

SOD-323 Plastic-Encapsulate ESD Protection Diodes

DESCRIPTION

The GBLCxxC Series are ultra low capacitance transient voltage suppressor arrays, designed to protect applications such as portable electronics and SMART phones. This series is available in both unidirectional and bidirectional configurations and is rated at 300 Watts for an 8/20 μ s wave shape.

The GBLCxxC and Series meets IEC 61000-4-2 (ESD) and IEC 61000-4-4 (EFT) requirements. At higher operating frequencies or faster edge rates, insertion loss and signal integrity are a major concern. This series offers a ultra low capacitance and low leakage current in a miniature SOD-323 package.

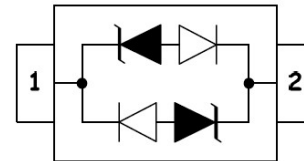
Features

- ◆ Peak Power Dissipation 300W (8/20 μ s)
- ◆ IEC61000-4-2 (ESD) \pm 15kV (air), \pm 8kV (contact)
- ◆ IEC61000-4-4 (EFT) 40A (5/50ns)
- ◆ IEC61000-4-5 (Lightning) 12A (8/20 μ s)
- ◆ Protects one I/O line (bidirectional)
- ◆ Low clamping voltage
- ◆ Working voltages : 3V, 5V, 8V, 12V, 15V, 24V
- ◆ Response Time is < 1 ns
- ◆ Meets MSL 1 Requirements

Pin Configuration



Circuit Diagram



Mechanical Characteristics

- ◆ Package: SOD-323
- ◆ Flammability Rating: UL 94V-0
- ◆ High temperature soldering guaranteed: 260 $^{\circ}$ C/10s
- ◆ Packaging: Tape and Reel

Applications

- ◆ Cell Phone Handsets and Accessories
- ◆ Microprocessor based equipment
- ◆ Personal Digital Assistants (PDA's)
- ◆ Notebooks, Desktops, and Servers
- ◆ Portable Instrumentation
- ◆ Peripherals
- ◆ USB Interface

Absolute Maximum Ratings (T_A=25 $^{\circ}$ C unless otherwise specified)

| Parameter | Symbol | Value | Unit |
|--|------------------|--------------|--------------|
| ESD per IEC 61000-4-2 (Air) | V _{ESD} | \pm 15 | kV |
| ESD per IEC 61000-4-2 (Contact) | | \pm 8 | |
| Peak Pulse Power(tp=8/20us waveform) | P _{PP} | 300 | W |
| Operating Temperature | T _{OPT} | -55 to +150 | $^{\circ}$ C |
| Storage Temperature | T _{STG} | -55 to +150 | $^{\circ}$ C |
| Lead Solder Temperature – Maximum (10 Second Duration) | T _L | 260(10 sec.) | $^{\circ}$ C |

The above data are for reference only.



GBLCxxC Series

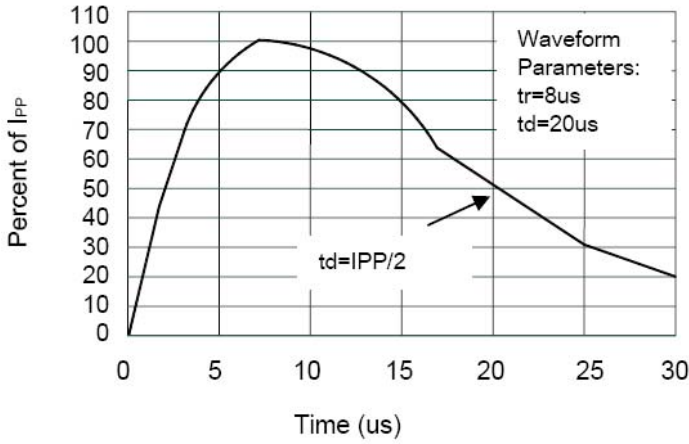
Bi-directional Ultra Low Capacitance TVS Array

Electrical Characteristics (T_A=25°C unless otherwise specified)

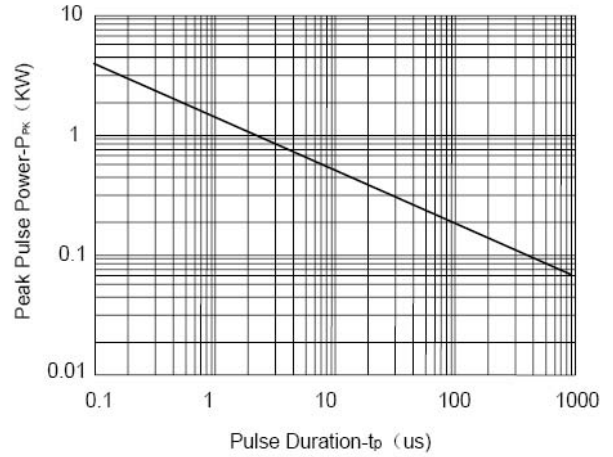
| PART NUMBER | DEVICE MARKING | V _{RWM} | V _B | I _T | V _{C@1A} | V _C | | I _R | C _T |
|-------------|----------------|------------------|----------------|----------------|-------------------|----------------|------|----------------|----------------|
| | | (V) (max.) | (V) (min.) | (mA) | (V) (max.) | (V) (max.) | (@A) | (μA) (max.) | (pF) (typ.) |
| GBLC03C | CC | 3.0 | 4.0 | 1 | 7.0 | 13.9 | 8 | 2 | 0.8 |
| GBLC05C | AC | 5.0 | 6.0 | 1 | 9.8 | 18.3 | 8 | 1 | 0.8 |
| GBLC08C | BC | 8.0 | 8.5 | 1 | 13.4 | 18.5 | 8 | 1 | 0.8 |
| GBLC12C | DC | 12.0 | 13.3 | 1 | 19.0 | 28.6 | 6 | 1 | 0.8 |
| GBLC15C | EC | 15.0 | 16.7 | 1 | 24.0 | 31.8 | 5 | 1 | 0.8 |
| GBLC24C | HC | 24.0 | 26.7 | 1 | 43.0 | 56.0 | 3 | 1 | 0.8 |

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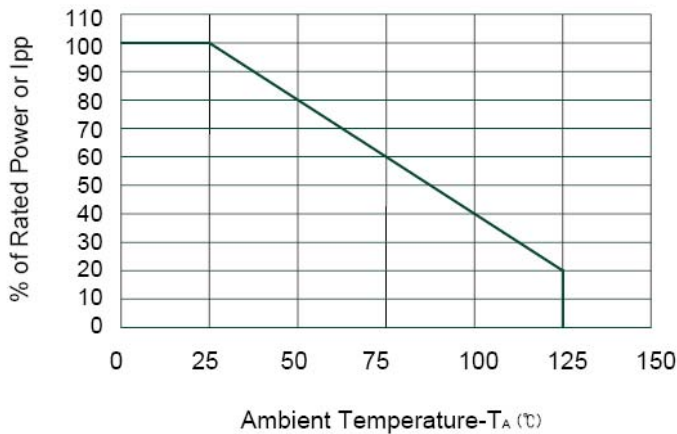
ELECTRICAL CHARACTERISTICS CURVE



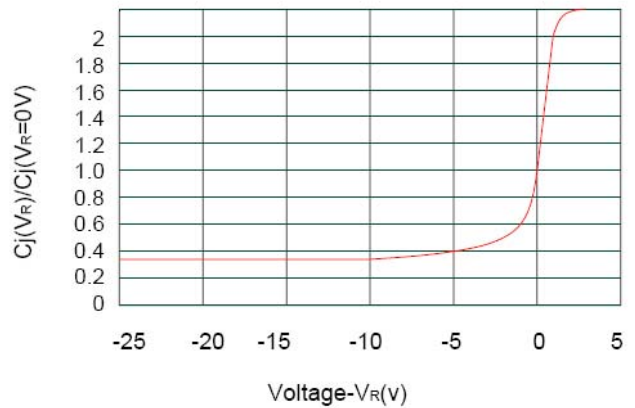
Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time



Power Derating Curve

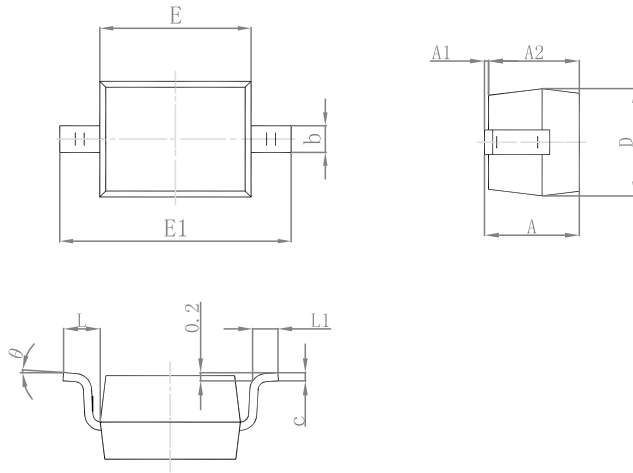


Junction Capacitance vs. Reverse Voltage

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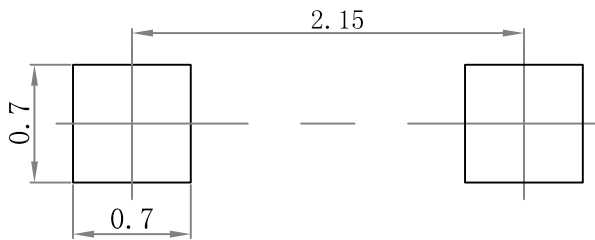
Outline Drawing

SOD-323 Package Outline Dimensions



| Symbol | Dimensions In Millimeters | | Dimensions In Inches | |
|--------|---------------------------|-------|----------------------|-------|
| | Min. | Max. | Min. | Max. |
| A | | 1.000 | | 0.039 |
| A1 | 0.000 | 0.100 | 0.000 | 0.004 |
| A2 | 0.800 | 0.900 | 0.031 | 0.035 |
| b | 0.250 | 0.350 | 0.010 | 0.014 |
| c | 0.080 | 0.150 | 0.003 | 0.006 |
| D | 1.200 | 1.400 | 0.047 | 0.055 |
| E | 1.600 | 1.800 | 0.063 | 0.071 |
| E1 | 2.550 | 2.750 | 0.100 | 0.108 |
| L | 0.475 REF. | | 0.019 REF. | |
| L1 | 0.250 | 0.400 | 0.010 | 0.016 |
| θ | 0° | | 8° | |

Suggested Pad Layout



Note:

1. Controlling dimension: in/millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

PACKAGE SPECIFICATIONS

| Package | Reel Size | Reel DIA. (mm) | Q'TY/Reel (pcs) | Box Size (mm) | QTY/Box (pcs) | Carton Size (mm) | Q'TY/Carton (pcs) |
|---------|-----------|----------------|-----------------|---------------|---------------|------------------|-------------------|
| SOD-323 | 7' | 178 | 3000 | 183×188×80 | 45,000 | 386×265×215 | 180,000 |