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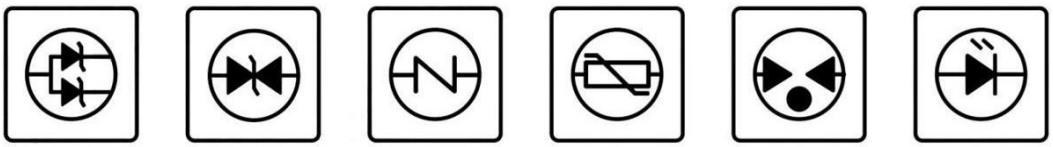
SEMICONDUCTOR



PTVSXXVS1UR-MS

Product specification

General Description

Transient voltage suppression diodes, also known as TVS diodes, are protective electronic parts that protect electrical equipment from voltage spikes introduced by wires.

Applications

- computersystem
- domesticappliance
- videoinput

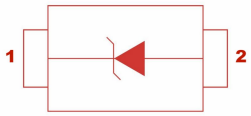
Features

- Forsurfacemountedapplications
- Excellentclampingcapability
- 400Wpeakpulsepowercapabilitywitha10/1000μs Waveform.
- V_{RWM} 3.3-75V
- Lowprofilepackageandlowinductance
- TypicalIRlessthan1uAabove12V
- Fastresponsetime:typicallylessthan1.0psfrom0V to V_{BR}min.

Mechanical Characteristics

- Package:SMF/SOD-123W
- CaseMaterial:MoldedPlastic.ULFlammability ClassificationRating94V-0.RoHScompliant
- MoistureSensitivity:MeetMSL1
- Terminal：Solderplated,solderableper MIL-STD-750,Method2026
- Polarity:Colorbanddenotescathodeexcept bi-directionalmodels
- Weight:0.017g(approximate)

Pinning and Marking

SOD-123W	PIN CONFIGURATION
	 1 cathode 2 anode

Orderinginformation

P/N	PKG	QTY
PTVSXXVS1UR-MS	SOD-123W	3000

Electrical Characteristics (T=25℃)

Part Number	Marking	V_R	I_R@V_R	V_{BR}@I_T		I_T	V_C@I_{PP}	I_{PP}①
Type number		V	μA	min(V)	max(V)	mA	max(V)	A
PTVS3V3S1UR-MS	A1	3.3	200	5.2	6	10	8.0	50.00
PTVS5V0S1UR-MS	A2	5.0	400	6.40	7.00	10	9.2	43.48
PTVS6V0S1UR-MS	A3	6.0	400	6.67	7.37	10	10.3	38.84
PTVS6V5S1UR-MS	A4	6.5	250	7.22	7.98	10	11.2	35.72
PTVS7V0S1UR-MS	A5	7.0	100	7.78	8.60	10	12.0	33.34
PTVS7V5S1UR-MS	A6	7.5	50	8.33	9.21	1	12.9	31.01
PTVS8V0S1UR-MS	A7	8.0	25	8.89	9.83	1	13.6	29.42
PTVS8V5S1UR-MS	A8	8.5	10	9.44	10.40	1	14.4	27.78
PTVS9V0S1UR-MS	A9	9.0	5	10.00	11.10	1	15.4	25.98
PTVS10VS1UR-MS	AA	10.0	2.5	11.10	12.30	1	17.0	23.53
PTVS11VS1UR-MS	AB	11.0	2.5	12.20	13.50	1	18.2	21.98
PTVS12VS1UR-MS	AC	12.0	2.5	13.30	14.70	1	19.9	20.11
PTVS13VS1UR-MS	AD	13.0	1	14.40	15.90	1	21.5	18.61
PTVS14VS1UR-MS	AE	14.0	1	15.60	17.20	1	23.2	17.25
PTVS15VS1UR-MS	AF	15.0	1	16.70	18.50	1	24.4	16.40
PTVS16VS1UR-MS	AG	16.0	1	17.80	19.70	1	26.0	15.39
PTVS17VS1UR-MS	AH	17.0	1	18.90	20.90	1	27.6	14.50
PTVS18VS1UR-MS	AK	18.0	1	20.00	22.10	1	29.2	13.70
PTVS20VS1UR-MS	AL	20.0	1	22.20	24.50	1	32.4	12.35
PTVS22VS1UR-MS	AM	22.0	1	24.40	26.90	1	35.5	11.27
PTVS24VS1UR-MS	AN	24.0	1	26.70	29.50	1	38.9	10.29
PTVS26VS1UR-MS	AP	26.0	1	28.90	31.90	1	42.1	9.51
PTVS28VS1UR-MS	AR	28.0	1	31.10	34.40	1	45.4	8.82
PTVS30VS1UR-MS	AS	30.0	1	33.30	36.80	1	48.4	8.27
PTVS33VS1UR-MS	AT	33.0	1	36.70	40.60	1	53.3	7.51
PTVS36VS1UR-MS	AU	36.0	1	40.00	44.20	1	58.1	6.89
PTVS40VS1UR-MS	AV	40.0	1	44.40	49.10	1	64.5	6.21
PTVS43VS1UR-MS	AW	43.0	1	47.80	52.80	1	69.4	5.77
PTVS45VS1UR-MS	AX	45.0	1	50.00	55.30	1	72.7	5.51
PTVS48VS1UR-MS	AY	48.0	1	53.30	58.90	1	77.4	5.17
PTVS51VS1UR-MS	AZ	51.0	1	56.70	62.70	1	82.4	4.86

Electrical Characteristics (T=25℃)

Part Number	Marking	V_R	I_R@V_R	V_{BR}@I_T		I_T	V_C@I_{PP}	I_{PP}①
Type number		V	μA	min(V)	max(V)	mA	max(V)	A
PTVS54VS1UR-MS	B1	54.0	1	60.00	66.30	1	87.1	4.60
PTVS58VS1UR-MS	B2	58.0	1	64.4	71.20	1	93.6	4.28
PTVS60VS1UR-MS	B3	60.0	1	66.7	73.70	1	96.8	4.14
PTVS64VS1UR-MS	B4	64.0	1	71.10	78.60	1	103.0	3.89

Notes：

①Surgewaveform:10/1000μs

V_R：Stand-offVoltage--Maximumvoltagethatcanbeapplied

V_{BR}：BreakdownVoltage

V_C：ClampingVoltage--Peakvoltagemeasuredacrossthesuppressorataspecifiedlpp

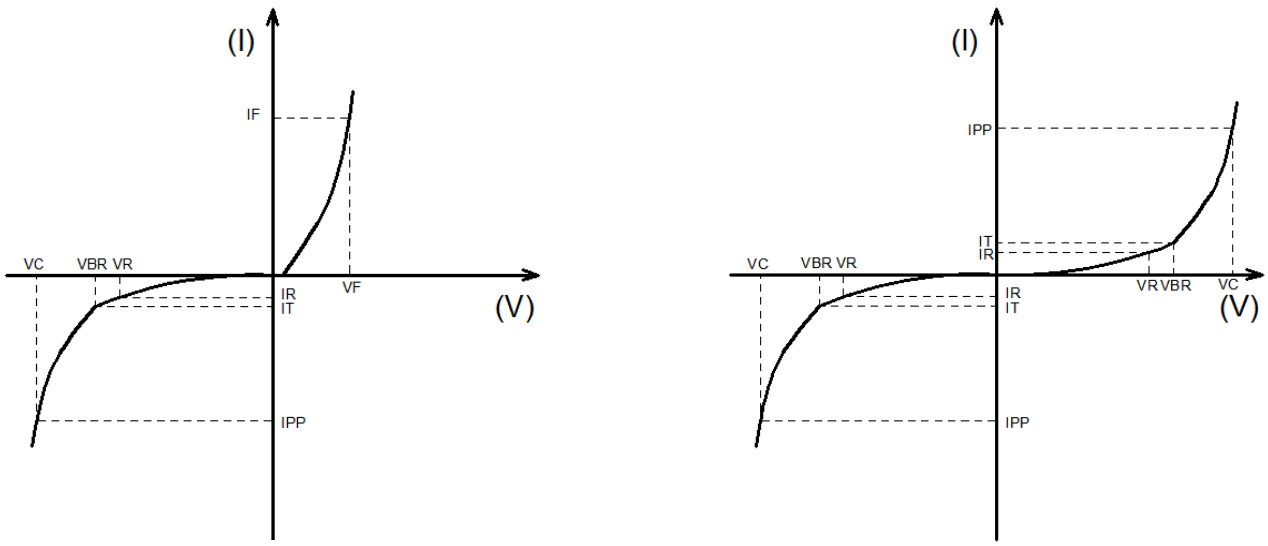
I_R：ReverseLeakageCurrent

Absolute Maximum Ratings(T=25°C, RH=45%-75%, unless otherwise noted)

Parameter	Symbol	Value	Unit
Peak pulse power dissipation on 10/1000μs waveform	P_{PP}	400	W
Steady state power dissipation at T_L=75℃	$P_{M(AV)}$	1.0	W
Operating junction temperature range	T_j	-55 to +125	℃
Storage temperature range	T_{stg}	-55 to +150	℃

Ratings And V-I Characteristics Curves (T=25°C, unless otherwise noted)

FIG1：V-I cure characteristics



Symbol	Parameter
I_F	Mean Forward Current
V_F	Maximum Forward Voltage @I_F
V_R	Peak Reverse Working Voltage
I_R	Reverse Leakage Current @ V_R
V_{BR}	Breakdown Voltage @ I_T
I_T	Test Current
I_{PP}	Maximum Reverse Peak Pulse Current
V_C	Clamping Voltage @ I_{PP}

Typical Characteristics

FIG2：Pulse Derating Curve

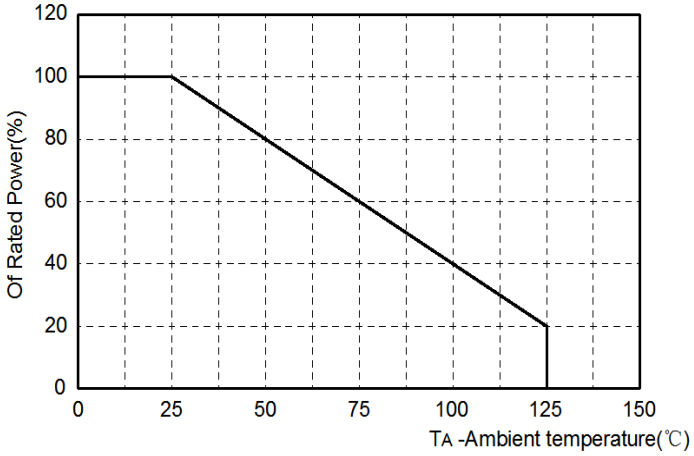


FIG3：Pulse Waveform

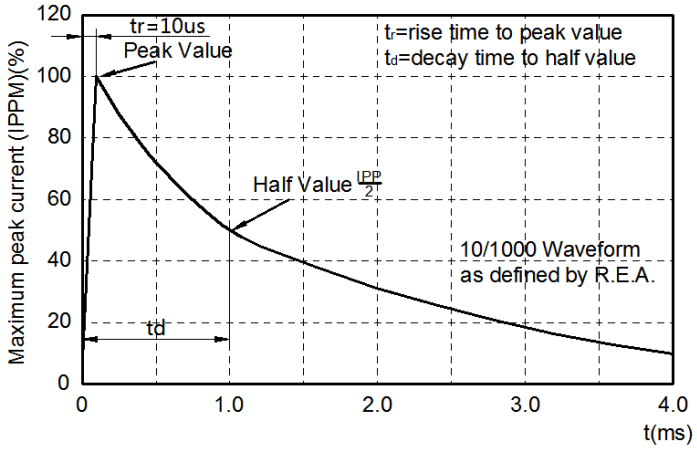


FIG4：Peak Pulse Power Rating Curve

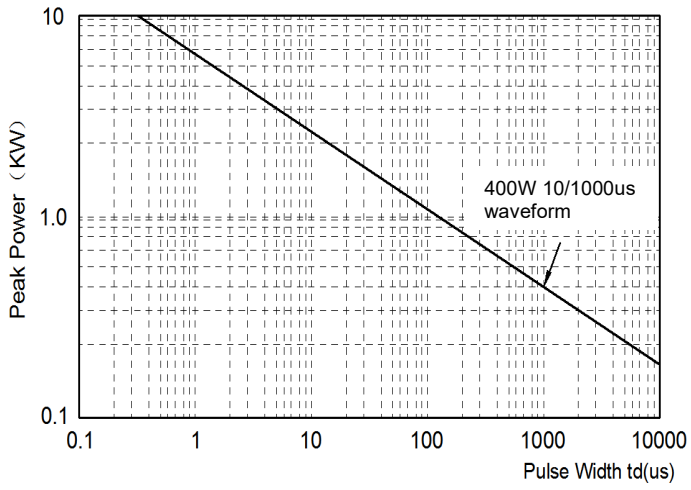
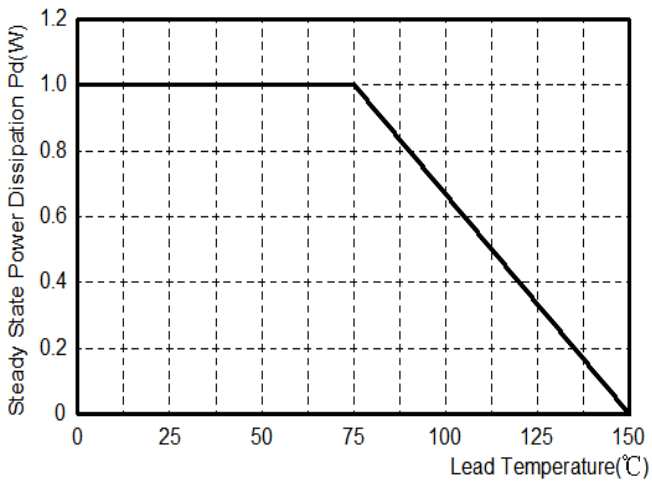
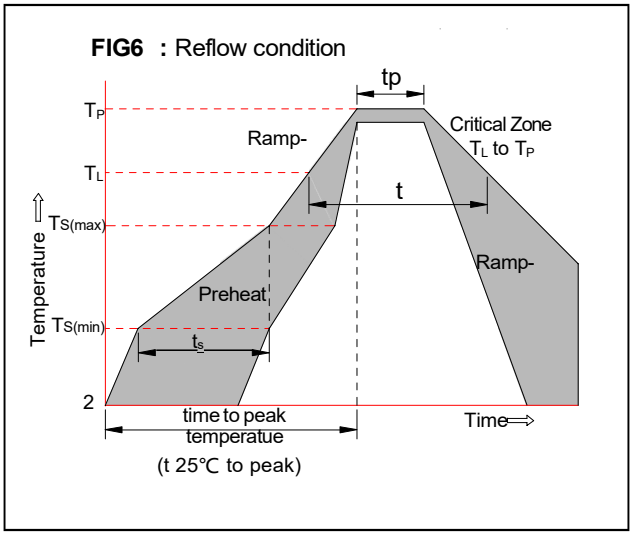


FIG5：Steady State Power Dissipation

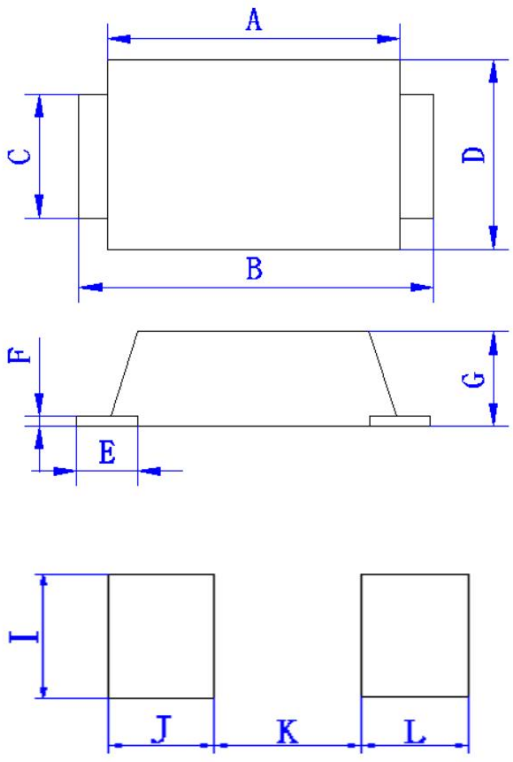


Soldering parameters

Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

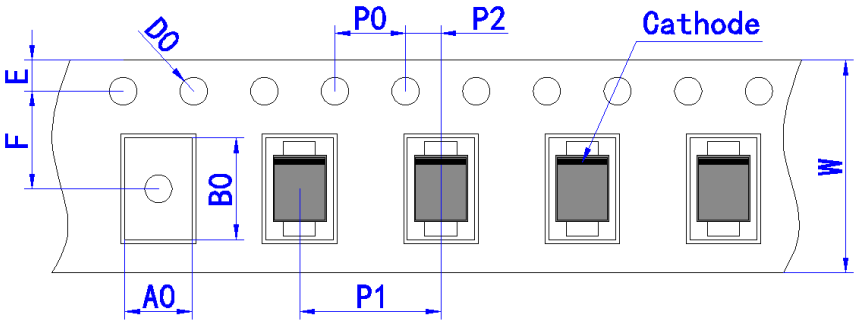


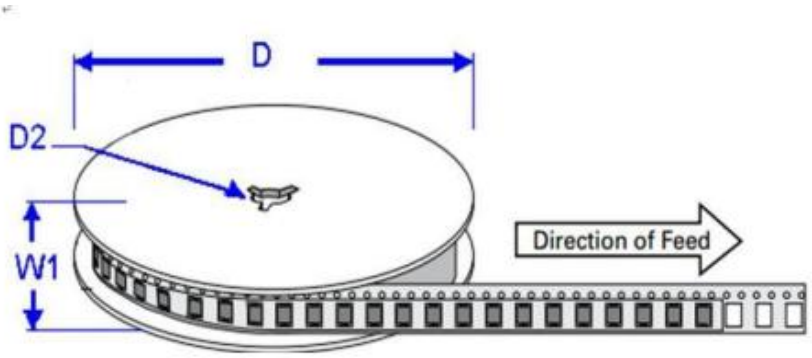
Package mechanical data & Suggested Land Pattern



Ref.(mm)	Millimeters	
	Min.	Max.
A	2.5	3.0
B	3.4	4.0
C	0.7	1.1
D	1.5	1.9
E	0.45	0.95
F	0.05	0.26
G	0.9	1.1
I	1.2	
J	0.85	
K		2.3
L	0.85	

Tape & reel specification - SOD-123W





Ref.	Millimeters
A0	2.15±0.20
B0	3.95±0.20
C	178.00
D0	1.55±0.10
E	1.75±0.20
E1	13.50±1.00
F	3.50±0.10
P0	4.00±0.20
P1	4.00±0.20
P2	2.00±0.20
W	8.00±0.30
W1	9.00±4.00
D	177.8±4.00
D2	13.5±0.2

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