

## Single Line Bi-directional TVS Diode for EOS

### DESCRIPTION

The GSD12DFMC TVS diode is designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, notebooks, and PDA's. It offers superior electrical characteristics such as low clamping voltage, low leakage current and high surge capability. It is designed to protect sensitive electronic components which are connected to power lines, from over-stress caused by ESD (Electrostatic Discharge), EFT (Electrical Fast Transients) and Lighting.

The GSD12DFMC is in a SOD-123FL package and will protect one bidirectional line. It may be used to provide ESD protection up to  $\pm 30\text{kV}$  (Contact and air discharge) according to IEC61000-4-2, and withstand peak pulse current up to 200A (8/20 $\mu\text{s}$ ) according to IEC61000-4-5.

### FEATURES

- ✧ Transient protection for high-speed data lines IEC61000-4-2 (ESD)  $\pm 30\text{kV}$  (Contact),  $\pm 30\text{kV}$  (Air)
- ✧ Peak power dissipation: 5600W (8/20 $\mu\text{s}$ )
- ✧ Working voltages : 12V
- ✧ Low leakage current
- ✧ Low clamping voltage
- ✧ Solid-state silicon-avalanche technology

### MACHANICAL DATA

- ✧ SOD-123FL package
- ✧ Flammability Rating: UL 94V-0
- ✧ High temperature soldering guaranteed: 260 $^{\circ}\text{C}$ /10s
- ✧ Packaging: Tape and Reel
- ✧ Reel size: 7 inch

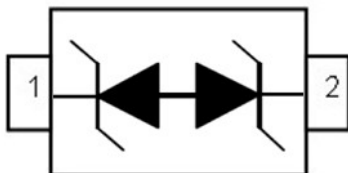
### ORDERING INFORMATION

- ✧ Device: GSD12DFMC
- ✧ Package: SOD-123FL
- ✧ Marking: BE
- ✧ Material: Halogen free and RoHS compliant
- ✧ Packing: Tape & Reel
- ✧ Quantity per reel: 3,000pcs

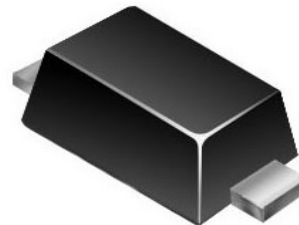
### APPLICATIONS

- ✧ Power lines
- ✧ Personal digital assistants (PDA's)
- ✧ Microprocessors based equipment
- ✧ Notebooks, Desktops, and Servers
- ✧ Cell phone Handsets and Accessories
- ✧ Portable Electronics
- ✧ Peripherals

### PIN CONFIGURATION



### PACKAGE OUTLINE



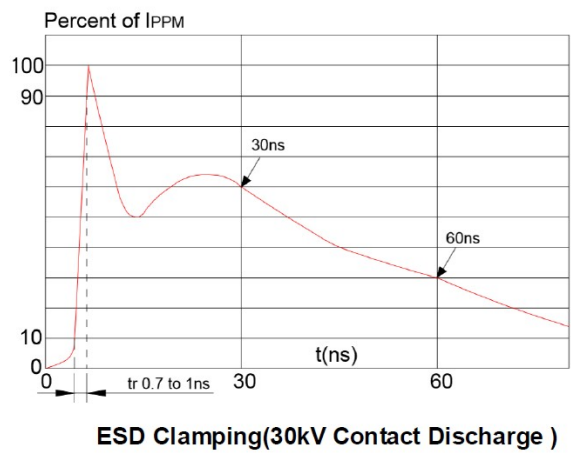
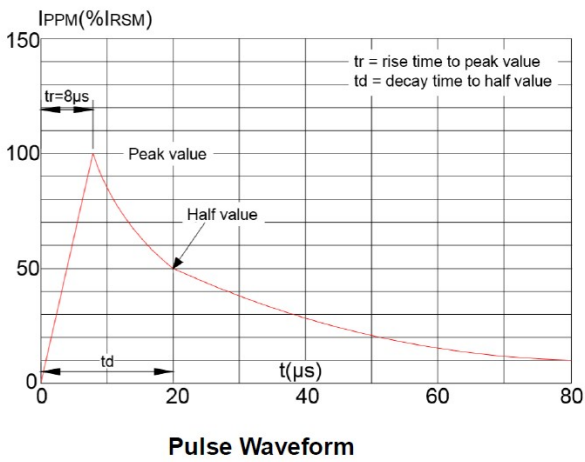
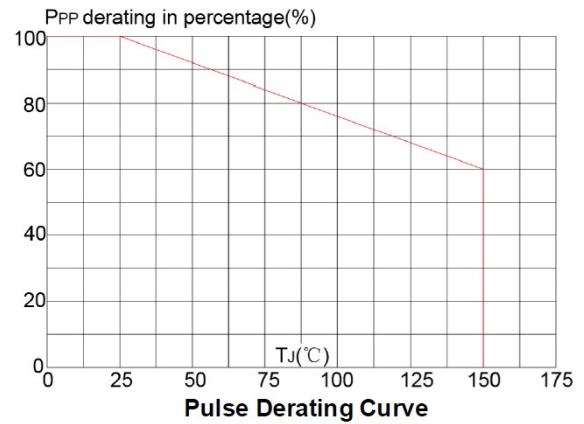
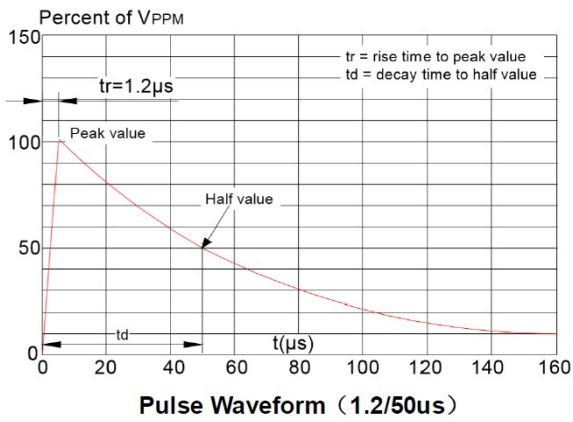
**ABSOLUTE MAXIMUM RATING**

Symbol	Parameter	Value	Units
$V_{ESD}$	ESD per IEC 61000-4-2 (Contact)	$\pm 30$	kV
	ESD per IEC 61000-4-2 (Air)	$\pm 30$	
$P_{PP}$	Peak Pulse Power (8/20 $\mu$ s)	5600	W
$T_{OPT}$	Operating Temperature	-55~125	$^{\circ}$ C
$T_{STG}$	Storage Temperature	-55~150	$^{\circ}$ C
$T_L$	Lead Soldering Temperature	260(10sec)	$^{\circ}$ C

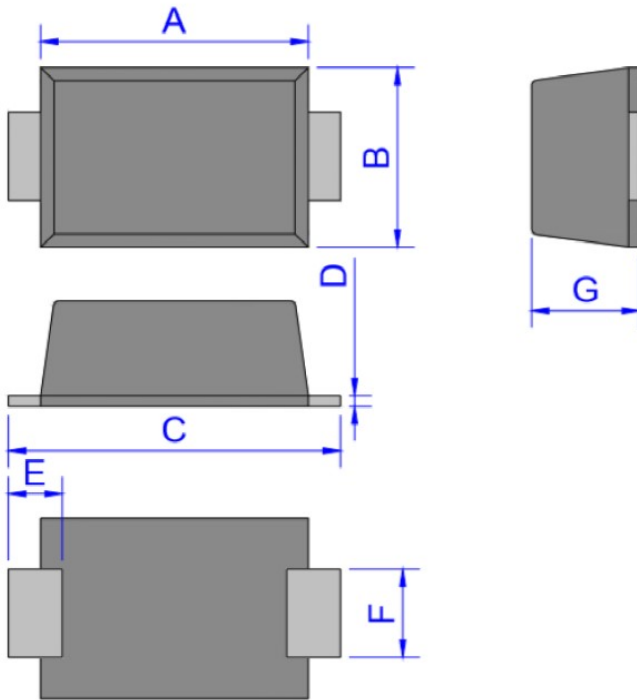
**ELECTRICAL CHARACTERISTICS (Tamb=25 $^{\circ}$ C)**

Symbol	Parameter	Test Condition	Min	Typ	Max	Units
$V_{RWM}$	Reverse Working Voltage				12	V
$V_{BR}$	Reverse Breakdown Voltage	$I_T = 1mA$	13.0		15.0	V
$I_R$	Reverse Leakage Current	$V_{RWM} = 12V$			1.0	$\mu$ A
$I_{PP}$	Peak Pulse Current	$t_p = 8/20\mu s$			200	A
$V_C$	Clamping Voltage	$I_{PP} = 200A, t_p = 8/20\mu s$			28	V
$C_J$	Junction Capacitance	$V_R = 0V, f = 1MHz$		450	550	pF

## ELECTRICAL CHARACTERISTICS CURVE

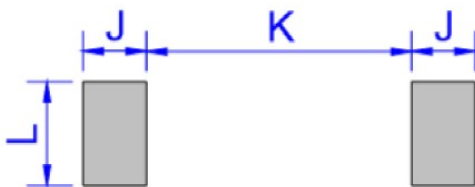


## SOD-123FL PACKAGE OUTLINE DIMENSIONS



Ref.	Dimensions			
	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.60	3.00	0.102	0.118
B	1.60	2.00	0.063	0.079
C	3.45	3.95	0.136	0.156
D	0.10	0.25	0.004	0.01
E	0.3	0.9	0.012	0.035
F	0.80	1.20	0.031	0.047
G	0.95	1.35	0.037	0.053
J	1.30		0.051	
K		1.70		0.067
L	1.30		0.051	

### Recommend Land Pattern (Unit: mm)



Note:

This recommended land pattern is for reference purpose only.