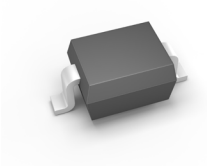
ESDHDxxUC series

ESD Protection Diodes

Rev.01 - 22 September 2022 Product data sheet

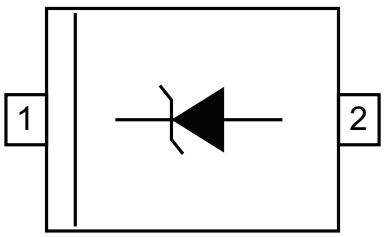
1. General description

The ESDHDxxUC series are designed to protect voltage sensitive components which are connected to data and transmission lines from overvoltage caused by ESD (electrostatic discharge), CDE (Cable Discharge Events), and EFT (electrical fast transients). Excellent clamping capability, this series offers a low leakage current in a miniature SOD323 package.



2. Features and benefits

- Peak pulse power 300W @ 8/20μs waveform
- IEC 61000-4-2 (ESD) ±30kV(air), ±30kV(contact)
- Protects Uni-directional I/O line
- Low clamping voltage
- Low leakage current
- Meet MSL level1
- Halogen free and RoHS compliant



3. Applications

- Computer Interfaces Protection
- Microprocessors Protection
- Serial and Parallel Ports Protection
- Control Signal Lines Protection
- Power lines on PCB Protection
- Portable instrumentation
- Peripherals

4. Ordering information

Type number	Package name	Orderable part number	Packing method	Small packing quantity	Package version	Package issue date
ESDHDxxUC	SOD323	ESDHDxxUCX	Tape and reel	3000	SOD323X	13-Oct-2020
ESDHD03UC	SOD323	ESDHD03UCX	Tape and reel	3000	SOD323X	13-Oct-2020

5. Absolute maximum ratings

In accordance with the Absolute Maximum Rating System (IEC 60134).
T_j = 25 °C unless otherwise specified.

Symbol	Parameter	Conditions	Values	Unit
Absolute maximum rating				
P_{PPM}	peak pulse power	t_p = 8/20 μs	300	W
V_{ESD}	ESD per IEC 61000-4-2 (air) ESD per IEC 61000-4-2 (contact)		±30 ±30	kV kV
T_{stg}	storage temperature range		-55 to 150	°C
T_j	operating temperature range		-55 to 150	°C

6. Characteristics

T_j = 25 °C unless otherwise specified.

Product type	Max. Reverse Working Voltage V_{RWM} (V)	Min. Breakdown Voltage V_{BR} @ I_T = 1 mA (V)	Max. Clamping Voltage V_C @ I_{pp} = 1 A (V)	Max. Clamping Voltage V_C @ Max I_{pp} (V)	Max. Peak Pulse current I_{pp} @ 8/20 µs (A)	Maximum Reverse Leakage I_R @ V_R (µA)	Typ. C_j (pF) @ 0 V, 1 MHz	Marking
ESDHD03UC	3.3	4	8.5	18	30	1	300	03W
ESDHD05UC	5	6	9.5	20	30	1	300	D05
ESDHD12UC	12	13.3	19	35	15	1	150	12W
ESDHD15UC	15	16.3	24	45	10	1	120	15W
ESDHD24UC	24	26	40	55	6	1	80	24W

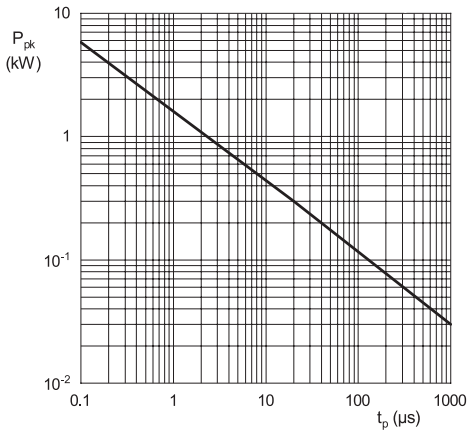


Fig. 1. Pulse rating curve

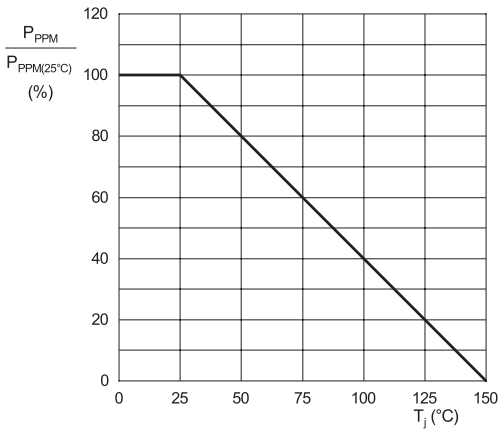


Fig. 2. Peak pulse power derating curve

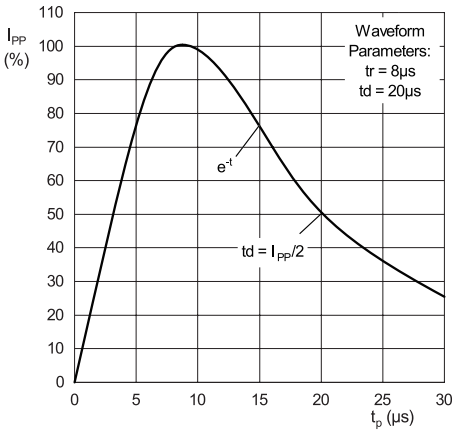


Fig. 3. Pulse waveform

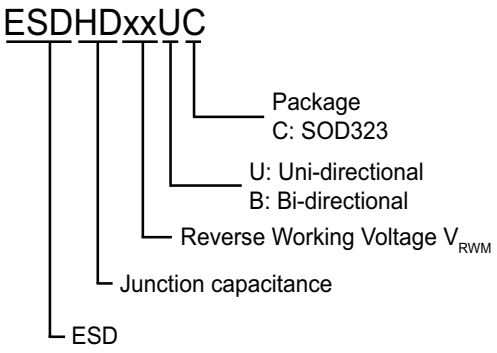
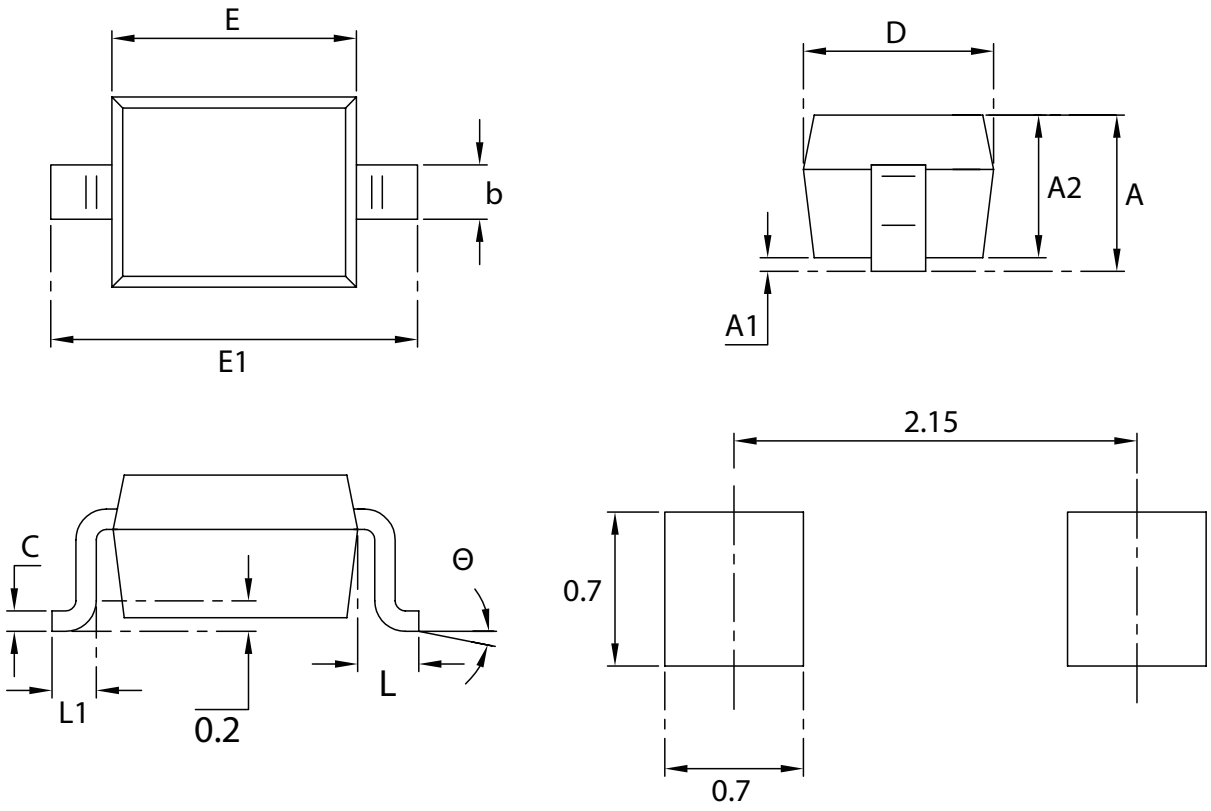


Fig. 4. Part numbering

7. Package outline

SOD323



Recommended pad outline

Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A		1.000		0.039
A1	0.000	0.100	0.000	0.004
A2	0.800	0.900	0.031	0.036
b	0.250	0.350	0.010	0.014
c	0.080	0.150	0.003	0.006
D	1.200	1.400	0.047	0.055
E	1.600	1.800	0.063	0.071
E1	2.500	2.700	0.100	0.108
L	0.475REF		0.019REF	
L1	0.250	0.400	0.010	0.016
Θ	0°	8°	0°	8°

Note:

1. Controlling dimension : in millimeters.
2. General tolerance:+/-0.05mm.
3. The pad layout is for reference purposes only.

8. Legal information

Data sheet status

Document status [1][2]	Product status [3]	Definition
Objective [short] data sheet	Development	This document contains data from the objective specification for product development.
Preliminary [short] data sheet	Qualification	This document contains data from the preliminary specification.
Product [short] data sheet	Production	This document contains the product specification.

[1] Please consult the most recently issued document before initiating or completing a design.
[2] The term 'short data sheet' is explained in section "Definitions".
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