

This 5-line voltage transient suppressor array is designed for application requiring transient voltage protection capability. It is intended for use in over-transient voltage and ESD sensitive equipment such as computers, printers, automotive electronics, networking communication and other applications. This device features a monolithic common anode design which protects five independent lines in a single SOT-363 package.

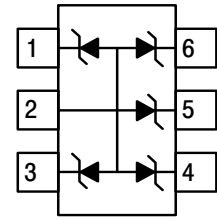
**Features**

- Protects up to 5-Line in a Single SOT-363 Package
- Peak Power Dissipation – 100 W (8 x 20 μs Waveform)
- ESD Rating of Class 3B (Exceeding 8 kV) per Human Body Model and Class C (Exceeding 400 V) per Machine Model.
- Compliance with IEC 61000-4-2 (ESD) 15 kV (Air), 8 kV (Contact)
- Flammability Rating of UL 94 V-0
- Pb-Free Packages are Available\*

**Applications**

- Hand-Held Portable Applications
- Networking and Telecom
- Automotive Electronics
- Serial and Parallel Ports
- Notebooks, Desktops, Servers

**PIN ASSIGNMENT**



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

**MAXIMUM RATINGS** (T<sub>J</sub> = 25°C unless otherwise specified)

Symbol	Rating	Value	Unit
P <sub>PK</sub> 1	Peak Power Dissipation 8 x 20 μs Double Exponential Waveform (Note 1)	100	W
T <sub>J</sub>	Operating Junction Temperature Range	-40 to 125	°C
T <sub>STG</sub>	Storage Temperature Range	-55 to 150	°C
T <sub>L</sub>	Lead Solder Temperature (10 s)	260	°C
ESD	Human Body Model (HBM) Machine Model (MM) IEC 61000-4-2 Air (ESD) IEC 61000-4-2 Contact (ESD)	16000 400 15000 15000	V

Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. Nonrepetitive current pulse per Figure 3.

**SMF05CT1G ELECTRICAL CHARACTERISTICS** ( $T_J = 25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Working Voltage	$V_{RWM}$	(Note 2)			5.0	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{ mA}$ , (Note 3)	6.2		7.2	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 5\text{ V}$		0.07	5.0	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 5\text{ A}$ (8 x 20 $\mu\text{s}$ Waveform)			9.8	V
Clamping Voltage	$V_C$	$I_{PP} = 8\text{ A}$ (8 x 20 $\mu\text{s}$ Waveform)			12.5	V
Maximum Peak Pulse Current	$I_{PP}$	8 x 20 $\mu\text{s}$ Waveform			8.0	A
Capacitance	$C_J$	$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$ (Line to GND)		80	130	pF

**SMF12CT1G ELECTRICAL CHARACTERISTICS** ( $T_J = 25^\circ\text{C}$  unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Working Voltage	$V_{RWM}$	(Note 2)			12	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{ mA}$ , (Note 3)	13.3		15	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 12\text{ V}$		0.01	0.1	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 3\text{ A}$ (8 x 20 $\mu\text{s}$ Waveform)			21	V
Clamping Voltage	$V_C$	$I_{PP} = 6\text{ A}$ (8 x 20 $\mu\text{s}$ Waveform)			23	V
Maximum Peak Pulse Current	$I_{PP}$	8 x 20 $\mu\text{s}$ Waveform			6.0	A
Capacitance	$C_J$	$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$ (Line to GND)		40	60	pF

**SMF15CT1G ELECTRICAL CHARACTERISTICS** ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Working Voltage	$V_{RWM}$	(Note 2)			15	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{ mA}$ , (Note 3)	17		19	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 15\text{ V}$		0.01	1.0	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 1\text{ A}$ (8 x 20 $\mu\text{s}$ Waveform)			23	V
Clamping Voltage	$V_C$	$I_{PP} = 5\text{ A}$ (8 x 20 $\mu\text{s}$ Waveform)			29	V
Maximum Peak Pulse Current	$I_{PP}$	8 x 20 $\mu\text{s}$ Waveform			5.0	A
Capacitance	$C_J$	$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$ (Line to GND)		33	45	pF

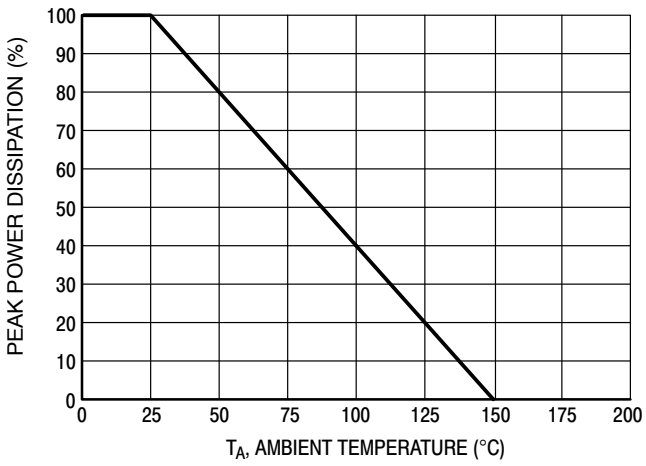
**SMF24CT1G ELECTRICAL CHARACTERISTICS** ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
Reverse Working Voltage	$V_{RWM}$	(Note 2)			24	V
Breakdown Voltage	$V_{BR}$	$I_T = 1\text{ mA}$ , (Note 3)	26.7		32	V
Reverse Leakage Current	$I_R$	$V_{RWM} = 24\text{ V}$		0.01	1.0	$\mu\text{A}$
Clamping Voltage	$V_C$	$I_{PP} = 1\text{ A}$ (8 x 20 $\mu\text{s}$ Waveform)			40	V
Clamping Voltage	$V_C$	$I_{PP} = 2.5\text{ A}$ (8 x 20 $\mu\text{s}$ Waveform)			44	V
Maximum Peak Pulse Current	$I_{PP}$	8 x 20 $\mu\text{s}$ Waveform			2.5	A
Capacitance	$C_J$	$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$ (Line to GND)		21	25	pF

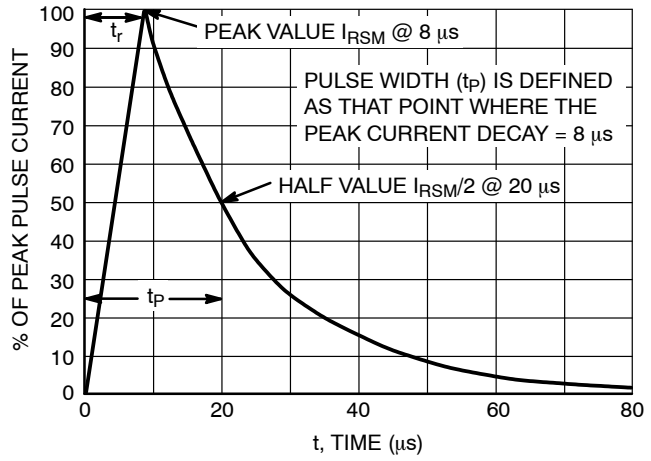
2. TVS devices are normally selected according to the working peak reverse voltage ( $V_{RWM}$ ), which should be equal or greater than the DC or continuous peak operating voltage level.
3.  $V_{BR}$  is measured at pulse test current  $I_T$ .

**TYPICAL PERFORMANCE CURVES**

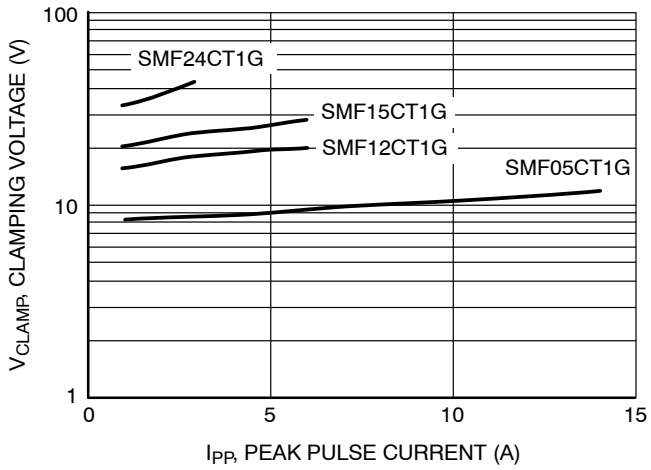
( $T_J = 25^\circ\text{C}$  unless otherwise specified)



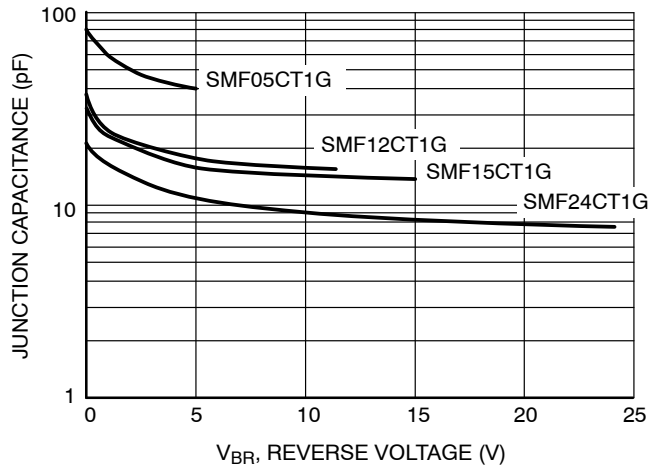
**Figure 1. Pulse Derating Curve**



**Figure 2. 8 × 20 μs Pulse Waveform**

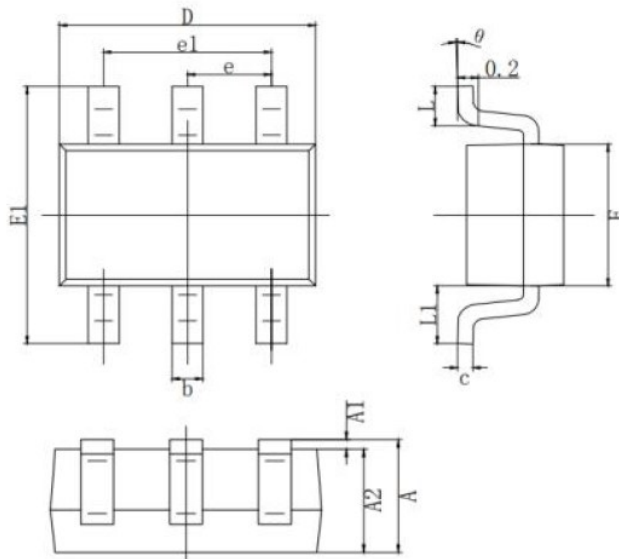


**Figure 3. Clamping Voltage vs Peak Pulse Current**



**Figure 4. Junction Capacitance vs Reverse Voltage**

**SOT-363 PACKAGE OUTLINE DIMENSIONS**



SYMBOL	MILLIMETER	
	MIN	MAX
A	0.900	1.100
A1	0.000	0.100
A2	0.900	1.000
b	0.150	0.350
c	0.080	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.450
e	0.650 TYP.	
e1	1.200	1.400
L	0.525 REF.	
L1	0.260	0.460
θ	0°	8°

**Ordering information**

Order code	Package	Baseqty	Deliverymode
UMW SMF05CT1G	SOT-363	3000	Tape and reel
UMW SMF12CT1G	SOT-363	3000	Tape and reel
UMW SMF15CT1G	SOT-363	3000	Tape and reel
UMW SMF24CT1G	SOT-363	3000	Tape and reel

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