

SMS05T1

SC-74 Quad Transient Voltage Suppressor

for ESD Protection

This quad monolithic silicon voltage suppressor is designed for applications requiring transient overvoltage protection capability. It is intended for use in voltage and ESD sensitive equipment such as computers, printers, business machines, communication systems and other applications. This quad device provides superior surge protection over current quad Zener MMQA series by providing up to 350 watts peak power.

Features:

- SC-74 Package Allows Four Separate Unidirectional Configurations
- Peak Power – 350 Watts, $8 \times 20 \mu\text{s}$
- ESD Rating of Class N (Exceeding 25 kV) per the Human Body Model
- ESD Rating:
 - IEC 61000-4-2 (ESD) 15 kV (air) 8 kV (contact)
 - IEC 61000-4-4 (EFT) 40 Amps (5/50 ns)
 - IEC 61000-4-5 (lighting) 23 Amps (8/20 μs)
- UL Flammability Rating of 94V-0

Typical Applications:

- Hand Held Portable Applications such as Cell Phones, Pagers, Notebooks and Notebook Computers

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Peak Power Dissipation $8 \times 20 \mu\text{s}$ @ $T_A = 25^\circ\text{C}$ (Note 1.)	P_{pk}	350	W
Total Power Dissipation on FR-5 Board @ $T_A = 25^\circ\text{C}$ (Note 2.) Derate Above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$
Lead Solder Temperature – Maximum 10 Seconds Duration	T_L	260	$^\circ\text{C}$

1. Non-repetitive current pulse $8 \times 20 \mu\text{s}$ exponential decay waveform
2. FR-5 = $1.0 \times 0.75 \times 0.62$ in.

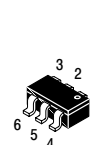


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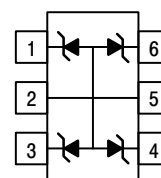
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SC-74 QUAD TRANSIENT VOLTAGE SUPPRESSOR 350 WATTS PEAK POWER 5 VOLTS

PIN ASSIGNMENT

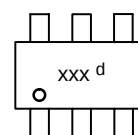


SC-74
CASE 318F
STYLE 1



PIN 1. CATHODE
2. ANODE
3. CATHODE
4. CATHODE
5. ANODE
6. CATHODE

MARKING DIAGRAM

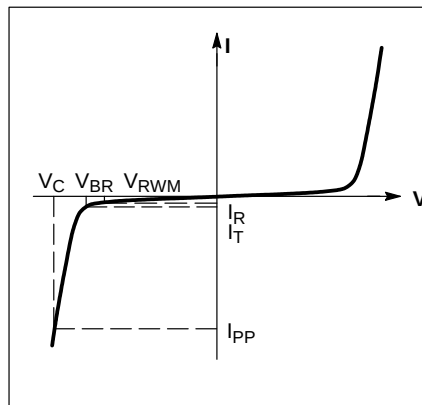


xxx = Device Code
d = Date Code

ORDERING INFORMATION

Device	Package	Shipping
SMS05T1	SC-74	3000/Tape & Reel
SMS05T3	SC-74	10,000/Tape & Reel

SMS05T1



ELECTRICAL CHARACTERISTICS

Characteristic	Symbol	Min	Typ	Max	Unit
Reverse Breakdown Voltage @ $I_T = 1.0 \text{ mA}$	V_{BR}	6.0	—	7.2	V
Reverse Leakage Current @ $V_{RWN} = 5.0 \text{ Volts}$	I_R	N/A	—	20	μA
Maximum Clamping Voltage @ $I_{PP} = 5.0 \text{ A}, 8 \times 20 \mu\text{S}$	V_C	N/A	—	9.8	V
Maximum Clamping Voltage @ $I_{PP} = 23 \text{ A}, 8 \times 20 \mu\text{S}$	V_C	N/A	—	15.5	V
Between I/O Pins and Ground @ $V_R = 0 \text{ Volts}, 1.0 \text{ MHz}$	Capacitance	250	300	400	pF

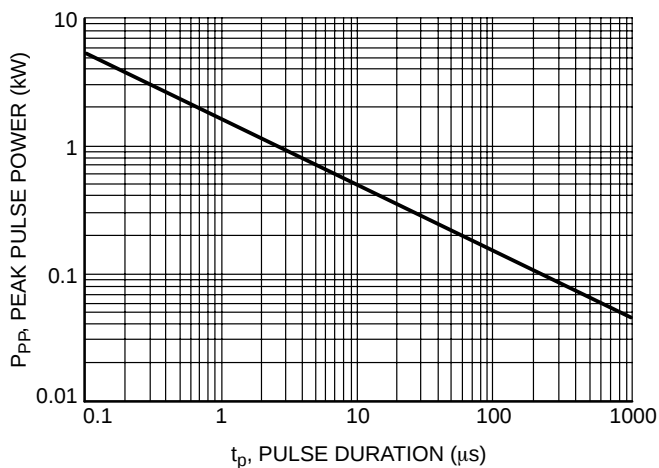


Figure 1. Non-Repetitive Peak Pulse Power versus Pulse Time

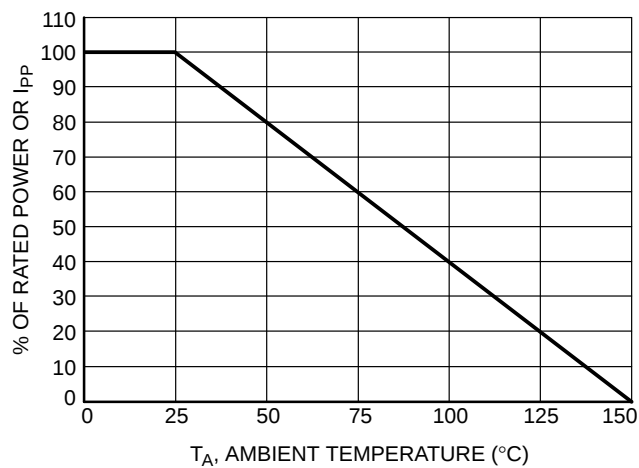


Figure 2. Power Derating Curve

SMS05T1

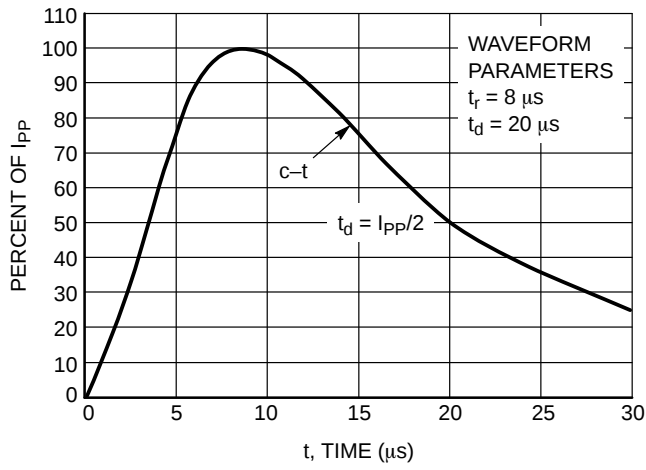


Figure 3. Pulse Waveform

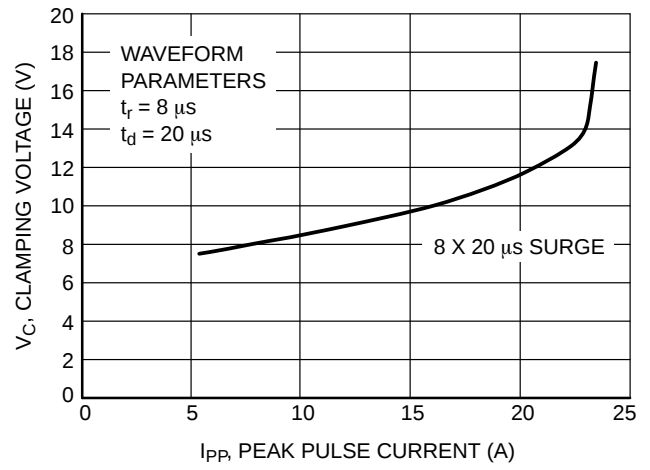


Figure 4. Clamping Voltage versus Peak Pulse Current

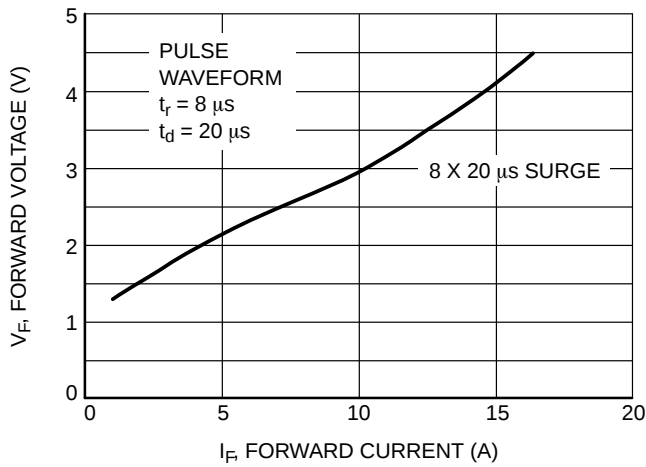


Figure 5. 8 x 20 μ s V_F

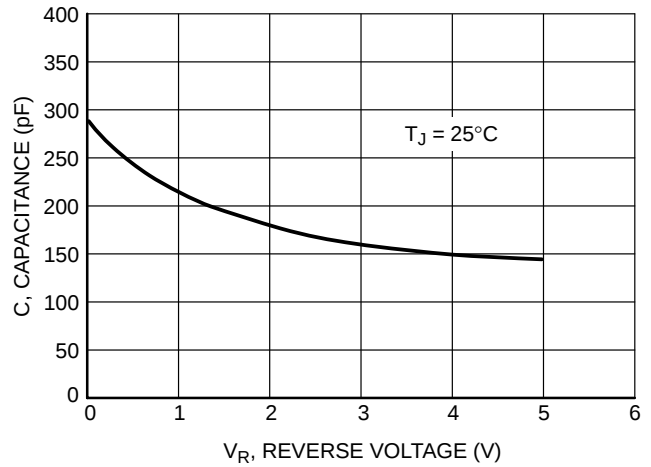
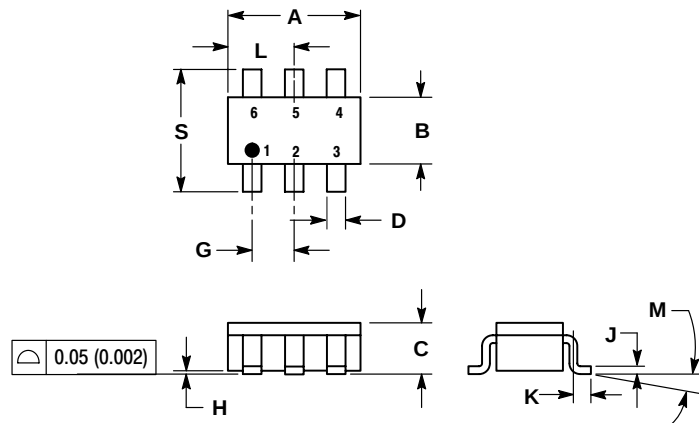


Figure 6. Typical Capacitance

Transient Voltage Suppressors – Surface Mount

350 Watts Peak Power

SC-74 (SC-59ML)
CASE 318F-03
ISSUE D



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 318F-01 AND -02 OBSOLETE. NEW STANDARD 318F-03.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1142	0.1220	2.90	3.10
B	0.0512	0.0669	1.30	1.70
C	0.0354	0.0433	0.90	1.10
D	0.0098	0.0197	0.25	0.50
G	0.0335	0.0413	0.85	1.05
H	0.0005	0.0040	0.013	0.100
J	0.0040	0.0102	0.10	0.26
K	0.0079	0.0236	0.20	0.60
L	0.0493	0.0649	1.25	1.65
M	0°	10°	0°	10°
S	0.0985	0.1181	2.50	3.00

STYLE 1:

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