

## Description

The AU1581P4-3 is a high power TVS, 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 lines. The AU1581P4-3 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 a 3-pin DFN2020-3 lead-free package. The leads are finished with NiPdAu. Each device will protect one line. The combination of small size, and high surge capability makes them ideal for use in applications such as cellular phones, LCD displays, USB, and multi media card interfaces.

## Features

- Low leakage: nA level
- Operating voltage: 15V
- Ultra low clamping voltage
- One power line protects
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30\text{kV}$
    - Contact discharge:  $\pm 30\text{kV}$
  - IEC61000-4-5 (Lightning) 300A (8/20 $\mu\text{s}$ )
- RoHS Compliant

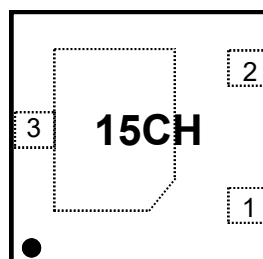
## Mechanical Characteristics

- Package: DFN2020-3
- Case Material: "Green" Molding Compound
- Terminal Connections: See Diagram Below
- Marking Information: See Below

## Applications

- Power Management
- Industrial Application
- Power Supply Protection
- Notebooks, desktops, and servers

## Marking Information



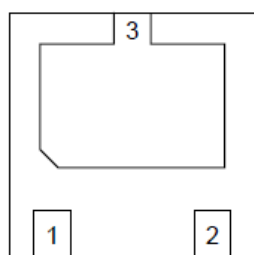
15CH:Deavice Marking Code

## Dimensions and Pin Configuration

## Ordering Information



Circuit Diagram



Transparent top view

Pin Schematic

Part Number	Packaging	Reel Size
AU1581P4-3	3000/Tape & Reel	7 inch

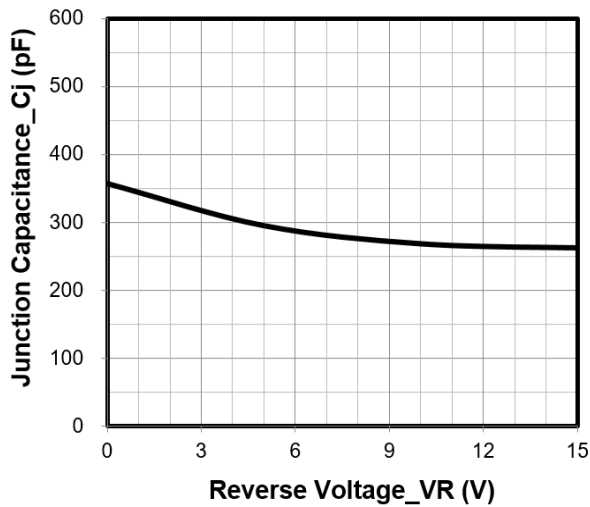
**Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu\text{s}$ )	Ppk	10,500	W
Peak Pulse Current (8/20 $\mu\text{s}$ )	I <sub>PP</sub>	300	A
ESD per IEC 61000-4-2 (Air) ESD per IEC 61000-4-2 (Contact)	V <sub>ESD</sub>	$\pm 30$ $\pm 30$	kV
Operating Temperature Range	T <sub>J</sub>	-55 to +125	$^{\circ}\text{C}$
Storage Temperature Range	T <sub>stg</sub>	-55 to +150	$^{\circ}\text{C}$

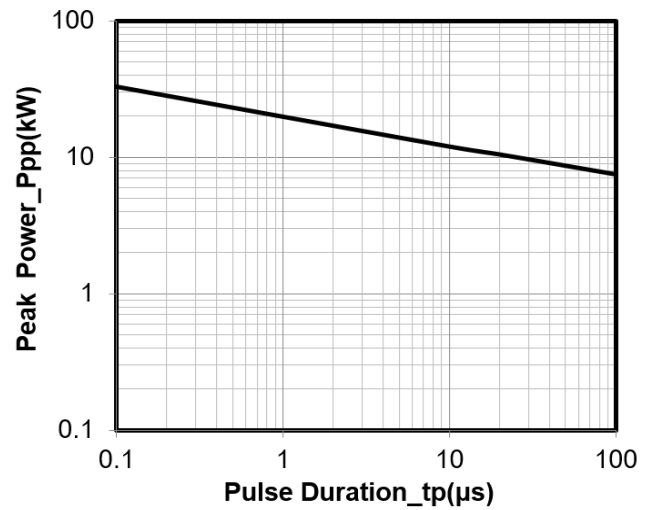
**Electrical Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V <sub>RWM</sub>			15	V	
Breakdown Voltage	V <sub>BR</sub>	16.5			V	I <sub>T</sub> = 1mA
Reverse Leakage Current	I <sub>R</sub>			1.0	$\mu\text{A}$	V <sub>RWM</sub> = 15V
Clamping Voltage	V <sub>C</sub>			25	V	I <sub>PP</sub> = 50A (8 x 20 $\mu\text{s}$ pulse)
Clamping Voltage	V <sub>C</sub>			35	V	I <sub>PP</sub> = 300A (8 x 20 $\mu\text{s}$ pulse)
Junction Capacitance	C <sub>J</sub>			500	pF	V <sub>R</sub> = 0V, f = 1MHz

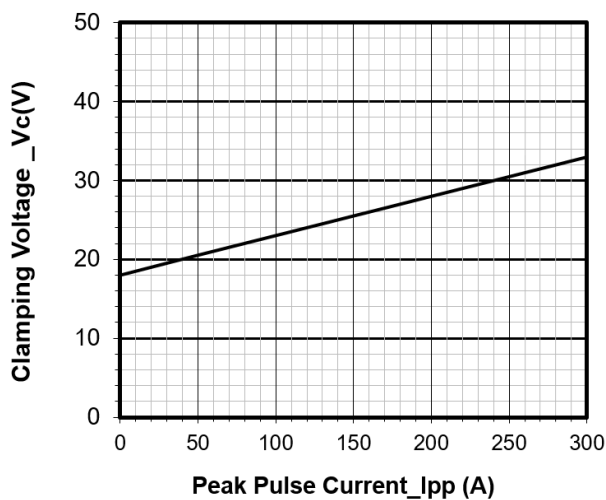
**Typical Performance Characteristics ( $T_A=25^\circ\text{C}$  unless otherwise Specified)**



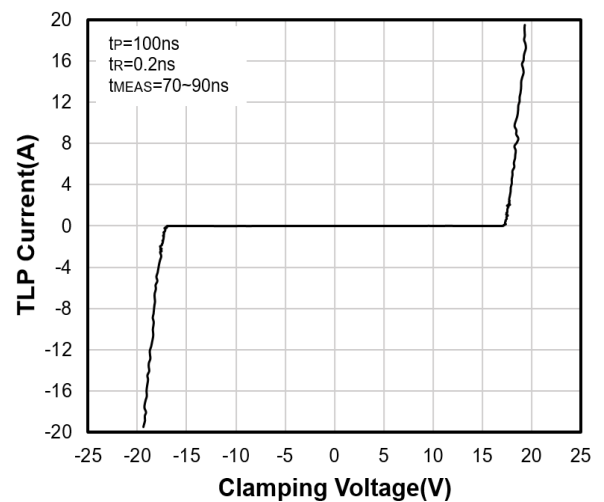
**Junction Capacitance vs. Reverse Voltage**



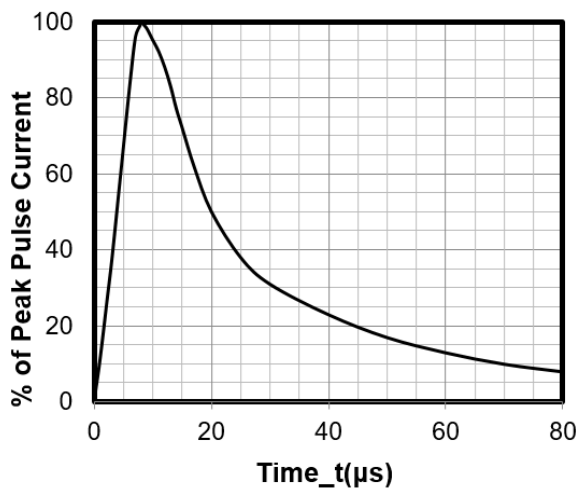
**Peak Pulse Power vs. Pulse Time**



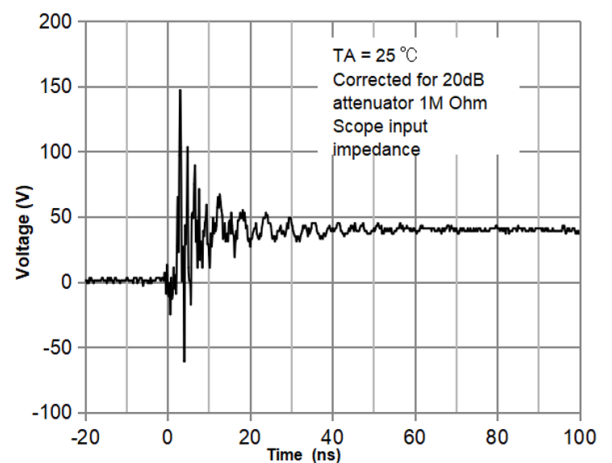
**Clamping Voltage vs. Peak Pulse Current**



**TLP Curve**

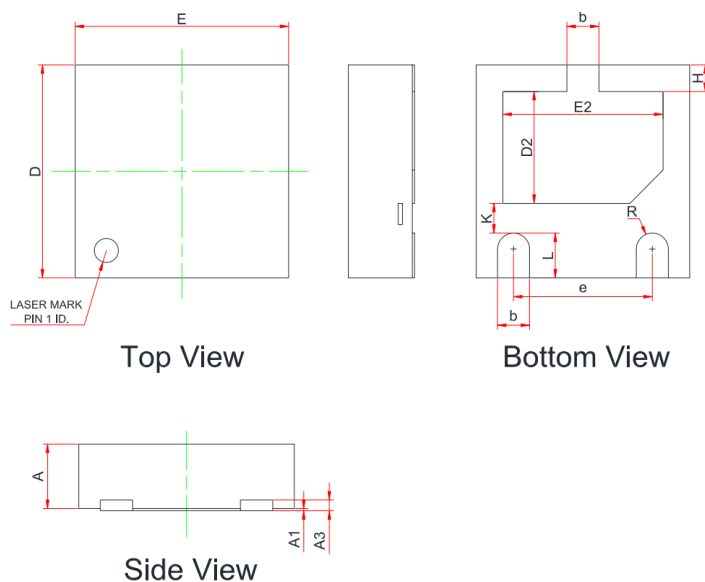


**8 X 20μs Pulse Waveform**



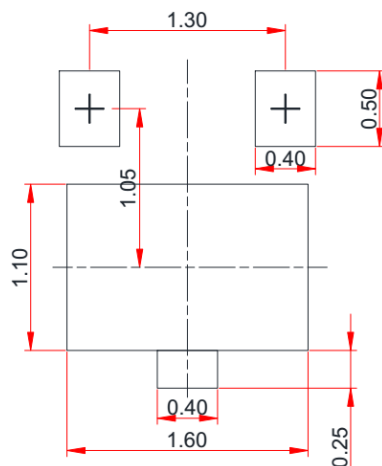
**ESD Clamping Voltage  
8 kV Contact per IEC61000-4-2**

## DFN2020-3 Package Outline Drawing



SYM	MILLIMETERS		
	MIN	NOM	MAX
A	0.55	0.60	0.65
A1	0.00	0.02	0.05
A3	0.10REF.		
b	0.25	--	0.35
D	1.90	--	2.10
E	1.90	--	2.10
D2	0.95	--	1.15
E2	1.40	--	1.60
e	1.20		1.40
H	0.20	--	0.30
K	0.20		0.40
L	0.35	--	0.45
R	0.13	--	--

## Suggested Land Pattern



## Contact Information

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