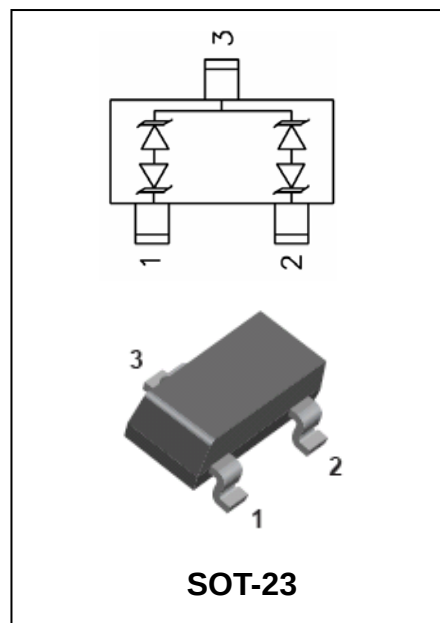




## TVS Diode Array

## Features

- ◆ 150 Watts peak pulse power ( $t_p = 8/20\mu s$ )
- ◆ Transient protection for high speed data lines to IEC 61000-4-2 (ESD)  $\pm 15kV$  (air),  $\pm 8kV$  (contact) IEC 61000-4-4 (EFT) 40A (5/50ns)
- ◆ Protects tow +12V to -7V line
- ◆ Low operating and clamping voltages
- ◆ Solid-state silicon avalanche technology



## Applications

- ◆ Protection of RS-485 transceivers with extended common-mode range
- ◆ Security systems
- ◆ Automatic Teller Machines
- ◆ HFC systems
- ◆ Networks

Maximum Rating @  $T_a = 25^\circ C$  unless otherwise specified

| Symbol    | Parameter                              | Ratings     | Units      |
|-----------|----------------------------------------|-------------|------------|
| $P_{PK}$  | Peak Pulse Power ( $t_p = 8/20\mu s$ ) | 150         | Watts      |
| $T_L$     | Lead Soldering Temperature             | 260(10sec.) | $^\circ C$ |
| $T_J$     | Operating Temperature                  | -55 to +125 | $^\circ C$ |
| $T_{STG}$ | Storage Temperature                    | -55 to +150 | $^\circ C$ |



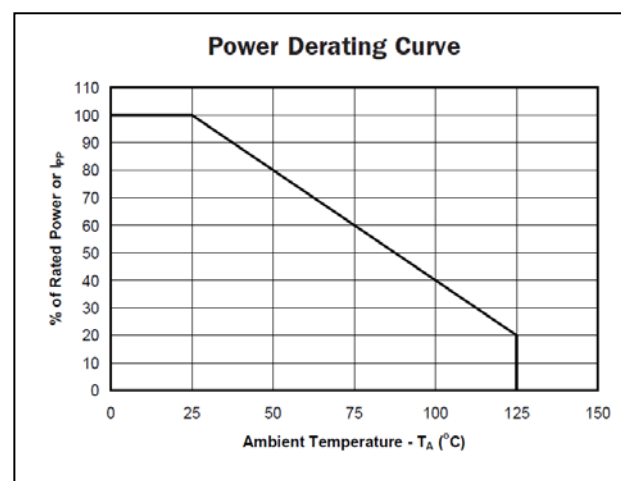
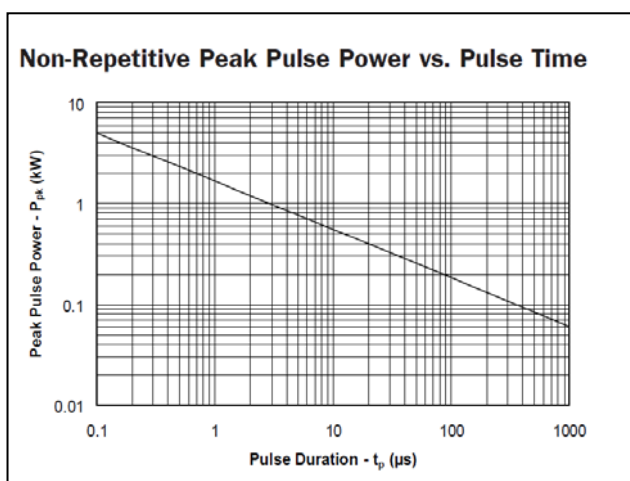
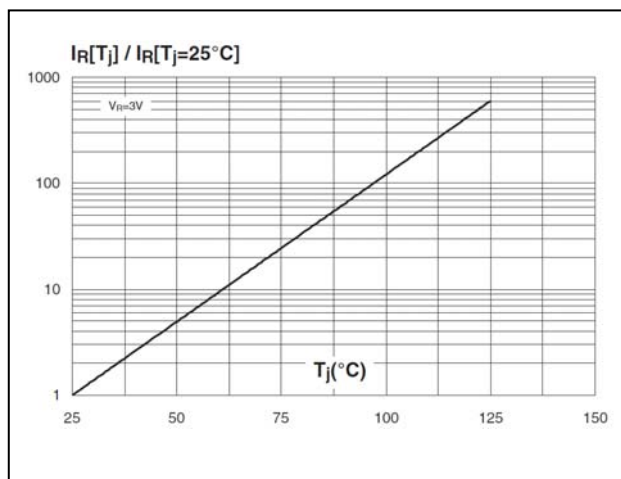
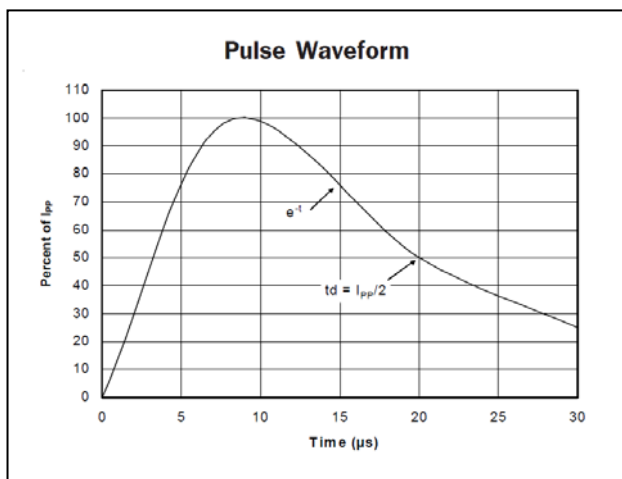
## TVS Diode Array

## Electrical Characteristics@ Ta=25°C unless otherwise

| Symbol           | Parameter                 | Test conditions                             | Pins 1 to 3 and 2 to 3(12V TVS) |     | Pins 3 to 1 and 3 to 2(7V TVS) |     | UNIT |
|------------------|---------------------------|---------------------------------------------|---------------------------------|-----|--------------------------------|-----|------|
|                  |                           |                                             | MIN                             | MAX | MIN                            | MAX |      |
| V <sub>RWM</sub> | Reverse Stand-Off Voltage | Pin 3 to 1/2 and pin 1/2 to 3               |                                 | 12  |                                | 7   | V    |
| V <sub>BR</sub>  | Reverse Breakdown Voltage | I <sub>t</sub> =1mA                         | 13.2                            |     | 7.5                            |     | V    |
| I <sub>R</sub>   | Reverse Leakage Current   | V <sub>R</sub> =V <sub>RWM</sub>            |                                 | 1   |                                | 10  | uA   |
| V <sub>C</sub>   | Clamping Voltage          | I <sub>PP</sub> =1A, t <sub>p</sub> =8/20us |                                 | 19  |                                | 10  | V    |
| V <sub>C</sub>   | Clamping Voltage          | I <sub>PP</sub> =8A, t <sub>p</sub> =8/20us |                                 | 26  |                                | 12  | V    |
| C <sub>j</sub>   | Junction Capacitance      | V <sub>R</sub> =0V, f=1MHZ                  |                                 | 75  |                                | 75  | pF   |



## TVS Diode Array

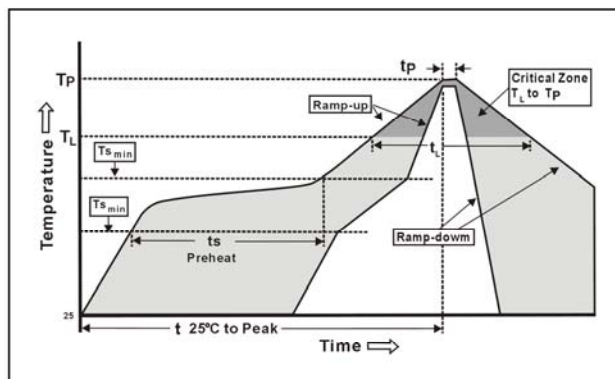
Typical Characteristics @  $T_a=25^\circ\text{C}$  unless otherwise specified



## TVS Diode Array

## Soldering Parameters

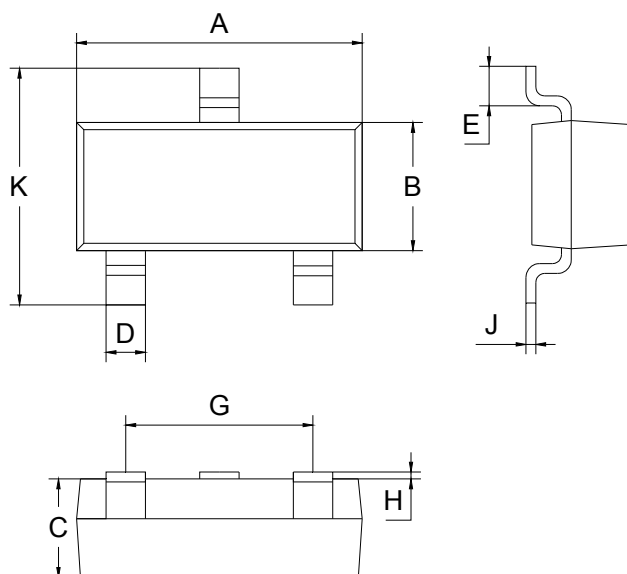
| Reflow Condition                                       |                                           | Fb – Free assembly      |
|--------------------------------------------------------|-------------------------------------------|-------------------------|
| Pre Heat                                               | - Temperature Min ( $T_{s(\text{Min})}$ ) | 150°C                   |
|                                                        | - Temperature Max ( $T_{s(\text{Max})}$ ) | 200°C                   |
|                                                        | - Time (Min to max) ( $t_p$ )             | 60 – 180 secs           |
| Average ramp up rate (Liquidus) Temp ( $T_L$ ) to peak |                                           | 3°C/second Max          |
| $T_{s(\text{Max})}$ to $T_L$ - Ramp-up Rate            |                                           | 3°C/second Max          |
| Reflow                                                 | - Temperature ( $T_L$ ) (Liquidus)        | 217°C                   |
|                                                        | - Temperature ( $t_L$ )                   | 60 – 150 seconds        |
| Peak Temperature ( $T_p$ )                             |                                           | 250 <sup>+0/-5</sup> °C |
| Time within 5°C of actual peak Temperature ( $t_p$ )   |                                           | 20 – 40 seconds         |
| Ramp-down Rate                                         |                                           | 6°C/second Max          |
| Time 25°C to peak Temperature ( $T_p$ )                |                                           | 8 minutes Max.          |
| Do not exceed                                          |                                           | 260°C                   |



## Package Outline

Plastic surface mounted package

SOT-23

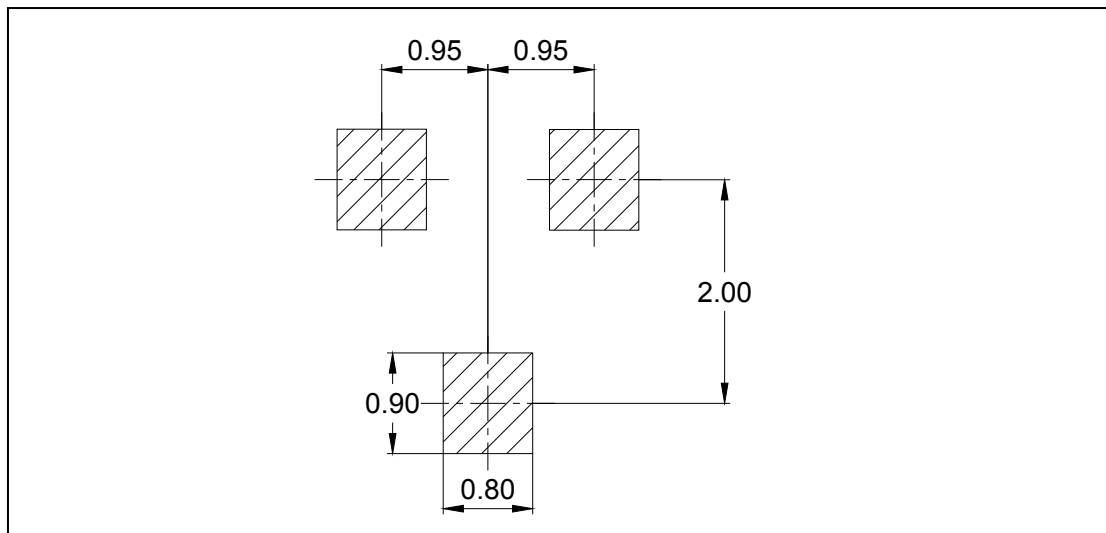


| SOT-23               |             |      |
|----------------------|-------------|------|
| Dim                  | Min         | Max  |
| A                    | 2.70        | 3.10 |
| B                    | 1.10        | 1.50 |
| C                    | 1.0 Typical |      |
| D                    | 0.4 Typical |      |
| E                    | 0.35        | 0.48 |
| G                    | 1.80        | 2.00 |
| H                    | 0.02        | 0.1  |
| J                    | 0.1 Typical |      |
| K                    | 2.20        | 2.60 |
| All Dimensions in mm |             |      |



## TVS Diode Array

## Soldering Footprint



## Package And Marking Information

| Device | Package | Shipping  | Reel Size |
|--------|---------|-----------|-----------|
| SM712  | SOT-23  | 3000/Reel | 7 inch    |