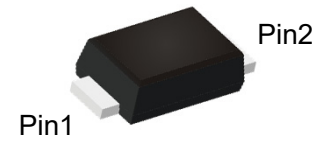


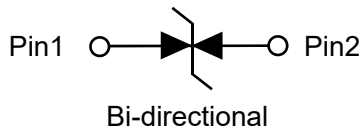
Description

TVS diodes can be used in a wide range of applications which like consumer electronic products, automotive industries, munitions, telecommunications, aerospace industries, and intelligent control systems.

Bi-directional: PTVSHC1RFxxVBH
 Uni-directional: PTVSHC1RFxxVUH

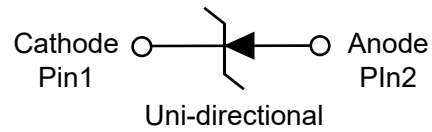


Top View



Bi-directional

Circuit Diagram



Uni-directional

Circuit Diagram

Feature

- Glass passivated junction
- Low reverse leakage
- 400W Peak Pulse power capability at 10/1000μs waveform.
- Excellent clamping capability
- Very fast response time
- Lead and body according with RoHS standard

Mechanical Characteristics

- Package: SOD-123FL
- Terminals: Solderable per MIL-STD-750, Method 2026
- Epoxy: UL 94V-0 rate flame retardant
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any

Absolute maximum rating@25°C

Rating	Symbol	Value	Units
Peak Pulse Power Dissipation On 10/1000 μs Waveform ¹⁾	P_{PP}	400	W
Peak Pulse Current With a 10/1000 μs Waveform ¹⁾	I_{PP}	See Next Table	A
Peak Forward Surge Current, 8.3 ms Single Half Sinewave Unidirectional Only ²⁾	I_{FSM}	40	A
Power Dissipation On Infinite Heatsink @ $T_L=75^{\circ}C$	P_D	3.0	W
Maximum Instantaneous Forward Voltage at 15A For Unidirectional Only ²⁾	V_F	3.5	V
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	°C

Note:

1) Non-repetitive current pulse per Fig.5 and derated above $T_A=25^{\circ}C$ per Fig.1;

2) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle =4 pulses per minute maximum;

Electrical characteristics per line@25°C(unless otherwise specified)

Part Number		Marking		V_{RMW}	$V_{BR}@I_T$		I_T	I_{PP}	$V_C@I_{PP}$	$I_R@V_{RWM}$
Uni	Bi	Uni	Bi	V	min(V)	max(V)	mA	A	V	μA
PTVSHC1RF5VUH	PTVSHC1RF5VBH	AE	WE	5	6.4	7	10	9.2	43.5	800
PTVSHC1RF6VUH	PTVSHC1RF6VBH	AG	WG	6	6.67	7.37	10	10.3	38.8	800
PTVSHC1RF6V5UH	PTVSHC1RF6V5BH	AK	WK	6.5	7.22	7.98	10	11.2	35.7	500
PTVSHC1RF7VUH	PTVSHC1RF7VBH	AM	WM	7	7.78	8.6	10	12	33.3	200
PTVSHC1RF7V5UH	PTVSHC1RF7V5BH	AP	WP	7.5	8.33	9.21	1	12.9	31	100
PTVSHC1RF8VUH	PTVSHC1RF8VBH	AR	WR	8	8.89	9.83	1	13.6	29.4	50
PTVSHC1RF8V5UH	PTVSHC1RF8V5BH	AT	WT	8.5	9.44	10.4	1	14.4	27.8	20
PTVSHC1RF9VUH	PTVSHC1RF9VBH	AV	WV	9	10	11.1	1	15.4	26	10
PTVSHC1RF10VUH	PTVSHC1RF10VBH	AX	WX	10	11.1	12.3	1	17	23.5	5
PTVSHC1RF11VUH	PTVSHC1RF11VBH	AZ	WZ	11	12.2	13.5	1	18.2	22	1
PTVSHC1RF12VUH	PTVSHC1RF12VBH	BE	XE	12	13.3	14.7	1	19.9	20.1	1
PTVSHC1RF13VUH	PTVSHC1RF13VBH	BG	XG	13	14.4	15.9	1	21.5	18.6	1
PTVSHC1RF14VUH	PTVSHC1RF14VBH	BK	XK	14	15.6	17.2	1	23.2	17.2	1
PTVSHC1RF15VUH	PTVSHC1RF15VBH	BM	XM	15	16.7	18.5	1	24.4	16.4	1
PTVSHC1RF16VUH	PTVSHC1RF16VBH	BP	XP	16	17.8	19.7	1	26	15.4	1
PTVSHC1RF17VUH	PTVSHC1RF17VBH	BR	XR	17	18.9	20.9	1	27.6	14.5	1
PTVSHC1RF18VUH	PTVSHC1RF18VBH	BT	XT	18	20	22.1	1	29.2	13.7	1
PTVSHC1RF20VUH	PTVSHC1RF20VBH	BV	XV	20	22.2	24.5	1	32.4	12.3	1
PTVSHC1RF22VUH	PTVSHC1RF22VBH	BX	XX	22	24.4	26.9	1	35.5	11.3	1
PTVSHC1RF24VUH	PTVSHC1RF24VBH	BZ	XZ	24	26.7	29.5	1	38.9	10.3	1
PTVSHC1RF26VUH	PTVSHC1RF26VBH	CE	YE	26	28.9	31.9	1	42.1	9.5	1
PTVSHC1RF28VUH	PTVSHC1RF28VBH	CG	YG	28	31.1	34.4	1	45.4	8.8	1
PTVSHC1RF30VUH	PTVSHC1RF30VBH	CK	YK	30	33.5	36.8	1	48.4	8.3	1
PTVSHC1RF33VUH	PTVSHC1RF33VBH	CM	YM	33	36.7	40.6	1	53.3	7.5	1
PTVSHC1RF36VUH	PTVSHC1RF36VBH	CP	YP	36	40	44.2	1	58.1	6.9	1
PTVSHC1RF40VUH	PTVSHC1RF40VBH	CR	YR	40	44.4	49.1	1	64.5	6.2	1
PTVSHC1RF43VUH	PTVSHC1RF43VBH	CT	YT	43	47.8	52.8	1	69.4	5.8	1
PTVSHC1RF45VUH	PTVSHC1RF45VBH	CV	YV	45	50	55.3	1	72.7	5.5	1
PTVSHC1RF48VUH	PTVSHC1RF48VBH	CX	YX	48	53.3	58.9	1	77.4	5.2	1

Part Number		Marking		V_{RWM}	$V_{BR@I_T}$		I_T	I_{PP}	$V_C@I_{PP}$	$I_R@V_{RWM}$
Uni	Bi	Uni	Bi	V	min(V)	max(V)	mA	A	V	μA
PTVSHC1RF51VUH	PTVSHC1RF51VBH	CZ	YZ	51	56.7	62.7	1	82.4	4.9	1
PTVSHC1RF54VUH	PTVSHC1RF54VBH	RE	ZE	54	60	66.3	1	87.1	4.6	1
PTVSHC1RF58VUH	PTVSHC1RF58VBH	RG	ZG	58	64.4	71.2	1	93.6	4.3	1
PTVSHC1RF60VUH	PTVSHC1RF60VBH	RK	ZK	60	66.7	73.7	1	96.8	4.1	1
PTVSHC1RF64VUH	PTVSHC1RF64VBH	RM	ZM	64	71.1	78.6	1	103	3.9	1
PTVSHC1RF70VUH	PTVSHC1RF70VBH	RP	ZP	70	77.8	86	1	113	3.5	1
PTVSHC1RF75VUH	PTVSHC1RF75VBH	RR	ZR	75	83.3	92.1	1	121	3.3	1
PTVSHC1RF78VUH	PTVSHC1RF78VBH	RT	ZT	78	86.7	95.8	1	126	3.2	1
PTVSHC1RF85VUH	PTVSHC1RF85VBH	RV	ZV	85	94.4	104	1	137	2.9	1
PTVSHC1RF90VUH	PTVSHC1RF90VBH	RX	ZX	90	100	111	1	146	2.7	1
PTVSHC1RF100VUH	PTVSHC1RF100VBH	RZ	ZZ	100	111	123	1	162	2.5	1
PTVSHC1RF110VUH	PTVSHC1RF110VBH	SE	VE	110	122	135	1	177	2.3	1
PTVSHC1RF120VUH	PTVSHC1RF120VBH	SG	VG	120	133	147	1	193	2.1	1
PTVSHC1RF130VUH	PTVSHC1RF130VBH	SK	VK	130	144	159	1	209	1.9	1
PTVSHC1RF150VUH	PTVSHC1RF150VBH	SM	VM	150	167	185	1	243	1.6	1
PTVSHC1RF160VUH	PTVSHC1RF160VBH	SP	VP	160	178	197	1	259	1.5	1
PTVSHC1RF170VUH	PTVSHC1RF170VBH	SR	VR	170	189	209	1	275	1.5	1
PTVSHC1RF180VUH	-	ST	-	180	201	222	1	292	1.4	1
PTVSHC1RF190VUH	-	SU	-	190	209	243	1	308	1.3	1
PTVSHC1RF200VUH	-	SV	-	200	224	247	1	324	1.2	1
PTVSHC1RF210VUH	-	SW	-	210	231	268	1	340	1.2	1
PTVSHC1RF220VUH	-	GX	-	220	246	272	1	356	1.1	1

Typical Characteristics

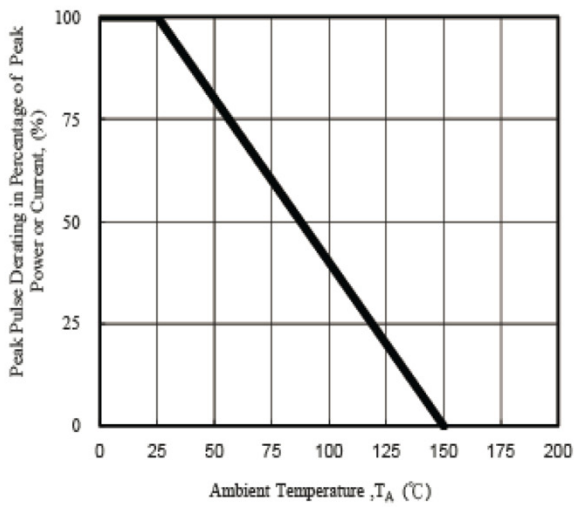


Fig. 1 - Pulse Derating Curve

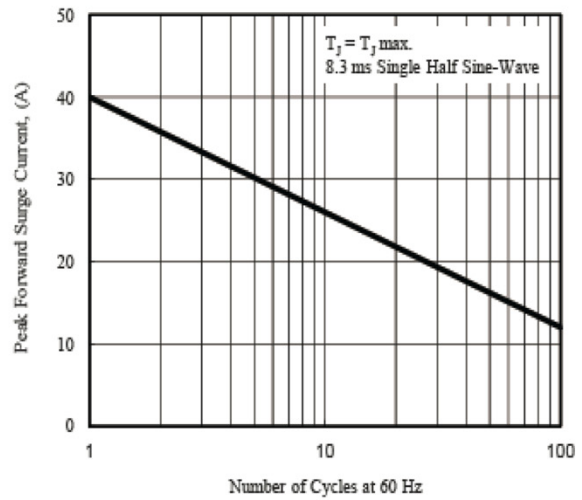


Fig. 2 - Maximum Non-Repetitive Surge Current

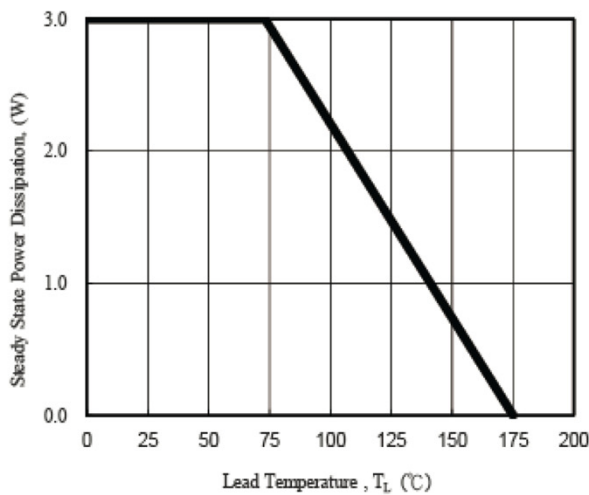


Fig. 3 - Steady State Power Derating Curve

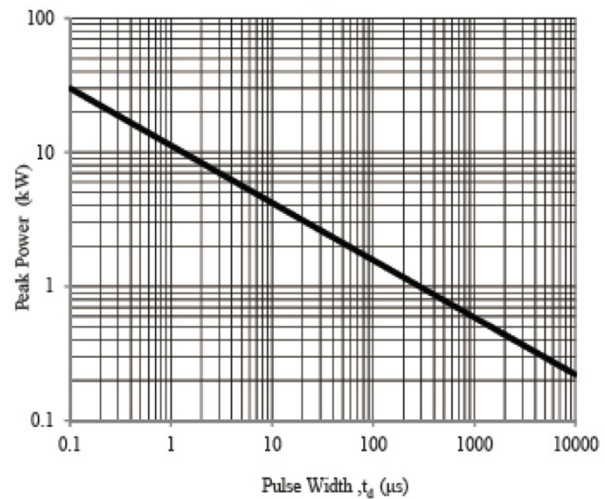


Fig. 4 - Peak Pulse Power Rating Curve

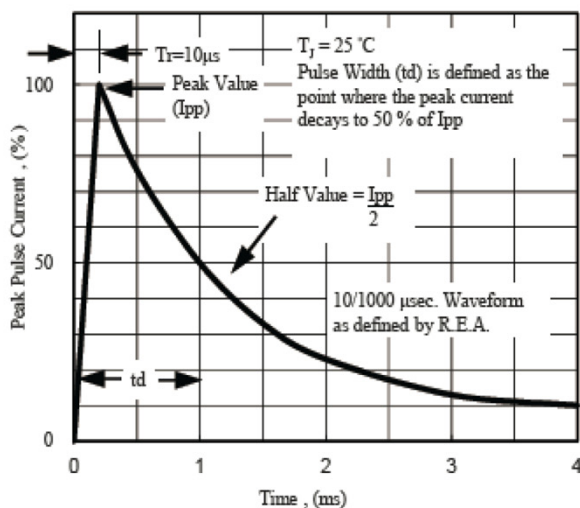


Fig. 5 - Pulse Waveform

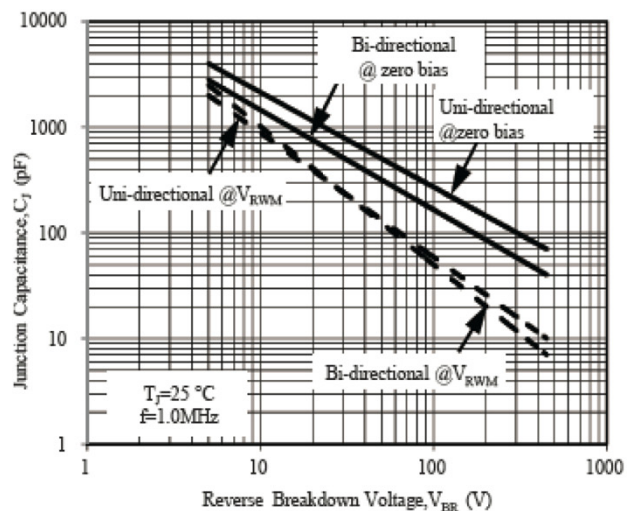
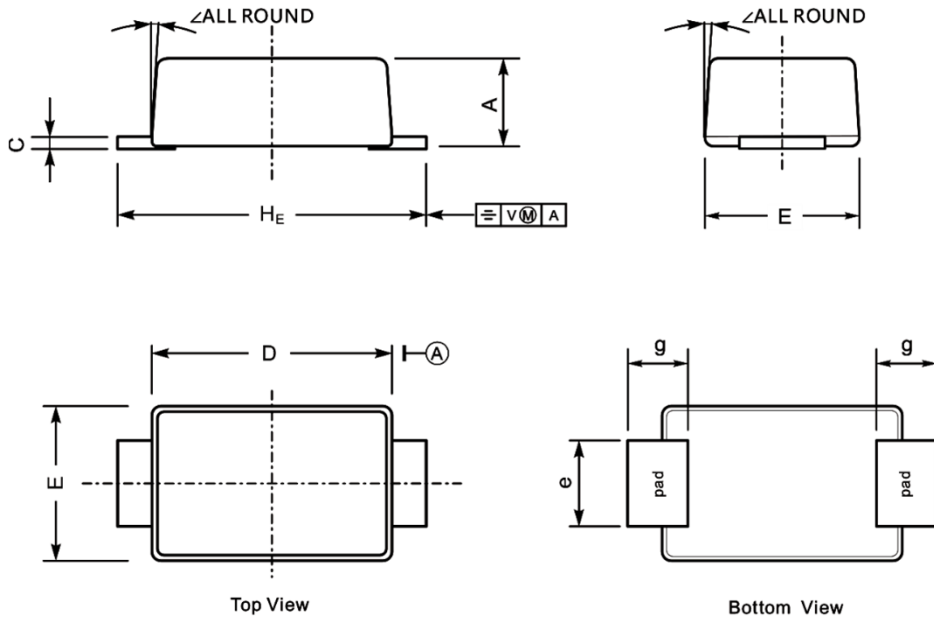
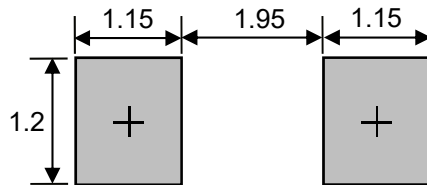


Fig. 6 - Typical Junction Capacitance

Product Dimension (SOD-123FL)



Dim	Millimeters		Inches	
	Min	Max	Min	Max
A	0.90	1.30	0.035	0.051
C	0.10	0.30	0.004	0.012
D	2.60	3.00	0.102	0.118
E	1.60	2.00	0.063	0.079
e	0.80	1.10	0.031	0.043
g	0.70	0.90	0.028	0.035
H_E	3.60	4.00	0.142	0.157
\sphericalangle	7°			



Unit: mm

Suggested PCB Layout

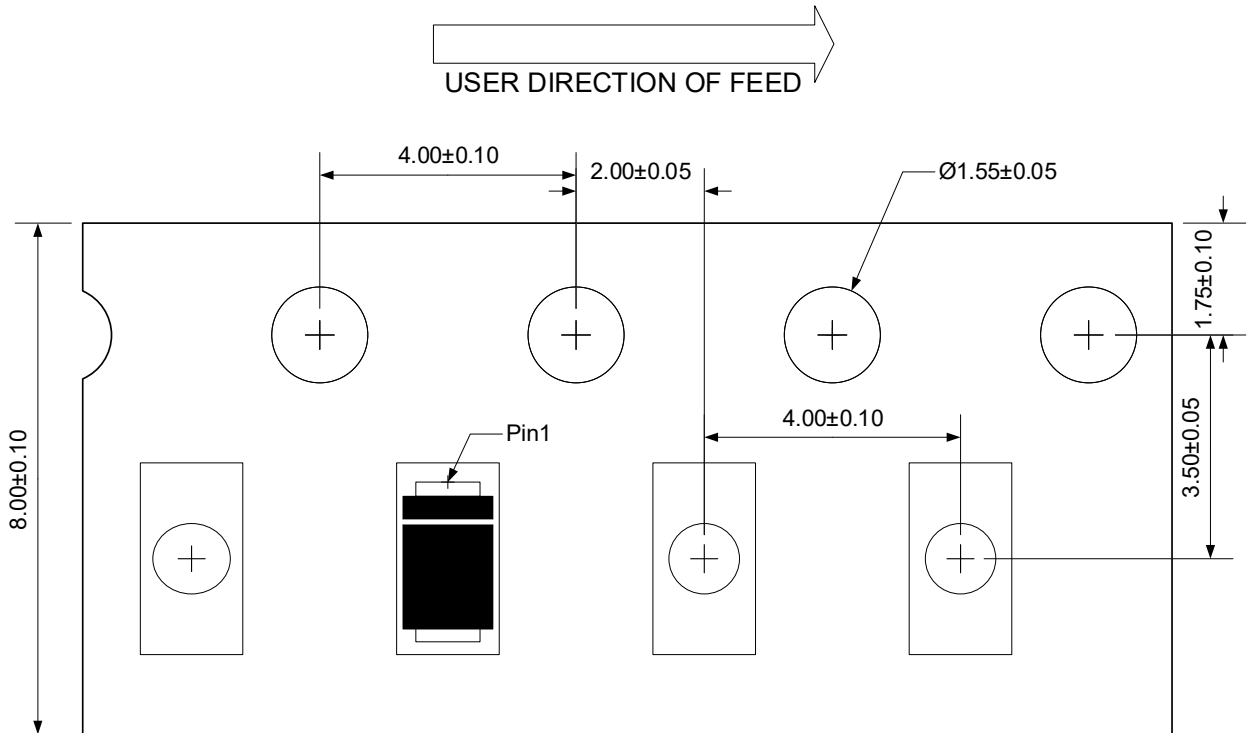
400W Transient Voltage Suppressor

PTVSHC1RFxxVUH/VBH

Ordering Information

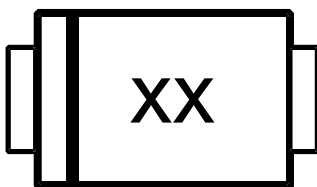
Package	Reel	Shipping
SOD-123FL	7"	3000 / Tape & Reel

Load with information

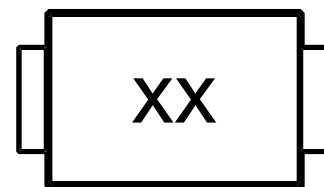


Unit:mm

Marking information




Uni-directional



Bi-directional

Note: Detailed Marking See table above


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