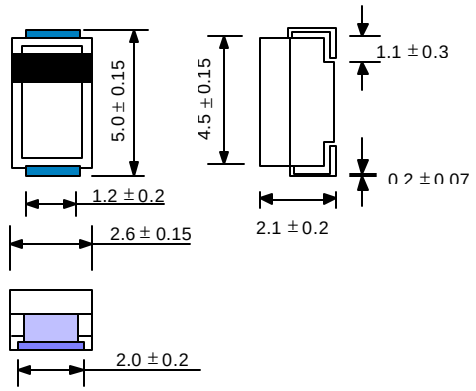
STUB06I - STUB5G4

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

V_{BR} : 6.8 - 440 Volts
P_{PK} : 400 Watts

SMA (DO-214AC)



Dimensions in millimeter

FEATURES :

* 400W surge capability at 1ms
* Excellent clamping capability
* Low zener impedance
* Fast response time : typically less then 1.0 ps from 0 volt to $V_{BR(min.)}$
* Typical I_R less then 1μA above 10V

MECHANICAL DATA

* Case : SMA Molded plastic
* Epoxy : UL94V-O rate flame retardant
* Lead : Lead Formed for Surface Mount
* Polarity : Color band denotes cathode end except Bipolar.
* Mounting position : Any
* Weight : 0.064 grams

DEVICES FOR BIPOLAR APPLICATIONS

For bi-directional altered the third letter of type from "U" to be "B".
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)	P_{PK}	Minimum 400	Watts
Steady State Power Dissipation at T_L = 75 °C (Note 2)	P_D	1.0	Watt
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	I_{FSM}	40	Amps.
Operating and Storage Temperature Range	T_J, T_{STG}	- 55 to + 150	°C

Note :

(1) Non-repetitive Current pulse, per Fig. 5 and derated above Ta = 25 °C per Fig. 1
(2) Mounted on copper Lead area at 5.0 mm^2 (0.013 mm thick).
(3) 8.3 ms single half sine-wave, duty cycle = 4 pulses per Minutes maximum.

UPDATE : JULY 13, 1998

ELECTRICAL CHARACTERISTICS

Rating at = 25 °C ambient temperature unless otherwise specified

TYPE	Breakdown Voltage @ It (Note 1)			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V_{RWM}	Maximum Reverse Current	Maximum Clamping Voltage @ I_{RSM}	Maximum Temperature Co-efficient of V_{BR}
	V_{BR} (V)		It	V_{RWM}	I_R	I_{RSM}	V_{RSM}	
	Min.	Max.	(mA)	(V)	(µA)	(A)	(V)	(% / °C)
STUB06I	6.45	7.48	10	5.80	1000	38.0	10.5	0.057
STUB56I	6.45	7.14	10	5.80	1000	38.0	10.5	0.057
STUB07F	7.13	8.25	10	6.40	500	35.4	11.3	0.061
STUB57F	7.13	7.88	10	6.40	500	35.4	11.3	0.061
STUB08C	7.79	9.02	10	7.02	200	33.0	12.1	0.065
STUB58C	7.79	8.61	10	7.02	200	33.0	12.1	0.065
STUB09B	8.65	10.0	1.0	7.78	50	30.0	13.4	0.068
STUB59B	8.65	9.55	1.0	7.78	50	30.0	13.4	0.068
STUB010	9.50	11.0	1.0	8.55	10	27.6	14.5	0.073
STUB510	9.50	10.5	1.0	8.55	10	27.6	14.5	0.073
STUB011	10.5	12.1	1.0	9.40	5.0	25.7	15.6	0.075
STUB511	10.5	11.6	1.0	9.40	5.0	25.7	15.6	0.075
STUB012	11.4	13.2	1.0	10.2	5.0	24.0	16.7	0.078
STUB512	11.4	12.6	1.0	10.2	5.0	24.0	16.7	0.078
STUB013	12.4	14.3	1.0	11.1	5.0	22.0	18.2	0.081
STUB513	12.4	13.7	1.0	11.1	5.0	22.0	18.2	0.081
STUB015	14.3	16.5	1.0	12.8	5.0	19.0	21.2	0.084
STUB515	14.3	15.8	1.0	12.8	5.0	19.0	21.2	0.084
STUB016	15.2	17.6	1.0	13.6	5.0	17.8	22.5	0.086
STUB516	15.2	16.8	1.0	13.6	5.0	17.8	22.5	0.086
STUB018	17.1	19.8	1.0	15.3	5.0	16.0	25.2	0.088
STUB518	17.1	18.9	1.0	15.3	5.0	16.0	25.2	0.088
STUB020	19.0	22.0	1.0	17.1	5.0	14.5	27.7	0.090
STUB520	19.0	21.0	1.0	17.1	5.0	14.5	27.7	0.090
STUB022	20.9	24.2	1.0	18.8	5.0	13.0	30.6	0.092
STUB522	20.9	23.1	1.0	18.8	5.0	13.0	30.6	0.092
STUB024	22.8	26.4	1.0	20.5	5.0	12.0	33.2	0.094
STUB524	22.8	25.2	1.0	20.5	5.0	12.0	33.2	0.094
STUB027	25.7	29.7	1.0	23.1	5.0	10.7	37.5	0.096
STUB527	25.7	28.4	1.0	23.1	5.0	10.7	37.5	0.096
STUB030	28.5	33.0	1.0	25.6	5.0	9.6	41.5	0.097
STUB530	28.5	31.5	1.0	25.6	5.0	9.6	41.5	0.097
STUB033	31.4	36.3	1.0	28.2	5.0	8.8	45.7	0.098
STUB533	31.4	34.7	1.0	28.2	5.0	8.8	45.7	0.098
STUB036	34.2	39.6	1.0	30.8	5.0	8.0	49.9	0.099
STUB536	34.2	37.8	1.0	30.8	5.0	8.0	49.9	0.099
STUB039	37.1	42.9	1.0	33.3	5.0	7.4	53.9	0.100
STUB539	37.1	41.0	1.0	33.3	5.0	7.4	53.9	0.100
STUB043	40.9	47.3	1.0	36.8	5.0	6.7	59.3	0.101
STUB543	40.9	45.2	1.0	36.8	5.0	6.7	59.3	0.101
STUB047	44.7	51.7	1.0	40.2	5.0	6.2	64.8	0.101
STUB547	44.7	49.4	1.0	40.2	5.0	6.2	64.8	0.101
STUB051	48.5	56.1	1.0	43.6	5.0	5.7	70.1	0.102
STUB551	48.5	53.6	1.0	43.6	5.0	5.7	70.1	0.102
STUB056	53.2	61.6	1.0	47.8	5.0	5.2	77.0	0.103
STUB556	53.2	58.8	1.0	47.8	5.0	5.2	77.0	0.103
STUB062	58.9	68.2	1.0	53.0	5.0	4.7	85.0	0.104

ELECTRICAL CHARACTERISTICS

Rating at = 25 °C ambient temperature unless otherwise specified

TYPE	Breakdown Voltage @ It (Note 1)			Working Peak Reverse Voltage	Maximum Reverse Leakage @ V_{RWM}	Maximum Reverse Current	Maximum Clamping Voltage @ I_{RSM}	Maximum Temperature Co-efficient of V_{BR}
	V_{BR} (V)		It	V_{RWM}	I_R	I_{RSM}	V_{RSM}	
	Min.	Max.	(mA)	(V)	(µA)	(A)	(V)	(% / °C)
STUB562	58.9	65.1	1.0	53.0	5.0	4.7	85.0	0.104
STUB068	64.6	74.8	1.0	58.1	5.0	4.3	92.0	0.104
STUB568	64.6	71.4	1.0	58.1	5.0	4.3	92.0	0.104
STUB075	71.3	82.5	1.0	64.1	5.0	3.9	103	0.105
STUB575	71.3	78.8	1.0	64.1	5.0	3.9	103	0.105
STUB082	77.9	90.2	1.0	70.1	5.0	3.5	113	0.105
STUB582	77.9	86.1	1.0	70.1	5.0	3.5	113	0.105
STUB091	86.5	100	1.0	77.8	5.0	3.2	125	0.106
STUB591	86.5	95.5	1.0	77.8	5.0	3.2	125	0.106
STUB0B0	95.0	110	1.0	85.5	5.0	2.9	137	0.106
STUB5B0	95.0	105	1.0	85.5	5.0	2.9	137	0.106
STUB0B1	105	121	1.0	94.0	5.0	2.6	152	0.107
STUB5B1	105	116	1.0	94.0	5.0	2.6	152	0.107
STUB0B2	114	132	1.0	102	5.0	2.4	165	0.107
STUB5B2	114	126	1.0	102	5.0	2.4	165	0.107
STUB0B3	124	143	1.0	111	5.0	2.2	179	0.107
STUB5B3	124	137	1.0	111	5.0	2.2	179	0.107
STUB0B5	143	165	1.0	128	5.0	2.0	207	0.108
STUB5B5	143	158	1.0	128	5.0	2.0	207	0.108
STUB0B6	152	176	1.0	136	5.0	1.8	219	0.108
STUB5B6	152	168	1.0	136	5.0	1.8	219	0.108
STUB0B7	161	187	1.0	145	5.0	1.7	234	0.108
STUB5B7	161	179	1.0	145	5.0	1.7	234	0.108
STUB0B8	171	198	1.0	154	5.0	1.6	246	0.108
STUB5B8	171	189	1.0	154	5.0	1.6	246	0.108
STUB0D0	190	220	1.0	171	5.0	1.5	274	0.108
STUB5D0	190	210	1.0	171	5.0	1.5	274	0.108
STUB0D2	209	242	1.0	188	5.0	1.4	301	0.108
STUB5D2	209	231	1.0	188	5.0	1.4	301	0.108
STUB0D5	237	275	1.0	213	5.0	1.3	344	0.110
STUB5D5	237	263	1.0	213	5.0	1.3	344	0.110
STUB0D8	266	308	1.0	239	5.0	1.3	384	0.110
STUB5D8	266	294	1.0	239	5.0	1.3	384	0.110
STUB0E0	285	330	1.0	256	5.0	1.2	414	0.110
STUB5E0	285	315	1.0	256	5.0	1.2	414	0.110
STUB0E2	304	352	1.0	273	5.0	1.2	438	0.110
STUB5E2	304	336	1.0	273	5.0	1.2	438	0.110
STUB0E5	332	385	1.0	299	5.0	0.9	482	0.110
STUB5E5	332	368	1.0	299	5.0	0.9	482	0.110
STUB0G0	380	440	1.0	342	5.0	0.9	548	0.110
STUB5G0	380	420	1.0	342	5.0	0.9	548	0.110
STUB0G4	418	484	1.0	376	5.0	0.8	603	0.110
STUB5G4	418	462	1.0	376	5.0	0.8	603	0.110

Note:

(1) V_{BR} measured after It applied for 300 µs., It = square wave pulse or equivalent.

(2) V_F = 3.5 Vmax.. I_F = 25 Amps. (6.8 Volts thru 110 Volts)
V_F = 5.0 Vmax., I_F = 25 Amps. (120 Volts thru 440 Volts) per 1/2 square or equivalent sine wave.
PW = 8.3 ms, duty cycle = 4 pulses per minute maximum.

(3) "STU" or "STB" will be omitted in marking on the diode.

RATING AND CHARACTERISTIC CURVES (STUB06 - STUB5G4)

FIG.1 - PULSE DERATING CURVE

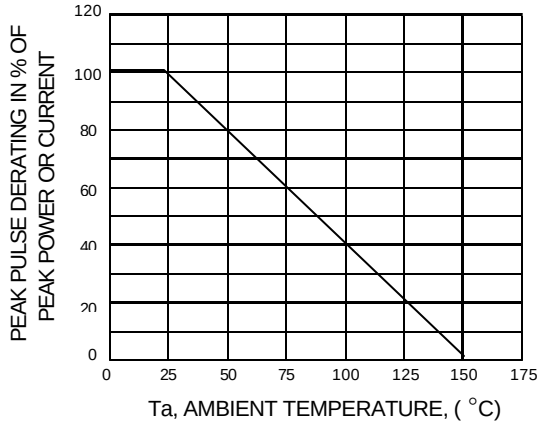


FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT

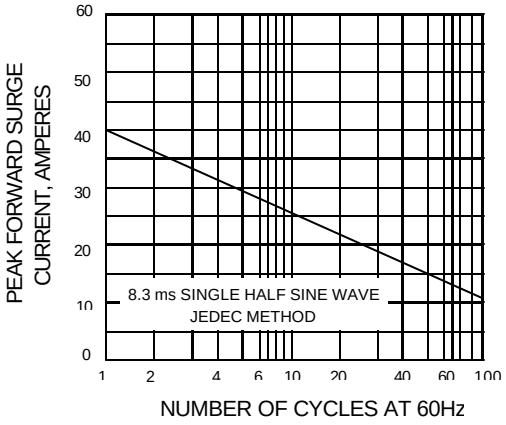


FIG.3 - STEADY STATE POWER DERATING

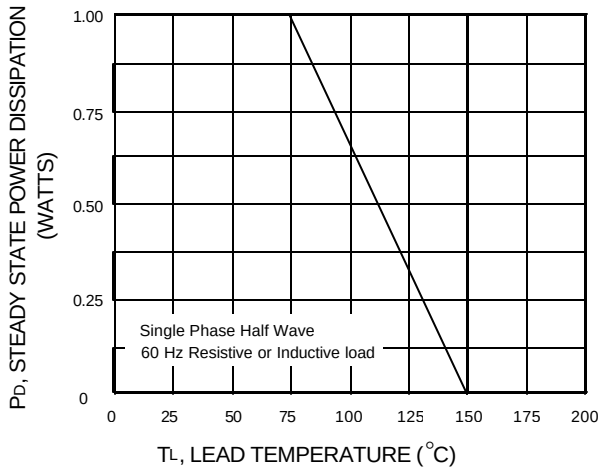


FIG.4 - PULSE RATING CURVE

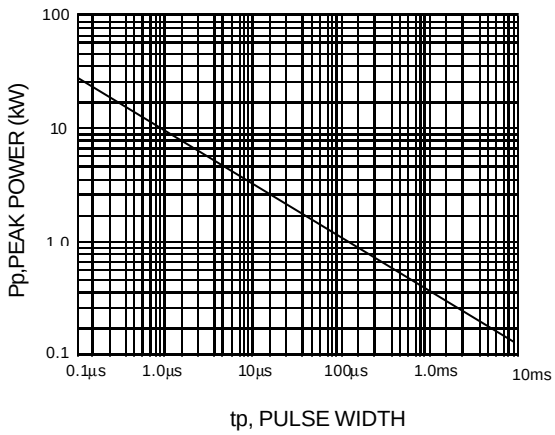


FIG.5 - PULSE WAVEFORM