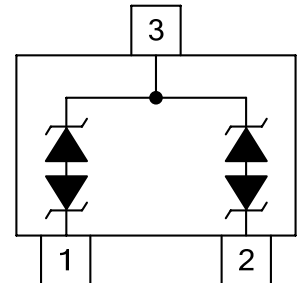


### Description

SDT23C24L02 component is designed to protect sensitive electronics from damage or latch-up due to ESD and other voltage induced transient events. It is designed for use in applications where board space is at a premium. The device will protect up to two lines.

It is bidirectional devices and may be used on lines where the signal polarities are above ground. TVS diodes are solid state device designed specifically for transient suppression. It feature large cross-sectional area junctions for conduction high transient currents. It offer desirable characteristics for board level protection including fast response time, low and clamping voltage, and no device degradation.



### Features

- IEC61000-4-2 ESD 15KV Air, 8KV contact compliance
- SOT-23 surface mount package
- Protects bidirectional two I/O lines
- Peak power dissipation of 350W under 8/20μs waveform
- Working voltage: 24V
- Low leakage current
- Low operating and clamping voltages
- Solder reflow temperature: Pure Tin-Sn, 260~270°C

### Applications

- RS-232 and RS-422 data lines
- Microprocessor based equipment
- LAN/WAN equipment
- Desktops PC and servers
- Notebook, Laptop and Palmtop computers
- Set Top Box
- Peripherals
- Serial and Parallel ports

### Maximum Ratings

| Rating                                | Symbol                            | Value    | Unit |
|---------------------------------------|-----------------------------------|----------|------|
| Peak pulse power (tp=8/20μs waveform) | P <sub>PP</sub>                   | 350      | W    |
| ESD voltage (Contact discharge)       | V <sub>ESD</sub>                  | ±8       | kV   |
| ESD voltage (Air discharge)           |                                   | ±15      |      |
| Storage & operating temperature range | T <sub>STG</sub> , T <sub>J</sub> | -55~+150 | °C   |

**Electrical Characteristics (T<sub>J</sub>=25°C)**

| Parameter                      | Symbol           | Condition                                | Min. | Typ. | Max. | Unit |
|--------------------------------|------------------|--|------|------|------|------|
| Reverse stand-off voltage      | V <sub>RWM</sub> |  |      |      | 24   | V    |
| Reverse breakdown voltage      | V <sub>BR</sub>  | I <sub>BR</sub> =1mA                     | 26.7 |      |      | V    |
| Reverse leakage current        | I <sub>R</sub>   | V <sub>R</sub> =24V<br>Each I/O pin      |      |      | 1    | μA   |
| Clamping voltage (tp=8/20μs)   | V <sub>C</sub>   | I <sub>PP</sub> =1A                      |      |      | 43   | V    |
| Clamping voltage (tp=8/20μs)   | V <sub>C</sub>   | I <sub>PP</sub> =5A                      |      |      | 52   | V    |
| Off state junction capacitance | C <sub>J</sub>   | 0Vdc, f=1MHz<br>Between I/O pins and GND |      | 40   |      | pF   |

**Typical Characteristics Curves**

Figure 1. Power Derating Curve

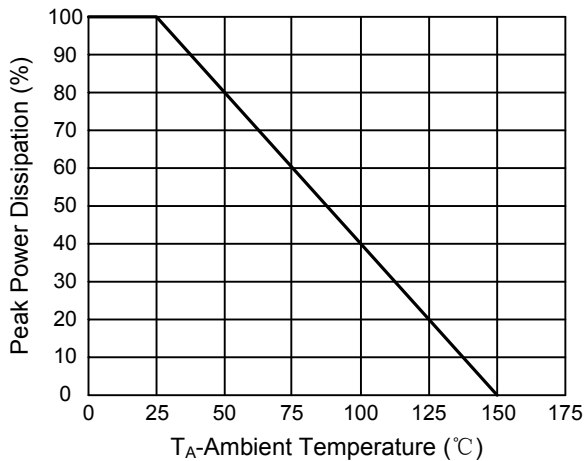


Figure 3. Non-Repetitive Peak Pulse vs. Pulse Time

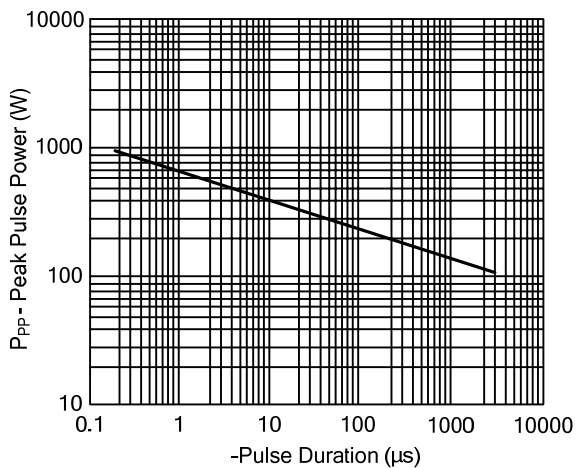


Figure 2. Pulse Waveforms

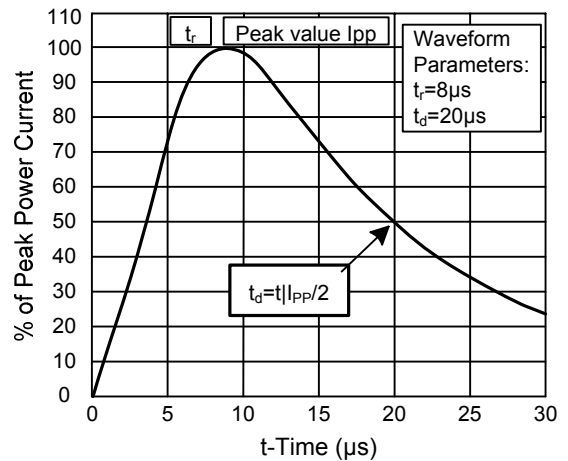
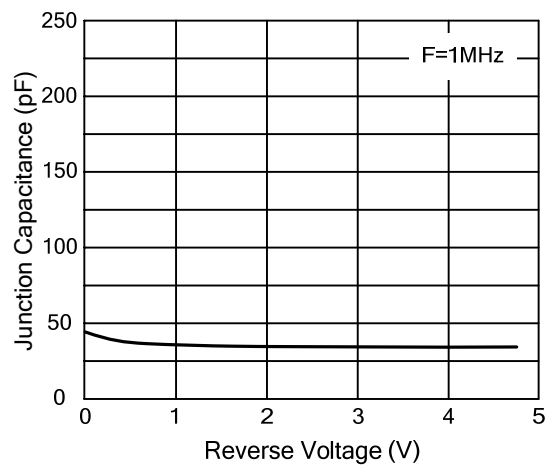
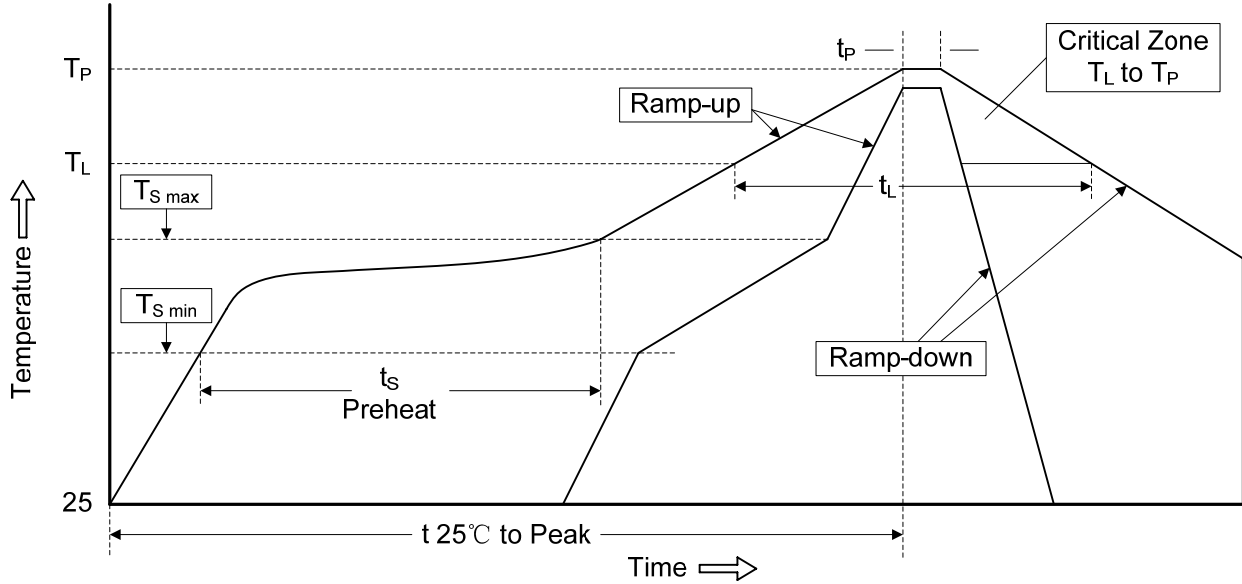


Figure 4. Normalized Capacitance vs. Reverse Voltage



### Recommended Soldering Conditions

Reflow Soldering



Recommended Conditions

| Profile Feature   | Pb-Free Assembly                 |
|---|----------------------------------|
| Average ramp-up rate ( $T_L$ to $T_P$ )   | 3°C/second max.                  |
| Preheat<br>-Temperature Min ( $T_{S\ min}$ )<br>-Temperature Max ( $T_{S\ max}$ )<br>-Time (min to max) ( $t_s$ ) | 150°C<br>200°C<br>60-180 seconds |
| $T_{S\ max}$ to $T_L$<br>-Ramp-up Rate  | 3°C/second max.                  |
| Time maintained above:<br>-Temperature ( $T_L$ )<br>-Time ( $t_L$ )   | 217°C<br>60-150 seconds          |
| Peak Temperature ( $T_P$ )  | 260°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   | 8 minutes max.                   |

**Marking**

**Ordering information**

| Order code      | Package | Baseqty | Deliverymode  |
|-----------------|---------|---------|---------------|
| UMW SDT23C24L02 | SOT-23  | 3000    | Tape and reel |

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