



## PRODUCT DATA SHEET

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**Datasheet**



**Resources**



**Samples**

Please note: Please check the JINGAO Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at [www.jg-semi.cn](http://www.jg-semi.cn). Please email any questions regarding the system integration to [JINGAO\\_questions@jgsemi.com](mailto:JINGAO_questions@jgsemi.com).

## Features

- 420W peak pulse power (8/20 $\mu$ s)
- Protects two bi-directional lines
- Ultra low leakage: nA level
- Operating voltage: 24V
- Low clamping voltage
- Complies with following standards:
  - IEC 61000-4-2 (ESD) immunity test
    - Air discharge:  $\pm 30$ kV
    - Contact discharge:  $\pm 30$ kV
  - IEC61000-4-4 (EFT) 40A (5/50ns)
  - IEC61000-4-5 (Lightning) 9A (8/20 $\mu$ s)
- RoHS Compliant

## Applications

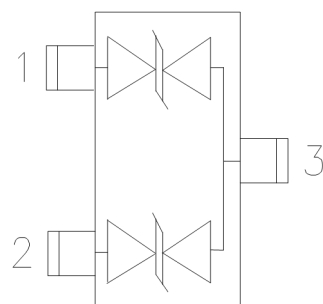
- Cellular Handsets and Accessories
- Notebooks and Handhelds
- Portable Instrumentation
- Set Top Box
- Industrial Controls
- Server and Desktop PC

## Mechanical Characteristics

- Package: SOT-23
- Lead Finish: Lead Free
- UL Flammability Classification Rating 94V-0
- Quantity Per Reel: 3,000pcs
- Reel Size: 7inch



**SOT-23**



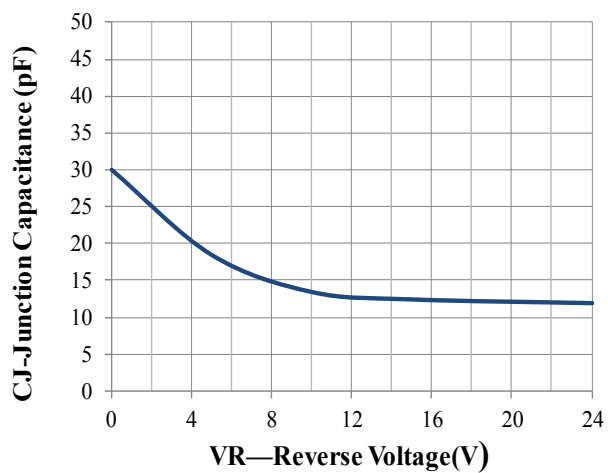
## Absolute Maximum Ratings (T<sub>amb</sub>=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 $\mu$ s)	Ppk	420	W
Peak Pulse Current (8/20 $\mu$ s)	IPP	9	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 +125	°C
Storage Temperature Range	Tstg	-55 to +150	°C

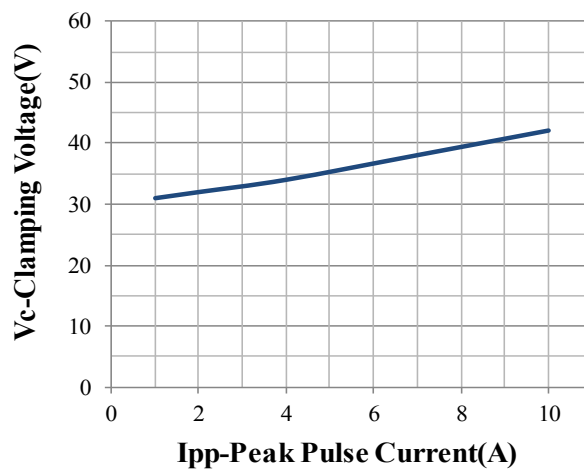
**Electrical Characteristics** (TA=25°C unless otherwise specified)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V <sub>RWM</sub>				24	V
Breakdown Voltage	V <sub>BR</sub>	I <sub>T</sub> = 1mA	26	28.5	30.5	V
Reverse Leakage Current	I <sub>R</sub>	V <sub>RWM</sub> = 24V			0.5	μA
Clamping Voltage	V <sub>C</sub>	I <sub>PP</sub> = 1A (8 x 20μs pulse)		35	40	V
Clamping Voltage	V <sub>C</sub>	I <sub>PP</sub> = 9A (8 x 20μs pulse)		45	58	V
Junction Capacitance	C <sub>J</sub>	V <sub>R</sub> = 0V, f = 1MHz		30	50	pF

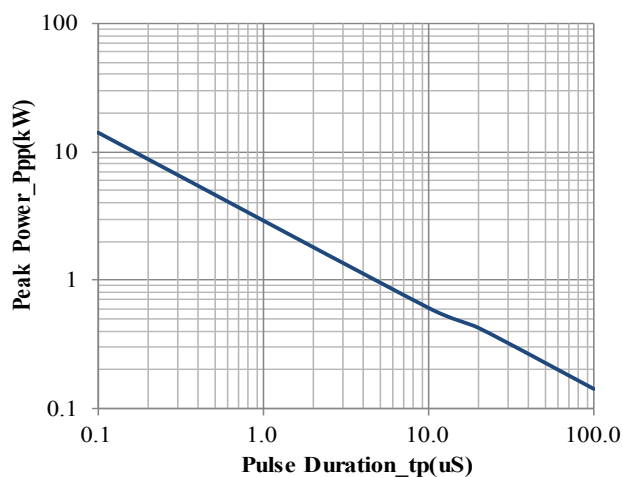
## Characteristic Curves



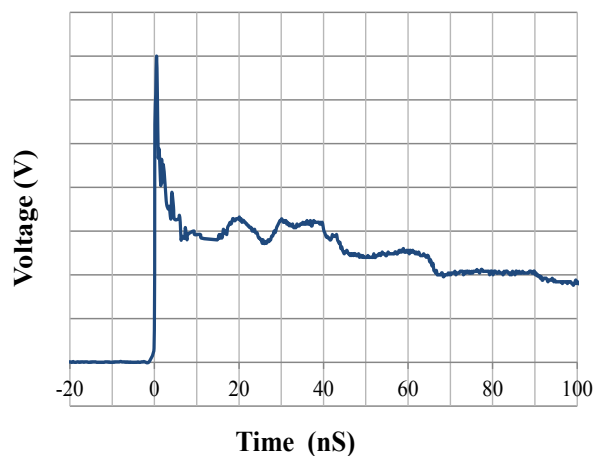
**Junction Capacitance vs. Reverse Voltage**



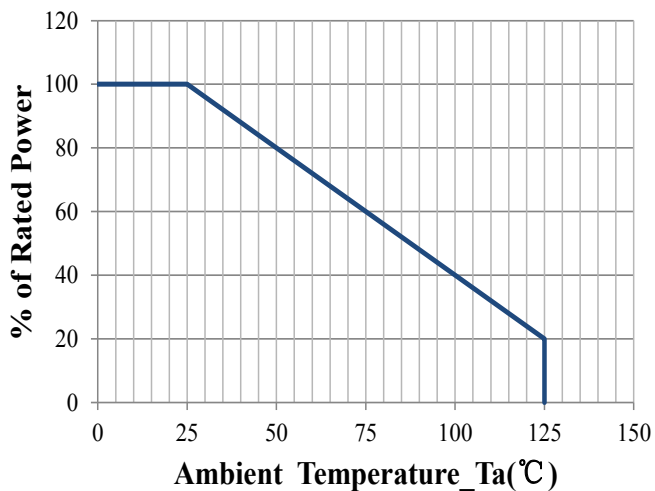
**Clamping Voltage vs. Peak Pulse Current**



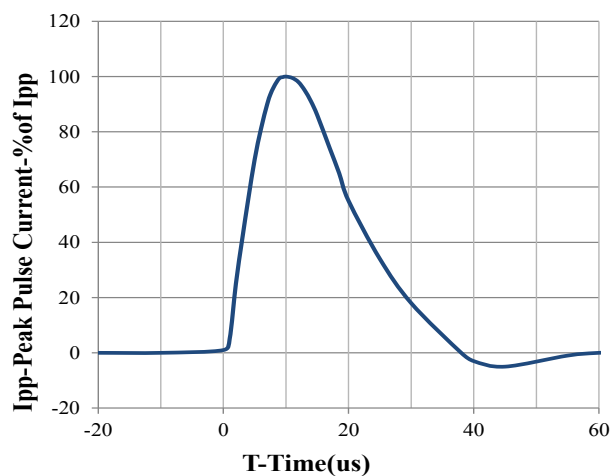
**Peak Pulse Power vs. Pulse Time**



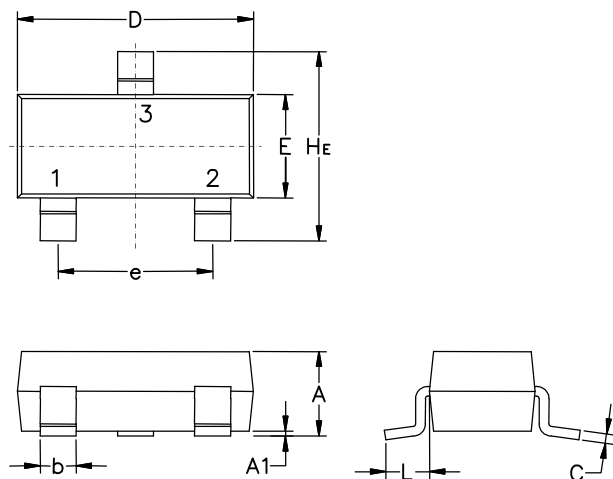
**IEC61000-4-2 Pulse Waveform**



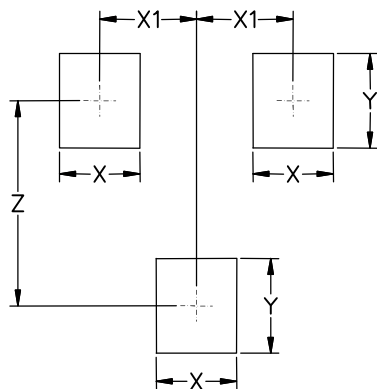
**Power Derating Curve**



**8 X 20us Pulse Waveform**

**SOT-23 Package Outline & Dimensions**


Symbol	Millimeters			Inches		
	Min.	Nom.	Max.	Min.	Nom.	Max.
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.15	0.18	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.35	0.54	0.69	0.014	0.021	0.029
H <sub>E</sub>	2.10	2.40	2.64	0.083	0.094	0.104

**Soldering Footprint**


Symbol	Millimeters	Inches
X	0.80	0.031
X1	0.95	0.037
Y	0.90	0.035
Z	2.00	0.079

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