

APPROVAL DRAWING

Surge Components product name
SES5VT563-6 TR (RoHS compliant)

CONTENTS

1. FEATURE
2. APPLICATION
3. ELECTRICAL CHARACTERISTICS
4. ABSOLUTE MAXIMUM RATING
5. TYPICAL CHARACTERISTICS
6. PRODUCT DIMENSION
7. PACKING INFORMATION
8. APPLICATION NOTE

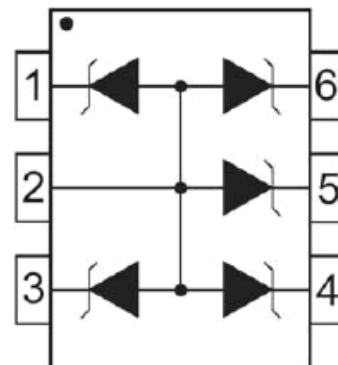
Surge Components, Inc.

Customer Acknowledgement

Manufacturer Surge Components, Inc.
2009-05-06

1. FEATURE

- 100 Watts Peak Power per Line($t_p=8/20\mu s$)
- SOT-563 package
- Protects four bidirectional lines and five Unidirectional lines
- Monolithic structure
- Working voltage: 5V
- Low clamping voltage
- ESD protection > 40KV
- Low leakage current
- RoHS compliant
- Transient protection for data lines to IEC 61000-4-2(ESD) $\pm 15KV$ (air),
 $\pm 8KV$ (contact); IEC 61000-4-4 (EFT) 40A (5/50ns)



2. APPLICATION

- Communication system & Cellular phones
- Printers
- Notebooks and hand hold computers
- PDAs
- Video Equipment

3. ELECTRICAL CHARACTERISTICS PER LINE@25°C (UNLESS OTHERWISE SPECIFIED) NOTE 1

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Units
Reverse stand-off voltage	V_{RWM}				5	V
Reverse Breakdown voltage	V_{BR}	$I_t=1mA$	6			V
Reverse Leakage Current	I_R	$V_{RWM}=5V$ $T=25^\circ C$			5	μA
Clamping Voltage	V_C	$I_{PP}=1A$ $T_P=8/20\mu S$			8.8	V
Clamping voltage	V_C	$I_{PP}=10A$ $T_P=8/20\mu S$			12.0	V
Junction Capacitance	C_J	$V_R=0V$ $f=1MHz$		40		pF

- Note 1: Pin 1,3,4,5 or 6 to Pin 2

4. ABSOLUTE MAXIMUM RATING @25°C NOTE 1

Rating	Symbol	Value	Units
Peak Pulse Power($t_p=8/20\mu s$)	P_{PP}	100	W
Forward voltage@10mA	V_F	1.5	V
Operating Temperature	T_j	-55 to +150	°C
Storage Temperature	T_{STG}	-55 to +150	°C

- Note 1: Pin 1,3,4,5 or 6 to Pin 2

5. TYPICAL CHARACTERISTICS

FIGURE 1
PEAK PULSE POWER VS PULSE TIME

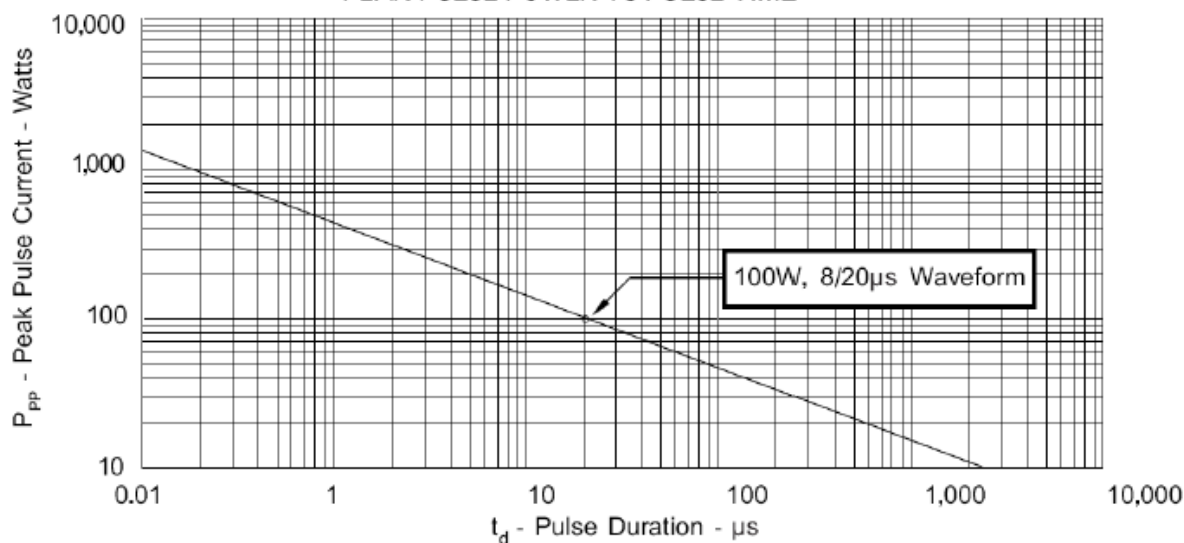


FIGURE 2
PULSE WAVE FORM

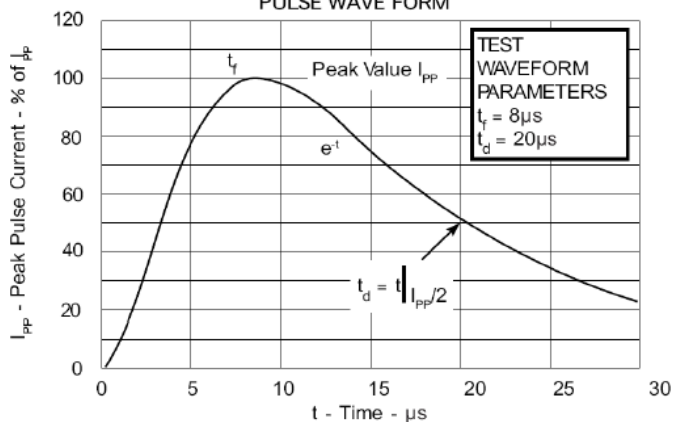
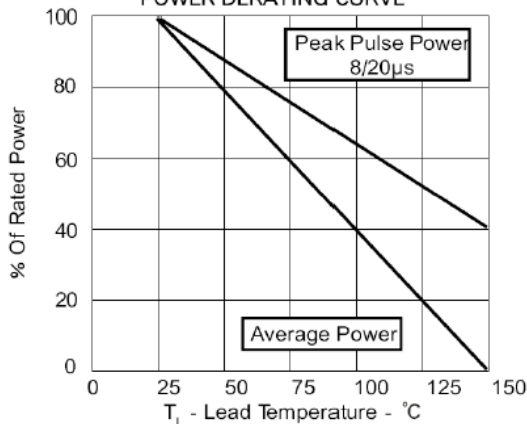


FIGURE 3
POWER DERATING CURVE



6. PRODUCT DIMENSION AND PAD SIZE.

PACKAGE OUTLINE

The diagram shows the package outline with dimensions A, B, C, D, G, J, K, S and pin numbers 1, 2, 3, 4, 5, 6. Pin 1 is the cathode. The package is a rectangular component with six pins. The dimensions are defined as follows: A is the width, B is the height, C is the pin pitch, D is the pin width, G is the pin spacing, J is the pin thickness, K is the pin length, and S is the package length.

SOT-563

PACKAGE DIMENSION				
DIM	MILIMETER		INCHES	
	MIN	MAX	MIN	MAX
A	1.50	1.70	0.059	0.067
B	1.1	1.3	0.043	0.051
C	0.50	0.60	0.020	0.024
D	0.17	0.27	0.007	0.011
G	0.50 BSC	-	0.020 BSC	-
J	0.06	0.16	0.003	0.006
K	0.10	0.30	0.004	0.012
S	1.50	1.70	0.059	0.067

Mounting Pad

TYPICAL		
DIM	MILIMETER	INCHES
1	0.30	0.012
2	1.02	0.040
3	0.51	0.020
4	1.40	0.055
5	0.51	0.020

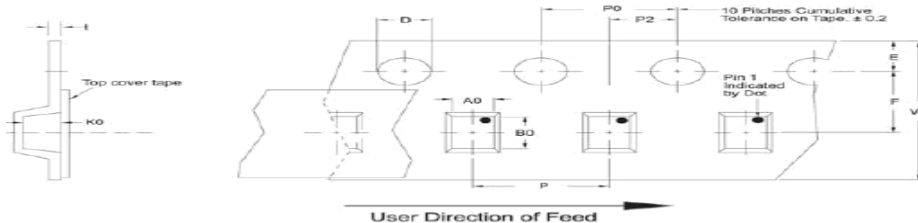
The diagram shows the mounting pad with dimensions 1, 2, 3, 4, 5 and polarity symbols. The package is a rectangular component with six pins. The dimensions are defined as follows: 1 is the pin width, 2 is the pin spacing, 3 is the pin thickness, 4 is the pin length, and 5 is the pin pitch. The package is shown with polarity symbols indicating the cathode (Pin 1) and anode (Pin 3).

NOTES:

1. Controlling Dimension Inches
2. Pin 3 is the cathode (Unidirectional only).
3. Dimensions are exclusive of mold lash and metal burrs

7. PACKING INFORMATION

Reel Dia	Tape Width	AO	BO	KO	D	E	F	W	PO	P2	P	Imax
178mm(7")	8mm	1.78±0.05	1.78±0.05	0.69±0.05	1.50±0.10	1.75±0.10	3.50±0.10	8.00±0.30	4.00±0.10	2.00±0.005	4.00±0.005	0.25



8. APPLICATION NOTE

The SES5VT563-5 is TVS arrays designed to protect I/O or data lines from the damaging effects of ESD or EFT.

This product provides both unidirectional and bidirectional protection, with a surge capability of 100 watts Ppp line for an 8/20μs wave shape and ESD protection > 25kv.

Common-mode unidirectional configuration(Figure 1)

The SES5VT563-5 provides up to 4 lines of protection in a common-mode unidirectional configuration as depicted in Figure 1.

Circuit connectivity is as follows:

- Line 1 is connected to Pin1.
- Line 2 is connected to Pin3.
- Line 3 is connected to Pin4.
- Line 4 is connected to Pin5.
- Pin2 is connected to ground.

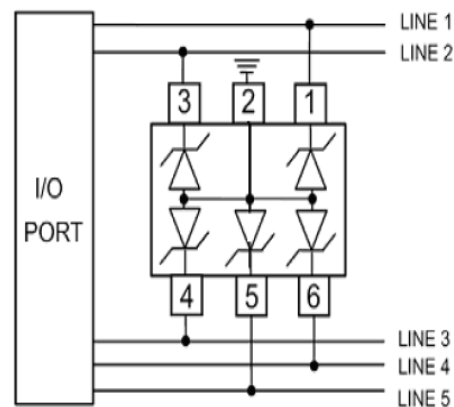
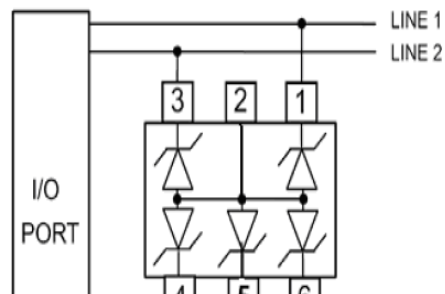


Figure 1

Common-mode unidirectional configuration(Figure 2)

The SES5VT563-5 provides up to 3 lines of protection in a common-mode bidirectional configuration as depicted in Figure 2.



Circuit connectivity is as follows:

- Line 1 is connected to Pin1.
- Line 2 is connected to Pin3.
- Line 3 is connected to Pin4.
- Pin5 is connected to ground.
- Pin2 is not connected.

Differential-mode bidirectional configuration (Figure 3)

The SES5VT553-5 provides up to 5 lines of protection in a Differential-mode bidirectional configuration as depicted in Figure 3.

Circuit connectivity is as follows:

- Line 1 is connected to Pin1.
- Line 2 is connected to Pin3.
- Line 3 is connected to Pin4.
- Line 4 is connected to Pin6.
- Line 5 is connected to Pin5.
- Pin2 is not connected.

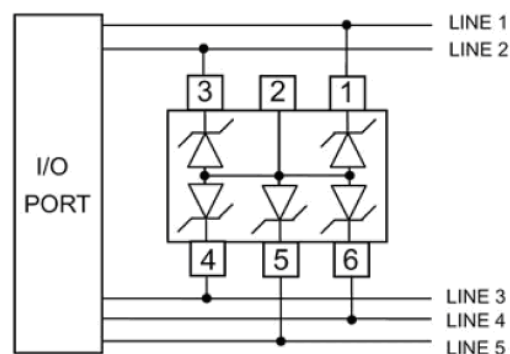


Figure 3

Circuit board layout and protection device placement:

Circuit board layout is critical for suppression of ESD transients.

The following guidelines are recommended:

1. Place the protection devices as close to the input terminal or connector as possible.
2. The path length between the protection device and protected line should be minimized.
3. Keep parallel signal paths to a minimum.
4. Avoid running protection conductors in parallel with unprotected conductor.
5. Minimize all printed-circuit board conductive loops including power and ground loops.
6. minimize the length of the transient return path to ground.
7. Avoid using shared transient return paths to common ground point.
8. Ground planes should be used whenever possible. For multilayer printed-circuit boards, use ground vias.