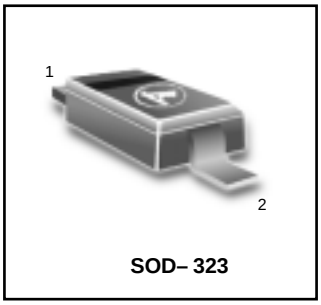
# Transient Voltage Suppressors for ESD Protection

## General Description

The LESD3Z5.0T1G Series is designed to protect voltage sensitive components from ESD and transient voltage events. Excellent clamping capability, low leakage, and fast response time, make these parts ideal for ESD protection on designs where board space is at a premium.

**LESD3Z5.0T1G**
**S-LESD3Z5.0T1G**

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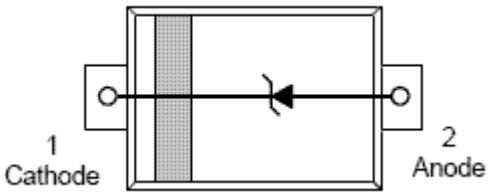
## Applications

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

## Features

- Small Body Outline Dimensions
- 350 Watts peak pulse power (tp = 8/20μs)
- Transient protection for data lines to
  **IEC 61000-4-2 (ESD) ±15kV (air), ±8kV (contact)**
  **IEC 61000-4-4 (EFT) 40A (5/50ns)**
  **IEC 61000-4-5 (Lightning) 24A (8/20μs)**
- Small package for use in portable electronics
- Suitable replacement for MLV's in ESD protection applications
- Protects one I/O or power line
- Low clamping voltage
- Working voltages: 5V and 12V
- Low leakage current
- Solid-state silicon-avalanche technology
- We declare that the material of product compliance with RoHS requirements.
- S- Prefix for Automotive and Other Applications Requiring Unique Site and Control Change Requirements; AEC-Q101 Qualified and PPAP Capable.




**ORDERING INFORMATION**

| Device | Marking | Shipping |
|---|---|---|
| LESD3Z5.0T1G | 05 | 3000/Tape & Reel |

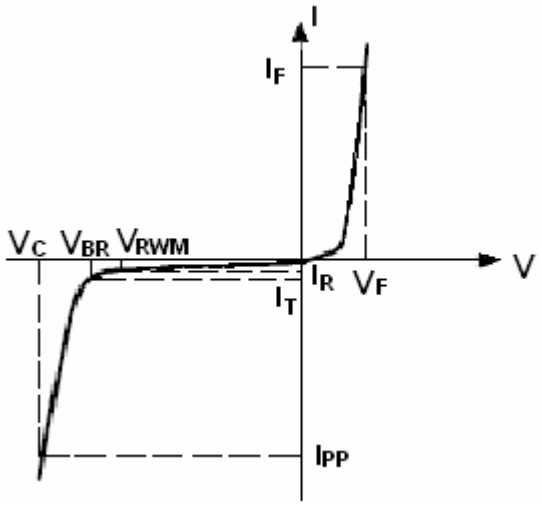
## Absolute Ratings ($T_{amb}$=25°C )

| Symbol | Parameter | Value | Units |
|---|---|---|---|
| $P_{PK}$ | Peak Pulse Power ($t_p$ = 8/20μs) | 250 | W |
| $V_{ESD}$ | ESD Voltage(HBM Waveform per IEC 61000-4-2) | 30 | kV |
| $T_L$ | Maximum lead temperature for soldering during 10s | 260 | °C |
| $T_{STG}$ | Storage Temperature Range | -55 to +150 | °C |
| $T_J$ | Maximum junction temperature | -55 to +125 | °C |

## Electrical Parameter

# LESD3Z5.0T1G , S-LESD3Z5.0T1G

| Symbol | Parameter |
|---|---|
| $I_{PP}$ | Maximum Reverse Peak Pulse Current |
| $V_C$ | Clamping Voltage @ $I_{PP}$ |
| $V_{RWM}$ | Working Peak Reverse Voltage |
| $I_R$ | Maximum Reverse Leakage Current @ $V_{RWM}$ |
| $I_T$ | Test Current |
| $V_{BR}$ | Breakdown Voltage @ $I_T$ |
| $I_F$ | Forward Current |
| $V_F$ | Forward Voltage @ $I_F$ |




## Electrical Characteristics

Ratings at 25°C ambient temperature unless otherwise specified.VF = 0.9V at IF = 10mA

| Device | $V_{RWM}$ (V) | $I_R$(uA) @ $V_{RWM}$=5V | $V_{BR}$ (V)@ $I_t$=1mA | $V_C$ (V) @ $I_{PP}$=5 A $t_p$=8/20μs | $V_C$ (V) @ $I_{PP}$=24 $t_p$=8/20μs | $I_{PP}$ (A) $t_p$=8/20μs | C (pF) |
|---|---|---|---|---|---|---|---|
| | Max | Max | Min | Typ | Max | Max | Typ |
| LESD3Z5.0T1G | 5.0 | 10 | 6.0 | 9.8 | 10.5 | 24 | 350 |
| LESD3Z12T1G | 12.0 | 1.0 | 13.3 | 19.0 | 16.5 | 15 | 150 |

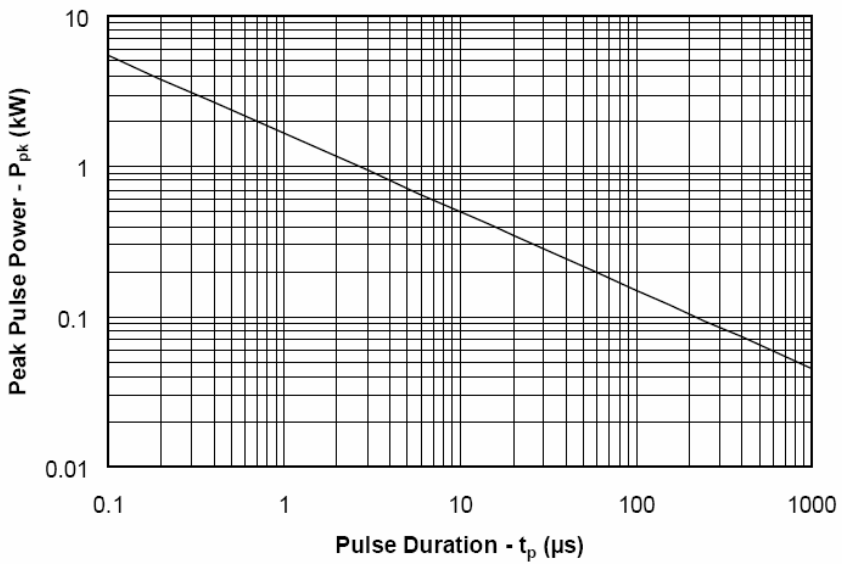



**Fig.1 Non-Repetitive Peak Pulse Power vs. Pulse Time**

# LESD3Z5.0T1G , S-LESD3Z5.0T1G

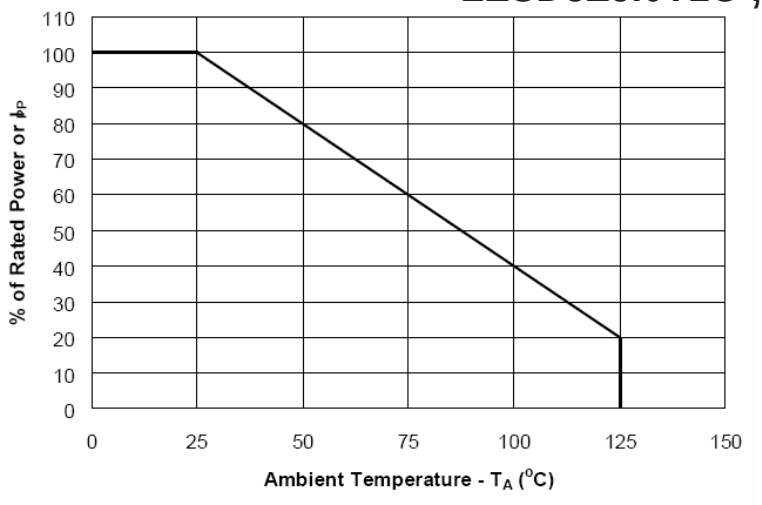



**Fig.2 Power Derating Curve**

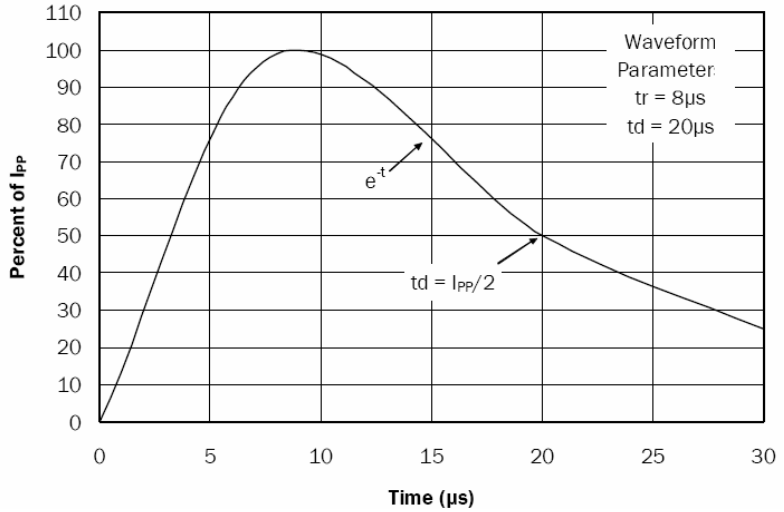



**Fig.3 Waveform**

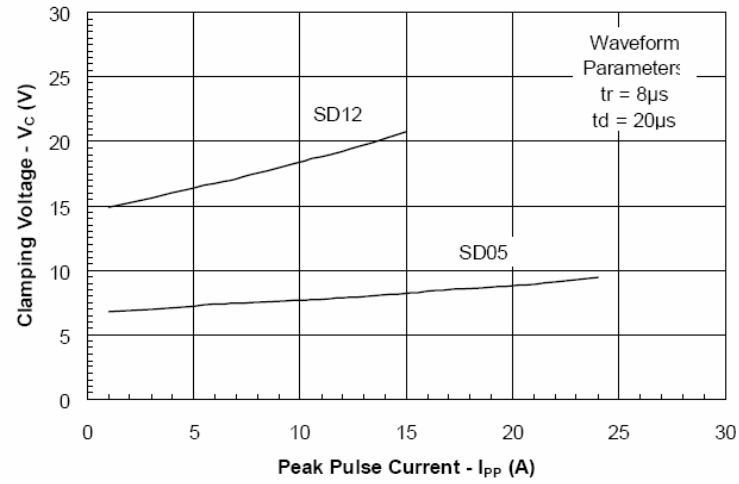



**Fig.4 Clamping Voltage vs. Peak Pulse Current**

# LESD3Z5.0T1G , S-LESD3Z5.0T1G

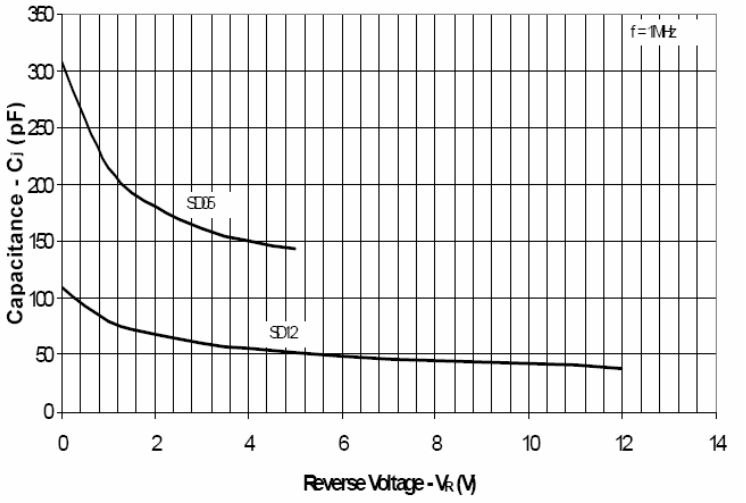



**Fig.5 Capacitance vs. Reverse Voltage**

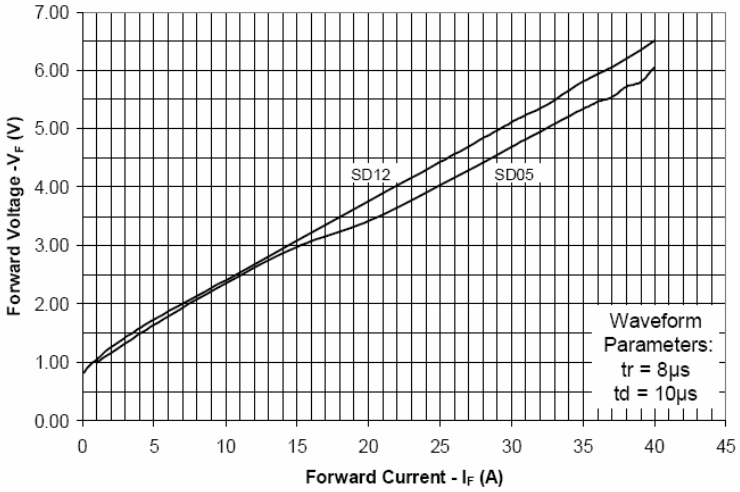



**Fig.6 Forward Voltage vs. Forward Current**

# LESD3Z5.0T1G , S-LESD3Z5.0T1G

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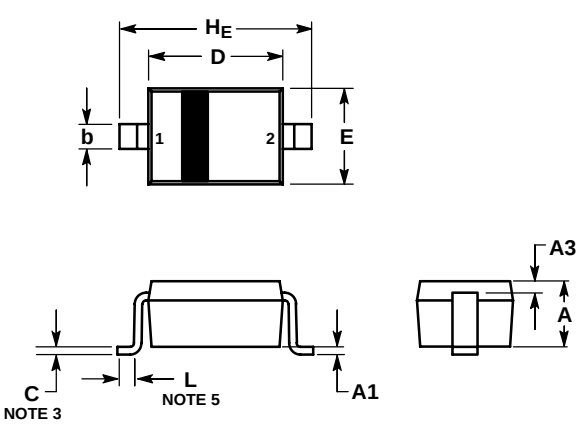


NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS.
3. LEAD THICKNESS SPECIFIED PER L/F DRAWING WITH SOLDER PLATING.
4. DIMENSIONS A AND B DO NOT INCLUDE MOLD FLASH, PROTRUSIONS OR GATE BURRS.
5. DIMENSION L IS MEASURED FROM END OF RADIUS.

| | MILLIMETERS | | | INCHES | | |
|---|---|---|---|---|---|---|
| DIM | MIN | NOM | MAX | MIN | NOM | MAX |
| A | 0.80 | 0.90 | 1.00 | 0.031 | 0.035 | 0.040 |
| A1 | 0.00 | 0.05 | 0.10 | 0.000 | 0.002 | 0.004 |
| A3 | | 0.15 REF | | | 0.006 REF | |
| b | 0.25 | 0.32 | 0.4 | 0.010 | 0.012 | 0.016 |
| C | 0.089 | 0.12 | 0.177 | 0.003 | 0.005 | 0.007 |
| D | 1.60 | 1.70 | 1.80 | 0.062 | 0.066 | 0.070 |
| E | 1.15 | 1.25 | 1.35 | 0.045 | 0.049 | 0.053 |
| L | 0.08 | | | 0.003 | | |
| $H_E$ | 2.30 | 2.50 | 2.70 | 0.090 | 0.098 | 0.105 |

### SOLDERING FOOTPRINT*