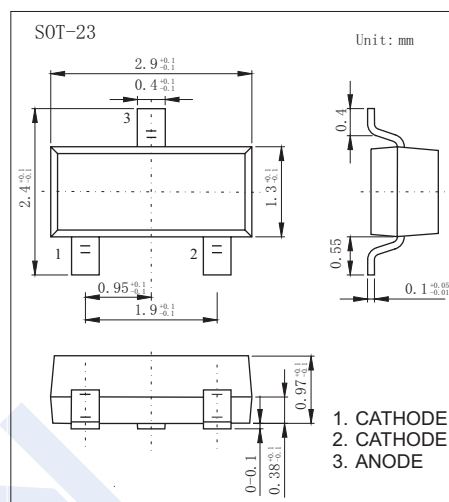
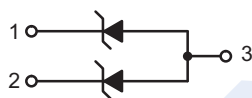


TVS Diodes

SM05T Series

■ Features

- SOT-23 Package Allows Either Two Separate Unidirectional Configurations or a Single Bidirectional Configuration
- Working Peak Reverse Voltage Range - 5.0 V to 12 V
- Peak Power - 300 Watt (8 X 20 μ s)
- Low Leakage



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Value	Unit
Peak Power Dissipation @ 20 μ s (Note 1) @ $T_L \geq 25^\circ\text{C}$	P_{pk}	300	W
IEC 61000-4-2 (ESD) Air Contact		+15 +8.0	kV
IEC 61000-4-4 (EFT)		40	A
IEC 61000-4-5 (Lightening)		12	A
Total Power Dissipation on FR-5 Board (Note 2) @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Total Power Dissipation on Alumina Substrate (Note 3) @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	300 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range	T_J, T_{stg}	- 55 to +150	$^\circ\text{C}$
Lead Solder Temperature - Maximum (10 Second Duration)	T_L	260	$^\circ\text{C}$

1. Non-repetitive current pulse per Figure 3

2. FR-5 = 1.0 x 0.75 x 0.62 in.

3. Alumina = 0.4 x 0.3 x 0.024 in., 99.5% alumina

*Other voltages may be available upon request

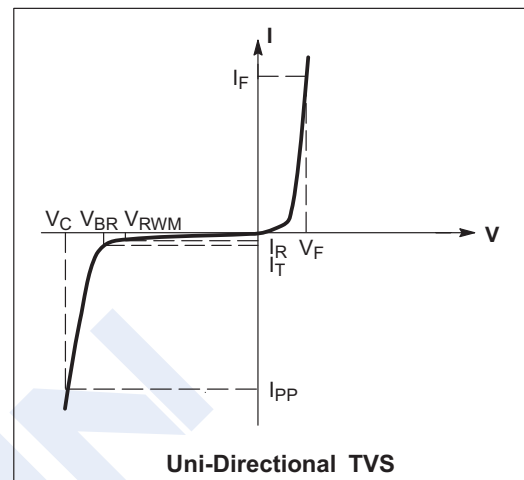
TVS Diodes

SM05T Series

■ Electrical Characteristics Ta = 25°C unless otherwise noted

UNIDIRECTIONAL (Circuit tied to Pins 1 and 3 or 2 and 3)

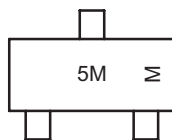
Symbol	Parameter
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}
V_{RWM}	Working Peak Reverse Voltage
I_R	Maximum Reverse Leakage Current @ V_{RWM}
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
$\Theta_{V_{BR}}$	Maximum Temperature Coefficient of V_{BR}
I_F	Forward Current
V_F	Forward Voltage @ I_F
Z_{ZT}	Maximum Zener Impedance @ I_{ZT}
I_{ZK}	Reverse Current
Z_{ZK}	Maximum Zener Impedance @ I_{ZK}



Device	Device Marking	V_{RWM} (Volts)	$I_R @ V_{RWM}$ (μA)	V_{BR} , Breakdown Voltage (Volts)		I_T mA	$V_C @ I_{PP} = 1 \text{ Amp}$ (Volts)	Max I_{PP} (Note 4) (Amps)	Typical Capacitance
				Min	Max				(pF) Pin 1 to 3 @ 0 Volts
SM05T	5M	5	10	6.2	7.3	1.0	9.8	17	225
SM12T	12M	12	1.0	13.3	15.75	1.0	19	12	95

4. 8 X 20 μs pulse waveform per Figure 3

■ Marking



5M = Device Code
M = Date Code

TVS Diodes SM05T Series

■ Typical Characteristics

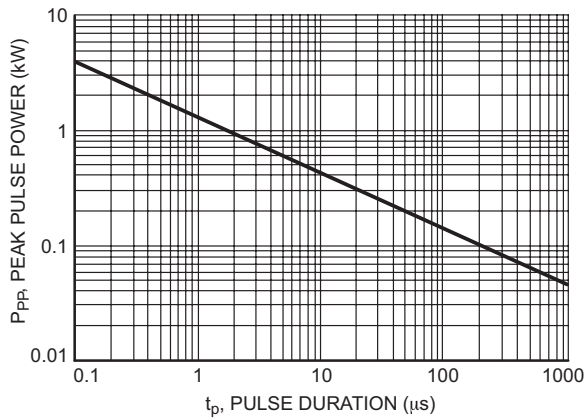


Figure 1. Non-Repetitive Peak Pulse Power versus Pulse Time

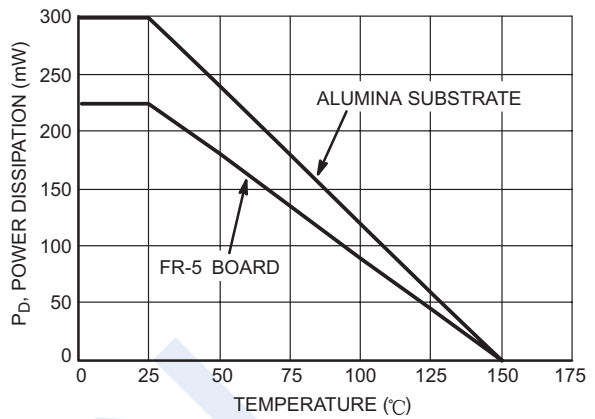


Figure 2. Steady State Power Derating Curve

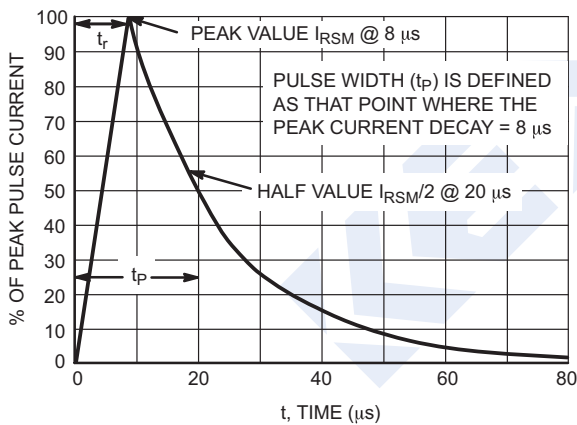


Figure 3. 8 X 20 μ s Pulse Waveform

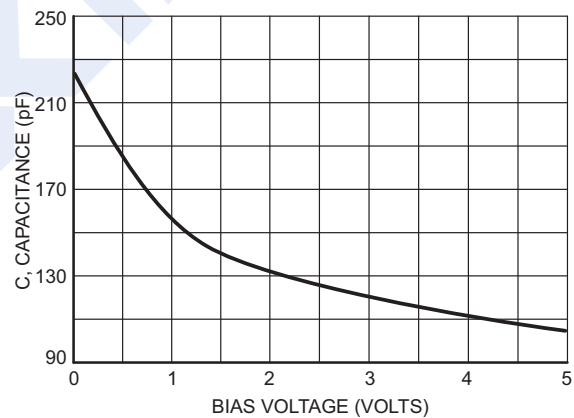


Figure 4. Typical Diode Capacitance (SM05)

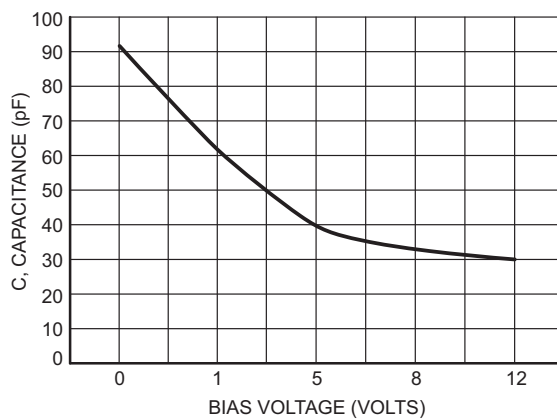


Figure 5. Typical Diode Capacitance (SM12)

TVS Diodes

SM05T Series

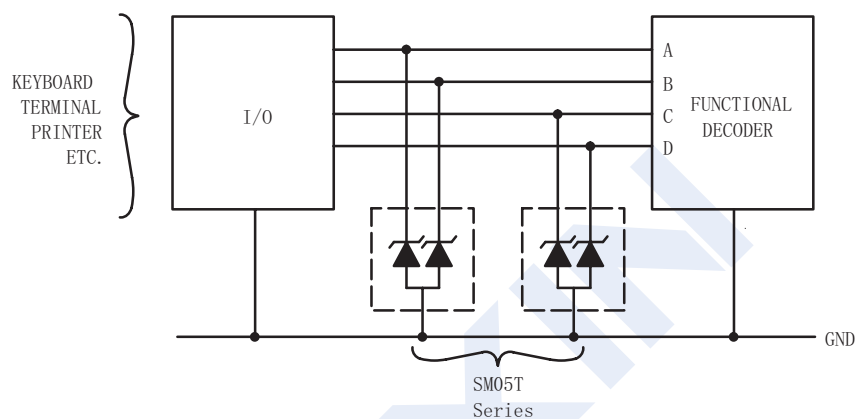
■ Typical Common Anode Applications

A quad junction common anode design in a SOT-23 package protects four separate lines using only one package.

when board space is at a premium. Two simplified examples of TVS applications are illustrated below.

This adds flexibility and creativity to PCB design especially

Computer Interface Protection



Microprocessor Protection

