

Description

The SEP4511P6 is a 1 line 4.5V uni-directional TVS diode, utilizing leading monolithic silicon technology to provide fast response time and low ESD clamping voltage, making this device an ideal solution for protecting voltage sensitive data and power line. The small size and high ESD surge protection make SEP4511P6 an ideal choice to protect mobile phone, digital cameras, battery Protection and many other portable applications.

Features

- Junction capacitance(Cj value<750pF)
- Working voltage: 4.5V
- Low clamping voltage
- 2-pins leadless package
- RoHS Compliant

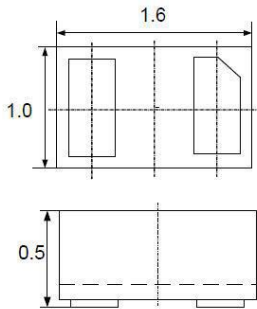
Mechanical Characteristics

- Package: DFN1610-2L (1.6x1.0x0.5mm)
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 3 per J-STD-020

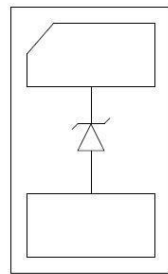
Applications

- Mobile Phones, Digital cameras
- Battery Protection
- Power Line Protection
- Vbat pin for Mobile Devices
- Hand Held Portable Applications

Dimensions & Symbol (Unit: mm Max)

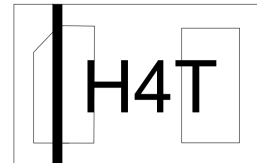


Dimensions



Pin and Circuit Schematic

Marking & Ordering information



* Remark : H4T is normal marking, if need special marking please contact with local Salltech sales.

Part Number	Packaging	Reel Size
SEP4511P6	3000/Tape & Reel	7 inch

Part Number Information



Notice1: X is Customer special code, if there any questions, please contact with local sales

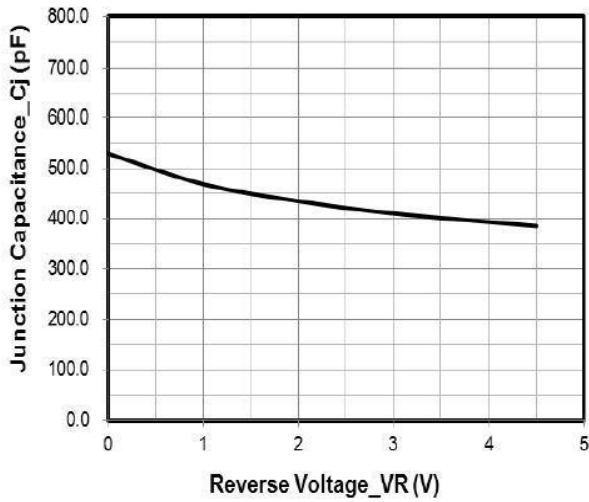
Absolute maximum ratings ($T_A=25^{\circ}\text{C}$, RH=45%-55%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak Pulse Power ($t_p=8/20\mu\text{s}$ waveform)	P_{pp}	2500	W
Peak Pulse Current (8/20 μs)	I_{pp}	135	A
ESD per IEC 61000-4-2 (Air)	V_{ESD}	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	T_J	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	-55 to +150	$^{\circ}\text{C}$

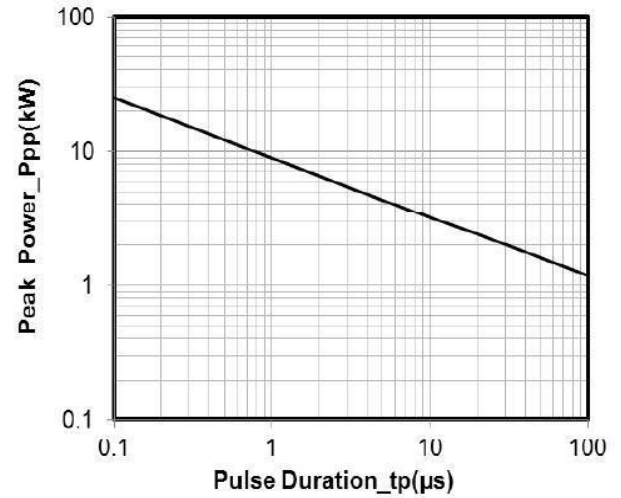
Electrical characteristics ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			4.5	V	
Breakdown Voltage	V_{BR}	4.8			V	$I_T = 1\text{mA}$
Reverse Leakage Current	I_R			0.2	μA	$V_{RWM} = 4.5\text{ V}$
Clamping Voltage	V_C			7	V	$I_{PP} = 10\text{A}$ (8 x 20 μs pulse)
Clamping Voltage	V_C			18	V	$I_{PP} = 120\text{A}$ (8 x 20 μs pulse)
Junction Capacitance	C_J			750	pF	$V_R = 0\text{V}$, $f = 1\text{MHz}$

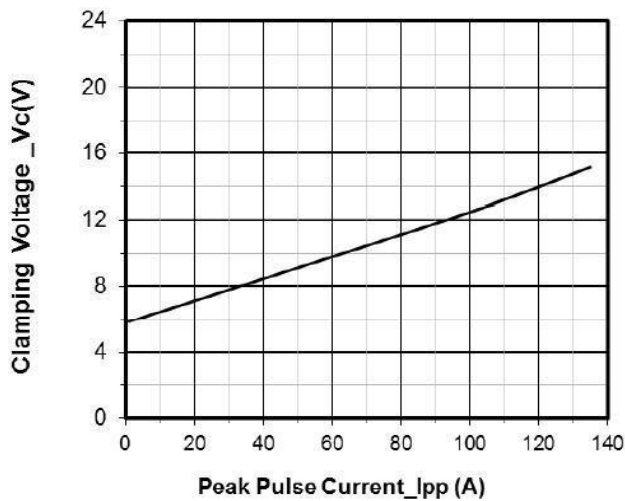
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



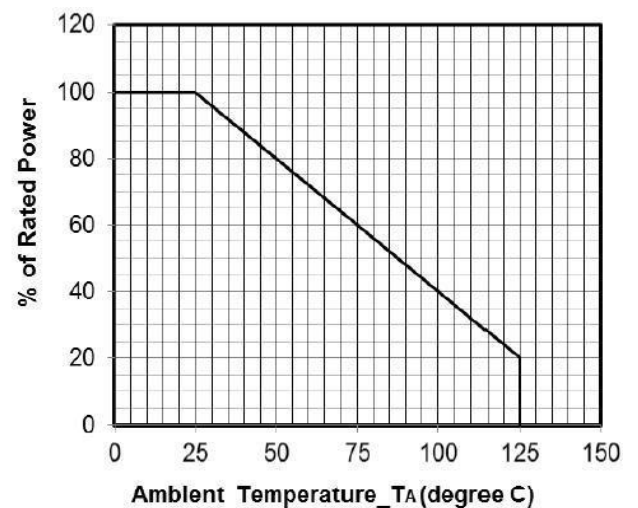
Junction Capacitance vs. Reverse Voltage



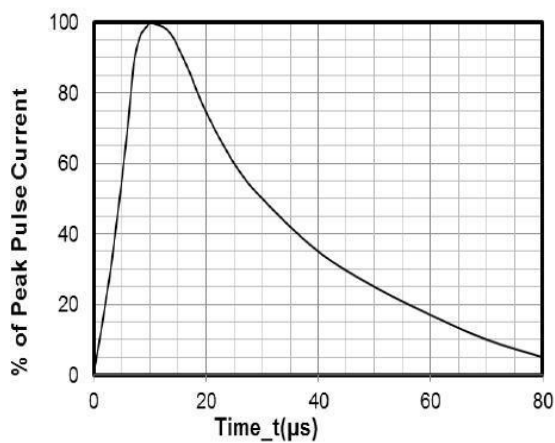
Peak Pulse Power vs. Pulse Time



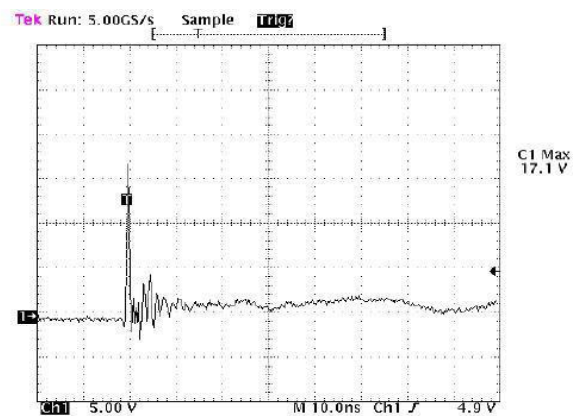
Clamping Voltage vs. Peak Pulse Current



Power Derating Curve



8 X 20 μs Pulse Waveform



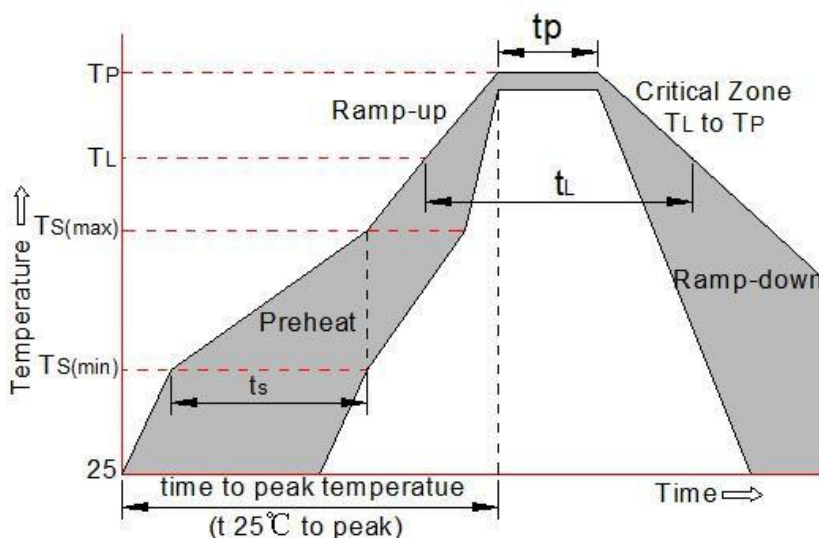
Note: Data is taken with a 10x attenuator

ESD Clamping Voltage

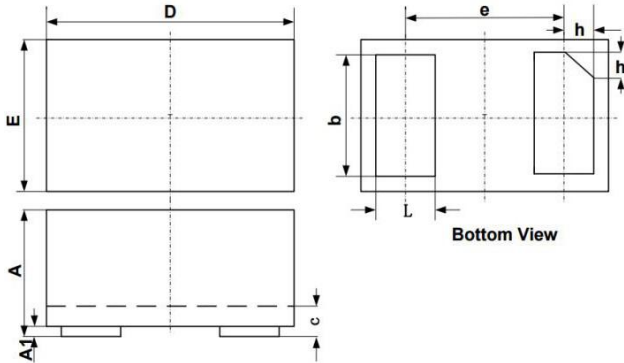
+8 kV Contact per IEC61000-4-2

Soldering Parameter

Reflow Condition		Pb-Free assembly (see as bellow)
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 (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L) (Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C

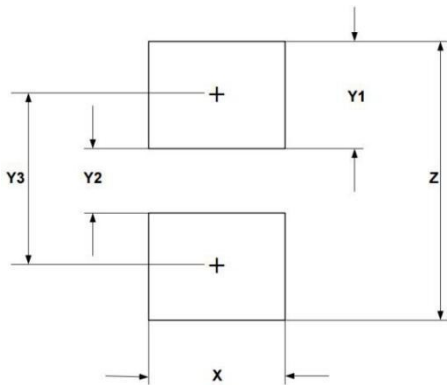


Package Mechanical Data



SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.45	0.50	0.55	0.018	0.020	0.022
A1	0.00	0.02	0.05	0.000	0.001	0.002
b	0.75	0.80	0.85	0.030	0.032	0.034
c	0.10	0.15	0.20	0.004	0.006	0.007
D	1.55	1.60	1.65	0.062	0.064	0.066
e	1.10 BSC			0.044 BSC		
E	0.95	1.00	1.05	0.038	0.040	0.042
L	0.35	0.40	0.45	0.014	0.016	0.018
h	0.15	0.20	0.25	0.006	0.008	0.010

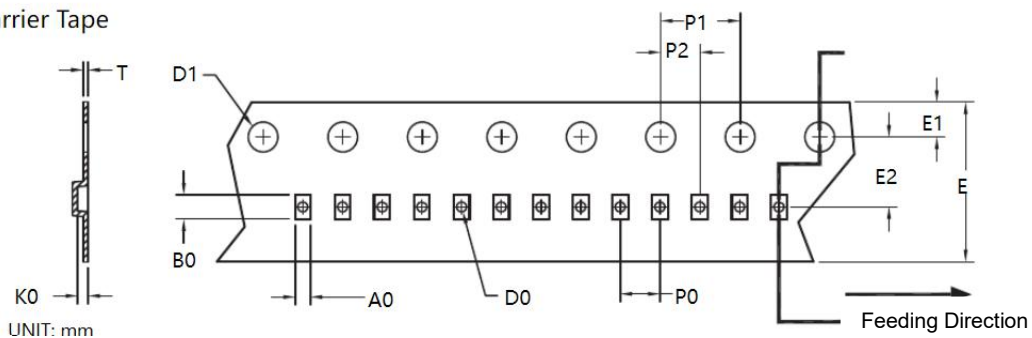
Suggested Land pattern of PCB design



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
X	1.00	0.040
Y1	0.62	0.025
Y2	0.60	0.024
Y3	1.22	0.049
Z	1.85	0.074

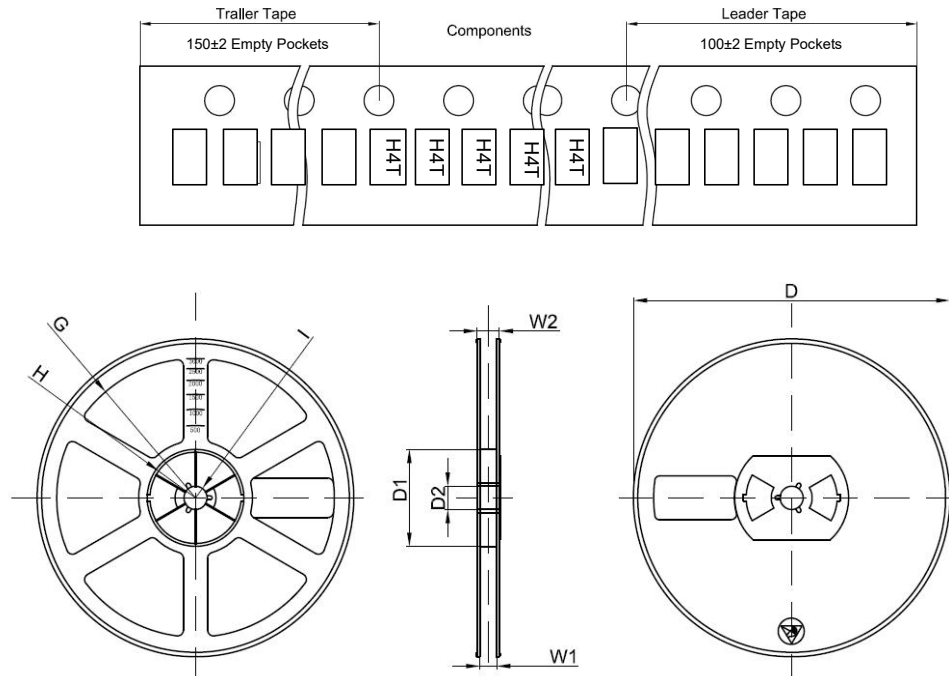
Tape and Reel Information

Carrier Tape



Dimensions are in millimeter														
Package type	A0	B0	D0	P0	P1	P2	P	E	E1	E2	D1	K0	T	Q'ty
DFN1006-2/3L	1.2	1.75	0.5	2.0	4.0	2.0	4.0	8.0	1.75	3.50	1.55	0.60	0.25	10000

DFN1610 Traller, Leader and Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dla	178	54.40	13.00	78	25.60	6.50	14.40	12.30

Contact Information

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Revision History

Release Date	Revision	Comments
2017-8-17	A	New Release
2021-11-13	B	Add Body Mark, Tape and Reel information