

Absolute Maximum Ratings

Symbol	Parameter	Value	Units
P_{pk}	Peak Pulse Power ($t_p=8/20\mu s$)	720	W
T_{OP}	Operating Temperature	-40 to 125	°C
T_{STOR}	Storage Temperature	-55 to 150	°C

CAUTION: Stresses above those listed in "Absolute Maximum Ratings" may cause permanent damage to the component. This is a stress only rating and operation of the component at these or any other conditions above those indicated in the operational sections of this specification is not implied.

SP1103C Electrical Characteristics ($T_{OP}=25^{\circ}C$)

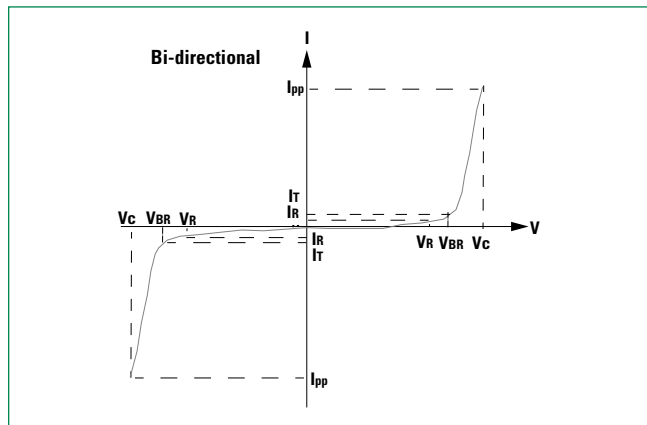
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Reverse Standoff Voltage	V_{RWM}	$I_R \leq 1\mu A$	-	-	3.3	V
Breakdown Voltage	V_{BR}	$I_R=1mA$	3.4	3.8	5.0	V
Leakage Current	I_{LEAK}	$V_R=3.3V$	-	-	1.0	μA
Clamp Voltage ¹	V_C	$I_{PP}=40A, t_p=8/20\mu s, Fwd$	-	6	-	V
		$I_{PP}=80A, t_p=8/20\mu s, Fwd$	-	9	-	V
Dynamic Resistance ²	R_{DYN}	TLP, $t_p=100ns, I/O$ to GND	-	0.01	-	Ω
Peak Pulse Current	I_{PP}	$t_p=8/20\mu s$	-	-	80	A
ESD Withstand Voltage ¹	V_{ESD}	IEC 61000-4-2 (Contact Discharge)	± 30	-	-	kV
		IEC 61000-4-2 (Air Discharge)	± 30	-	-	kV
Diode Capacitance ¹	C_D	Reverse Bias=0V, $f=1MHz$	-	130	-	pF

Note:

1. Parameter is guaranteed by design and/or component characterization.

2. Transmission Line Pulse (TLP) with 100ns width, 2ns rise time, and average window $t_1=70ns$ to $t_2=90ns$

I-V Curve Characteristics



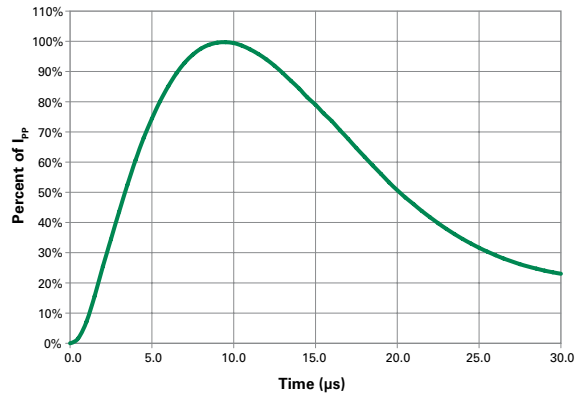
V_R Stand-off Voltage – Maximum voltage that can be applied to the TVS without operation

V_{BR} Breakdown Voltage – Maximum voltage that flows through the TVS at a specified test current (I_R)

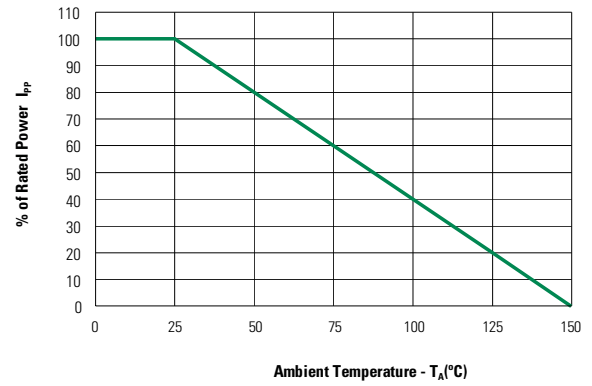
V_C Clamping Voltage – Peak voltage measured across the TVS at a specified I_{PP} (peak impulse current)

I_R Reverse Leakage Current – Current measured at V_R

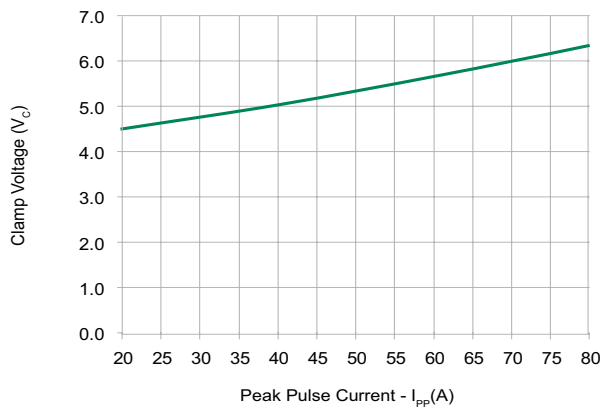
8/20μs Pulse Waveform



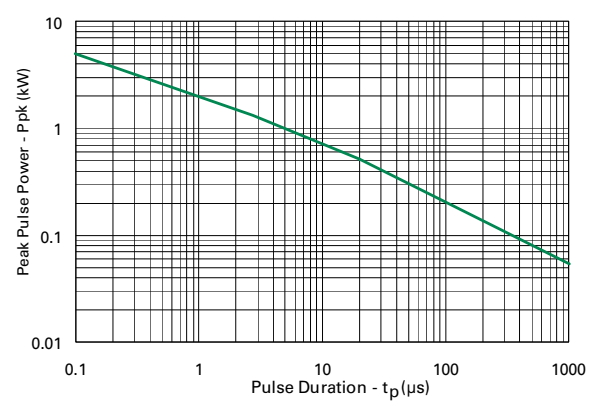
Power Derating Curve



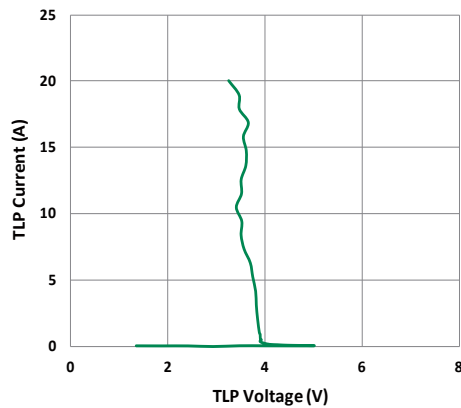
Clamping Voltage vs I_{pp}



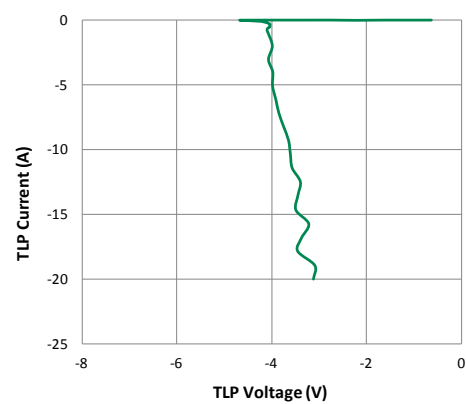
Non-Repetitive Peak Pulse Power vs. Pulse Time



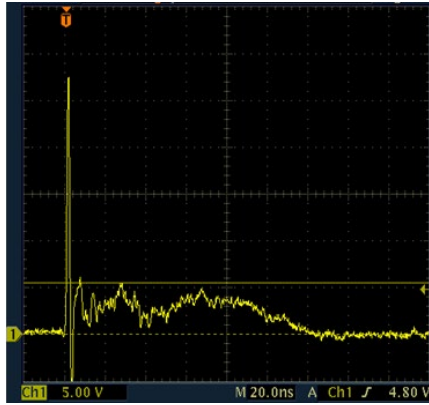
Positive Transmission Line Pulsing (TLP) Plot



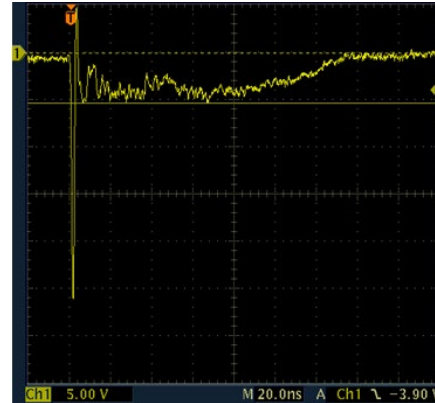
Negative Transmission Line Pulsing (TLP) Plot



IEC 61000-4-2 +8 kV Contact ESD Clamping Voltage

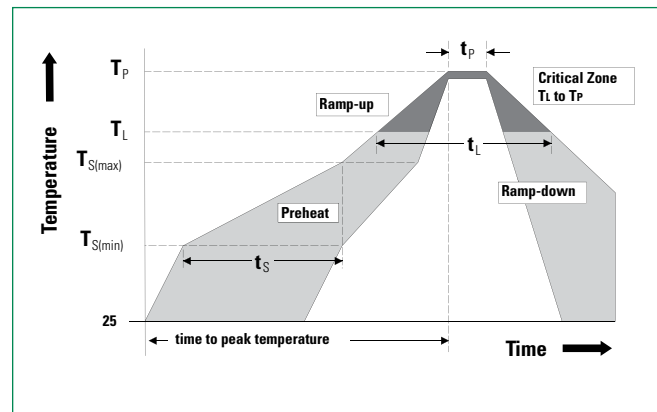


IEC 61000-4-2 -8 kV Contact ESD Clamping Voltage

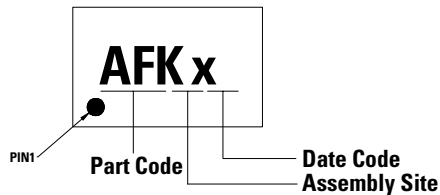


Soldering Parameters

Reflow Condition		Pb – Free assembly
Pre Heat	- Temperature Min ($T_{s(min)}$)	150°C
	- Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus) Temp (T_L) to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquidus)	217°C
	- Temperature (t_L)	60 – 150 seconds
Peak Temperature (T_p)		260 ^{+0/-5} °C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes Max.
Do not exceed		260°C



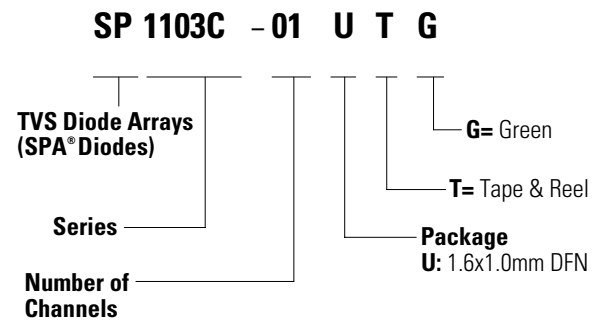
Part Marking System



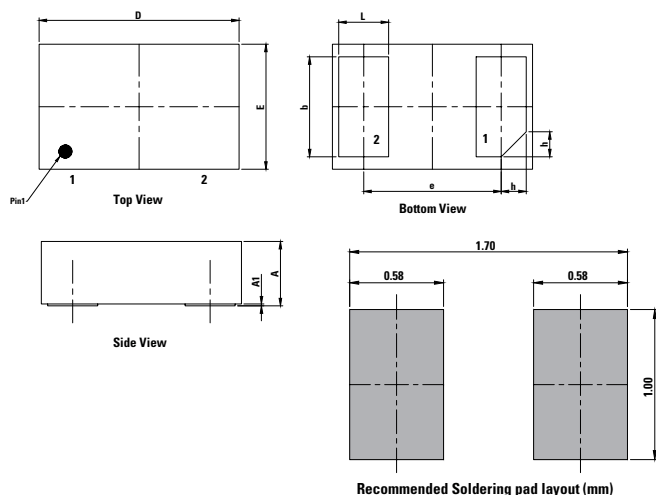
Ordering Information

Part Number	Package	Marking	Min. Order Qty.
SP1103C-01UTG	1.6x1.0mm DFN	AFKx	3000

Part Numbering System

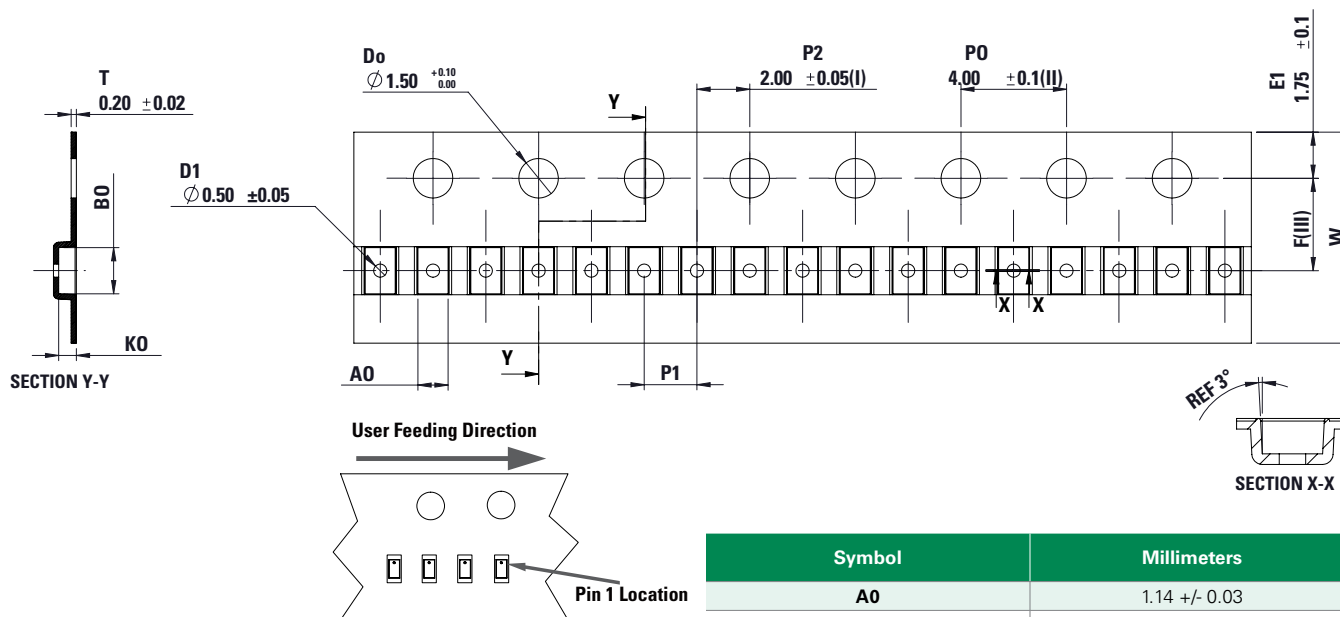


Package Dimensions



Symbol	1.6x1.0mm DFN		
	Millimeters		
	Min	Nor	Max
A	0.45	0.50	0.55
A1	-	0.02	0.05
D	1.55	1.60	1.65
E	0.95	1.00	1.05
b	0.75	0.80	0.85
L	0.35	0.40	0.45
e	1.10 BSC		
h	0.15	0.20	0.25

Embossed Carrier Tape & Reel Specification



Symbol	Millimeters
A0	1.14 +/- 0.03
B0	1.75 +/- 0.03
K0	0.67 +/- 0.05
F	3.50 +/- 0.05
P1	2.00 +/- 0.10
W	8.00 +/- 0.10