

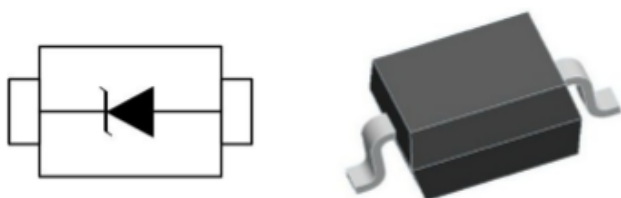
## Description

The WPE0731D3 is an Uni-directional high power 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 SEN0711D3 complies with the IEC 61000-4-2 (ESD) with  $\pm 30\text{kV}$  air and  $\pm 30\text{kV}$  contact discharge. It is assembled into an ultra-small lead-free SOD-323 package. The small size and high ESD surge protection make WPE0731D3 an ideal choice to protect cell phone, digital cameras, audio players and many other portable applications.

## Features

- 600W peak pulse power (8/20us)
- Protects one data or power line
- Ultra low leakage: nA level
- Stand-off Voltage: 7 V
- Ultra low clamping voltage
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
  - Air discharge:  $\pm 30\text{kV}$
  - Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-4 (EFT) 40A (5/50ns)
- RoHS Compliant

## Dimensions & Symbol (Unit: mm Max)



## Mechanical Characteristics

- Package: SOD-323
- Lead Finish: Matte Tin
- Case Material: "Green" Molding Compound.
- Moisture Sensitivity: Level 3 per J-STD-020
- Terminal Connections: See Diagram Below
- Marking Information: See Below

## Applications

- Battery Protection
- Power Supply Protection
- Wireless Systems
- Peripherals

## Marking information



Bar denotes cathode

Details marking code reference customer approval list

## Ordering Information

Part Number	Packaging	Reel Size
WPE0731D3	3000/Tape & Reel	7 inch

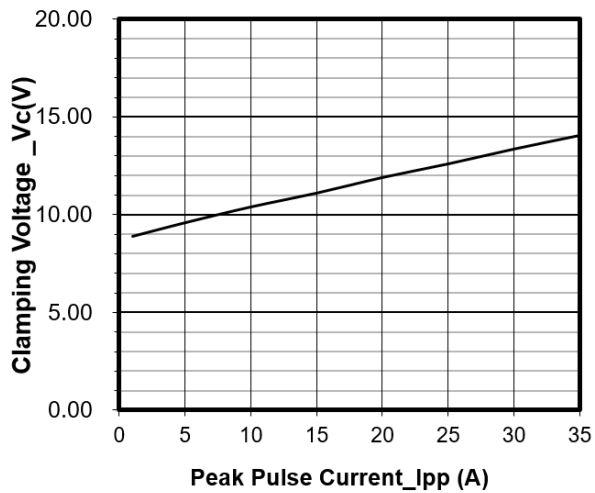
**Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

WPE0731D3			
Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	500	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	Ipp	35	A
ESD per IEC 61000-4-2 (Air)	VESD	$\pm 30$	kV
ESD per IEC 61000-4-2 (Contact)		$\pm 30$	
Operating Temperature Range	TJ	-55 to +150	$^{\circ}\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^{\circ}\text{C}$

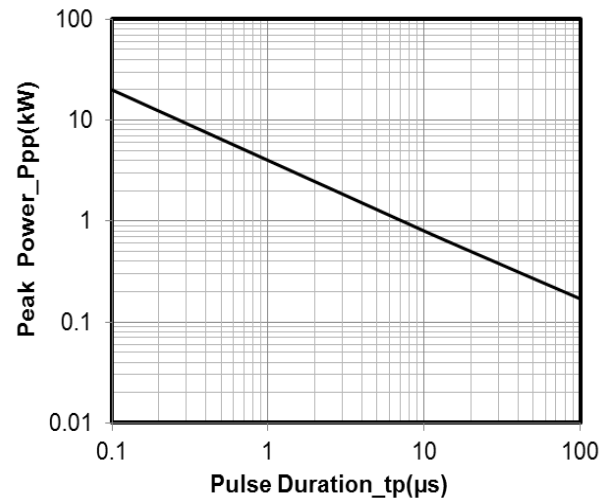
**Electrical Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

WPE0731D3						
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	VRWM			7	V	
Breakdown Voltage	VBR	8.2			V	$I_T = 1\text{mA}$
Reverse Leakage Current	IR			0.5	$\mu\text{A}$	$V_{RWM} = 3.3\text{V}$
Clamping Voltage	VC			10	V	$I_{PP} = 1\text{A}$ (8 x 20 $\mu\text{s}$ pulse)
Clamping Voltage	VC			14.5	V	$I_{PP} = 35\text{A}$ (8 x 20 $\mu\text{s}$ pulse)
Junction Capacitance	CJ		160		pF	$V_R = 0\text{V}$ , $f = 1\text{MHz}$

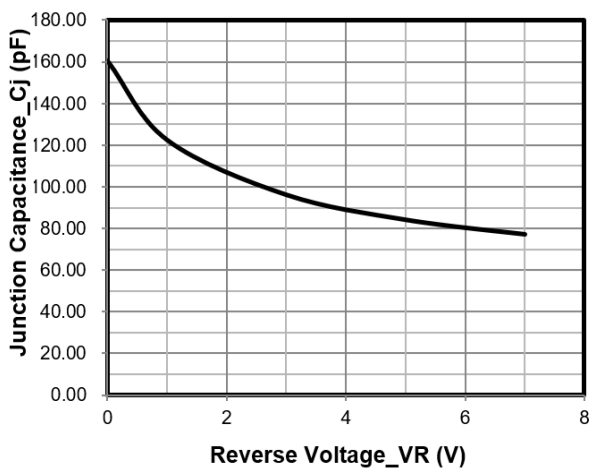
**Typical Performance Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise Specified)**



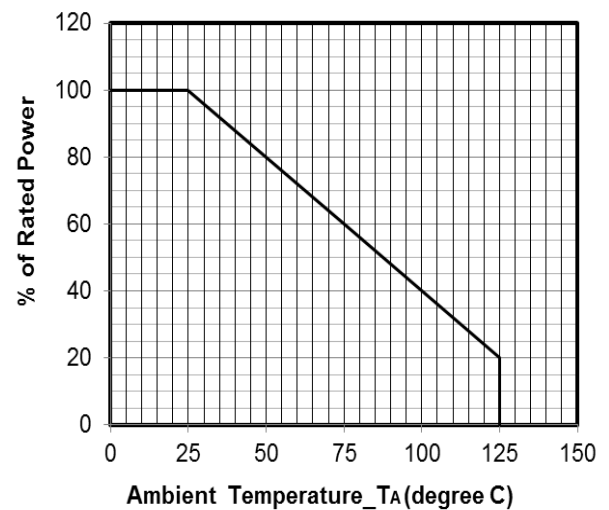
**Junction Capacitance vs. Reverse Voltage**



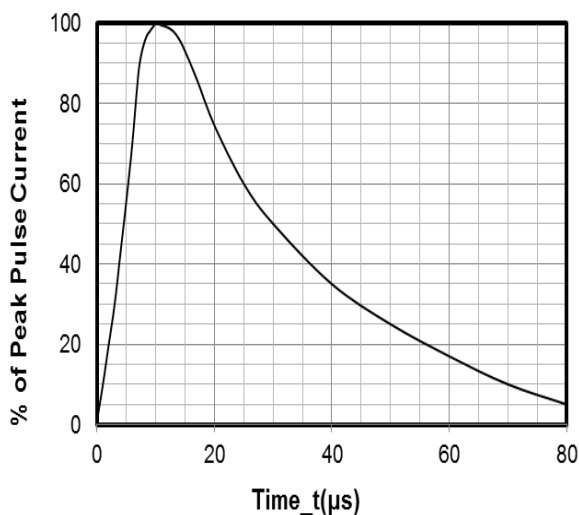
**Peak Pulse Power vs. Pulse Time**



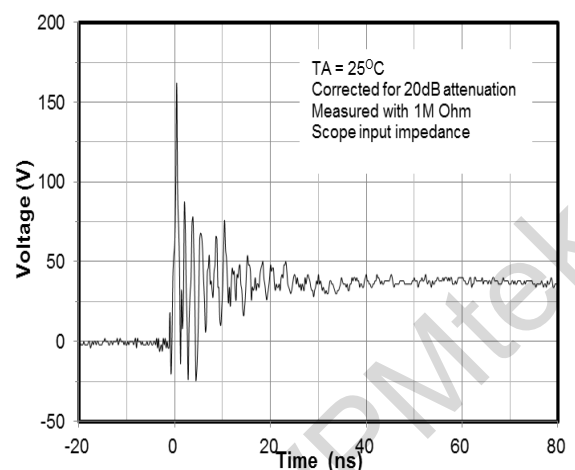
**Clamping Voltage vs. Peak Pulse Current**



**Power Derating Curve**



**8 X 20μs Pulse Waveform**

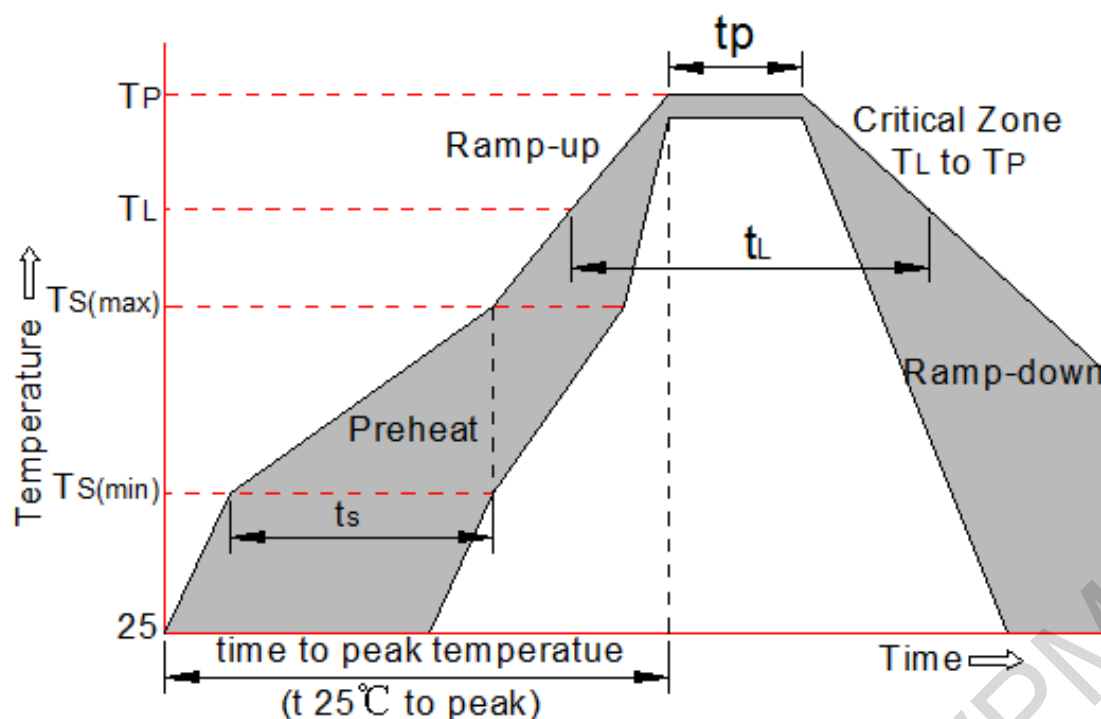


**ESD Clamping Voltage**

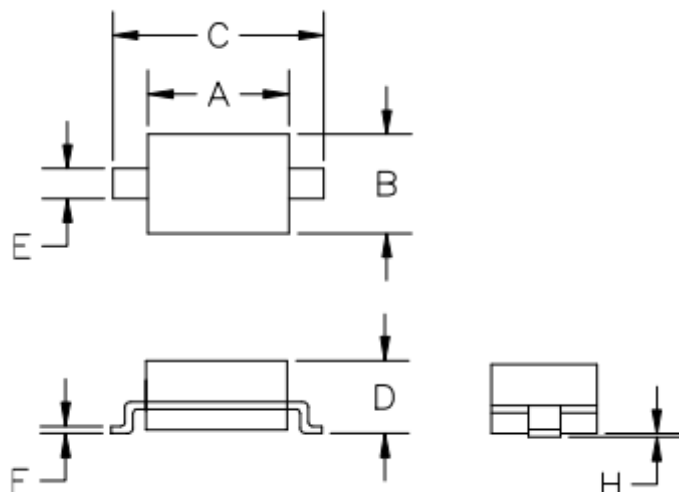
**8 kV Contact per IEC61000-4-2**

## Soldering Parameters

Reflow Condition		Pb-Free assembly (see below)
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

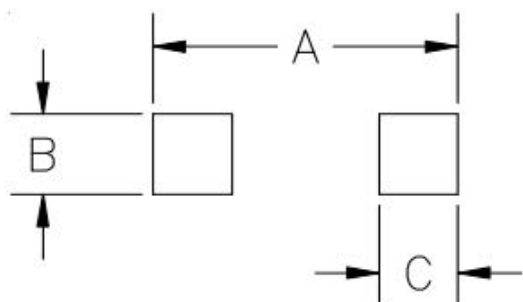


## Package Mechanical Data (SOD-323)



SYM	DIMENSIONS			
	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

## Suggested Land Pattern



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

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