

### Features

- This series is designed for average power 350W approximated ESD protection, different  $V_{RWM}$ , different peak pulse power available.
- Protects one I/O or power line.
- Low clamping voltage.
- Working voltages: 3.3V, 5.0V, 12V
- Low leakage current.
- Lead-free parts meet environmental standards of MIL-STD-19500 /228
- Suffix "-H" indicates Halogen-free part, ex.ESD3Z3.3-H.

### IEC compatibility

- IEC61000-4-2 (ESD)  $\pm 15kV$  (air),  $\pm 8kV$  (contact)
- IEC61000-4-4 (EFT) 40A (5/50ns)
- IEC61000-4-5 (Lightning) 24A (8/20us)

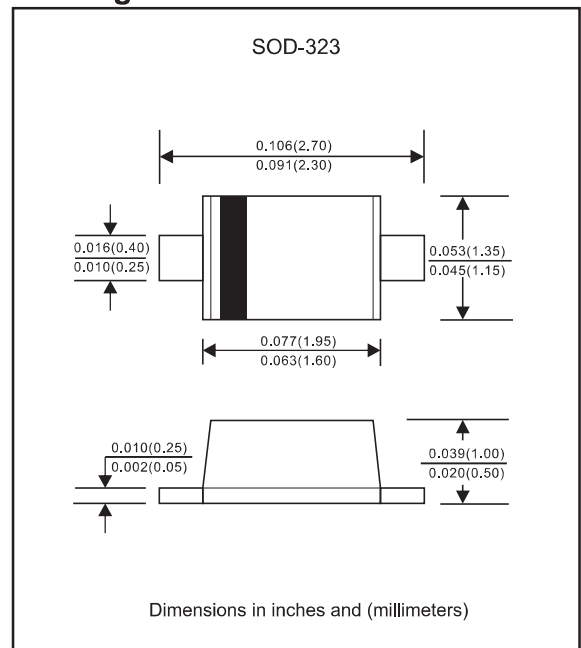
### Applications

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

### Mechanical data

- Epoxy:UL94-V0 rated flame retardant
- Case : Molded plastic, SOD-323
- Terminals : Solder plated, solderable per MIL-STD-750, Method 2026
- Polarity : Indicated by cathode band
- Mounting Position : Any

### Package outline



### Maximum ratings (at $T_A=25^\circ C$ unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	VALUE	UNIT
Lead solder temperature-maximum	10 second duration	$T_L$	260	$^\circ C$
Operating junction temperature range		$T_J$	-55 to +150	$^\circ C$
Storage temperature range		$T_{STG}$	-55 to +150	$^\circ C$

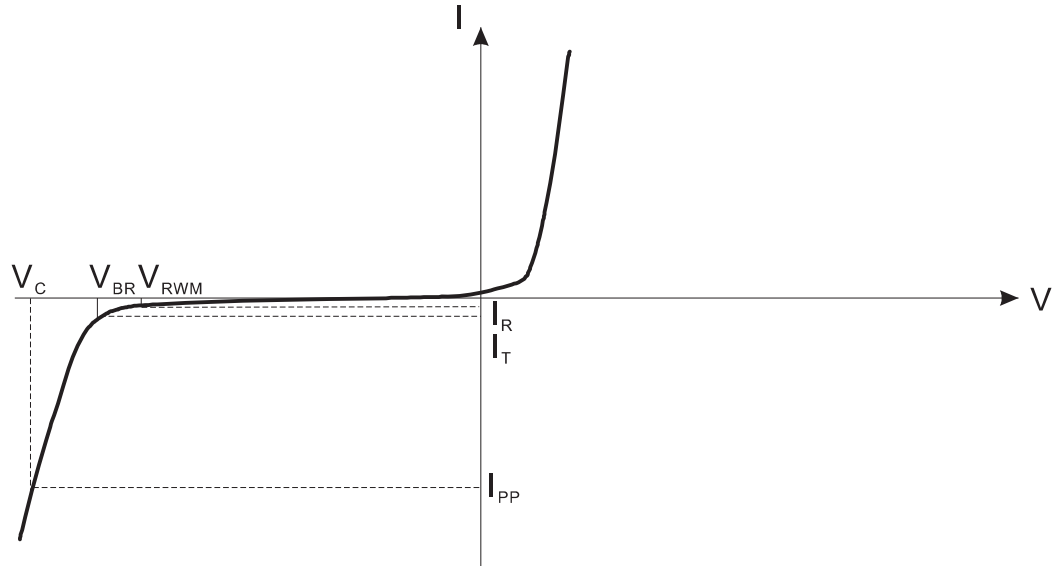
### Electrical characteristics (at $T_A=25^\circ C$ unless otherwise noted)

Part No.	$V_{RWM}$ (V) (Max.)	$I_R$ (uA) @ $V_{RWM}$ (Max.)	$V_{BR}$ (V) @ $I_T$ (Note 2) (Min.)	$I_T$ (mA)	$V_C$ (V) @ $I_{PP}=1.0A$ (Max.)	$I_{PP}$ (A) (Max.)	$V_C$ (V)(Note 1) @ $I_{PP}$ (Max.)	$P_{PK}$ (W) (Note 1) (Max.)	$C_J$ (pF) (Typ.)
ESD3Z3.3	3.3	10	5.0	1.0	7.5	8.5	10.5	90	45
ESD3Z5.0	5.0	10	6.2	1.0	9.8	24.0	14.5	350	235
ESD3Z12	12	1	13.3	1.0	19.0	14.0	25.0	350	100

Notes 1: Surge current waveform per Fig.1

2:  $V_{BR}$  is measured with a pulse test current  $I_T$  at an ambient temperature of  $25^\circ C$ .

Typical characteristics (at  $T_A=25^\circ\text{C}$  unless otherwise noted)



Uni-Directional TVS

- $V_C$  : Clamping voltage @  $I_{PP}$
- $I_{PP}$  : Maximum reverse peak pulse current
- $V_{RWM}$  : Maximum working peak reverse voltage
- $I_R$  : Maximum reverse leakage current @  $V_{RWM}$
- $V_{BR}$  : Breakdown voltage @  $I_T$
- $I_T$  : Test current
- $C_J$  : Max. capacitance @  $V_R = 0\text{V}$  and  $f = 1\text{MHz}$

## Rating and characteristic curves (ESD3Z SERIES)

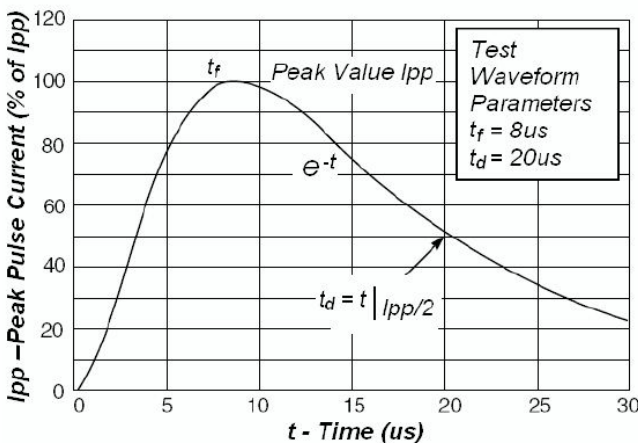


Fig1. Pulse Waveform

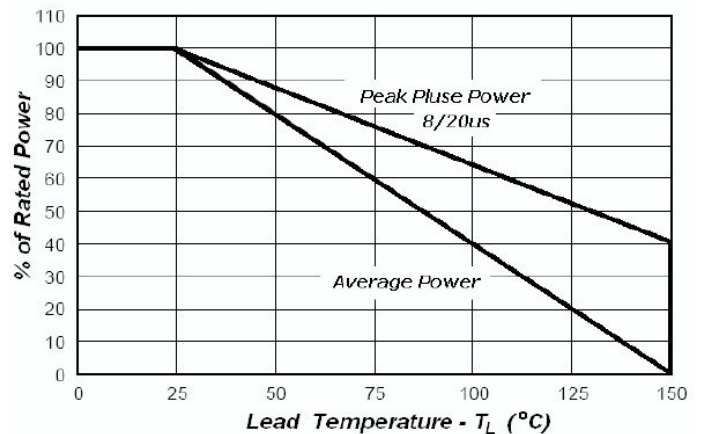
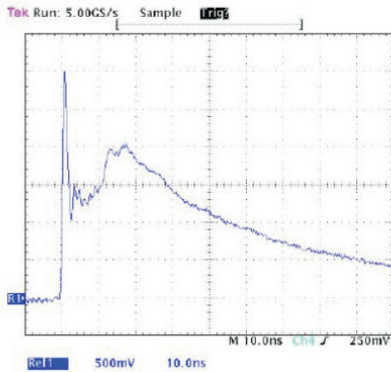


Fig2. Power Derating

### ESD Pulse Waveform (Per IEC 61000-4-2)



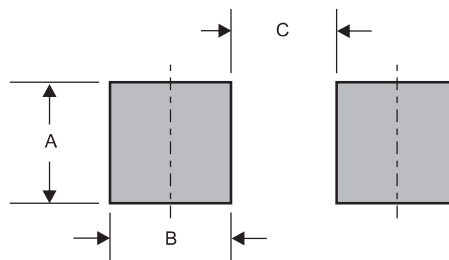
### Pinning information

Pin	Simplified outline	Symbol
Uni-Directional Pin1 cathode Pin2 anode		

### Marking

Type number	Marking code
ESD3Z3.3	E2
ESD3Z5.0	E5
ESD3Z12	E6

### Suggested solder pad layout



Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SOD-323	0.033 (0.83)	0.025 (0.63)	0.063 (1.60)