

SD05C Protection Diodes

DESCRIPTION

The SDxxC Series is designed for applications requiring transient overvoltage protection capability. They are intended for use in voltage and ESD sensitive equipment such as computers, printers, business machines, communication systems, medical equipment and other applications. These devices are ideal for situations where board space is at a premium.

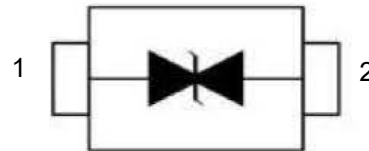
This series has been specifically designed to protect sensitive components which are connected to power, data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients).

FEATURES

- IEC61000-4-2 (ESD) $\pm 15\text{kV}$ (air), $\pm 8\text{kV}$ (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- 350Watts Peak Pulse Power per (tp=8/20 μ s)
- Protects one I/O line (bidirectional)
- Low clamping voltage
- Working voltages : 3V, 5V, 12V, 15V, 24V
- Low leakage current

MACHANICAL DATA

- SOD-323 package
- Flammability Rating: UL 94V-0
- Packaging: Tape and Reel
- High temperature soldering guaranteed: 260°C/10s
- Reel size: 7 inch



APPLICATIONS

- Cell Phone Handsets and Accessories
- Microprocessor based equipment
- Personal Digital Assistants (PDA's)
- Notebooks, Desktops, and Servers
- Portable Instrumentation
- Networking and Telecom
- Serial and Parallel Ports
- Peripherals

ABSOLUTE MAXIMUM RATING

Rating	Symbol	Value	Units
Peak Pulse Power ($t_p = 8/20\mu s$)	P_{pk}	350	Watts
Peak Pulse Current ($t_p = 8/20\mu s$)	I_{pp}	24	A
ESD Voltage (HBM Waveform per IEC 61000-4-2)	V_{PF}	30	kV
Lead Soldering Temperature	T_L	260 (10 sec.)	$^{\circ}C$
Operating Temperature	T_J	-55 to +125	$^{\circ}C$
Storage Temperature	T_{STG}	-55 to +150	$^{\circ}C$

ELECTRICAL CHARACTERISTICS ($T_{amb}=25^{\circ}C$)

SD05C TVS for 5V Lines						
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				5	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1mA$	6			V
Reverse Leakage Current	I_R	$V_{RWM} = 5V, T=25^{\circ}C$			10	μA
Clamping Voltage	V_C	$I_{pp} = 5A, t_p = 8/20\mu s$			9.8	V
Clamping Voltage	V_C	$I_{pp} = 24A, t_p = 8/20\mu s$			14.5	V
Junction Capacitance	C_j	$V_R = 0V, f = 1MHz$			200	pF

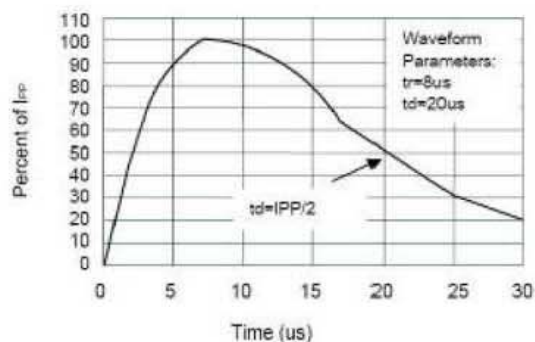
SD12C TVS for 12V Lines						
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				12	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1mA$	13.3			V
Reverse Leakage Current	I_R	$V_{RWM} = 12V, T=25^{\circ}C$			1	μA
Clamping Voltage	V_C	$I_{pp} = 5A, t_p = 8/20\mu s$			19	V
Clamping Voltage	V_C	$I_{pp} = 15A, t_p = 8/20\mu s$			24	V
Junction Capacitance	C_j	$V_R = 0V, f = 1MHz$			100	pF

ELECTRICAL CHARACTERISTICS (T_{amb}=25°C)

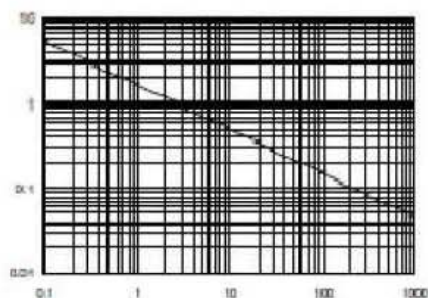
SD15C TVS for 15V Lines						
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				15	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1mA$	16.7			V
Reverse Leakage Current	I_R	$V_{RWM} = 15V, T=25^\circ C$			1	μA
Clamping Voltage	V_C	$I_{PP} = 5A, tp = 8/20\mu s$			24	V
Clamping Voltage	V_C	$I_{PP} = 12A, tp = 8/20\mu s$			29	V
Junction Capacitance	C_j	$V_R = 0V, f = 1MHz$			75	pF

SD24C TVS for 24V Lines						
Parameter	Symbol	Conditions	Minimum	Typical	Maximum	Units
Reverse Stand-Off Voltage	V_{RWM}				24	V
Reverse Breakdown Voltage	V_{BR}	$I_t = 1mA$	26.7			V
Reverse Leakage Current	I_R	$V_{RWM} = 24V, T=25^\circ C$			1	μA
Clamping Voltage	V_C	$I_{PP} = 5A, tp = 8/20\mu s$			40	V
Clamping Voltage	V_C	$I_{PP} = 8A, tp = 8/20\mu s$			44	V
Junction Capacitance	C_j	$V_R = 0V, f = 1MHz$			50	pF

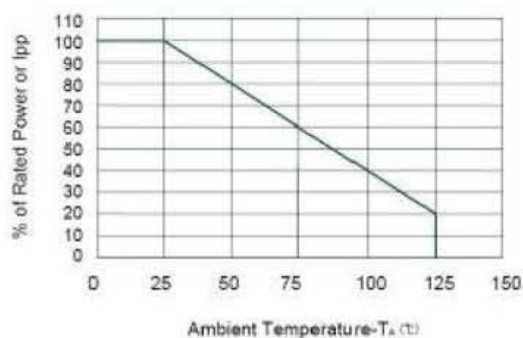
ELECTRICAL CHARACTERISTICS CURVE



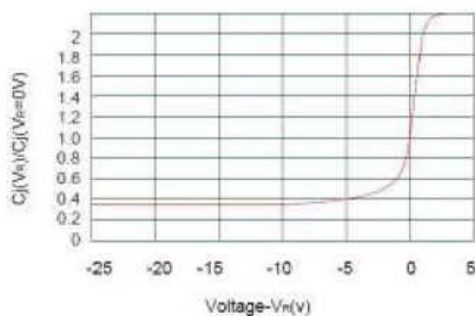
Pulse Waveform



Non-Repetitive Peak Pulse Power vs. Pulse Time

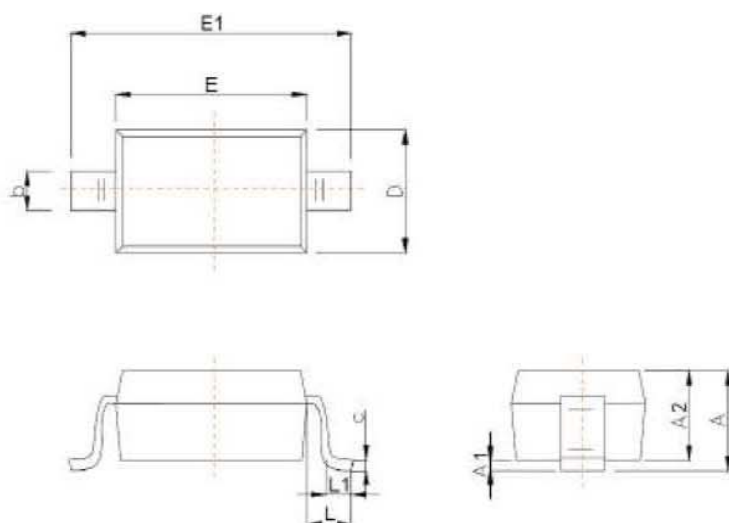


Power Derating Curve



Junction Capacitance vs. Reverse Voltage

SOD-323 PACKAGE OUTLINE DIMENSIONS



Symbol	Dimensions In Millimeters	
	Min	Max
A		1.00
A1	0.000	0.100
A2	0.800	0.900
b	0.250	0.350
c	0.080	0.150
D	1.200	1.400
E	1.600	1.800
E1	2.500	2.700
e	1.800	2.040
L	0.475 REF	
L1	0.250	0.400
θ	0°	8°