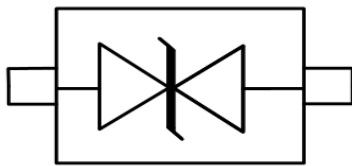


Description

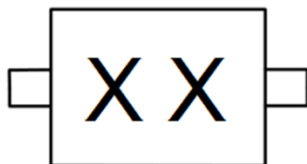
The JSDXXC is designed to replace multilayer varistors (MLVs) in portable applications such as cell phones, notebook computers and PDA's, using monolithic silicon technology to provide fast response time and ultra low ESD clamping voltage, making this device an ideal solution for protecting sensitive semiconductor components from damage. The JSDXXC complies with the IEC 61000-4-2 (ESD) standard with $\pm 30\text{kV}$ air and $\pm 30\text{kV}$ contact discharge. The JSDXXC is assembled into a lead-free SOD-323 package and will protect one unidirectional line. These devices will fit on the same PCB pad area as an 0805 MLV device.

Circuit Diagram



Circuit Diagram

Marking Diagram



Transparent top view

Part NO.	Marking
JSD05C	05
JSD12C	12
JSD24C	24
JSD36C	36

Features

- * 500W peak pulse power (8/20 μs)
- * Low leakage: nA level
- * Operating voltage: 5V 12V 24V 36V
- * 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: $\pm 30\text{kV}$
- * RoHS Compliant
- * Package: SOD-323

Applications

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

Ordering Information

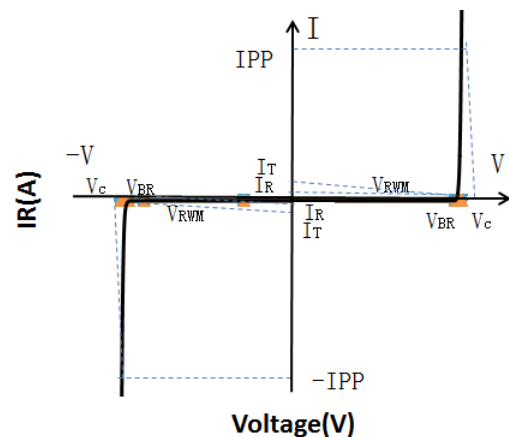
Part Number	Packaging	Reel Size
JSD05C-36C	3000/Tape & Reel	7 inch

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

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20 μs)	Ppk	500	W
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	$^\circ\text{C}$
Storage Temperature Range	Tstg	-55 to +150	$^\circ\text{C}$

Portion Electronics Parameter

Symbol	Parameter
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_C



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

JSD05C						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				5.0	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	6.0			V
Reverse Leakage Current	I_R	$V_{RWM} = 5\text{V}$			1.0	μA
Peak Pulse Current	I_{PP}	$T_p = 8/20\mu\text{s}$			35	A
Clamping Voltage	V_C	$I_{PP} = 5\text{A}$ (8 x 20 μs pulse)			9.5	V
Clamping Voltage	V_C	$I_{PP} = 35\text{A}$ (8 x 20 μs pulse)			15	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$			200	pF

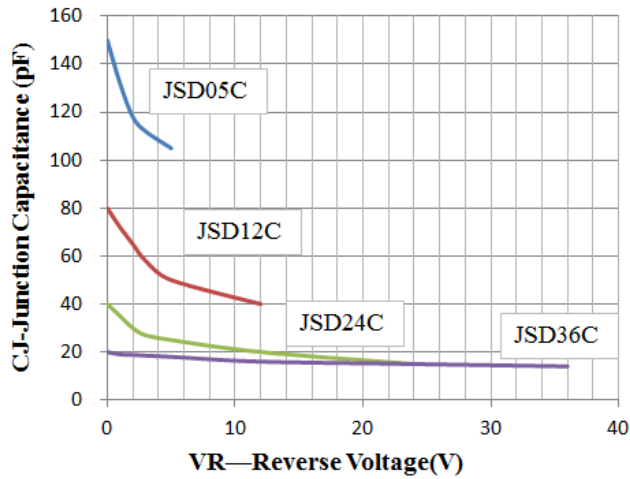
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise specified)

JSD12C						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				12.0	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	13.0			V
Reverse Leakage Current	I_R	$V_{RWM} = 12\text{V}$			1.0	μA
Peak Pulse Current	I_{PP}	$T_p=8/20\mu\text{s}$			22	A
Clamping Voltage	V_C	$I_{PP} = 5\text{A}$ (8 x 20 μs pulse)			18.0	V
Clamping Voltage	V_C	$I_{PP} = 22\text{A}$ (8 x 20 μs pulse)			24.0	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$			100	pF

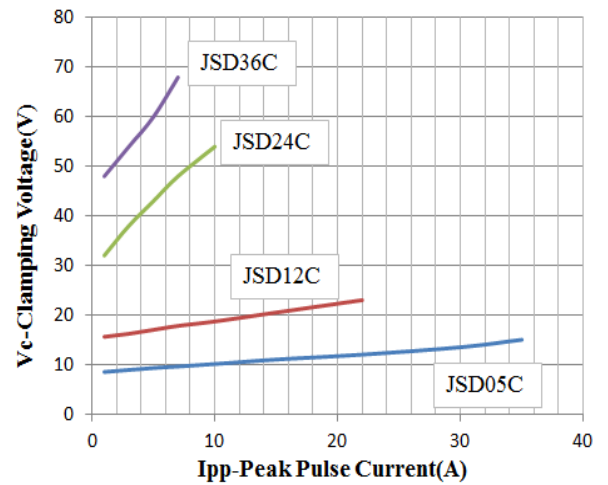
JSD24C						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				24.0	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	26.0			V
Reverse Leakage Current	I_R	$V_{RWM} = 24\text{V}$			1.0	μA
Peak Pulse Current	I_{PP}	$T_p=8/20\mu\text{s}$			10	A
Clamping Voltage	V_C	$I_{PP} = 5\text{A}$ (8 x 20 μs pulse)			38	V
Clamping Voltage	V_C	$I_{PP} = 10\text{A}$ (8 x 20 μs pulse)			60	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$			50	pF

JSD36C						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Reverse Working Voltage	V_{RWM}				36.0	V
Breakdown Voltage	V_{BR}	$I_T = 1\text{mA}$	38.0			V
Reverse Leakage Current	I_R	$V_{RWM} = 36\text{V}$			1.0	μA
Peak Pulse Current	I_{PP}	$T_p=8/20\mu\text{s}$			7	A
Clamping Voltage	V_C	$I_{PP} = 1\text{A}$ (8 x 20 μs pulse)			50	V
Clamping Voltage	V_C	$I_{PP} = 7\text{A}$ (8 x 20 μs pulse)			70	V
Junction Capacitance	C_J	$V_R = 0\text{V}$, $f = 1\text{MHz}$			30	pF

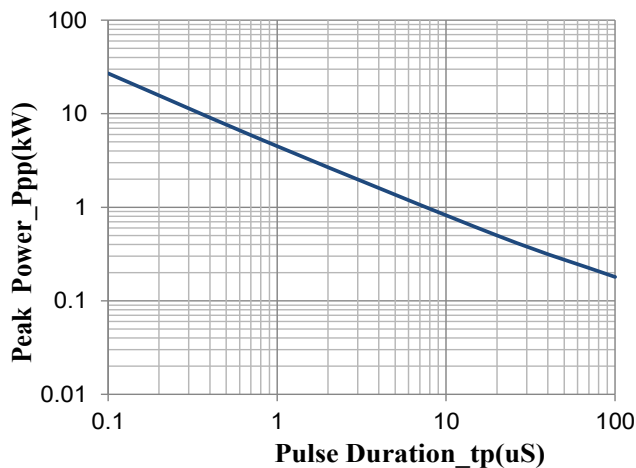
Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise Specified)



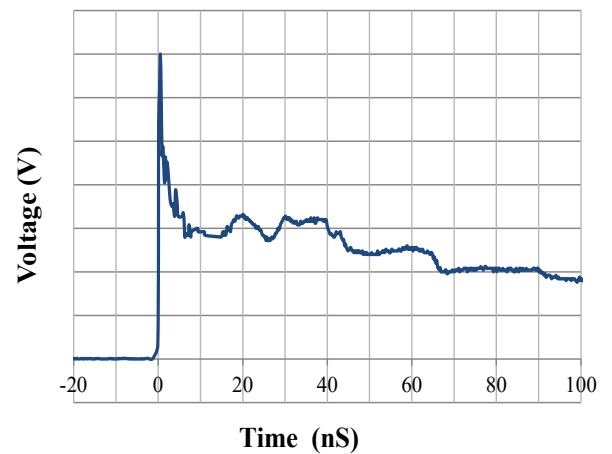
Junction Capacitance vs. Reverse Voltage



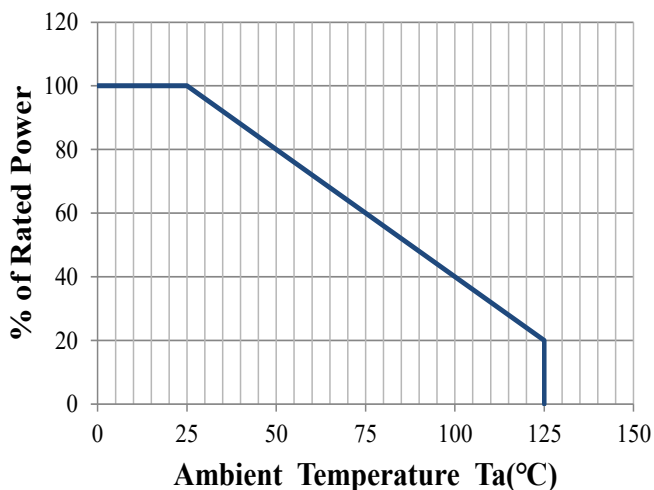
Clamping Voltage vs. Peak Pulse Current



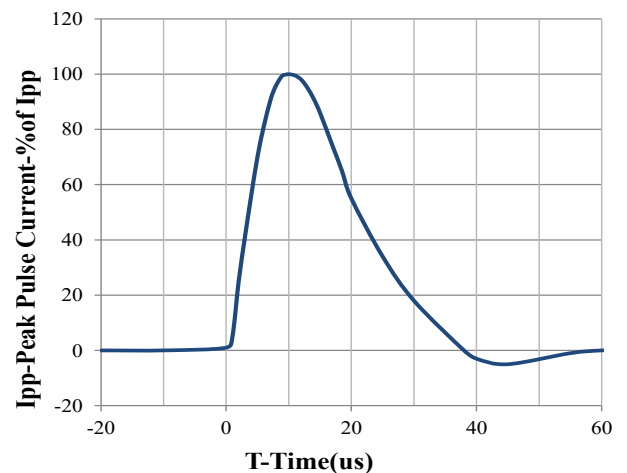
Peak Pulse Power vs. Pulse Time



IEC61000-4-2 Pulse Waveform

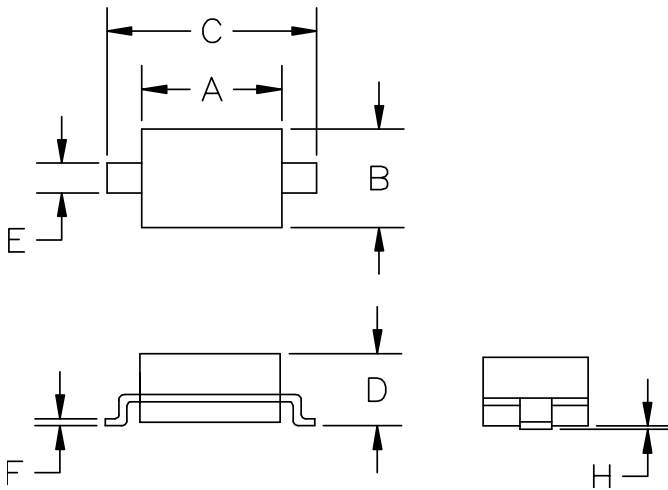


Power Derating Curve



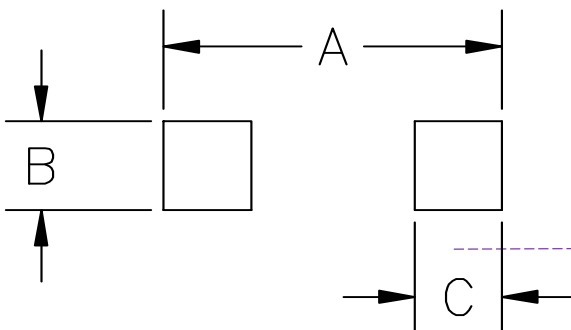
8 X 20us Pulse Waveform

SOD-323 Package Outline Drawing



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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