

## Features

- \* 2500W peak pulse power (8/20 $\mu$ s)
- \* Protects one data or power line
- \* Operating voltage: 4.5V
- \* Ultra low clamping voltage
- \* Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30$ kV
    - Contact discharge:  $\pm 30$ kV
  - IEC61000-4-5 (SURGE) 160A (8/20 $\mu$ s)

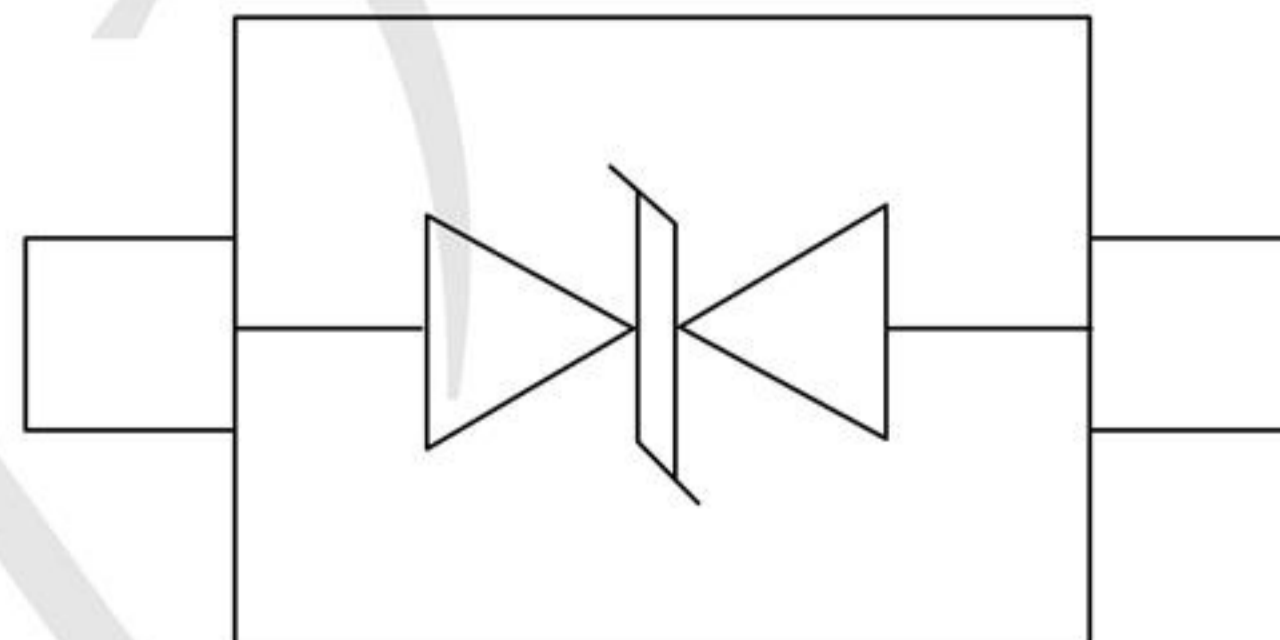
## Mechanical Characteristics

- \* Package: SOD-323
- \* Ultra low leakage: nA level
- \* Case Material: "Green" Molding Compound.
- \* UL Flammability Classification Rating 94V-0
- \* Moisture Sensitivity: Level 3 per J-STD-020

## Applications

- \* Mobile Phones and Accessories
- \* Battery Protection
- \* USB VBus
- \* Power Line Protection
- \* Hand Held Portable Applications

## Dimensions and Pin Configuration



SOD-323

Marking: 48D Or S21x  
x=date code





**Absolute Maximum Ratings** (Tamb=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20µs)	Ppk	2500	W
Peak Pulse Current (8/20µs)	IPP	160	A
ESD per IEC 61000-4-2 (Air)	VESD	± 30	kV
ESD per IEC 61000-4-2 (Contact)		± 30	
Operating Temperature Range	TJ	-55 to +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

**Electrical Characteristics** (TA=25°C unless otherwise specified)

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			4.5	V	
Breakdown Voltage	V <sub>BR</sub>	4.7			V	I <sub>T</sub> =1mA
Leakage Current	I <sub>Leak</sub>			0.8	uA	V <sub>RWM</sub> =4.5V
Clamping Voltage	V <sub>C</sub>		11		V	I <sub>PP</sub> =100A, T <sub>p</sub> =8/20µs
Clamping Voltage	V			15	V	I =160A, T <sub>p</sub> =8/20µs
Junction Capacitance	C <sub>J</sub>		320		pF	V <sub>R</sub> =0V, f=1MHz





TECH PUBLIC

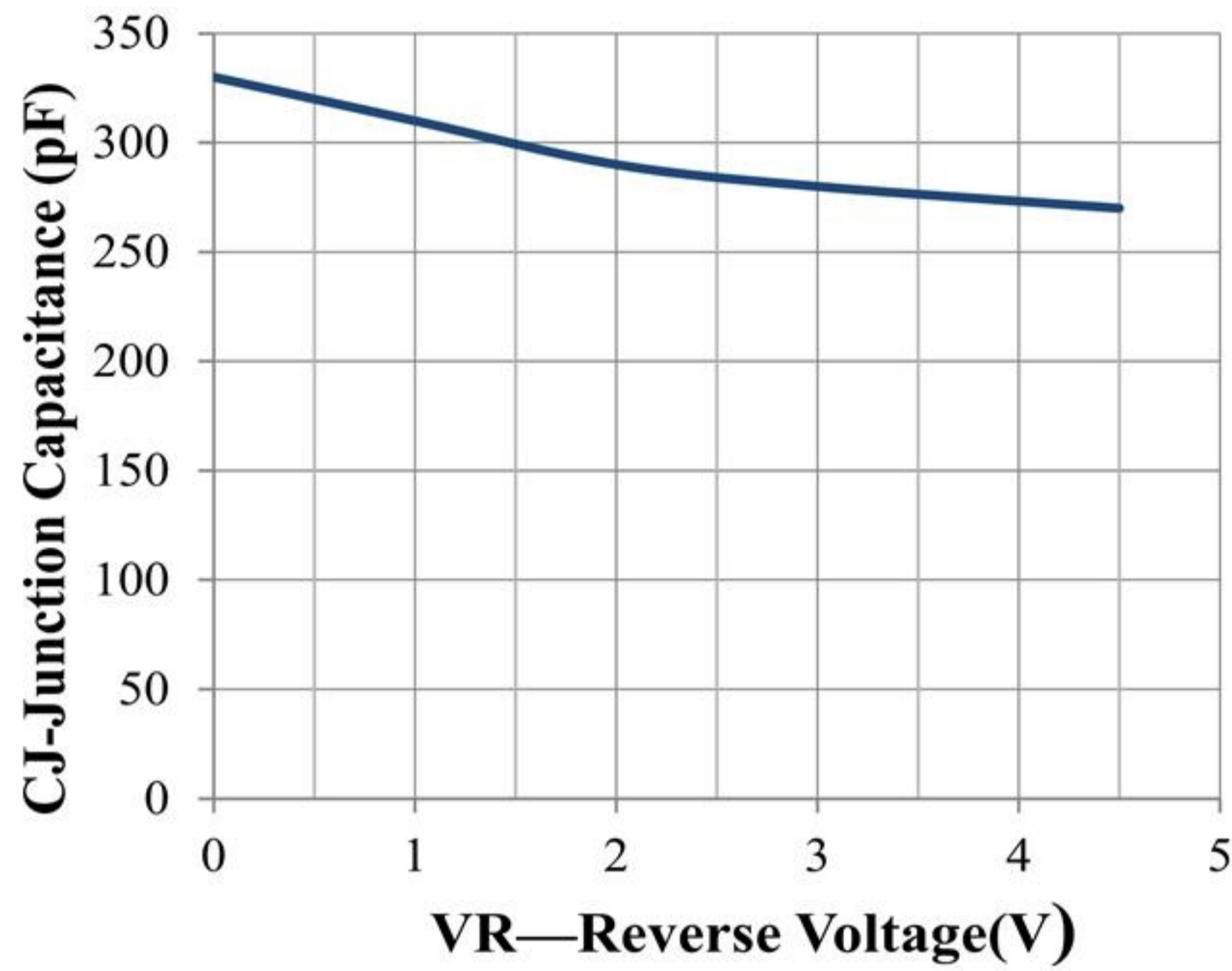
—台丹电子—

TPE4581MC

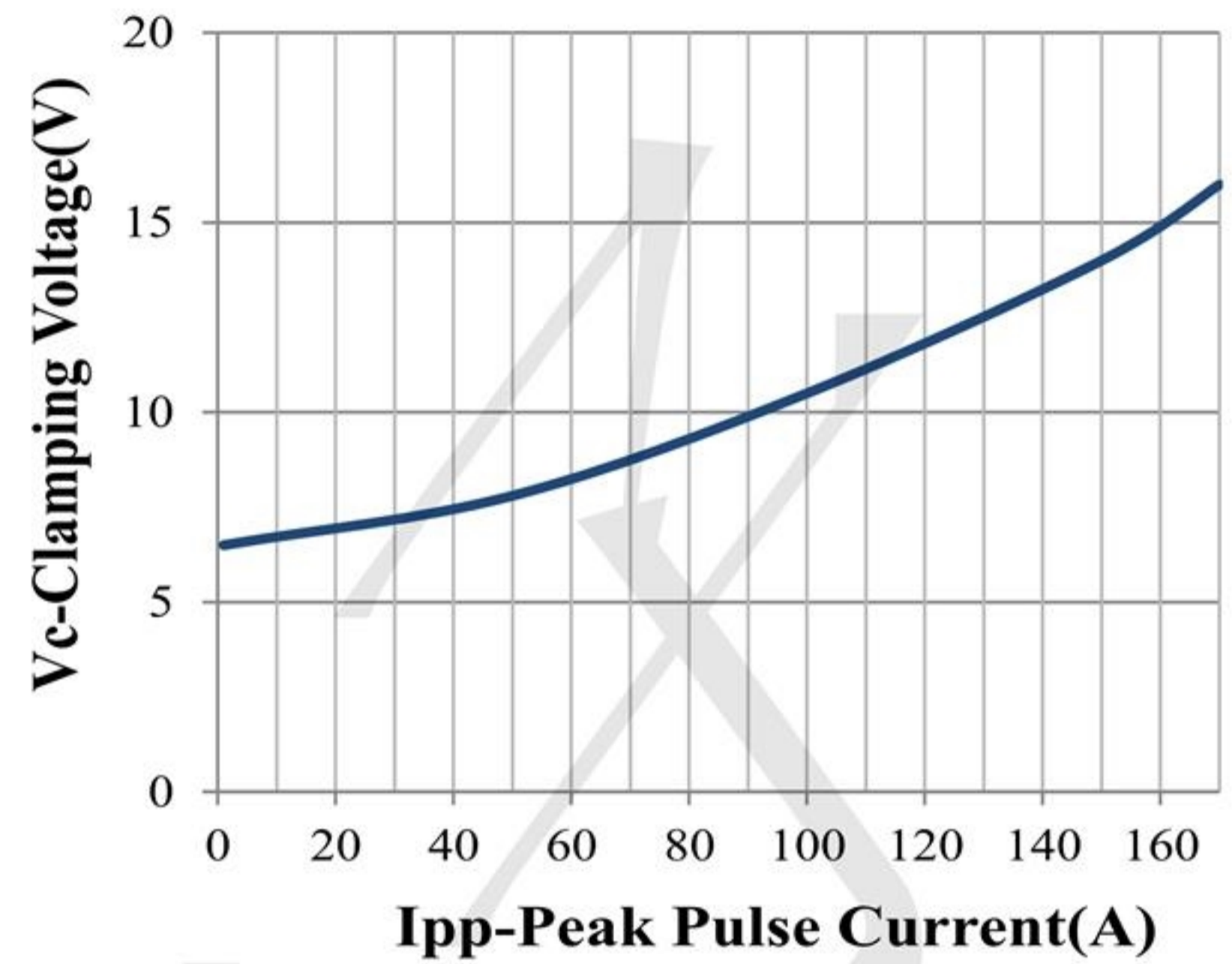
1-Line Bi-directional Diode

[www.sot23.com.tw](http://www.sot23.com.tw)

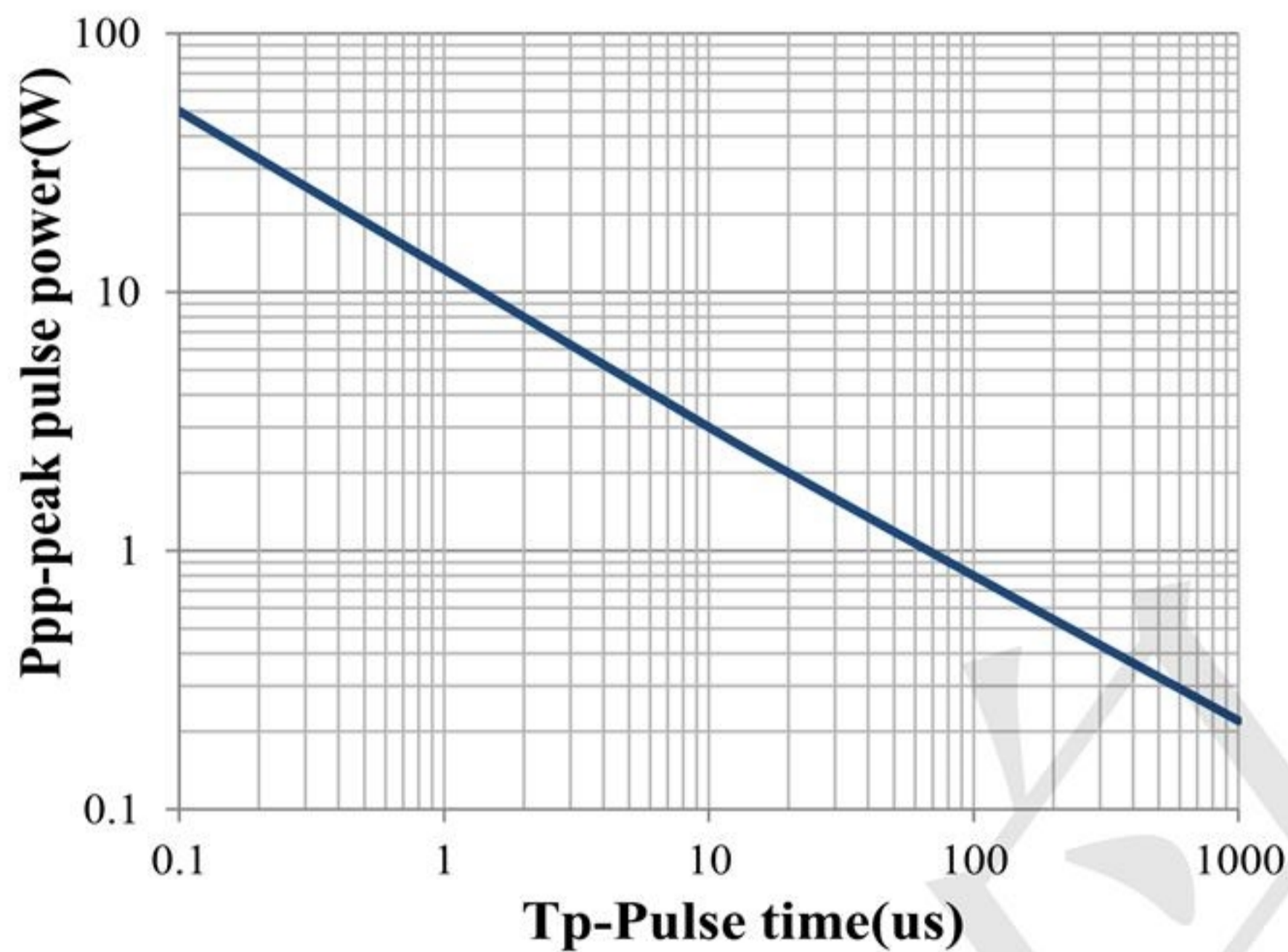
### Characteristic Curves



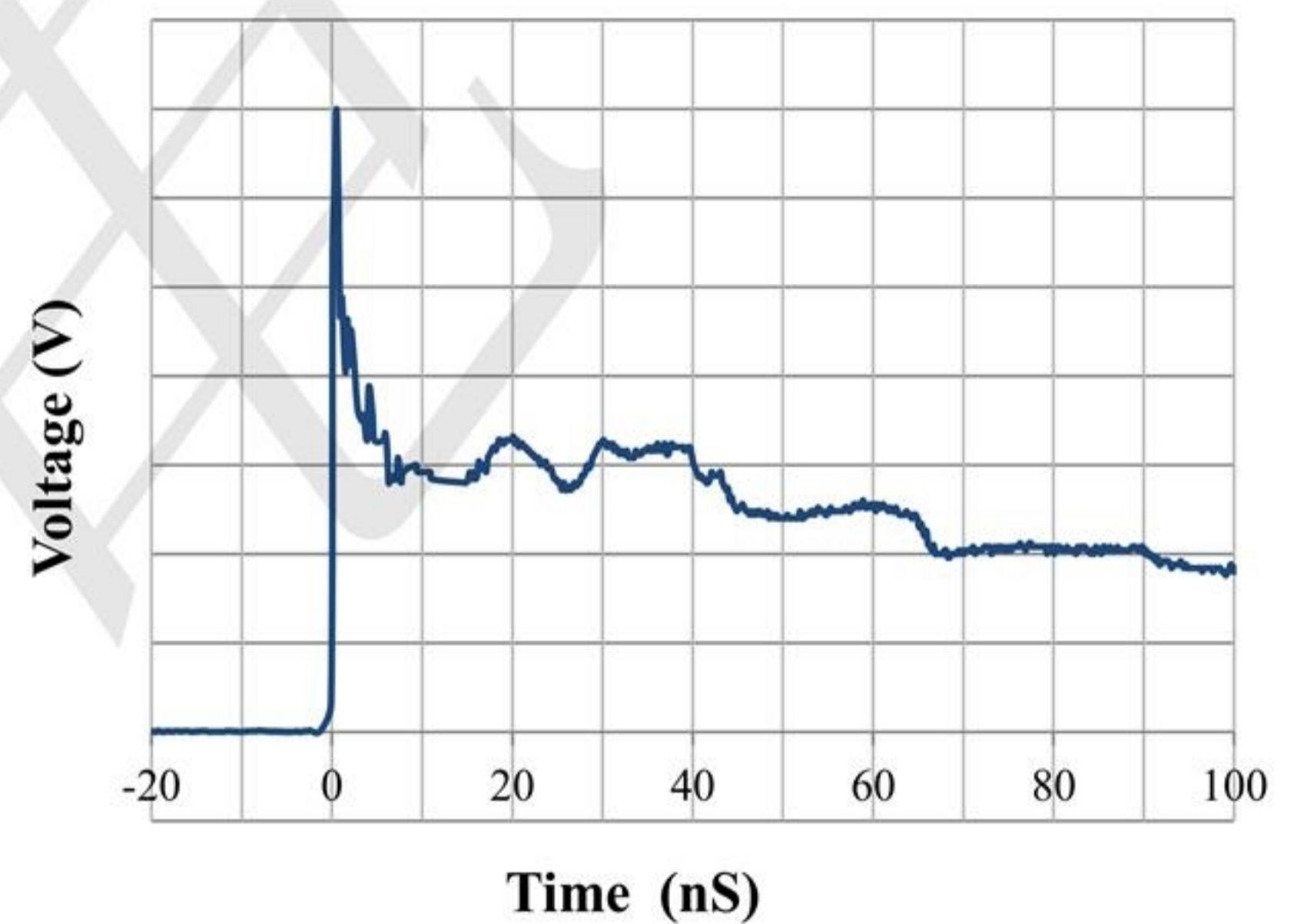
Junction Capacitance vs. Reverse Voltage



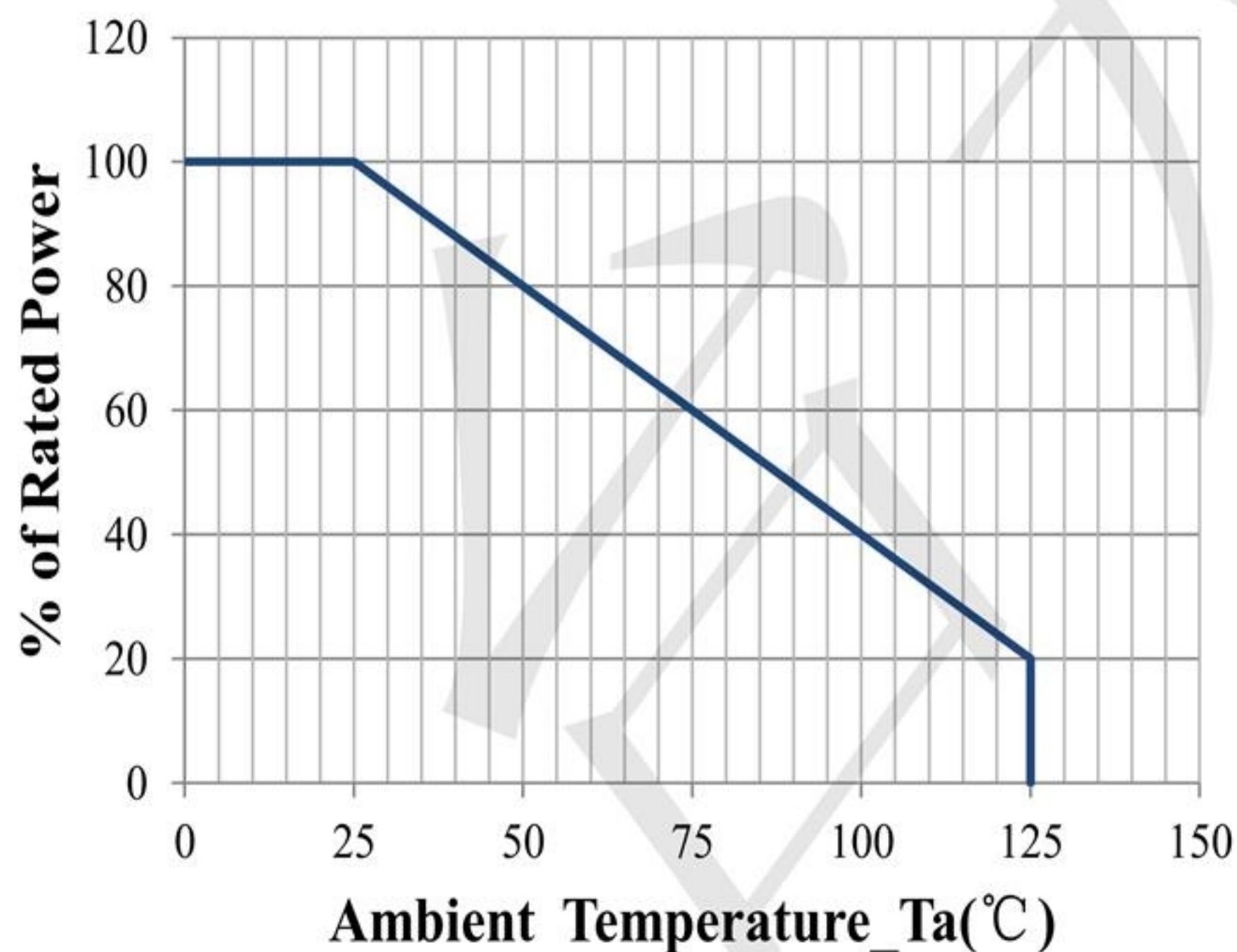
Clamping Voltage vs. Peak Pulse Current



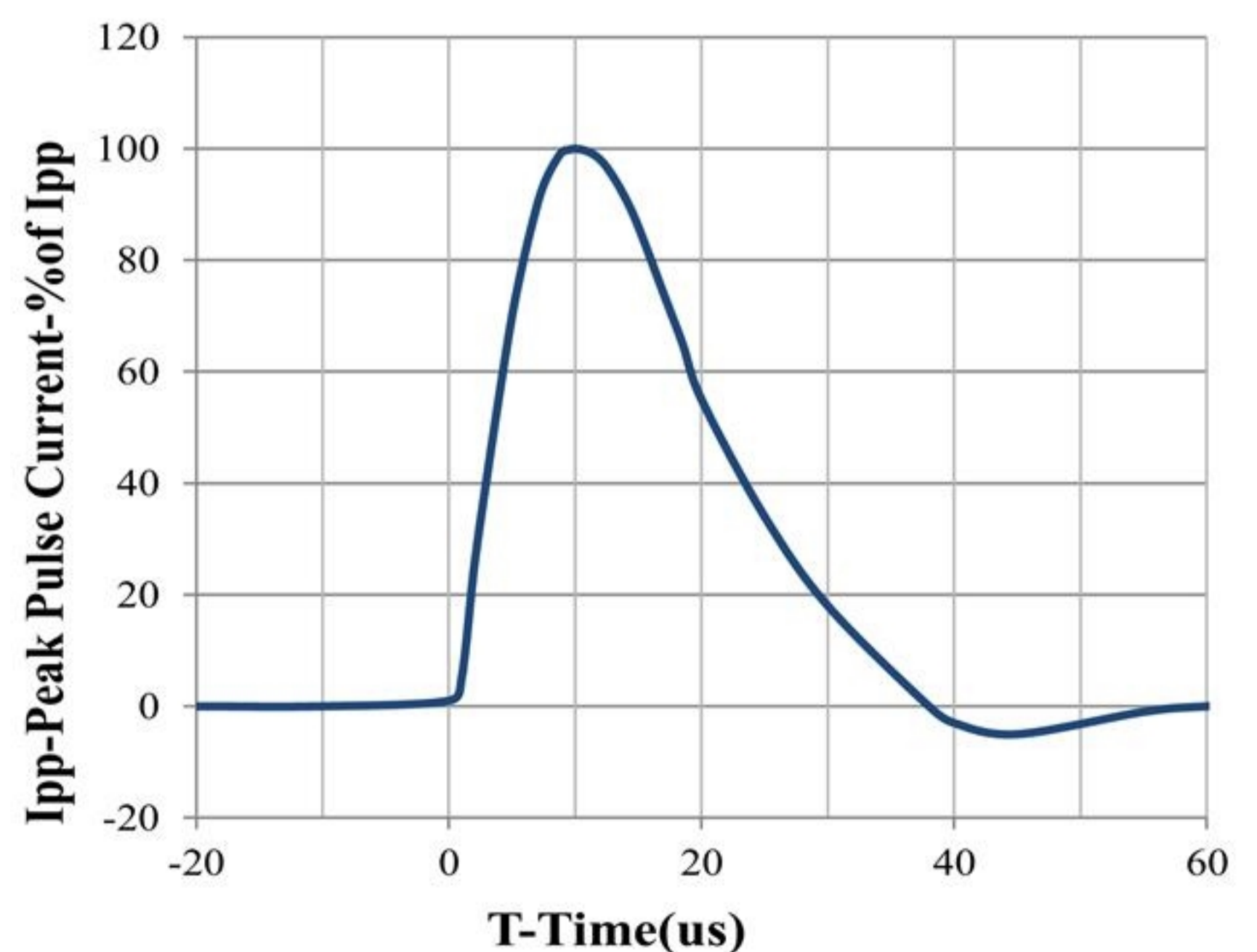
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform



Power Derating Curve

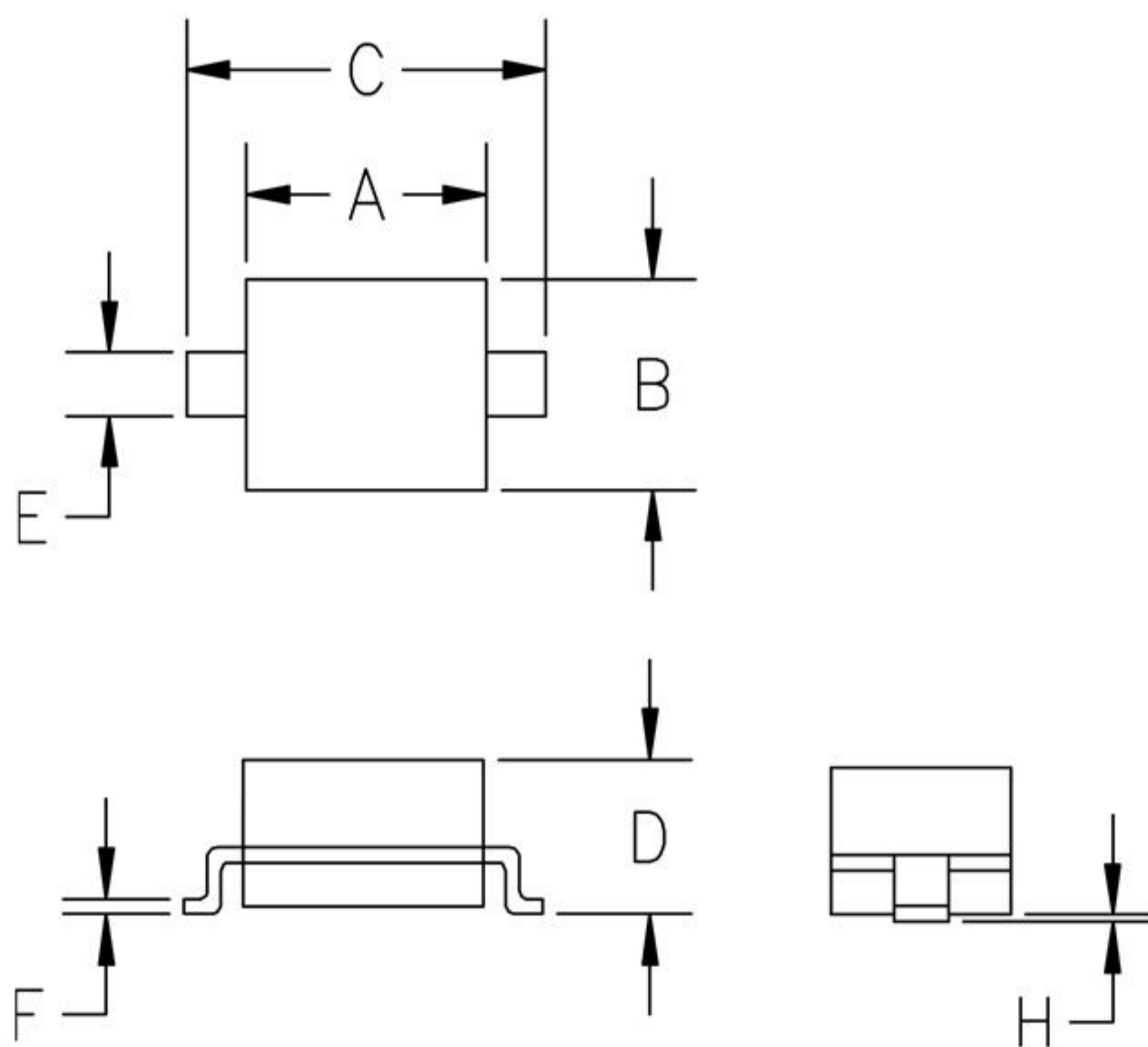


8 X 20us Pulse Waveform



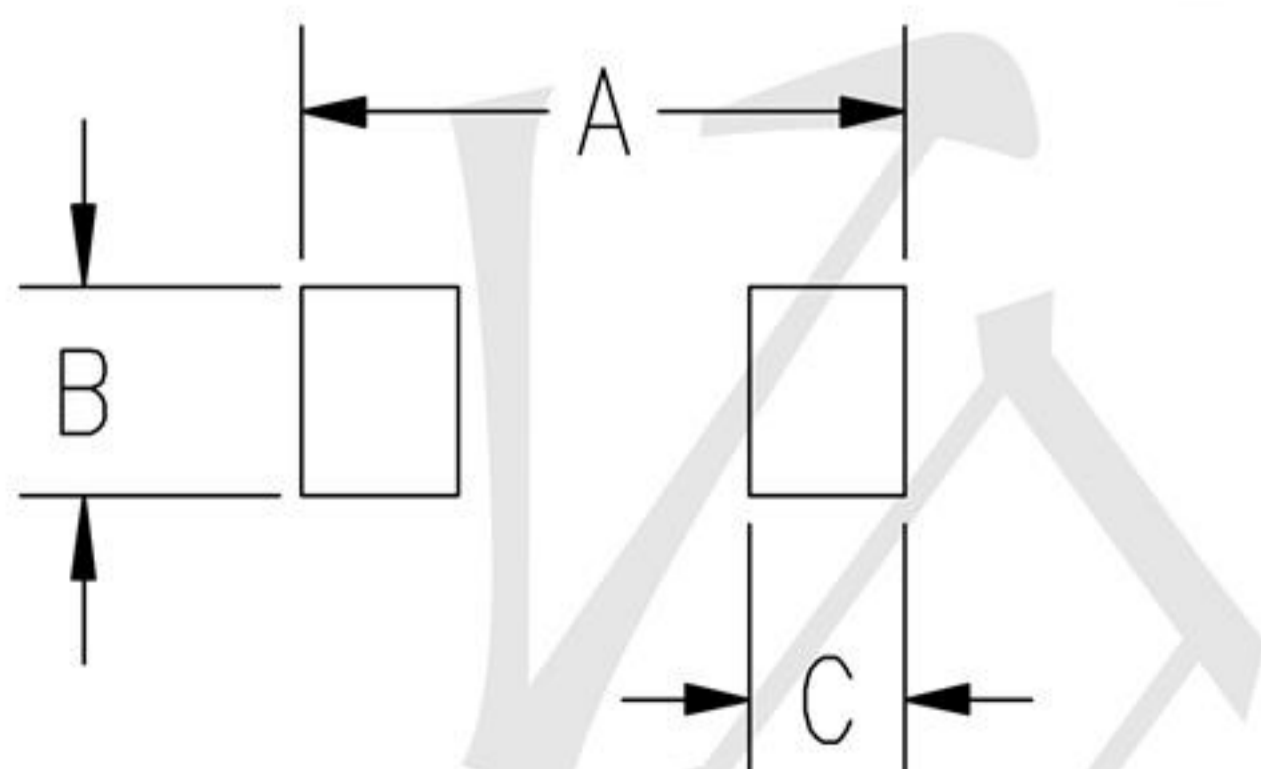


### Outline Drawing - SOD323



DIMENSIONS				
SYM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	1.50	1.80	0.060	0.071
B	1.20	1.40	0.045	0.054
C	2.30	2.70	0.090	0.107
D	-	1.10	-	0.043
E	0.30	0.40	0.012	0.016
F	0.10	0.25	0.004	0.010
H	-	0.10	-	0.004

### Land Pattern - SOD323



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
A	3.15	0.120
B	0.80	0.031
C	0.80	0.031