Tip  
b = Ring  
e = Ground  
(Center electrode)

#### Agency Approvals

AGENCY	AGENCY FILE NUMBER
	E341061

#### Product Characteristics

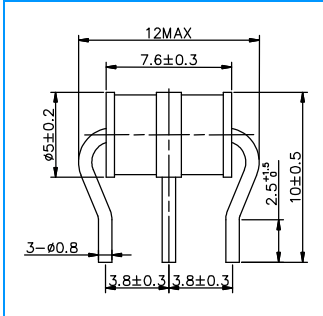
Materials	<b>Leaded Device:</b> Nickel-plated with Tinplated wires <b>Surface Mount:</b> Dull Tin-plated	
Product Marking	<b>UNION XXXL</b> XXX -Nominal voltage L -5KA	
Glow to Arc Transition Current	< 0.5 Amps	
Glow Voltage	~60 Volts	
Storage and Operational Temperature	-40 to +90°C	
Weight	UN3E5-XXXLM	~0.78g
	UN3E5-XXXLM	~0.66g
	UN2E5-XXXLSMD	~0.68g
Climatic category (IEC 60068-1)	40/ 90/ 21	

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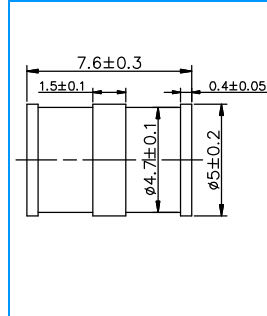
## UN3E5 Series

### Dimensions (Unit: mm)

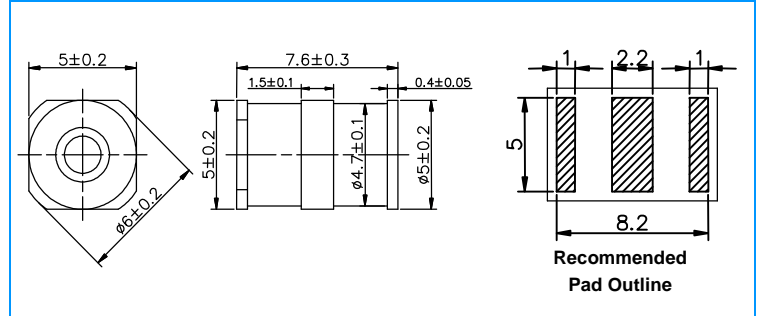
**Radial Leaded Devices (UN3E5-XXXLM)**



**Without wire Devices (UN3E5-XXXL)**



**Surface Mount Devices (UN3E5-XXXLSMD)**



### Electrical Characteristics

Part Number	Marking	DC Spark-over Voltage	Maximum Impulse Spark-over Voltage		Minimum Insulation Resistance	Maximum Capacitance	Arc Voltage	Service Life			
								Nominal Impulse Discharge Current	Max Impulse Discharge Current	Nominal Alternating Discharge Current	Impulse Life
UN3E5-75LM UN3E5-75L UN3E5-75LSMD	UNION 75L	75V±20%	<500V	<600V	1 GΩ (at 25V)	<1.5pF	~15V	5KA	10KA	5A	200A
UN3E5-90LM UN3E5-90L UN3E5-90LSMD	UNION 90L	90V±20%	<500V	<600V	1 GΩ (at 50V)	<1.5pF	~15V	5KA	10KA	5A	200A
UN3E5-150LM UN3E5-150L UN3E5-150LSMD	UNION 150L	150V±20%	<500V	<600V	1 GΩ (at 50V)	<1.5pF	~20V	5KA	10KA	5A	200A
UN3E5-230LM UN3E5-230L UN3E5-230LSMD	UNION 230L	230V±20%	<600V	<700V	1 GΩ (at 100V)	<1.5pF	~20V	5KA	10KA	5A	200A
UN3E5-250LM UN3E5-250L UN3E5-250LSMD	UNION 250L	250V±20%	<600V	<700V	1 GΩ (at 100V)	<1.5pF	~20V	5KA	10KA	5A	200A
UN3E5-300LM UN3E5-300L UN3E5-300LSMD	UNION 300L	300V±20%	<800V	<900V	1 GΩ (at 100V)	<1.5pF	~20V	5KA	10KA	5A	200A
UN3E5-350LM UN3E5-350L UN3E5-350LSMD	UNION 350L	350V±20%	<800V	<900V	1 GΩ (at 100V)	<1.5pF	~20V	5KA	10KA	5A	200A
UN3E5-420LM UN3E5-420L UN3E5-420LSMD	UNION 420L	420V±20%	<900V	<1000V	1 GΩ (at 100V)	<1.5pF	~20V	5KA	10KA	5A	200A
UN3E5-470LM UN3E5-470L UN3E5-470LSMD	UNION 470L	470V±20%	<900V	<1000V	1 GΩ (at 100V)	<1.5pF	~20V	5KA	10KA	5A	200A
UN3E5-600LM UN3E5-600L UN3E5-600LSMD	UNION 600L	600V±20%	<1100V	<1200V	1 GΩ (at 100V)	<1.5pF	~20V	5KA	10KA	5A	200A

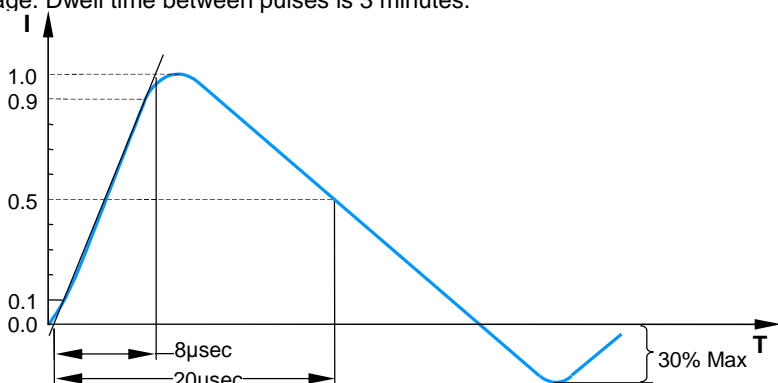
**Notes:**

- 1). Terms in accordance with ITU-T K.12 and GB/T 9043-2008
- 2). At delivery AQL 0.65 level II, DIN ISO 2859
- 3). Tip or ring electrode to center electrode
- 4). Total current through center electrode, half value through tip respectively ring electrode

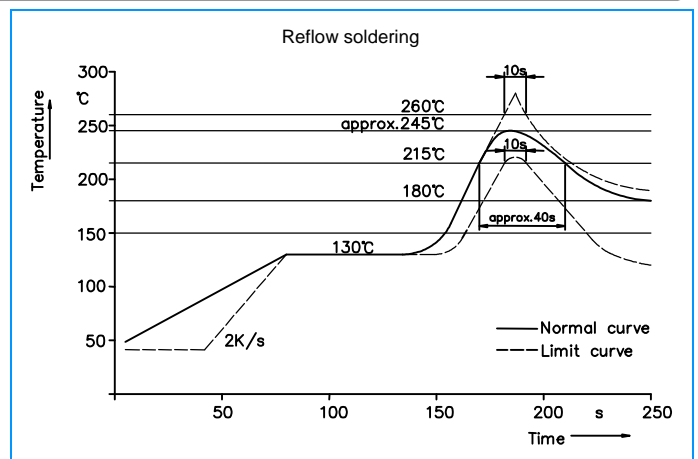
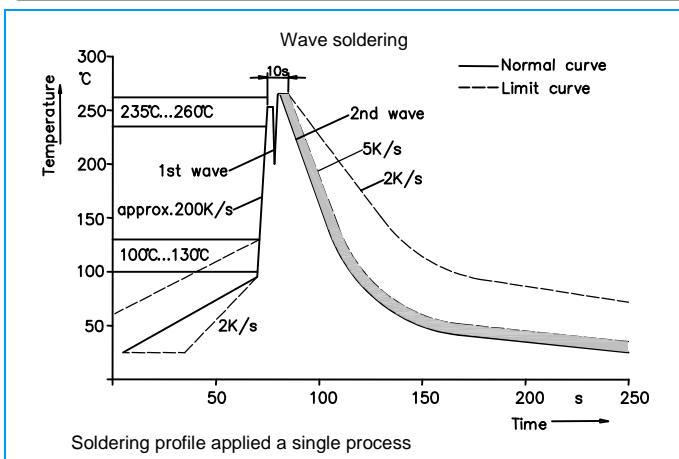
# 3-Electrode Gas Discharge Tube (GDT)

## UN3E5 Series

### Electrical Rating

Item	Test Condition / Description	Requirement
<b>DC Spark-over Voltage</b>	The voltage is measured with a slowly rate of rise $dv / dt=100V/s$	To meet the specified value
<b>Impulse Spark-over Voltage</b>	The maximum impulse spark-over voltage is measured with a rise time of $dv / dt=100V/\mu s$ or $1KV/\mu s$	
<b>Insulation Resistance</b>	The resistance of gas tube shall be measured each terminal each other terminal, please see above spec.	
<b>Capacitance</b>	The capacitance of gas tube shall be measured each terminal to each other terminal. Test frequency :1MHz	
<b>Nominal Impulse Discharge Current</b>	The maximum current applying a waveform of 8/20 $\mu s$ that can be applied across the terminals of the gas tube. One hour after the test is completed, re-testing of the DC spark-over voltage does not exceed $\pm 30\%$ of the nominal DC spark-over voltage. Dwell time between pulses is 3 minutes. 	
<b>Nominal Alternating Discharge Current</b>	Rated RMS value of AC current at 50Hz, 1 sec. 10 times. Intervals: 3min. The DC spark-over voltage does not exceed $\pm 30\%$ of the nominal DC spark-over voltage. $IR > 10^8 ohms$ .	

### Recommended soldering profile



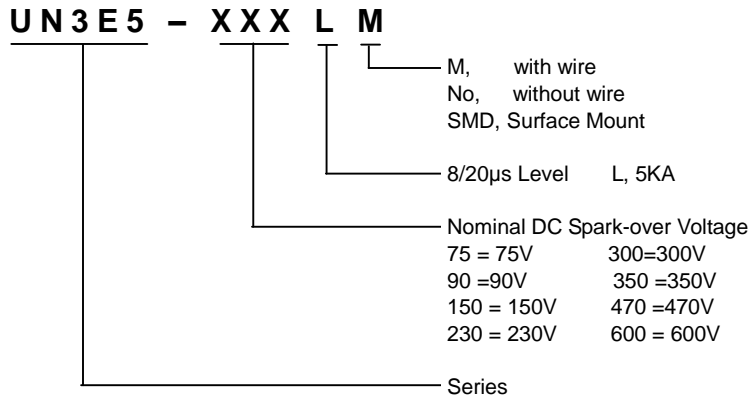
### Soldering Parameters - Hand Soldering

Solder Iron Temperature: 350°C  $\pm 5^\circ C$   
 Heating Time: 5 seconds max.

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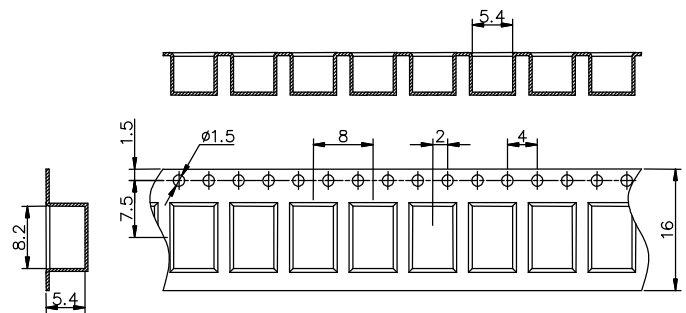
### Part Numbering



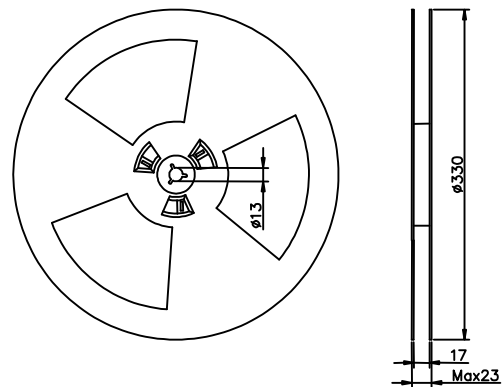
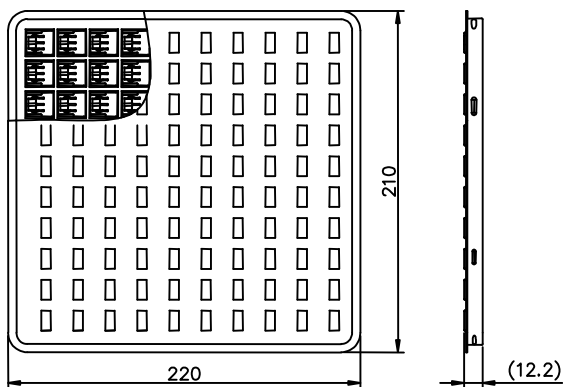
### Packaging

Part Number	Description	Quantity
UN3E5-XXXLM	100PCS per Tray, 10 Trays / Inner	1000
UN3E5-XXXL	100PCS per Tray, 10 Trays / Inner	1000
UN3E5-XXXLSMD	100PCS per Tray, 10 Trays/ Inner	1000
	16mmTape & 13" Reel	1000

### Tape and Reel Dimension (Unit: mm)



### Tray Dimension (Unit: mm)



### Cautions and warnings

- ⚠ Gas discharge tubes (GDT) must not be operated directly in power supply networks.
- ⚠ Gas discharge tubes (GDT) may become hot in case of longer periods of current stress (danger of burning).
- ⚠ Gas discharge tubes (GDT) may be used only within their specified values. In the event of overload, the head contacts may fail or the component may be destroyed.
- ⚠ Damaged Gas discharge tubes (GDT) must not be re-used.

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