

## 3-Electrode Gas Discharge Tube (GDT)

### UN3E6 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 10KA 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

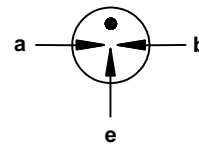
UN3E6-XXXMM



UN3E6-XXXM



#### Schematic Symbol



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

#### Agency Approvals

AGENCY	AGENCY FILE NUMBER
	E341061

#### Product Characteristics

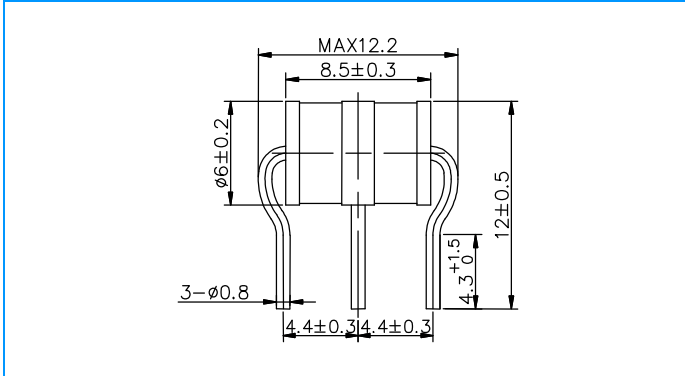
Materials	Nickel-plated with Tinplated wires	
Product Marking	<b>UNION</b> <b>XXXM</b> XXX -Nominal voltage M -10KA	
Glow to Arc Transition Current	~1 Amps	
Glow Voltage	~70 Volts	
Storage and Operational Temperature	-40 to +90°C	
Weight	UN3E6-XXXMM	~1.30g
	UN3E6-XXXM	~1.15g
Climatic category (IEC 60068-1)	40/ 90/ 21	

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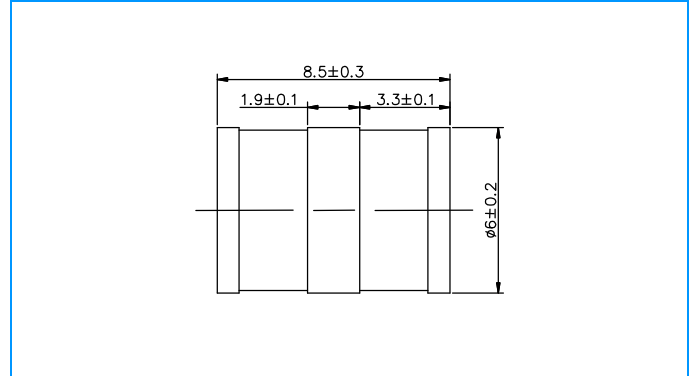
## UN3E6 Series

### Dimensions (Unit: mm)

#### Radial Leaded Devices (UN3E6-XXXMM)



#### Without wire Devices (UN3E6-XXXM)



### Electrical Characteristics

Part Number	Marking	DC Spark-over Voltage	Maximum Impulse Spark-over Voltage		Minimum Insulation Resistance	Maximum Capacitance	Arc Voltage	Service Life				
			@100V/μs	@100V/μs				@1KV/μs	Nominal Impulse Discharge Current	Max Impulse Discharge Current	Nominal Alternating Discharge Current	Impulse Life
UN3E6-75MM UN3E6-75M	UNION 75M	75V±20%	<500V	<600V	1 GΩ (at 25V)	<1.5pF	~15V	10KA	20KA	10A	200A	
UN3E6-90MM UN3E6-90M	UNION 90M	90V±20%	<500V	<600V	1 GΩ (at 50V)	<1.5pF	~15V	10KA	20KA	10A	200A	
UN3E6-150MM UN3E6-150M	UNION 150M	150V±20%	<500V	<600V	1 GΩ (at 50V)	<1.5pF	~20V	10KA	20KA	10A	200A	
UN3E6-230MM UN3E6-230M	UNION 230M	230V±20%	<600V	<700V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	200A	
UN3E6-250MM UN3E6-250M	UNION 250M	250V±20%	<600V	<700V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	200A	
UN3E6-300MM UN3E6-300M	UNION 300M	300V±20%	<800V	<900V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	200A	
UN3E6-350MM UN3E6-350M	UNION 350M	350V±20%	<800V	<900V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	200A	
UN3E6-420MM UN3E6-420M	UNION 420M	420V±20%	<900V	<1000V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	200A	
UN3E6-470MM UN3E6-470M	UNION 470M	470V±20%	<900V	<1000V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	200A	
UN3E6-600MM UN3E6-600M	UNION 600M	600V±20%	<1100V	<1200V	1 GΩ (at 100V)	<1.5pF	~20V	10KA	20KA	10A	200A	

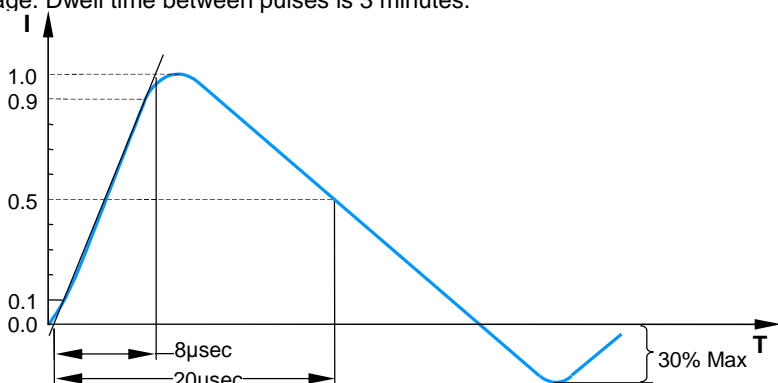
#### Notes:

- 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

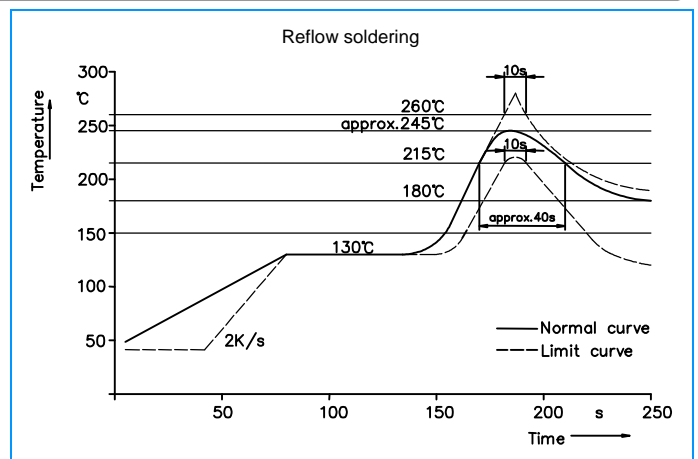
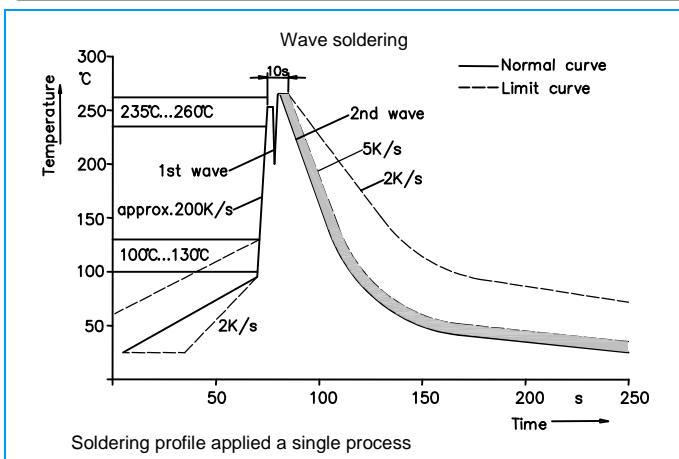
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### Electrical Rating

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



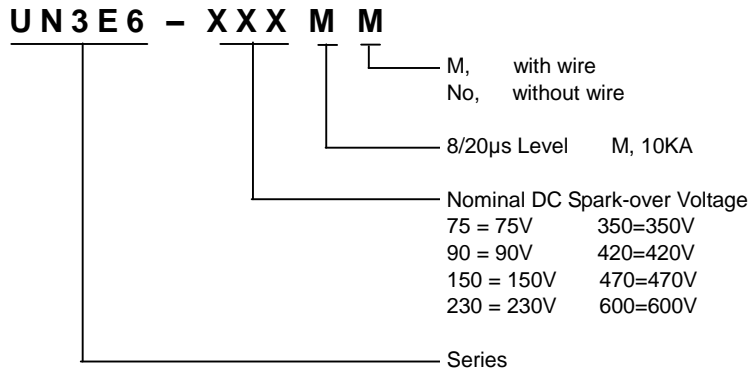
### Soldering Parameters - Hand Soldering

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

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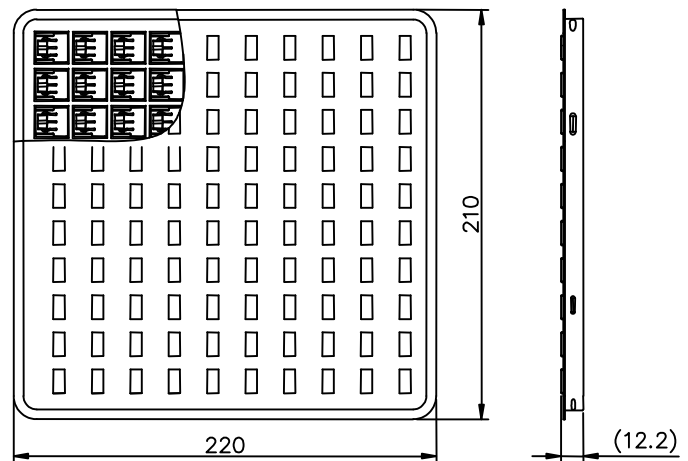
### Part Numbering



### Packaging

Part Number	Description	Quantity
UN3E6-XXXMM	100PCS per Tray, 10 Trays / Inner Carton	1000
UN3E6-XXXM	100PCS per Tray, 10 Trays / Inner Carton	1000

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.