SuperTVS – 400W Transient Voltage Suppressor

1. Features

- For surface mounted applications in order to optimize board space
- Low profile package
- Built-in strain relief
- Glass passivated junction
- Excellent clamping capability
- Meets MSL level 1, per J-STD-020
- Fast response time
- IEC 61000-4-2(ESD)±30KV(air) ±30KV(contact)
- 400W peak pulse power capability at 10/1000μs waveform, repetition rate (duty cycle): 0.01%
- Typical IR less than 1μA above 10V
- Plastic package has underwriters laboratory flammability 94V-0
- High Temperature soldering: 260℃/10 seconds at terminals

2. Application

- Personal digital assistants (PDA)
- Cellular handsets & Accessories
- Portable devices
- Portable instrumentation
- Handhelds and notebooks
- Digital cameras

3. Marking Information

BI- directional	UNI-directional	Marking
		XXXX= Product type marking code (See Electrical Characteristics Table)

4. Maximum Ratings

Ratings at 25° ambient temperature unless otherwise specified

Rating	Symbol	Value	Units
Peak pulse power dissipation at 10/1000us waveform	PPP	400	W
Peak pulse current of at 10/1000us waveform	IPPM	See Table	A
Steady state power dissipation at TA=50℃	PM(AV)	3.3	W
Peak forward surge current, 8.3ms single half sine-wave superimposed on rated load (JEDEC Method)	IFSM	40	A
Storage & operating temperature range	TSTG, TJ	-65 to 150	℃
Typical thermal resistance junction to lead	$R_{\theta JL}$	30	℃/W
Typical thermal resistance junction to ambient	$R_{\theta JA}$	120	℃/W

Notes： 1. Non-repetitive current pulse, per Fig.3 and derated above TA=25℃ per Fig.2.

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2. 8.3ms single half sine-wave, or equivalent square wave, duty cycle=4 pulses per minutes maximum.

5. Electrical Characteristics (TA=25°C)

Part Number	Marking	Reverse Stand ff Voltage VR (Volts)	Breakdown Voltage VBR (Volts) @ IT		Test Current IT	Maximum Clamping Voltage VC @ Ipp	Maximum Peak Pulse Current Ipp ①	Maximum Reverse Leakage IR @ VR	ROHS2.0
Bi	Bi		MIN	MAX	(mA)	(V)	(A)	(μA)	
PTVS5V0S1UR,115-ES	WE	5	6.40	7.00	10	9.20	40.10	400	y
PTVS6V0S1UR,115-ES	WG	6	6.67	7.37	10	10.30	35.90	400	y
PTVS6V5S1UR,115-ES	WK	6.5	7.22	7.98	10	11.20	33.10	250	y
PTVS7V0S1UR,115-ES	WM	7	7.78	8.60	10	12.00	30.90	100	y
PTVS7V5S1UR,115-ES	WP	7.5	8.33	9.21	1	12.90	28.70	80	y
PTVS8V0S1UR,115-ES	WR	8	8.89	9.83	1	13.60	27.20	50	y
PTVS9V0S1UR,115-ES	WV	9	10.00	11.10	1	15.40	24.10	10	y
PTVS10VS1UR,115-ES	WX	10	11.10	12.30	1	17.00	23.50	5	y
PTVS11VS1UR,115-ES	WZ	11	12.20	13.50	1	18.20	22.00	1	y
PTVS12VS1UR,115-ES	XE	12	13.30	14.70	1	19.90	20.10	1	y
PTVS13VS1UR,115-ES	XG	13	14.40	15.90	1	21.50	18.60	1	y
PTVS14VS1UR,115-ES	XK	14	15.60	17.20	1	23.20	17.20	1	y
PTVS15VS1UR,115-ES	XM	15	16.70	18.50	1	24.40	16.40	1	y
PTVS17VS1UR,115-ES	XR	17	18.90	20.90	1	27.60	14.50	1	y
PTVS18VS1UR,115-ES	XT	18	20.00	22.10	1	29.20	13.70	1	y
PTVS20VS1UR,115-ES	XV	20	22.20	24.50	1	32.40	12.30	1	y
PTVS22VS1UR,115-ES	XX	22	24.40	26.90	1	35.50	11.30	1	y
PTVS24VS1UR,115-ES	XZ	24	26.70	29.50	1	38.90	10.30	1	y
PTVS26VS1UR,115-ES	YE	26	28.90	31.90	1	42.10	9.50	1	y
PTVS28VS1UR,115-ES	YG	28	31.10	34.40	1	45.40	8.80	1	y
PTVS30VS1UR,115-ES	YK	30	33.30	36.80	1	48.40	8.30	1	y
PTVS33VS1UR,115-ES	YM	33	36.70	40.60	1	53.30	7.50	1	y
PTVS36VS1UR,115-ES	YP	36	40.00	44.20	1	58.10	6.90	1	y
PTVS40VS1UR,115-ES	YR	40	44.40	49.10	1	64.50	6.20	1	y
PTVS43VS1UR,115-ES	YT	43	47.80	52.80	1	69.40	5.80	1	y
PTVS45VS1UR,115-ES	YV	45	50.00	55.30	1	72.70	5.50	1	y
PTVS48VS1UR,115-ES	YX	48	53.30	58.90	1	77.40	5.20	1	y
PTVS51VS1UR,115-ES	YZ	51	56.70	62.70	1	82.40	4.90	1	y
PTVS58VS1UR,115-ES	ZG	58	64.40	71.20	1	93.60	4.30	1	y
PTVS60VS1UR,115-ES	ZK	60	66.70	73.70	1	96.80	4.10	1	y
PTVS64VS1UR,115-ES	ZM	64	71.10	78.60	1	103.00	3.90	1	y
PTVS70VS1UR,115-ES	ZP	70	77.80	86.00	1	113.00	3.50	1	y
PTVS75VS1UR,115-ES	ZR	75	83.30	92.10	1	121.00	3.30	1	y
PTVS78VS1UR,115-ES	ZT	78	86.70	95.80	1	126.00	3.20	1	y
PTVS85VS1UR,115-ES	ZV	85	94.40	104.00	1	137.00	2.90	1	y

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Notes:①Surge waveform:10/1000 μ s.

6. Ratings and Characteristic Curves (TA =25℃ unless otherwise noted)

Figure 1. Peak Pulse Power Rating Curve

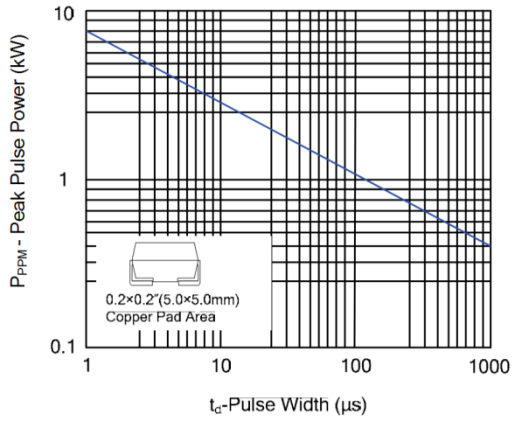


Figure 2 Pulse Derating Curve

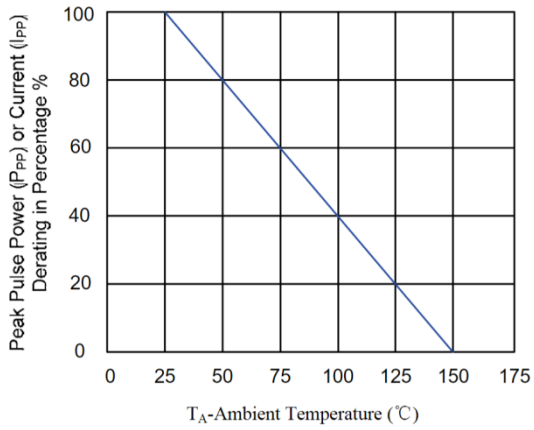


Figure 3 Pulse Waveform

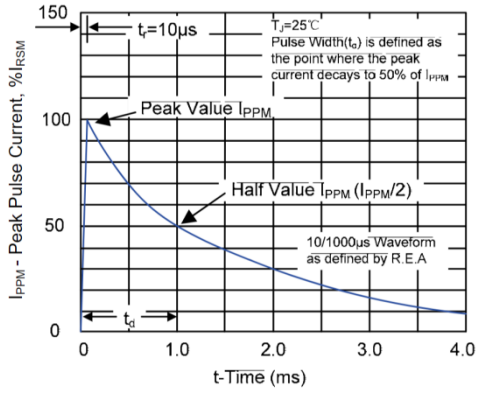


Figure 4 Typical Junction Capacitance

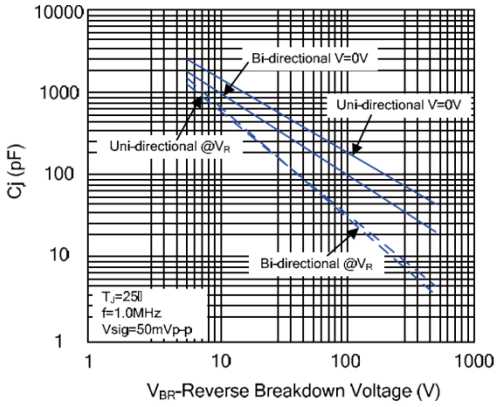


Figure 5 Steady State Power Dissipation Derating Curve

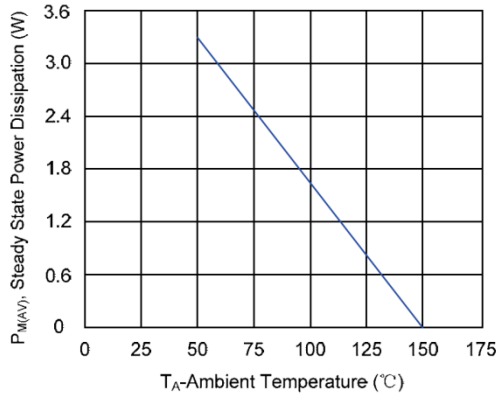
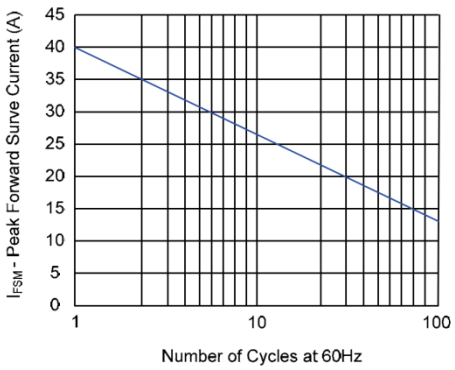
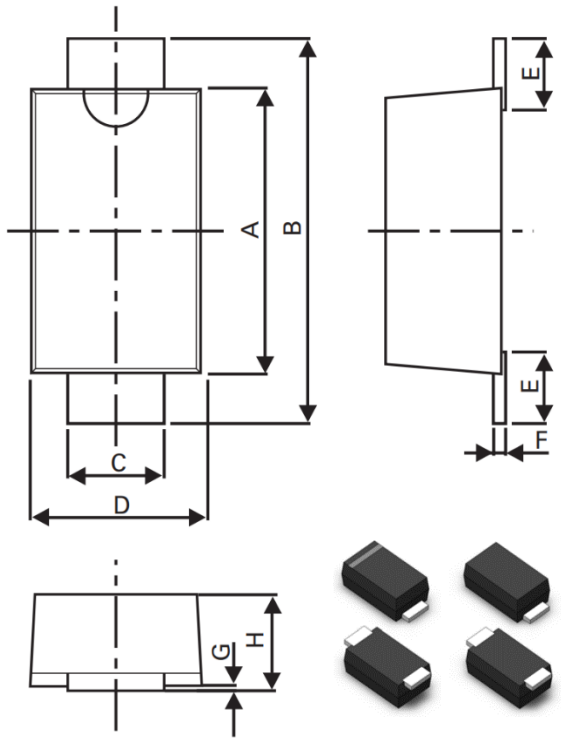


Figure 6 Maximum Non-Repetitive Forward Surge Current Uni-Directional Only



7. Dimension (SOD-123F)



	Millimeters		Inches	
Dimensions	Min	Max	Min	Max
A	2.5	3.05	0.0984	0.1201
B	3.35	4.05	0.1319	0.1594
C	0.7	1.2	0.0275	0.0472
D	1.5	2	0.0591	0.0787
E	0.35	0.95	0.0138	0.0374
F	0.05	0.26	0.002	0.0102
G	0	0.2	0	0.0079
H	0.70	1.35	0.0276	0.0531

8. Packaging

Part number	Component Package	Quantity	Packaging Option	Packaging Specification
PTVSXS1UR,115-ES	SOD-123F	3000	Tape & Reel – 8mm tape/7” reel	EIA RS-481

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