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PRODUCT DATASHEET

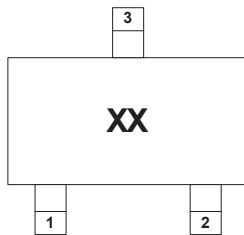
Electro-Static Discharge

JET23-5V-UL2 ESD

Features

- Package: SOT-23
- Low capacitance: 0.3pF typical (I/O to I/O)
- Ultra low leakage: nA level
- Operating voltage: 5V
- Low clamping voltage
- Up to 2-line protects
- Complies with following standards:
 - IEC 61000-4-2 (ESD) immunity test
Air discharge: $\pm 25\text{kV}$
Contact discharge: $\pm 20\text{kV}$
 - IEC61000-4-5 (Lightning) 5A (8/20 μs)
- RoHS compliant

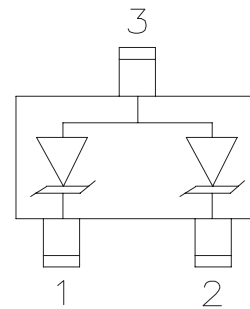
Pin Description



Applications

- Cellular Handsets and Accessories
- Display Ports
- MDDI Ports
- USB 2.0 and 3.0 Ports
- HDMI 1.3 and 1.4
- Digital Visual Interface (DVI)
- PCI Express and Serial SATA Ports
- Notebook Computer

Schematic Diagram

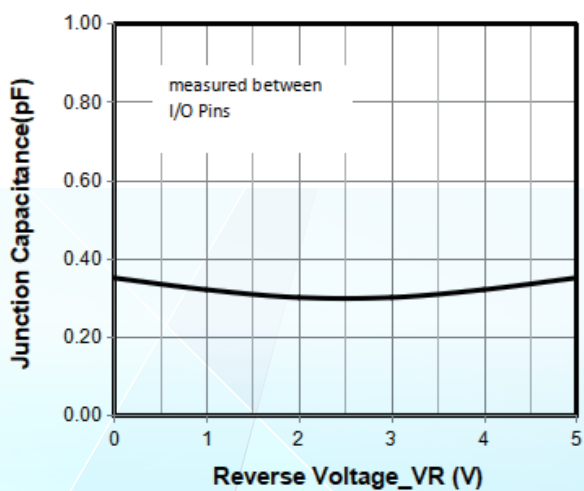


Limiting Values($T_A = 25\text{ }^\circ\text{C}$, unless otherwise specified)

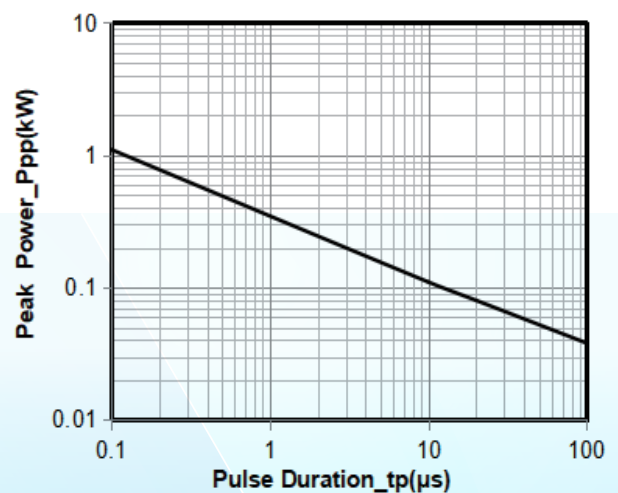
Symbol	Parameter	Conditions	Value	Unit
V _{ESD}	Electrostatic Discharge Voltage	IEC 61000-4-2;Contact Discharge	± 20	kV
		IEC 61000-4-2;Air Discharge	± 25	kV
P _{Pk}	Peak Pulse Power	t _p =8/20 μs	80	W
I _{PP}	Peak Pulse Current	t _p =8/20 μs	5	A
T _J	Operating Temperature Range	-	-55 to +125	$^\circ\text{C}$
T _{stg}	Storage Temperature Range	-	-55 to +150	$^\circ\text{C}$

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

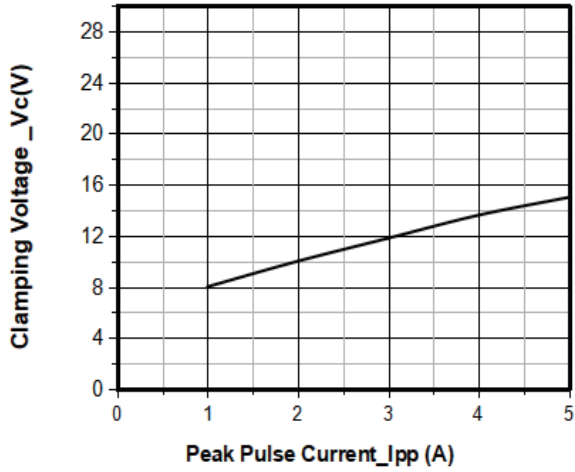
Symbol	Parameter	Conditions	Min	Typ.	Max	Unit
V_{RWM}	Reverse Working Voltage	$T_A=25^\circ\text{C}$; Pin 1 or pin 2 to pin 3 and between pin 1 and pin 2	-	-	5	V
V_{BR}	Breakdown Voltage	$I_T=1\text{mA}$; pin 1 or pin 2 to pin 3 and between pin 1 and pin 2	6	-	-	V
I_R	Reverse Leakage Current	$V_{RWM}=5\text{V}$; pin 1 or pin 2 to pin 3 and between pin 1 and pin 2	-	0.01	0.5	μA
V_C	Clamping Voltage	$I_{PP}=1\text{A}$, (8x20 μs pulse); pin 1 or pin 2 to pin 3	-	-	9	V
V_C	Clamping Voltage	$I_{PP}=5\text{A}$, (8x20 μs pulse); pin 1 or pin 2 to pin 3	-	-	16	V
C_J	Junction Capacitance	$V_R=0\text{V}$, $f=1\text{MHz}$; between pin 1 and pin 2	-	0.3	0.4	pF
C_J	Junction Capacitance	$V_R=0\text{V}$, $f=1\text{MHz}$; pin 1 or pin 2 to pin 3	-	-	0.8	pF

Typical Characteristics


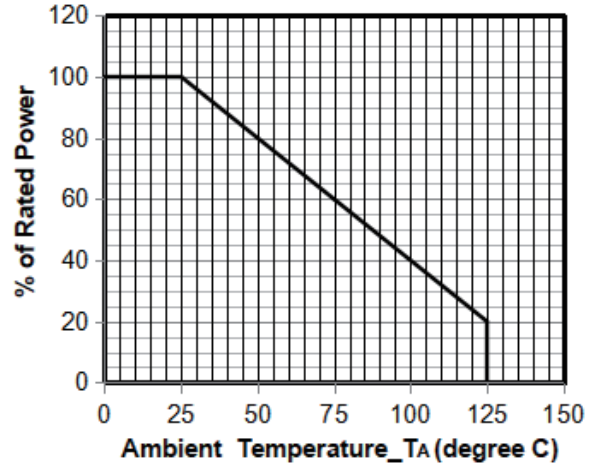
Junction Capacitance vs. Reverse Voltage



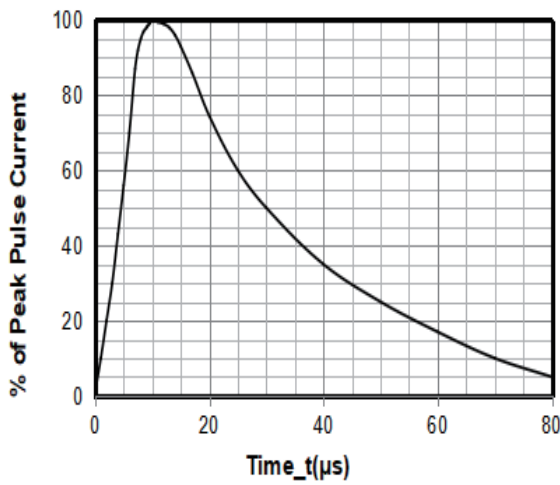
Peak Pulse Power vs. Pulse Time



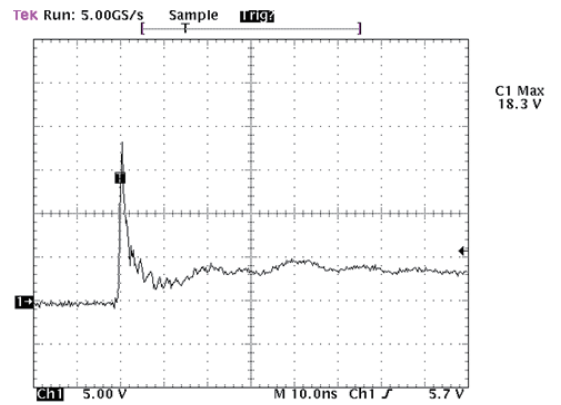
Clamping Voltage vs. Peak Pulse Current ($t_p = 8/20 \mu s$)



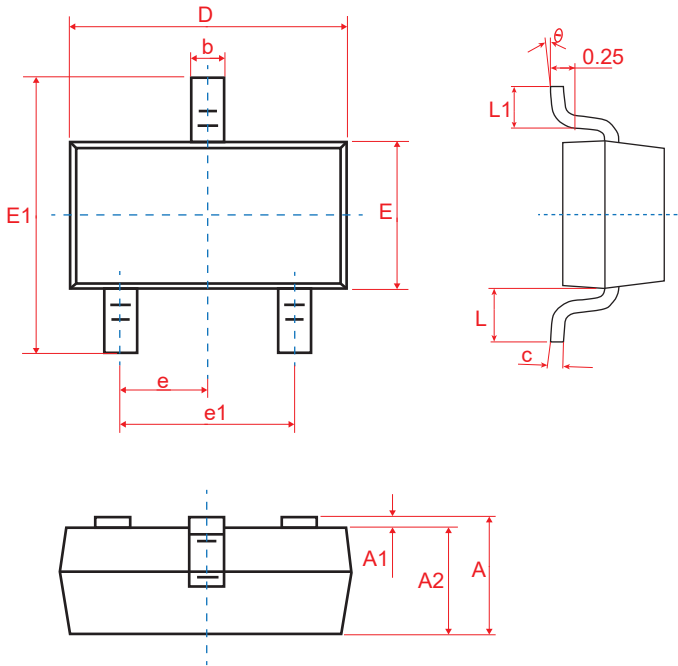
Power Derating Curve



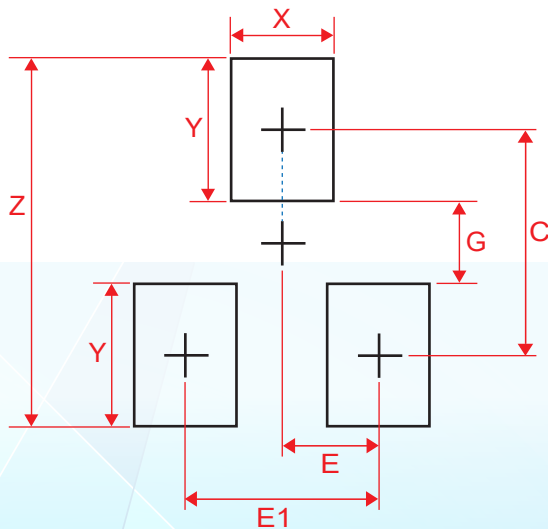
8 X 20 μs Pulse Waveform



Note: Data is taken with a 10x attenuator
ESD Clamping Voltage
8 kV Contact per IEC61000-4-2

Physical Dimensions(mm.)


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	0.90	1.15	0.035	0.045
A1	0.00	0.10	0.000	0.004
A2	0.90	1.05	0.035	0.041
b	0.30	0.50	0.012	0.020
c	0.08	0.15	0.003	0.006
D	2.80	3.00	0.110	0.118
E	1.20	1.40	0.047	0.055
E1	2.25	2.55	0.089	0.100
e	0.95 TYP		0.037 TYP	
e1	1.80	2.00	0.071	0.079
L	0.55 REF		0.022 REF	
L1	0.30	0.50	0.012	0.020
e	0°	8°	0°	8°

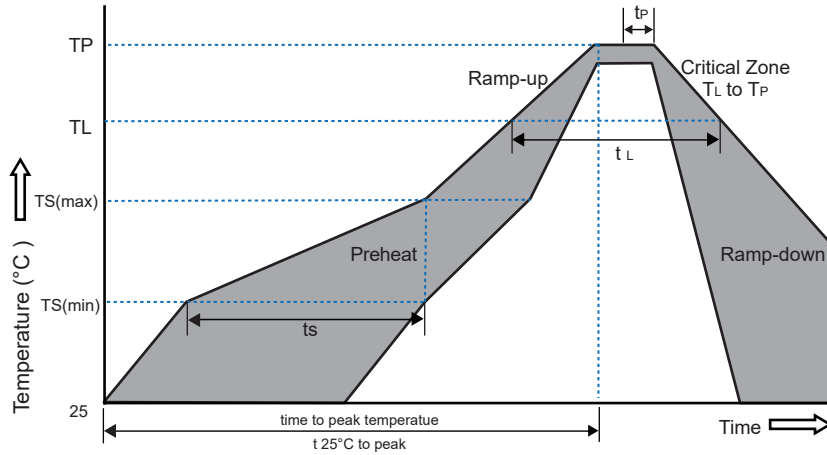
Suggested Land Pattern


Symbol	Dimensions	
	Inches	Millimeters
C	0.087	2.20
E	0.037	0.95
E1	0.075	1.90
G	0.031	0.80
X	0.039	1.00
Y	0.055	1.40
Z	0.141	3.60

Packaging Quantity

Part Number	Delivery Form	Delivery Quantity
JET23-5V-UL2	7"T&R	3,000

Soldering Parameters



Reflow Condition		Pb-Free Assembly
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
Ts(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
xTime 25°C to Peak Temp (TP)		8 min. Max
Do not exceed		+260°C

Part Number System

JE T23 - 5V - UL 2

