



# WES1006SUC

## Ultra-low Capacitance Thyristor Surge Protector

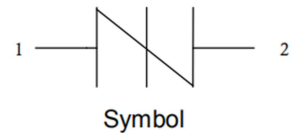
### Features

- Integrated Bi-directional thyristor for Surge Protection
- Ultra-low capacitance
- High surge capability
- Low leakage current
- Short-circuit failure mode



### Main Application

- Data lines and security systems.
- CATV line amplifiers and power inserters.
- Sprinkler systems.



### Absolute Maximum Ratings ( $T_A = 25^\circ\text{C}$ )

| Parameter                                                                                   | Symbol     | Value | Unit |
|---------------------------------------------------------------------------------------------|------------|-------|------|
| Non-repetitive peak impulse current<br>10/1000 $\mu\text{s}$ (Telcordia GR-1089-CORE)       | $I_{PPSM}$ | 100   | A    |
| Non-repetitive peak impulse Voltage<br>10/700 $\mu\text{s}$ (ITU-T K.20, K.21 & K.44, K.45) | $V_{PPSM}$ | 6000  | V    |

### Electrical Parameters ( $T_A = 25^\circ\text{C}$ )

| Part Number | $V_{DRM}$ | $I_{DRM}$     | $V_{BO}$ | $I_{BO}$ | $V_T$ | $I_T$ | $I_H$ | $C_O$ |
|-------------|-----------|---------------|----------|----------|-------|-------|-------|-------|
|             | Max.      | Max.          | Typ.     | Max.     | Max.  | Max.  | Min.  | Typ.  |
|             | V         | $\mu\text{A}$ | V        | mA       | V     | A     | mA    | pF    |
| WES1006SUC  | 6         | 5             | 25       | 800      | 4     | 2.2   | 18    | 15    |

**$V_{DRM}$ :** Stand-off voltage, is measured at  $I_{DRM}$ .

**$I_{DRM}$ :** Leakage current at  $V_{DRM}$ .

**$V_{BO}$ :** Breakover voltage, is measured at 100V/ $\mu\text{s}$ .

**$I_{BO}$ :** Breakover current.

**$V_T$ :** On-state voltage.

**$I_T$ :** On-state current.

**$C_O$ :** Off-state capacitance.

**$I_H$ :** Holding current.

**$V_{BR}$ :** Breakdown voltage, is measured at 1mA.

**$I_{PP}$ :** Peak pulse current, is a repetitive surge rating and is guaranteed for the life of the product.

**$V_{ppsm}$ :** Peak pulse voltage, is a repetitive surge rating and is guaranteed for the life of the product.

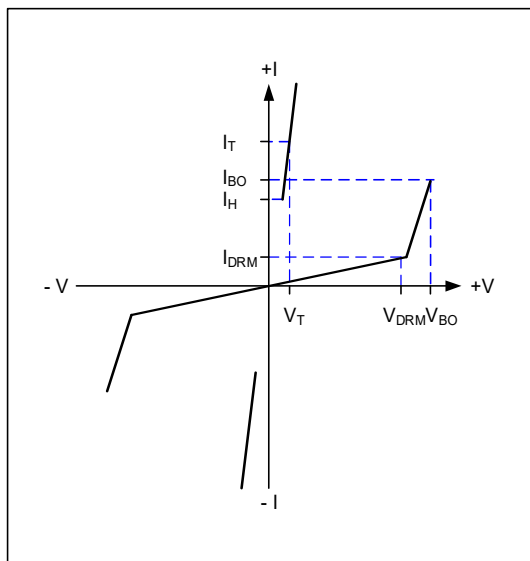
### General Notes:

- All measurements are made at an ambient temperature of 25 °C. IPP applies to -40 °C through +85 °C temperature range.
- Listed WES devices are bi-directional. All electrical parameters and surge ratings apply to forward and reverse polarities.
- Special voltage (VBO and VDRM) and holding current (IH) requirements are available up on request.
- Off-state capacitance is measured at 1 MHz with a 2 V bias.

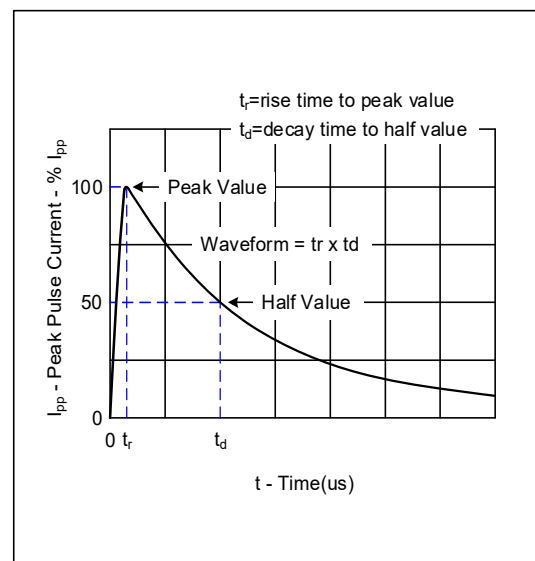
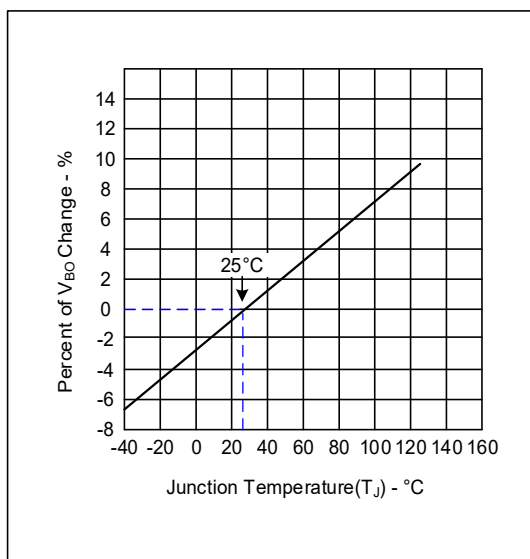
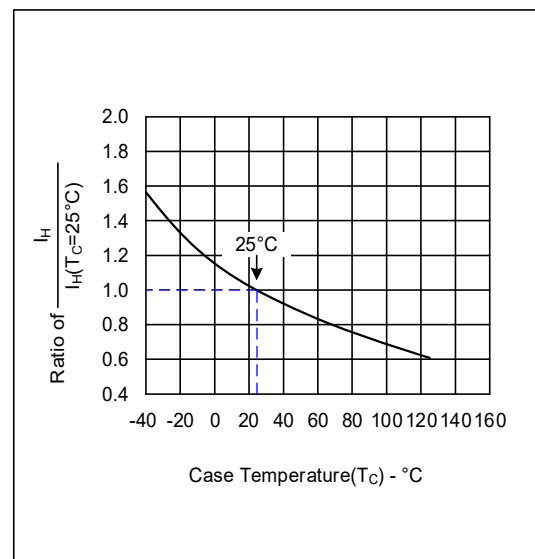
## Thermal Resistances

| Symbol | Parameter                    | Value       | Unit |
|--------|------------------------------|-------------|------|
| Ts     | Storage temperature range    | -55 to +150 | °C   |
| Tj     | Maximum junction temperature | -40 to +125 | °C   |

## Electrical Characteristics Curves



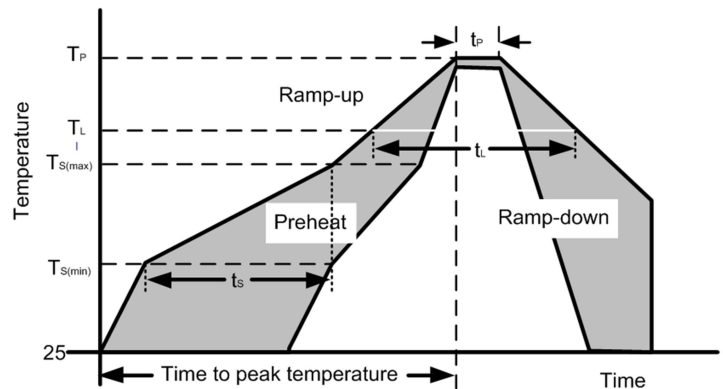
V - I Characteristics

 $t_r \times t_d$  Pulse WaveformNormalized  $V_{BO}$  Change versus Junction Temperature

Normalized DC Holding Current versus Case Temperature

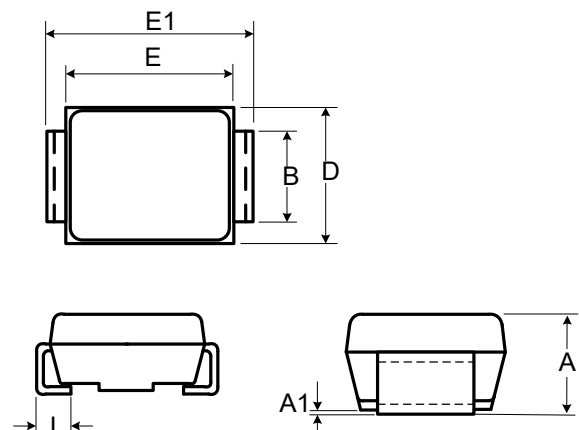
## Soldering Parameters

| Reflow Condition                                       |                                  |                         |
|--------------------------------------------------------|----------------------------------|-------------------------|
| Pre Heat                                               | Temperature Min ( $T_{s(min)}$ ) | 150°C                   |
|                                                        | Temperature Max ( $T_{s(max)}$ ) | 200°C                   |
|                                                        | Time (min to max) ( $t_s$ )      | 60-190 s                |
| Average ramp up rate (Liquidus Temp) ( $T_L$ ) to peak |                                  | 3°C/s max               |
| $T_{s(max)}$ to $T_L$ - Ramp-up Rate                   |                                  | 3°C/s max               |
| Reflow                                                 | Temperature ( $T_L$ ) (Liquidus) | 217°C                   |
|                                                        | Temperature ( $t_L$ )            | 60-150 s                |
| Peak Temperature ( $T_P$ )                             |                                  | 260 <sup>+0/-5</sup> °C |
| Time within actual peak Temperature ( $t_p$ )          |                                  | 20-40 s                 |
| Ramp-down Rate                                         |                                  | 5°C/s max               |
| Time 25°C to peak Temperature ( $T_P$ )                |                                  | 8 minutes Max.          |
| Do not exceed                                          |                                  | 260°C                   |



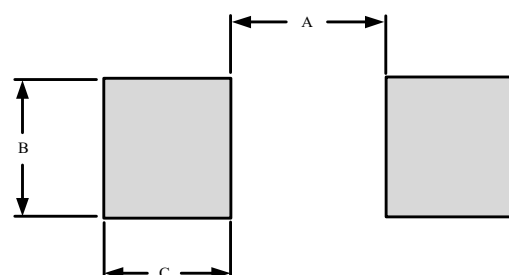
## Product Dimensions

| Ref. (mm) | Min.  | Max.  |
|-----------|-------|-------|
| A         | 2.130 | 2.600 |
| A1        | -     | 0.300 |
| B         | 1.900 | 2.200 |
| E         | 4.100 | 4.750 |
| E1        | 5.210 | 5.590 |
| D         | 3.300 | 3.940 |
| L         | 0.760 | 1.520 |

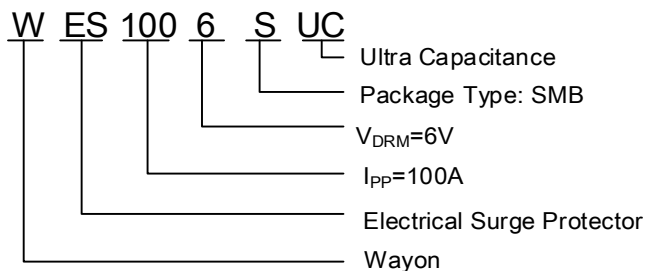


## Recommended Solder Pad Layout

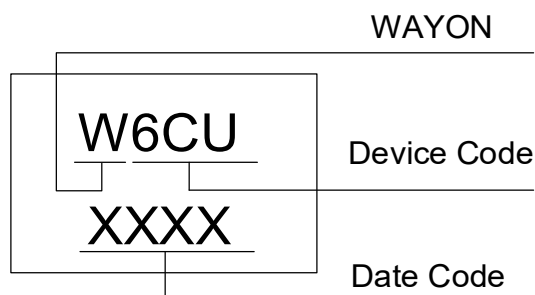
| DIM(mm) | MILLIMETERS |
|---------|-------------|
| A       | 2.74        |
| B       | 2.26        |
| C       | 2.16        |



## Part Numbering System And Marking



### Marking:



## Package Information

| Package Type  | Description      | Quantity (pcs) |
|---------------|------------------|----------------|
| SMB(DO-214AA) | Tape & Reel Pack | 2500           |

## Contact Information

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*Specifications are subject to change without notice.*

*The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time. Users should verify actual device performance in their specific applications.*