Description

The DCSDXXC-H 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 DCSDXXC-H complies with the IEC 61000-4-2 (ESD) with ±30kV air and ±30kV contact discharge. The DCSDXXC-H 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.

Features

- 500W peak pulse power (8/20μs)
- Protects one data or power line
- Ultra low leakage：nA level
- Operating voltage：
  3.3V,5V,8V,12V,15V,24V,36V,40V
- Ultra low clamping voltage
- Complies with following standards:
  - – IEC 61000-4-2 (ESD) immunity test
    Air discharge: ±30kV
    Contact discharge: ±30kV
- RoHS Compliant

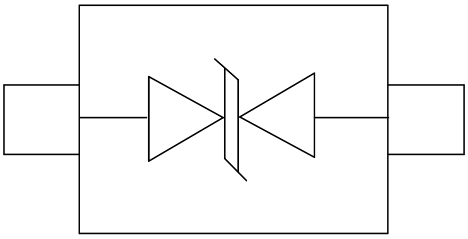
Mechanical Characteristics

- Package: SOD-323
- Lead Finish: Matte Tin
- Case Material: “Green” Molding Compound.
- Terminal Connections: See Diagram Below
- Marking Information: See Below

Applications

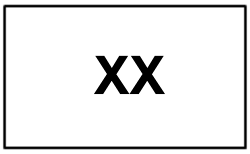
- Cellular Handsets and Accessories
- Personal Digital Assistants
- Notebooks and Handhelds
- Portable Instrumentation
- Peripherals
- Pagers Peripherals
- Desktop and Servers

Dimensions and Pin Configuration



Circuit and Pin Schematic

Marking Information



XX = Device Marking Code

Part Number	Marking
DCSD33C-H	33
DCSD05C-H	05
DCSD08C-H	08
DCSD12C-H	12
DCSD15C-H	15
DCSD18C-H	18
DCSD24C-H	24
DCSD36C-H	36
DCSD40C-H	40

Ordering Information

Part Number	Marking	Packaging	Reel Size
DCSDXXC-H	XX	3000/Tape & Reel	7 inch

Absolute Maximum Ratings (T_A=25°C unless otherwise specified)

Parameter	Symbol	Value	Unit
Peak Pulse Power (8/20μs)	Ppk	500	W
ESD per IEC 61000−4−2 (Air) ESD per IEC 61000−4−2 (Contact)	V_{ESD}	±30 ±30	kV
Operating Temperature Range	T_J	−55 to +125	°C
Storage Temperature Range	Tstg	−55 to +150	°C

Electrical Characteristics (T_A=25°C unless otherwise specified)

DCSD33C-H

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			3.3	V	
Breakdown Voltage	V_{BR}	3.8			V	I_T = 1mA
Reverse Leakage Current	I_R			0.2	μA	V_{RWM} = 3.3V
Clamping Voltage	V_C			5	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			12.5	V	I_{PP} = 40A (8 x 20μs pulse)
Peak Pulse Current	Ipp			40	A	tp = 8/20μs
Junction Capacitance	C_J		120	200	pF	VR = 0V, f = 1MHz

DCSD05C-H

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			5	V	
Breakdown Voltage	V_{BR}	6			V	I_T = 1mA
Reverse Leakage Current	I_R			0.2	μA	V_{RWM} = 5V
Clamping Voltage	V_C			9.5	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			15	V	I_{PP} = 34A (8 x 20μs pulse)
Peak Pulse Current	Ipp			34	A	tp = 8/20μs
Junction Capacitance	C_J		110	200	pF	VR = 0V, f = 1MHz

DCSD08C-H

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			8	V	
Breakdown Voltage	V_{BR}	8.5			V	I_T = 1mA
Reverse Leakage Current	I_R			0.2	μA	V_{RWM} = 8V
Clamping Voltage	V_C			10	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			16	V	I_{PP} = 32A (8 x 20μs pulse)
Peak Pulse Current	Ipp			32	A	tp = 8/20μs
Junction Capacitance	C_J		100	200	pF	VR = 0V, f = 1MHz

DCSD12C-H

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			12	V	
Breakdown Voltage	V_{BR}	13.3			V	I_T = 1mA
Reverse Leakage Current	I_R			0.2	μA	V_{RWM} = 12V
Clamping Voltage	V_C			19	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			25	V	I_{PP} = 20A (8 x 20μs pulse)
Peak Pulse Current	Ipp			20	A	tp = 8/20μs
Junction Capacitance	C_J		60	100	pF	VR = 0V, f = 1MHz

DCSD15C-H

Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			15	V	
Breakdown Voltage	V_{BR}	16.7			V	I_T = 1mA
Reverse Leakage Current	I_R			0.2	μA	V_{RWM} = 15V
Clamping Voltage	V_C			20	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			25	V	I_{PP} = 16A (8 x 20μs pulse)
Peak Pulse Current	Ipp			16	A	tp = 8/20μs
Junction Capacitance	C_J		30	80	pF	VR = 0V, f = 1MHz

DCSD18C-H						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**	**Test Condition**
Reverse Working Voltage	V_{RWM}			18	V	
Breakdown Voltage	V_{BR}	19.8			V	I_T = 1mA
Reverse Leakage Current	I_R			0.2	μA	V_{RWM} = 18V
Clamping Voltage	V_C			25	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			38	V	I_{PP} = 13A (8 x 20μs pulse)
Peak Pulse Current	Ipp			13	A	tp = 8/20μs
Junction Capacitance	C_J		30	60	pF	VR = 0V, f = 1MHz

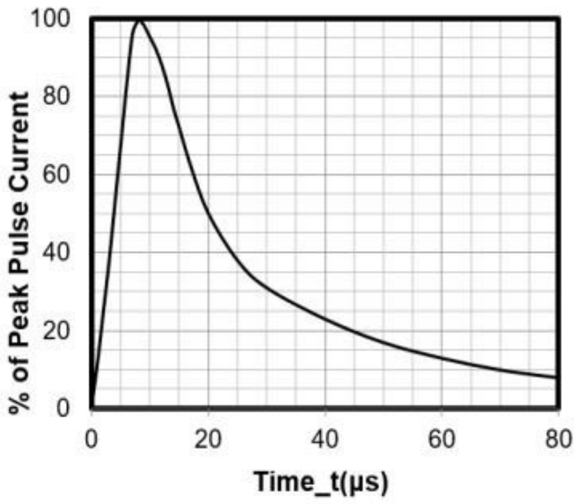
DCSD24C-H						
Parameter	**Symbol**	**Min**	**Typ**	**Max**	**Unit**	**Test Condition**
Reverse Working Voltage	V_{RWM}			24	V	
Breakdown Voltage	V_{BR}	27			V	I_T = 1mA
Reverse Leakage Current	I_R			0.2	μA	V_{RWM} = 24V
Clamping Voltage	V_C			40	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			50	V	I_{PP} = 10A (8 x 20μs pulse)
Peak Pulse Current	Ipp			10	A	tp = 8/20μs
Junction Capacitance	C_J		30	50	pF	VR = 0V, f = 1MHz

DCSD36C-H

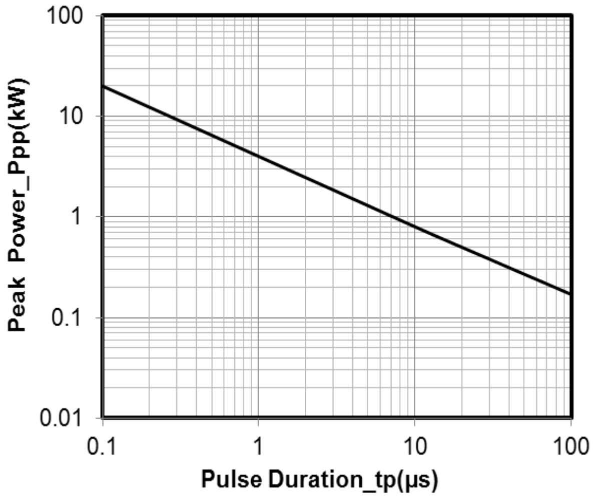
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			36	V	
Breakdown Voltage	V_{BR}	38			V	I_T = 1mA
Reverse Leakage Current	I_R			0.2	μA	V_{RWM} = 36V
Clamping Voltage	V_C			48	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			83	V	I_{PP} = 6A (8 x 20μs pulse)
Peak Pulse Current	Ipp			6	A	tp = 8/20μs
Junction Capacitance	C_J		20	30	pF	VR = 0V, f = 1MHz

DCSD40C-H

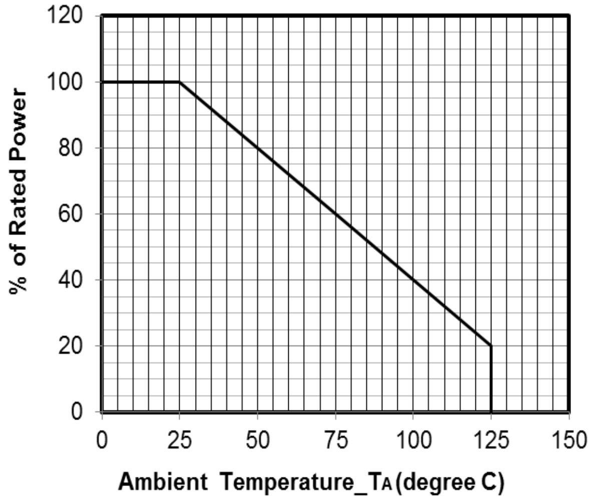
Parameter	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Working Voltage	V_{RWM}			40	V	
Breakdown Voltage	V_{BR}	44			V	I_T = 1mA
Reverse Leakage Current	I_R			0.2	μA	V_{RWM} = 40V
Clamping Voltage	V_C			50	V	I_{PP} = 1A (8 x 20μs pulse)
Clamping Voltage	V_C			100	V	I_{PP} = 5A (8 x 20μs pulse)
Peak Pulse Current	Ipp			5	A	tp = 8/20μs
Junction Capacitance	C_J		20		pF	VR = 0V, f = 1MHz



8 X 20μs Pulse Waveform

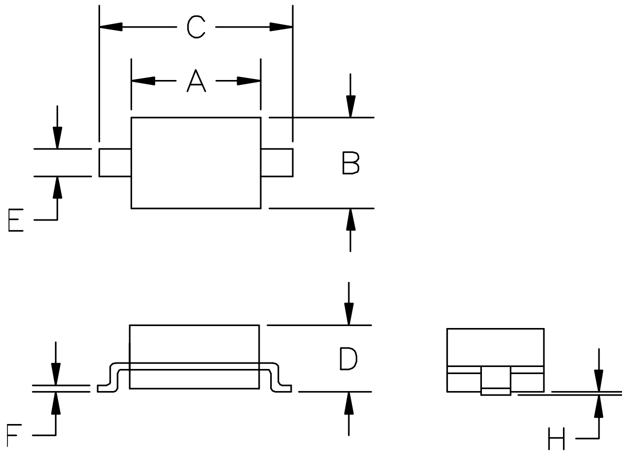


Peak Pulse Power vs. Pulse Time



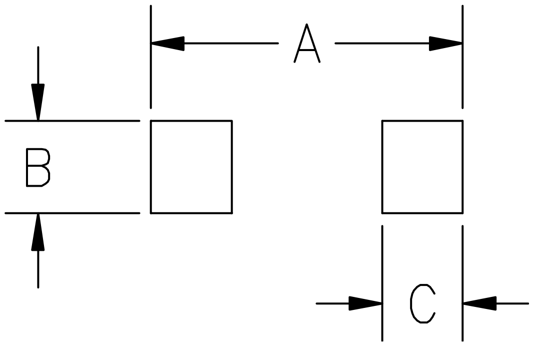
Power Derating Curve

SOD-323 Package Outline Drawing



SYM	DIMENSIO			
	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

Contact Information

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