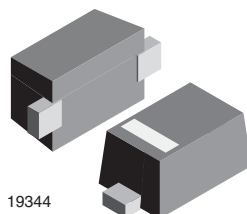
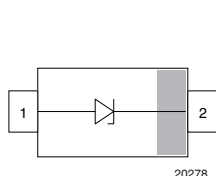


## Single ESD Protection Diode in SOD-523



### FEATURES

- Single-line ESD protection
- Low leakage current
- ESD immunity acc. IEC 61000-4-2  
± 8 kV contact discharge  
± 15 kV air discharge
- e3 - Sn
- Material categorization:  
for definitions of compliance please see  
[www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

### MARKING (example only)



Bar = cathode marking

X = date code

Y = type code (see table below)

### DESIGN SUPPORT TOOLS

[click logo to get started](#)

**3D**  
Models  
Available

### ORDERING INFORMATION

DEVICE NAME	ORDERING CODE	TAPED UNITS PER REEL (8 mm TAPE ON 7" REEL)	MINIMUM ORDER QUANTITY
VESD01-02V	VESD01-02V-G-08	3000	3000
VESD03-02V	VESD03-02V-G-08	3000	3000
VESD05-02V	VESD05-02V-G-08	3000	3000
VESD08-02V	VESD08-02V-G-08	3000	3000
VESD12-02V	VESD12-02V-G-08	3000	3000

### PACKAGE DATA

DEVICE NAME	PACKAGE NAME	TYPE CODE	WEIGHT	MOLDING COMPOUND FLAMMABILITY RATING	MOISTURE SENSITIVITY LEVEL	SOLDERING CONDITIONS
VESD01-02V	SOD-523	. V	1.4 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C
VESD03-02V	SOD-523	. B	1.4 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C
VESD05-02V	SOD-523	. C	1.4 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C
VESD08-02V	SOD-523	. D	1.4 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C
VESD12-02V	SOD-523	. E	1.4 mg	UL 94 V-0	MSL level 1 (according J-STD-020)	Peak temperature max. 260 °C

**ABSOLUTE MAXIMUM RATINGS VESD01-02V**

PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	I <sub>PPM</sub>	7	A
Peak pulse power	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	P <sub>PP</sub>	63	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V <sub>ESD</sub>	$\pm 8$	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		$\pm 15$	kV
Operating temperature	Junction temperature	T <sub>J</sub>	-40 to +125	°C
Storage temperature		T <sub>stg</sub>	-55 to +150	°C

**ABSOLUTE MAXIMUM RATINGS VESD03-02V**

PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	I <sub>PPM</sub>	9	A
Peak pulse power	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	P <sub>PP</sub>	108	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V <sub>ESD</sub>	$\pm 8$	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		$\pm 15$	kV
Operating temperature	Junction temperature	T <sub>J</sub>	-40 to +125	°C
Storage temperature		T <sub>stg</sub>	-55 to +150	°C

**ABSOLUTE MAXIMUM RATINGS VESD05-02V**

PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	I <sub>PPM</sub>	6	A
Peak pulse power	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	P <sub>PP</sub>	120	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V <sub>ESD</sub>	$\pm 8$	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		$\pm 15$	kV
Operating temperature	Junction temperature	T <sub>J</sub>	-40 to +125	°C
Storage temperature		T <sub>stg</sub>	-55 to +150	°C

**ABSOLUTE MAXIMUM RATINGS VESD08-02V**

PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	I <sub>PPM</sub>	4	A
Peak pulse power	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	P <sub>PP</sub>	120	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V <sub>ESD</sub>	$\pm 8$	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		$\pm 15$	kV
Operating temperature	Junction temperature	T <sub>J</sub>	-40 to +125	°C
Storage temperature		T <sub>stg</sub>	-55 to +150	°C

**ABSOLUTE MAXIMUM RATINGS VESD12-02V**

PARAMETER	TEST CONDITIONS	SYMBOL	VALUE	UNIT
Peak pulse current	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	I <sub>PPM</sub>	2	A
Peak pulse power	Acc. IEC 61000-4-5, 8/20 $\mu$ s/single shot	P <sub>PP</sub>	25	W
ESD immunity	Contact discharge acc. IEC 61000-4-2; 10 pulses	V <sub>ESD</sub>	$\pm 8$	kV
	Air discharge acc. IEC 61000-4-2; 10 pulses		$\pm 15$	kV
Operating temperature	Junction temperature	T <sub>J</sub>	-40 to +125	°C
Storage temperature		T <sub>stg</sub>	-55 to +150	°C

**ELECTRICAL CHARACTERISTICS VESD01-02V**(T<sub>amb</sub> = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N <sub>channel</sub>	-	-	1	lines
Reverse stand-off voltage	Max. reverse working voltage	V <sub>RWM</sub>	-	-	1	V
Reverse voltage	at I <sub>R</sub> = 100 µA	V <sub>R</sub>	1	-	-	V
Reverse current	at V <sub>R</sub> = 1 V	I <sub>R</sub>	-	-	100	µA
Reverse breakdown voltage	at I <sub>R</sub> = 1 mA	V <sub>BR</sub>	1.5	-	-	V
Reverse clamping voltage	at I <sub>PP</sub> (see fig. 1)	V <sub>C</sub>	-	9	-	V
Capacitance	at V <sub>R</sub> = 0 V; f = 1 MHz	C <sub>D</sub>	-	180	-	pF

**ELECTRICAL CHARACTERISTICS VESD03-02V**(T<sub>amb</sub> = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N <sub>channel</sub>	-	-	1	lines
Reverse stand-off voltage	Max. reverse working voltage	V <sub>RWM</sub>	-	-	3	V
Reverse voltage	at I <sub>R</sub> = 20 µA	V <sub>R</sub>	3	-	-	V
Reverse current	at V <sub>R</sub> = 3 V	I <sub>R</sub>	-	-	20	µA
Reverse breakdown voltage	at I <sub>R</sub> = 1 mA	V <sub>BR</sub>	4	-	-	V
Reverse clamping voltage	at I <sub>PP</sub> (see fig. 1)	V <sub>C</sub>	-	12	-	V
Capacitance	at V <sub>R</sub> = 0 V; f = 1 MHz	C <sub>D</sub>	-	110	-	pF

**ELECTRICAL CHARACTERISTICS VESD05-02V**(T<sub>amb</sub> = 25 °C, unless otherwise specified)

PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N <sub>channel</sub>	-	-	1	lines
Reverse stand-off voltage	Max. reverse working voltage	V <sub>RWM</sub>	-	-	5	V
Reverse voltage	at I <sub>R</sub> = 0.1 µA	V <sub>R</sub>	5	-	-	V
Reverse current	at V <sub>R</sub> = 5 V	I <sub>R</sub>	-	-	0.1	µA
Reverse breakdown voltage	at I <sub>R</sub> = 1 mA	V <sub>BR</sub>	6.5	-	-	V
Reverse clamping voltage	at I <sub>PP</sub> (see fig. 1)	V <sub>C</sub>	-	20	-	V
Capacitance	at V <sub>R</sub> = 0 V; f = 1 MHz	C <sub>D</sub>	-	55	-	pF

**ELECTRICAL CHARACTERISTICS VESD08-02V**(T<sub>amb</sub> = 25 °C, unless otherwise specified)

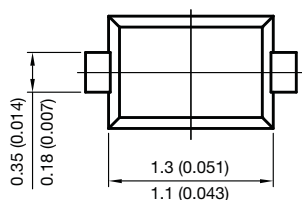
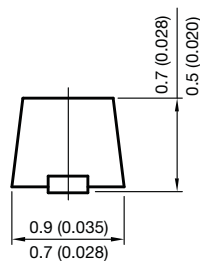
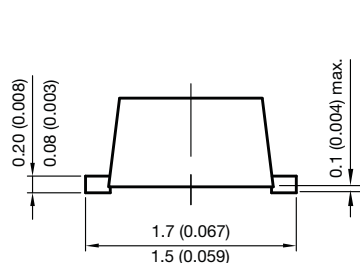
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N <sub>channel</sub>	-	-	1	lines
Reverse stand-off voltage	Max. reverse working voltage	V <sub>RWM</sub>	-	-	8	V
Reverse voltage	at I <sub>R</sub> = 0.1 µA	V <sub>R</sub>	8	-	-	V
Reverse current	at V <sub>R</sub> = 8 V	I <sub>R</sub>	-	-	0.1	µA
Reverse breakdown voltage	at I <sub>R</sub> = 1 mA	V <sub>BR</sub>	9	-	-	V
Reverse clamping voltage	at I <sub>PP</sub> (see fig. 1)	V <sub>C</sub>	-	30	-	V
Capacitance	at V <sub>R</sub> = 0 V; f = 1 MHz	C <sub>D</sub>	-	35	-	pF

**ELECTRICAL CHARACTERISTICS VESD12-02V**(T<sub>amb</sub> = 25 °C, unless otherwise specified)

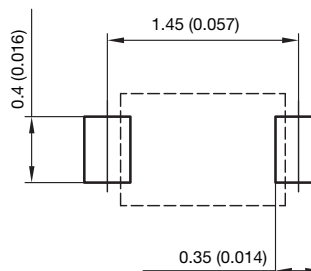
PARAMETER	TEST CONDITIONS/REMARKS	SYMBOL	MIN.	TYP.	MAX.	UNIT
Protection paths	Number of lines which can be protected	N <sub>channel</sub>	-	-	1	lines
Reverse stand-off voltage	Max. reverse working voltage	V <sub>RWM</sub>	-	-	12	V
Reverse voltage	at I <sub>R</sub> = 0.1 µA	V <sub>R</sub>	12	-	-	V
Reverse current	at V <sub>R</sub> = 12 V	I <sub>R</sub>	-	-	0.1	µA
Reverse breakdown voltage	at I <sub>R</sub> = 1 mA	V <sub>BR</sub>	14	-	-	V
Reverse clamping voltage	at I <sub>PP</sub> (see fig. 1)	V <sub>C</sub>	-	25	-	V
Capacitance	at V <sub>R</sub> = 0 V; f = 1 MHz	C <sub>D</sub>	-	30	-	pF



**PACKAGE DIMENSIONS** in millimeters (Inches): **SOD-523**



foot print recommendation:



Document no.: S8-V-3880.02-001 (4)

Rev. h - Date: 13. Oct. 2010

16864



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