

# STBS06H - STBS5D0

## SURFACE MOUNT BIDIRECTIONAL TRANSIENT VOLTAGE SUPPRESSOR

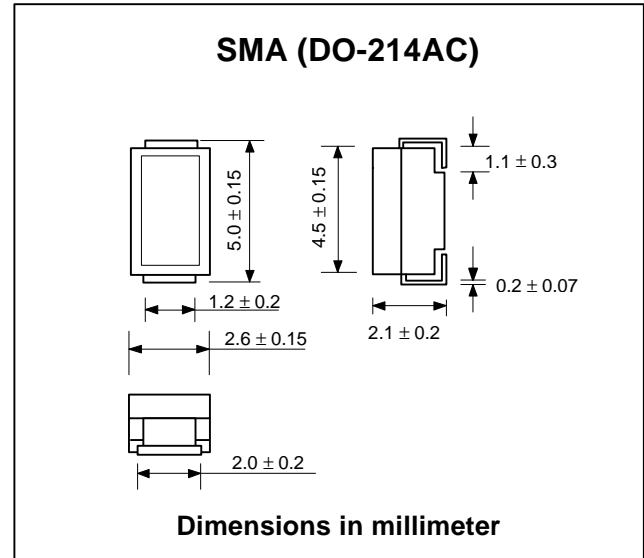
**V<sub>BR</sub> : 6.8 - 200 Volts**  
**PPK : 500 Watts**

### FEATURES :

- \* 500W surge capability at 1ms
- \* Excellent clamping capability
- \* Low zener impedance
- \* Fast response time : typically less than 1.0 ps from 0 volt to V<sub>BR(min.)</sub>
- \* Typical I<sub>R</sub> less than 1μA above 10V
- \* Pb / RoHS Free

### MECHANICAL DATA

- \* Case : SMA Molded plastic
- \* Epoxy : UL94V-O rate flame retardant
- \* Lead : Lead Formed for Surface Mount
- \* Mounting position : Any
- \* Weight : 0.064 grams



### DEVICES FOR UNIPOLAR APPLICATIONS

For Uni-directional altered the third letter of type from "B" to be "U".  
Electrical characteristics apply in both directions

### MAXIMUM RATINGS

Rating at 25 °C ambient temperature unless otherwise specified.

Rating	Symbol	Value	Unit
Peak Power Dissipation at Ta = 25 °C, Tp=1ms (Note1)	PPK	Minimum 500	W
Steady State Power Dissipation at TL = 75 °C (Note 2)	Pd	3.0	W
Operating and Storage Temperature Range	TJ, TSTG	- 55 to + 150	°C

### Note :

- (1) Non-repetitive Current pulse, per Fig. 2 and derated above Ta = 25 °C per Fig. 1
- (2) Mounted on copper Lead area at 5.0 mm<sup>2</sup> ( 0.013 mm thick ).

## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

TYPE	Breakdown Voltage @ $I_t$ ( Note 1 )			Working Peak Reverse Voltage	Maximum Reverse Leakage @ $V_{RWM}$	Maximum Reverse Current	Maximum Clamping Voltage @ $I_{RSM}$	Maximum Voltage Temperature Variation of $V_{BR}$ (mV / °C)
	$V_{BR}$ (V)		$I_t$					
	Min.	Max.	(mA)	$V_{RWM}$ (V)	$I_R$ ( $\mu$ A)	$I_{RSM}$ (A)	$V_{RSM}$ (V)	
STBS06H	6.40	7.3	10	5.0	1200	52.0	9.6	5.0
STBS56H	6.40	7.0	10	5.0	1200	54.3	9.2	5.0
STBS07A	6.67	8.15	10	6.0	1200	43.9	11.4	5.0
STBS57A	6.67	7.37	10	6.0	1200	48.5	10.3	5.0
STBS07G	7.22	8.82	10	6.5	800	40.7	12.3	5.0
STBS57G	7.22	7.98	10	6.5	800	44.7	11.2	5.0
STBS08C	7.78	9.51	10	7.0	300	37.8	13.3	6.0
STBS58C	7.78	8.60	10	7.0	300	41.7	12.0	6.0
STBS08I	8.33	10.2	1.0	7.5	50	35.0	14.3	7.0
STBS58I	8.33	9.21	1.0	7.5	50	38.8	12.9	7.0
STBS09B	8.89	10.9	1.0	8.0	25	33.3	15.0	7.0
STBS59B	8.89	9.30	1.0	8.0	25	36.7	13.6	7.0
STBS010	9.44	11.5	1.0	8.5	10	31.4	15.9	8.0
STBS510	9.44	10.4	1.0	8.5	10	34.7	14.4	8.0
STBS011	10.0	12.2	1.0	9.0	2.0	29.5	16.9	9.0
STBS511	10.0	11.1	1.0	9.0	2.0	32.5	15.4	9.0
STBS012	11.1	13.6	1.0	10.0	2.0	26.6	18.8	10.0
STBS512	11.1	12.3	1.0	10.0	2.0	29.4	17.0	10.0
STBS013	12.2	14.9	1.0	11.0	1.0	24.9	20.1	11.0
STBS513	12.2	13.5	1.0	11.0	1.0	27.4	18.2	11.0
STBS014	13.3	16.3	1.0	12.0	1.0	22.7	22.0	12.0
STBS514	13.3	14.7	1.0	12.0	1.0	25.1	19.9	12.0
STBS015	14.4	17.6	1.0	13.0	1.0	21.0	23.8	13.0
STBS515	14.4	15.9	1.0	13.0	1.0	23.2	21.5	13.0
STBS016	15.6	19.1	1.0	14.0	1.0	19.4	25.8	14.0
STBS516	15.6	17.2	1.0	14.0	1.0	21.5	23.2	14.0
STBS018	16.7	20.4	1.0	15.0	1.0	18.8	26.9	16.0
STBS518	16.7	18.5	1.0	15.0	1.0	20.6	24.4	16.0
STBS019	17.8	21.8	1.0	16.0	1.0	17.6	28.8	19.0
STBS519	17.8	19.7	1.0	16.0	1.0	19.2	26.0	17.0
STBS020	18.9	23.1	1.0	17.0	1.0	16.4	30.5	20.0
STBS520	18.9	20.9	1.0	17.0	1.0	18.1	27.6	19.0
STBS021	20.0	24.4	1.0	18.0	1.0	15.5	32.2	21.0
STBS521	20.0	22.1	1.0	18.0	1.0	17.2	29.2	20.0
STBS023	22.2	27.1	1.0	20.0	1.0	13.9	35.8	25.0
STBS523	22.2	24.5	1.0	20.0	1.0	15.4	32.4	23.0
STBS026	24.4	29.8	1.0	22.0	1.0	12.7	39.4	28.0
STBS526	24.4	26.9	1.0	22.0	1.0	14.1	35.5	25.0
STBS028	26.7	32.6	1.0	24.0	1.0	11.6	43.0	31.0
STBS528	26.7	29.5	1.0	24.0	1.0	12.8	38.9	28.0
STBS030	28.9	35.3	1.0	26.0	1.0	10.7	46.6	31.0
STBS530	28.9	31.9	1.0	26.0	1.0	11.9	42.1	30.0
STBS033	31.1	38.0	1.0	28.0	1.0	9.9	50.0	35.0
STBS533	31.1	34.4	1.0	28.0	1.0	11.0	45.4	31.0
STBS035	33.3	40.7	1.0	30.0	1.0	9.3	53.5	39.0
STBS535	33.3	36.8	1.0	30.0	1.0	10.3	48.4	36.0
STBS039	36.7	44.9	1.0	33.0	1.0	8.5	59.0	42.0

## ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

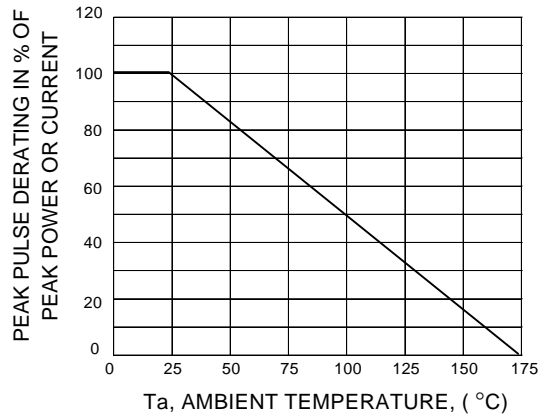
TYPE	Breakdown Voltage @ $I_t$ ( Note 1 )		Working Peak Reverse Voltage	Maximum Reverse Leakage @ $V_{RWM}$	Maximum Reverse Current	Maximum Clamping Voltage @ $I_{RSM}$	Maximum Voltage Temperature Variation of $V_{BR}$	
	$V_{BR}$ (V)							$I_t$
	Min.	Max.	(mA)	(V)	( $\mu$ A)	(A)	(V)	(mV / °C)
STBS539	36.7	40.6	1.0	33.0	1.0	9.4	53.3	39.0
STBS042	40.0	48.9	1.0	36.0	1.0	7.8	64.3	46.0
STBS542	40.0	44.2	1.0	36.0	1.0	8.6	58.1	41.0
STBS047	44.4	54.3	1.0	40.0	1.0	7.0	71.4	51.0
STBS547	44.4	49.1	1.0	40.0	1.0	7.8	64.5	46.0
STBS050	47.8	58.4	1.0	43.0	1.0	6.5	76.7	55.0
STBS550	47.8	52.8	1.0	43.0	1.0	7.2	69.4	50.0
STBS053	50.0	61.1	1.0	45.0	1.0	6.2	80.3	58.0
STBS553	50.0	55.3	1.0	45.0	1.0	6.9	72.7	52.0
STBS056	53.3	65.1	1.0	48.0	1.0	5.8	85.5	63.0
STBS556	53.3	58.9	1.0	48.0	1.0	6.5	77.4	56.0
STBS060	56.7	69.3	1.0	51.0	1.0	5.5	91.1	66.0
STBS560	56.7	62.7	1.0	51.0	1.0	6.1	82.4	61.0
STBS063	60.0	73.3	1.0	54.0	1.0	5.2	96.3	71.0
STBS563	60.0	66.3	1.0	54.0	1.0	5.7	87.1	65.0
STBS068	64.4	78.7	1.0	58.0	1.0	4.9	103	78.0
STBS568	64.4	71.2	1.0	58.0	1.0	5.3	93.6	70.0
STBS071	66.7	81.5	1.0	60.0	1.0	4.7	107	80.0
STBS571	66.7	73.7	1.0	60.0	1.0	5.2	96.8	71.0
STBS075	71.1	86.9	1.0	64.0	1.0	4.4	114	86.0
STBS575	71.1	78.6	1.0	64.0	1.0	4.9	103	76.0
STBS082	77.8	95.1	1.0	70.0	1.0	4.0	125	94.0
STBS582	77.8	86.0	1.0	70.0	1.0	4.4	113	85.0
STBS088	83.3	102	1.0	75.0	1.0	3.7	134	101
STBS588	83.3	92.1	1.0	75.0	1.0	4.1	121	91.0
STBS091	86.7	106	1.0	78.0	1.0	3.6	139	105
STBS591	86.7	95.8	1.0	78.0	1.0	4.0	126	95.0
STBS099	94.4	115	1.0	85.0	1.0	3.3	151	114
STBS599	94.4	104	1.0	85.0	1.0	3.6	137	103
STBS0B1	100	122	1.0	90.0	1.0	3.1	160	121
STBS5B1	100	111	1.0	90.0	1.0	3.4	146	110
STBS0B2	111	136	1.0	100	1.0	2.8	179	135
STBS5B2	111	123	1.0	100	1.0	3.1	162	123
STBS0B3	122	149	1.0	110	1.0	2.6	196	148
STBS5B3	122	135	1.0	110	1.0	2.8	177	133
STBS0B4	133	163	1.0	120	1.0	2.3	214	162
STBS5B4	133	147	1.0	120	1.0	2	193	146
STBS0B5	144	176	1.0	130	1.0	2.2	231	175
STBS5B5	144	159	1.0	130	1.0	2.4	209	158
STBS0B8	167	204	1.0	150	1.0	1.9	268	203
STBS5B8	167	185	1.0	150	1.0	2.1	243	184
STBS0B9	178	218	1.0	160	1.0	1.7	287	217
STBS5B9	178	197	1.0	160	1.0	1.9	259	196
STBS0D0	189	231	1.0	170	1.0	1.6	304	230
STBS5D0	189	209	1.0	170	1.0	1.8	275	208

**Note:**

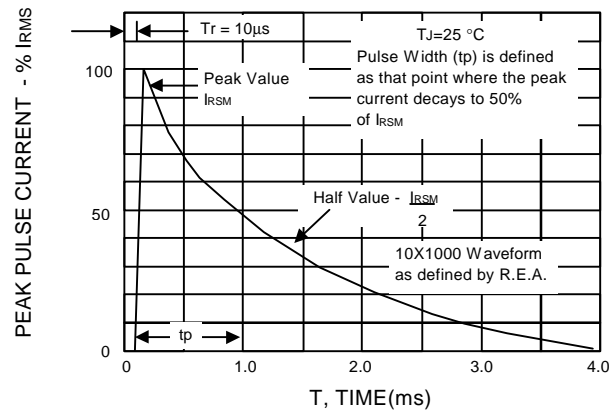
- ( 1 )  $V_{BR}$  measured after  $I_t$  applied for 300  $\mu$ s.,  $I_t$  = square wave pulse or equivalent.
- ( 3 ) "STU" or "STB" will be omitted in marking on the diode.

## RATING AND CHARACTERISTIC CURVES ( STBS06H - STBS5D0 )

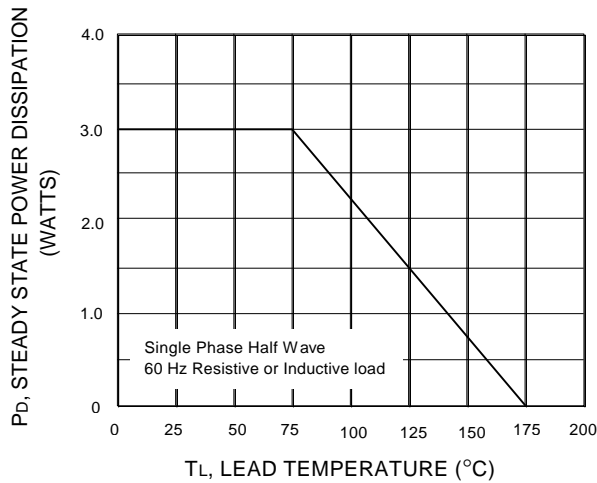
**FIG.1 - PULSE DERATING CURVE**



**FIG.2 - PULSE WAVEFORM**



**FIG.3 - STEADY STATE POWER DERATING**



**FIG.4 - PULSE RATING CURVE**

