

## ECTHCCA24VB

Small Surface Mount TVS Diode for ESD Protection

The ECTHCCA24VB is designed with ECORE technology to protect voltage sensitive components from ESD. Excellent clamping capability, low leakage, and fast response time provide best in class protection on designs that are exposed to ESD.

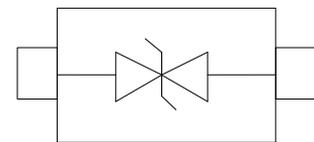
It has been specifically designed to protect sensitive components which are connected to data and transmission lines from overvoltage caused by ESD(electrostatic discharge), and EFT (electrical fast transients).

### Features

- Working Voltage: 24V
- 7500W Peak Pulse Power Dissipation
- For Small surface mounted applications
- Reliable low cost construction utilizing molded plastic technique
- Response Time is Typically < 1 ns
- ESD Rating of above 16 kV per Human Body Model
- ESD Rating of above 30 kV (Contact Discharge) per IEC61000-4-2
- EFT (Electrical Fast Transients) Rating of 40 A per IEC61000-4-4
- Plastic material has UL flammability classification 94V-0
- Typical  $I_R$  less than 5uA
- Meets MSL 3 Requirements
- Solid-state silicon avalanche technology
- ROHS compliant



**SOD-123FL**



### Main applications

- Power Line :USB1.0/2.0,
- Serial and Parallel Ports
- Notebooks, Desktops, Servers
- Projection TV
- Cellular handsets and accessories
- Portable instrumentation
- Peripherals

### Protection solution to meet

- IEC61000-4-2 (ESD)  $\pm 30$ kV (air),  $\pm 30$ kV (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)

### Ordering Information

| Device      | Qty per Reel | Reel Size |
|-------------|--------------|-----------|
| ECTHCCA24VB | 3000         | 7 Inch    |

| Maximum ratings (Tamb=25°C Unless Otherwise Specified) |         |               |       |
|--|---------|---------------|-------|
| Parameter  | Symbol  | Value         | Unit  |
| Peak Pulse Power (tp=8/20µs waveform)                  | PPPP    | 7500          | Watts |
| ESD Rating per IEC61000-4-2:                           | Contact | 30            | KV    |
|  | Air     | 30            |       |
| Lead Soldering Temperature                             | TL      | 260 (10 sec.) | °C    |
| Operating Temperature Range                            | TJ      | -55 ~ 150     | °C    |
| Storage Temperature Range                              | TSTG    | -55 ~ 150     | °C    |
| Lead Solder Temperature – Maximum (10 Second Duration) | TL      | 260           | °C    |

Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

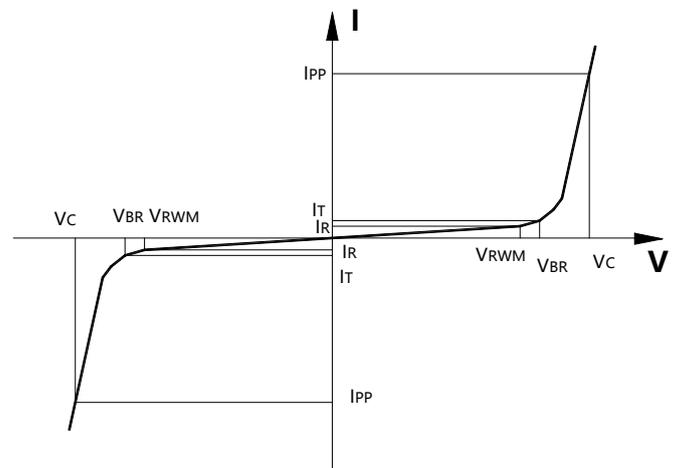
\*Other voltages may be available upon request.

1. Non-repetitive current pulse, per Figure 1.

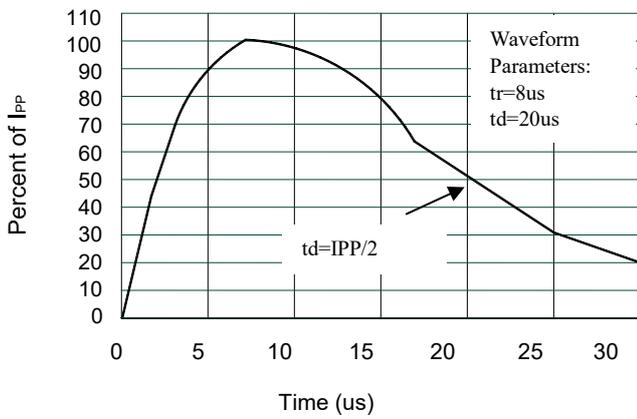
| Electrical characteristics ( Tamb=25°C Unless Otherwise Specified) |                  |                                      |     |                |                                   |                      |                       |                   |
|--|------------------|--------------------------------------|-----|----------------|-----------------------------------|----------------------|-----------------------|-------------------|
| Device*  | V <sub>RWM</sub> | V <sub>BR</sub> @ I <sub>T</sub> (V) |     | I <sub>T</sub> | I <sub>R</sub> @ V <sub>RWM</sub> | V <sub>C</sub> (Max) | I <sub>PP</sub> (Max) | Capacitance (Typ) |
|  | (V)              | Min                                  | Max | (mA)           | (µA)                              | (V)                  | (A)                   | (nF)              |
| ECTHCCA24VB  | 24               | 26.1                                 | 30  | 1              | 5                                 | 31                   | 250                   | 0.3               |

Junction capacitance is measured in V<sub>R</sub>=0V, F=1MHz

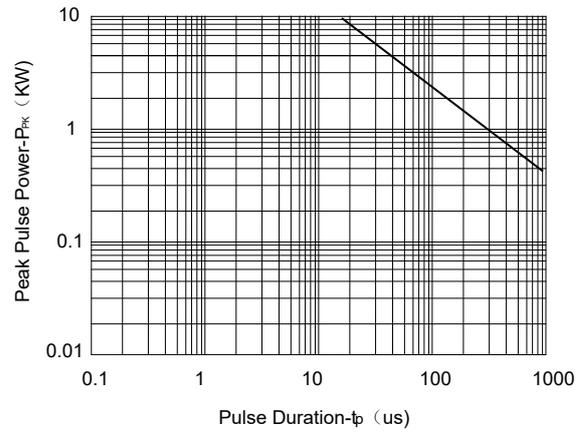
| Symbol           | Parameter                           |
|------------------|-------------------------------------|
| V <sub>RWM</sub> | Working Peak Reverse Voltage        |
| V <sub>BR</sub>  | Breakdown Voltage @ I <sub>T</sub>  |
| V <sub>C</sub>   | Clamping Voltage @ I <sub>PP</sub>  |
| I <sub>T</sub>   | Test Current                        |
| I <sub>RM</sub>  | Leakage current at V <sub>RWM</sub> |
| I <sub>PP</sub>  | Peak pulse current                  |
| C <sub>O</sub>   | Off-state Capacitance               |
| C <sub>J</sub>   | Junction Capacitance                |



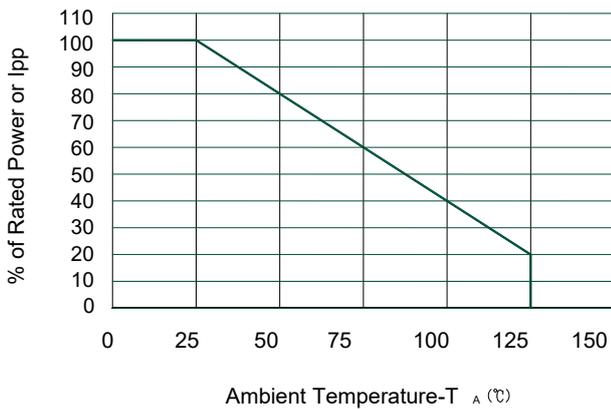
**Typical electrical characteristic applications**



**Pulse Waveform**



**Non-Repetitive Peak Pulse Power vs. Pulse Time**



**Power Derating Curve**



**Typical Clampvoltage@200A 8/20us(400V)**

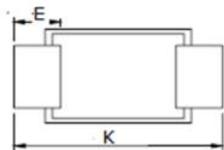
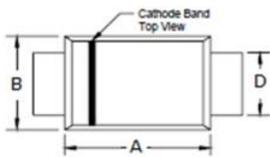
**Package Information**

**SOD-123F**

**Mechanical Data**

Case:SOD-123F

Case Material: Molded Plastic. UL Flammability



| Dim | Millimeters |      |
|-----|-------------|------|
|     | Min         | Max  |
| A   | 2.50        | 2.90 |
| B   | 1.50        | 1.90 |
| C   | 0.095       | 1.20 |
| D   | 0.70        | 1.20 |
| E   | 0.35        | 0.85 |
| H   | 0           | 0.1  |
| K   | 3.40        | 3.90 |

**Recommended Pad outline**

