

STUP06I - STUP5G4

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

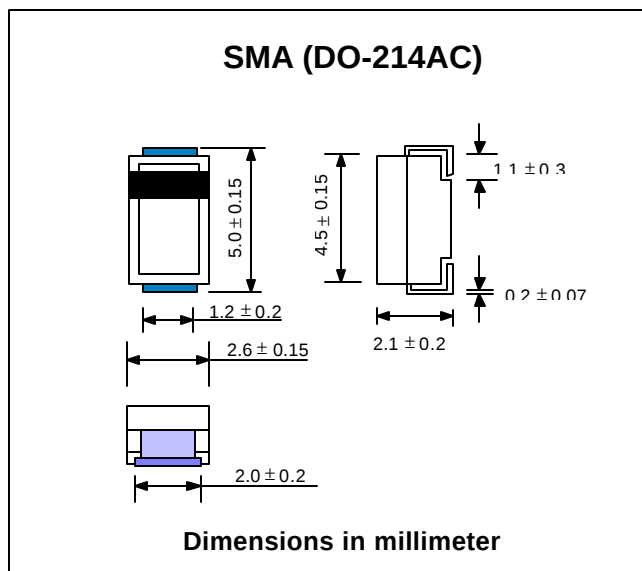
V_{BR} : 6.8 - 440 Volts
P_{PK} : 400 Watts

FEATURES :

- * 400W surge capability at 1ms
- * Excellent clamping capability
- * Low zener impedance
- * Fast response time : typically less than 1.0 ps from 0 volt to V_{BR(min.)}
- * Typical I_R less than 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}	400	Watts
Steady State Power Dissipation at T _L = 75 °C	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 mm² (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 @ VRWM	Maximum Reverse Current	Maximum Clamping Voltage @ IRSM	Maximum Temperature Co-efficient of VBR of VBR				
	VBR (V)		It						VRWM	IR	IRSM	VRSM
	Min.	Max.	(mA)						(V)	(μA)	(A)	(V)
STUP06I	6.12	7.48	10	5.50	1000	38.0	10.8	0.057				
STUP56I	6.45	7.14	10	5.80	1000	40.0	10.5	0.057				
STUP07F	6.75	8.25	10	6.05	500	36.0	11.7	0.061				
STUP57F	7.13	7.88	10	6.40	500	37.0	11.3	0.061				
STUP08C	7.38	9.02	10	6.63	200	33.0	12.5	0.065				
STUP58C	7.79	8.61	10	7.02	200	35.0	12.1	0.065				
STUP09B	8.19	10.0	1.0	7.37	50	30.0	13.8	0.068				
STUP59B	8.65	9.55	1.0	7.78	50	31.0	13.4	0.068				
STUP010	9.00	11.0	1.0	8.10	10	28.0	15.0	0.073				
STUP510	9.50	10.5	1.0	8.55	10	29.0	14.5	0.073				
STUP011	9.90	12.1	1.0	8.92	5.0	26.0	16.2	0.075				
STUP511	10.5	11.6	1.0	9.40	5.0	27.0	15.6	0.075				
STUP012	10.8	13.2	1.0	9.72	5.0	24.0	17.3	0.078				
STUP512	11.4	12.6	1.0	10.2	5.0	25.0	16.7	0.078				
STUP013	11.7	14.3	1.0	10.5	5.0	22.0	19.0	0.081				
STUP513	12.4	13.7	1.0	11.1	5.0	23.0	18.2	0.081				
STUP015	13.5	16.5	1.0	12.1	5.0	19.0	22.0	0.084				
STUP515	14.3	15.8	1.0	12.8	5.0	20.0	21.2	0.084				
STUP016	14.4	17.6	1.0	12.9	5.0	18.0	23.5	0.086				
STUP516	15.2	16.8	1.0	13.6	5.0	19.0	22.5	0.086				
STUP018	16.2	19.8	1.0	14.5	5.0	16.0	26.5	0.088				
STUP518	17.1	18.9	1.0	15.3	5.0	17.0	25.5	0.088				
STUP020	18.0	22.0	1.0	16.2	5.0	14.0	29.1	0.090				
STUP520	19.0	21.0	1.0	17.1	5.0	15.0	27.7	0.090				
STUP022	19.8	24.2	1.0	17.8	5.0	13.0	31.9	0.092				
STUP522	20.9	23.1	1.0	18.8	5.0	14.0	30.6	0.092				
STUP024	21.6	26.4	1.0	19.4	5.0	12.0	34.7	0.094				
STUP524	22.8	25.2	1.0	20.5	5.0	13.0	33.2	0.094				
STUP027	24.3	29.7	1.0	21.8	5.0	11.0	39.1	0.096				
STUP527	25.7	28.4	1.0	23.1	5.0	11.2	37.5	0.096				
STUP030	27.0	33.0	1.0	24.3	5.0	10.0	43.5	0.097				
STUP530	28.5	31.5	1.0	25.6	5.0	10.0	41.4	0.097				
STUP033	29.7	36.3	1.0	26.8	5.0	9.0	47.7	0.098				
STUP533	31.4	34.7	1.0	28.2	5.0	9.0	45.7	0.098				
STUP036	32.4	39.6	1.0	29.1	5.0	8.0	52.0	0.099				
STUP536	34.2	37.8	1.0	30.8	5.0	8.4	49.9	0.099				
STUP039	35.1	42.9	1.0	31.6	5.0	7.4	56.4	0.100				
STUP539	37.1	41.0	1.0	33.3	5.0	7.8	53.9	0.100				
STUP043	38.7	47.3	1.0	34.8	5.0	6.8	61.9	0.101				
STUP543	40.9	45.2	1.0	36.8	5.0	7.1	59.3	0.101				
STUP047	42.3	51.7	1.0	38.1	5.0	6.2	67.8	0.101				
STUP547	44.7	49.4	1.0	40.2	5.0	6.5	64.8	0.101				
STUP051	45.9	56.1	1.0	41.3	5.0	5.7	73.5	0.102				
STUP551	48.5	53.6	1.0	43.6	5.0	6.0	70.1	0.102				
STUP056	50.4	61.6	1.0	45.4	5.0	5.2	80.5	0.103				
STUP556	53.2	58.8	1.0	47.8	5.0	5.5	77.0	0.103				
STUP062	55.8	68.2	1.0	50.2	5.0	4.7	89.0	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 @ VRWM	Maximum Reverse Current	Maximum Clamping Voltage @ IRSM	Maximum Temperature Co-efficient of VBR of VBR (% / °C)				
	VBR (V)		It						VRWM	IR	IRSM	VRSM
	Min.	Max.	(mA)						(V)	(μA)	(A)	(V)
STUP562	58.9	65.1	1.0	53.0	5.0	5.0	85.0	0.104				
STUP068	61.2	74.8	1.0	55.1	5.0	4.3	98.0	0.104				
STUP568	64.6	71.4	1.0	58.1	5.0	4.6	92.0	0.104				
STUP075	67.5	82.5	1.0	60.7	5.0	3.9	108	0.105				
STUP575	71.3	78.8	1.0	64.1	5.0	4.1	103	0.105				
STUP082	73.8	90.2	1.0	66.4	5.0	3.6	118	0.105				
STUP582	77.9	86.1	1.0	70.1	5.0	3.7	113	0.105				
STUP091	81.9	100	1.0	73.7	5.0	3.2	131	0.106				
STUP591	86.5	95.5	1.0	77.8	5.0	3.4	125	0.106				
STUP0B0	90.0	110	1.0	81.0	5.0	2.9	144	0.106				
STUP5B0	95.0	105	1.0	85.5	5.0	3.1	137	0.106				
STUP0B1	99.0	121	1.0	89.2	5.0	2.7	158	0.107				
STUP5B1	105	116	1.0	94.0	5.0	2.8	152	0.107				
STUP0B2	108	132	1.0	97.2	5.0	2.4	173	0.107				
STUP5B2	114	126	1.0	102	5.0	2.5	165	0.107				
STUP0B3	117	143	1.0	105	5.0	2.2	187	0.107				
STUP5B3	124	137	1.0	111	5.0	2.3	179	0.107				
STUP0B5	135	165	1.0	121	5.0	2.0	215	0.108				
STUP5B5	143	158	1.0	128	5.0	2.0	207	0.108				
STUP0B6	144	176	1.0	130	5.0	1.8	230	0.108				
STUP5B6	152	168	1.0	136	5.0	1.9	219	0.108				
STUP0B7	153	187	1.0	138	5.0	1.7	244	0.108				
STUP5B7	162	179	1.0	145	5.0	1.8	234	0.108				
STUP0B8	162	198	1.0	146	5.0	1.6	258	0.108				
STUP5B8	171	189	1.0	154	5.0	1.7	246	0.108				
STUP0D0	180	220	1.0	162	5.0	1.5	287	0.108				
STUP5D0	190	210	1.0	171	5.0	1.53	274	0.108				
STUP0D2	198	242	1.0	175	5.0	1.16	344	0.108				
STUP5D2	209	231	1.0	185	5.0	1.22	328	0.108				
STUP0D5	225	275	1.0	202	5.0	1.11	360	0.110				
STUP5D5	237	263	1.0	214	5.0	1.16	344	0.110				
STUP0E0	270	330	1.0	243	5.0	0.93	430	0.110				
STUP5E0	285	315	1.0	256	5.0	0.97	414	0.110				
STUP0E5	315	385	1.0	284	5.0	0.79	504	0.110				
STUP5E5	332	368	1.0	300	5.0	0.83	482	0.110				
STUP0G0	360	440	1.0	324	5.0	0.70	574	0.110				
STUP5G0	380	420	1.0	342	5.0	0.73	548	0.110				
STUP0G4	396	484	1.0	356	5.0	0.95	631	0.110				
STUP5G4	418	462	1.0	376	5.0	1.00	602	0.110				

Note:

- (1) V_{BR} measured after I_t applied for 300 μ s., I_t = square wave pulse or equivalent.
- (2) $V_F = 3.5 V_{max.}$, $I_F = 25$ Amps. (6.8 Volts thru 91Volts)
 $V_F = 5.0 V_{max.}$, $I_F = 25$ Amps. (100 Volts thru 440 Volts) per 1/2 square or equivalent sine wave.
PW = 8.3 ms, duty cycle = 4 pulses per minute maximum.
- (3) For Bipolar totes moving V_R of 10 Volts and under, the I_R limit is doubled.
- (4) "STU" will be omitted in marking on the diode.

RATING AND CHARACTERISTIC CURVES (STUP06I - STUP5G4)

FIG.1 - PULSE DERATING CURVE

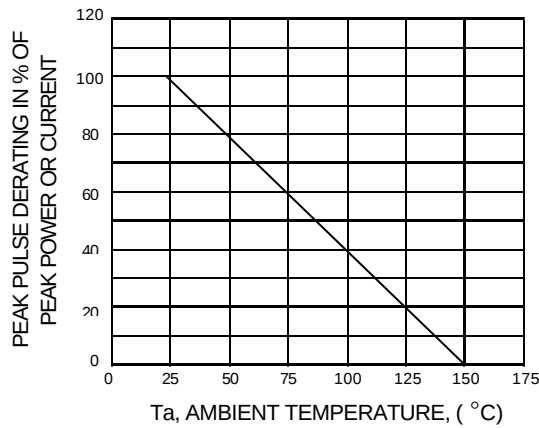


FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT

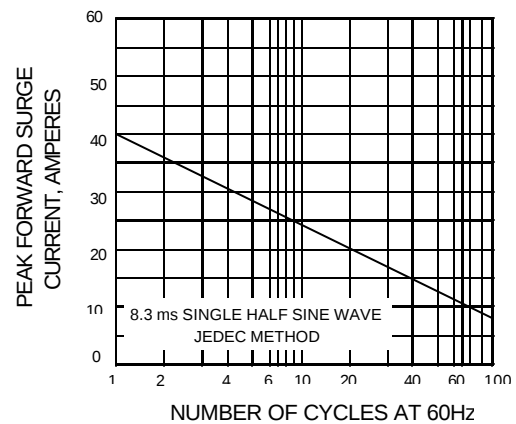


FIG.3 - STEADY STATE POWER DERATING

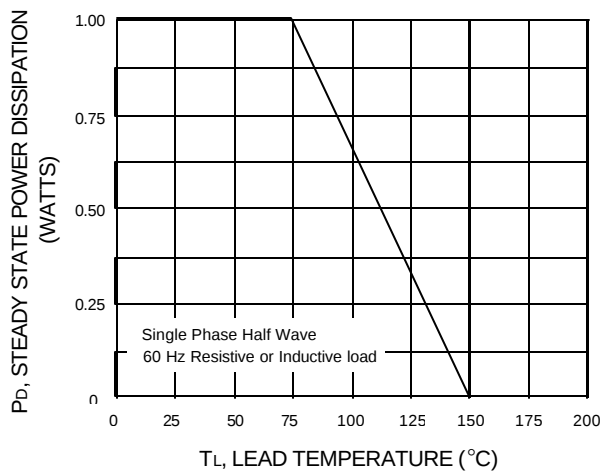


FIG.4 - PULSE RATING CURVE

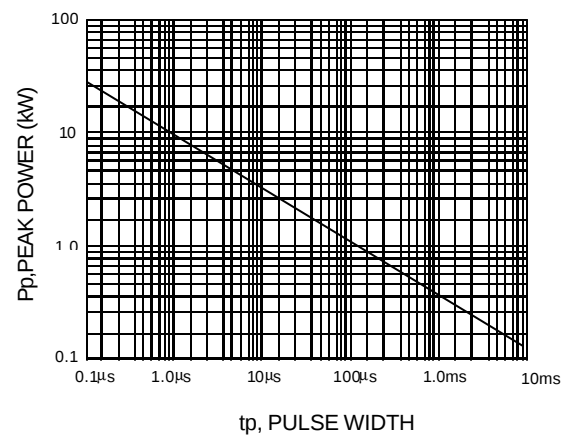


FIG.5 - PULSE WAVEFORM

