



## Features

- Small size
- Stable breakdown voltage
- High bandwidth
- RoHS compliant\*

## Applications

- Telecom
- Datacom
- Industrial electronics

# G5000 and G6000 Series Overvoltage Protectors

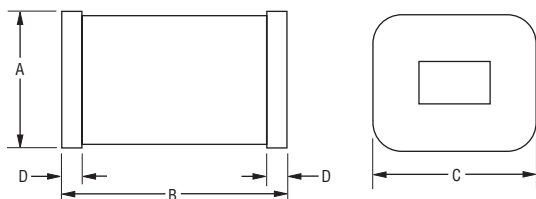
## Electrical Characteristics

| Symbol      | Parameter                                       |         | Test conditions                                                                                                               | Value | Unit       |
|-------------|-------------------------------------------------|---------|-------------------------------------------------------------------------------------------------------------------------------|-------|------------|
| $V_{BR}$    | Maximum end-of-life impulse sparkover voltage   | G5000AS | 10/1000 $\mu$ s, 1000 V, 100 A<br>2/10 $\mu$ s, 2500 V, 500 A<br>2/10 $\mu$ s, 5000 V, 500 A<br>10/700 $\mu$ s, 6000 V, 240 A | 1600  | V          |
|             |                                                 | G5200AS | 10/1000 $\mu$ s, 1000 V, 100 A<br>2/10 $\mu$ s, 5000 V, 500 A<br>10/700 $\mu$ s, 6000 V, 240 A                                | 850   |            |
|             |                                                 | G5500AS | 2/10 $\mu$ s, 800 V, 100 A<br>2/10 $\mu$ s, 1500 V, 100 A                                                                     | 650   |            |
|             |                                                 | G6000AS | 2/10 $\mu$ s, 6000 V, 500 A                                                                                                   | 650   |            |
| $V_{DC}$    | Minimum end-of-life DC breakover voltage        | G5000AS | R=1 M $\Omega$ , 500 V/s                                                                                                      | 900   | V          |
|             |                                                 | G5200AS | R=51k $\Omega$ , 500 V/s                                                                                                      | 400   |            |
|             |                                                 | G5500AS | R=51k $\Omega$ , 500 V/s                                                                                                      | 200   |            |
|             |                                                 | G6000AS | R=51k $\Omega$ , 500 V/s                                                                                                      | 200   |            |
| $I_{surge}$ | Maximum surge rating with 8/20 $\mu$ s waveform |         | —                                                                                                                             | 2     | kA         |
| $C_{max}$   | Maximum capacitance (1 MHz)                     |         | —                                                                                                                             | 0.3   | pF         |
| $R_{ins}$   | Minimum insulation resistance                   |         | —                                                                                                                             | 10    | M $\Omega$ |

## Thermal Conditions

| Symbol    | Parameter                   | Min.       | Unit |
|-----------|-----------------------------|------------|------|
| $T_{op}$  | Operating temperature range | -40 to +85 | °C   |
| $T_{stg}$ | Storage temperature range   | -40 to +85 | °C   |

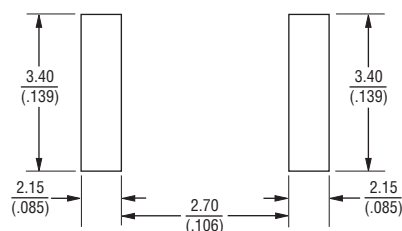
## Product Dimensions



Packaging: 3000 pieces per reel    DIMENSIONS:  $\frac{MM}{(INCHES)}$

| Dim. | Min.                  | Max.                  |
|------|-----------------------|-----------------------|
| A    | $\frac{2.40}{(.094)}$ | $\frac{3.00}{(.118)}$ |
| B    | $\frac{4.20}{(.165)}$ | $\frac{4.80}{(.189)}$ |
| C    | $\frac{2.90}{(.114)}$ | $\frac{3.50}{(.138)}$ |
| D    | $\frac{0.60}{(.024)}$ | $\frac{0.70}{(.028)}$ |

## Recommended Pad Layout



## How to Order

Form Factor \_\_\_\_\_ **G 5200 AS**

G = Gas Discharge Tube

Series \_\_\_\_\_

5000

5200

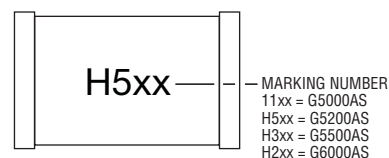
5500

6000

Rating Form Factor \_\_\_\_\_

AS = 2 kA Rating, Surface Mount

## Typical Part Marking

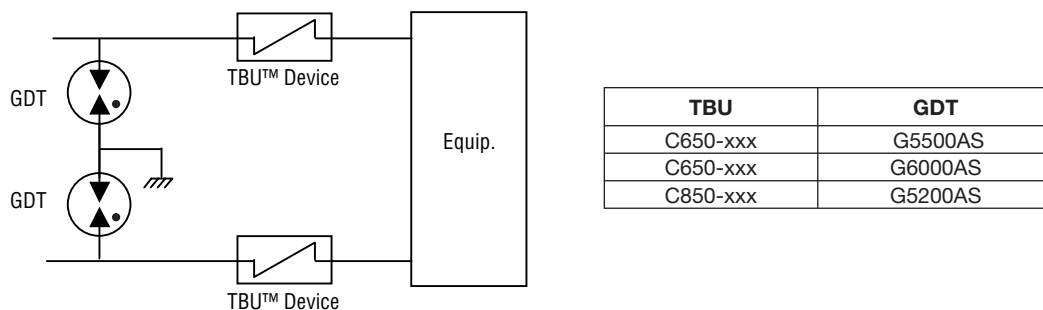


\*RoHS Directive 2002/95/EC Jan 27 2003 including Annex.  
Specifications are subject to change without notice.  
Customers should verify actual device performance in their specific applications

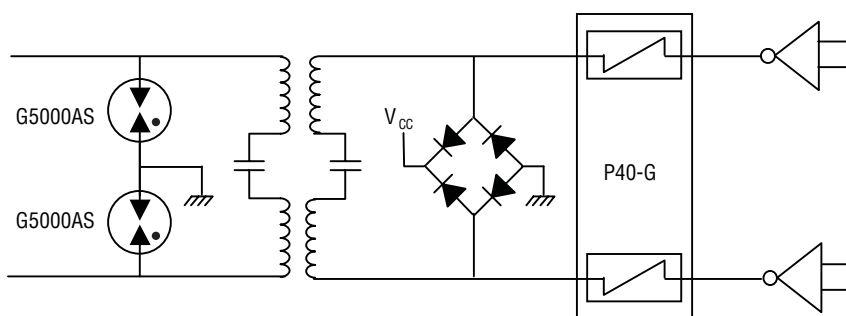
## G5000 and G6000 Series Overvoltage Protectors

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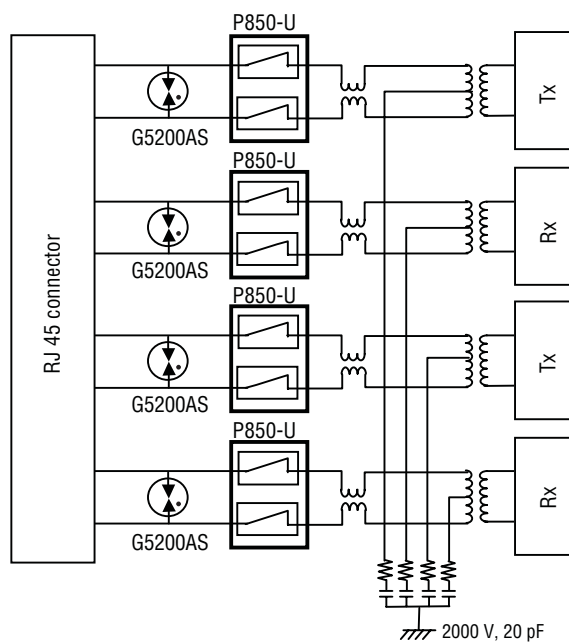
### Typical Applications



Telecom, Industrial and Other General Electronics



ADSL, VDSL and VDSL2



Ethernet

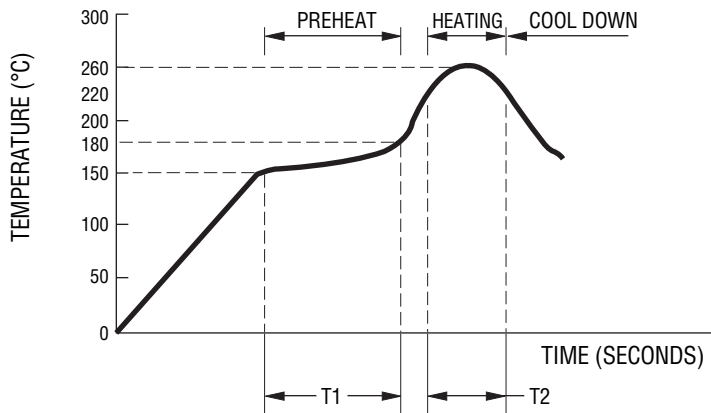
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## G5000 and G6000 Series Overvoltage Protectors

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### Standard Soldering Condition

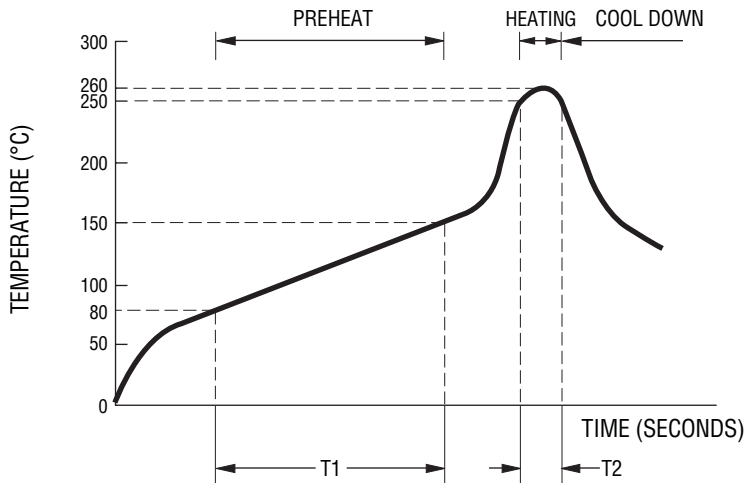
#### REFLOW SOLDERING SYSTEM



| Item             | Condition                                                 |            |
|------------------|-----------------------------------------------------------|------------|
| Preheat          | T <sub>1</sub> : 150 - 180 °C                             | 60-90 sec. |
| Heating          | T <sub>2</sub> : 220 - 260 °C                             | 30-60 sec. |
| Peak Temperature | 260 °C                                                    |            |
| Cool Down        | Cooling after soldering should be as gradual as possible. |            |

### Flow Soldering System

#### FLOW SOLDERING TEMPERATURE PROFILE



| Item             | Condition                                                 |              |
|------------------|-----------------------------------------------------------|--------------|
| Preheat          | T <sub>1</sub> : 80 - 150 °C                              | 120-180 sec. |
| Heating          | T <sub>2</sub> : 250 - 260 °C                             | 10 ± 1 sec.  |
| Peak Temperature | 260 °C                                                    |              |
| Cool Down        | Cooling after soldering should be as gradual as possible. |              |

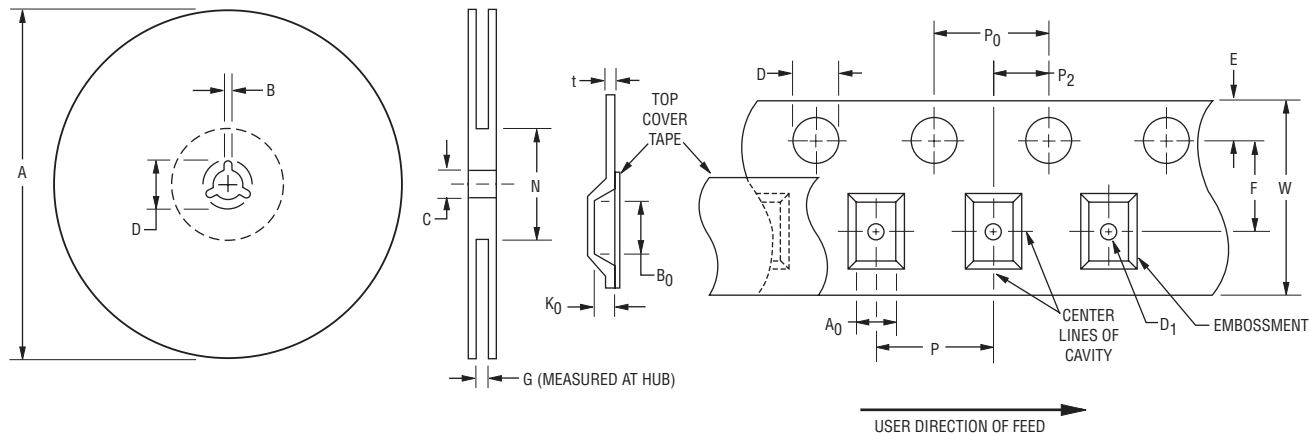
### Soldering Iron

Temperature: 350 °C ±5 °C  
Time: 5 ± 1 sec.

# G5000 and G6000 Series Overvoltage Protectors

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## Packaging Specifications (per EIA468-B)



| A        |          | B      |        | C      |        | D      |        | G      | N       |
|----------|----------|--------|--------|--------|--------|--------|--------|--------|---------|
| Min.     | Max.     | Min.   | Max.   | Min.   | Max.   | Min.   | Max.   | Ref.   | Ref.    |
| 328      | 332      | 1.5    | 2.5    | 12.5   | 13.5   | 20.2   | 21.8   | 13.5   | 80      |
| (12.913) | (13.071) | (.059) | (.098) | (.492) | (.531) | (.795) | (.858) | (.531) | (3.150) |

| A <sub>0</sub> |        | B <sub>0</sub> |        | D              |        | D <sub>1</sub> |        | E      |        | F      |        |
|----------------|--------|----------------|--------|----------------|--------|----------------|--------|--------|--------|--------|--------|
| Min.           | Max.   | Min.           | Max.   | Min.           | Max.   | Min.           | Max.   | Min.   | Max.   | Min.   | max.   |
| 3.4            | 3.8    | 4.7            | 5.1    | 1.5            | 1.6    | 1.5            | 1.8    | 1.65   | 1.85   | 5.45   | 5.55   |
| (.134)         | (.150) | (.185)         | (.201) | (.059)         | (.063) | (.059)         | (.071) | (.065) | (.073) | (.215) | (.219) |
| K <sub>0</sub> |        | P              |        | P <sub>0</sub> |        | P <sub>2</sub> |        | t      |        | W      |        |
| Min.           | Max.   | Min.           | Max.   | Min.           | Max.   | Min.           | Max.   | Min.   | Max.   | Min.   | Max.   |
| 2.6            | 3.0    | 7.9            | 8.1    | 3.9            | 4.1    | 1.9            | 2.1    | 0.2    | 0.4    | 11.7   | 12.3   |
| (.102)         | (.118) | (.311)         | (.319) | (.159)         | (.161) | (.075)         | (.083) | (.008) | (.016) | (.461) | (.484) |

DIMENSIONS:  $\frac{\text{MM}}{(\text{INCHES})}$



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REV. 09/09

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