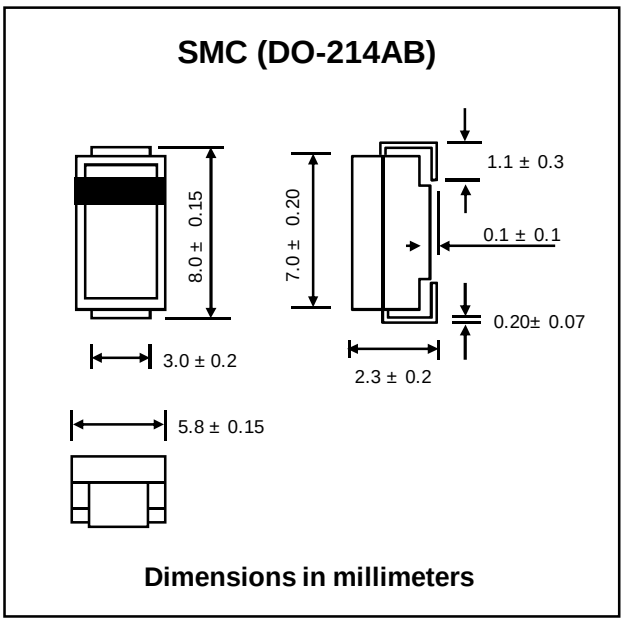
STUK06I - STUK5G4

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

V_{BR} : 6.8 - 440 Volts
P_{PK} : 1500 Watts



FEATURES :

* Glass passivated junction chip
* 1500W 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
* Pb / RoHS Free

MECHANICAL DATA

* Case : SMC Molded plastic
* Epoxy : UL94V-0 rate flame retardant
* Lead : Lead Formed for Surface Mount
* Polarity : Color band denotes cathode end except Bipolar.
* Mounting position : Any
* Weight : 0.21 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 ℃, Tp=1ms (Note1)	P_{PK}	Minimum 1500	W
Steady State Power Dissipation at T_L = 75 ℃	P_D	5.0	W
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load (JEDEC Method) (Note 3)	I_{FSM}	200	A
Operating and Storage Temperature Range	T_J, T_{STG}	- 55 to + 150	°C

Notes :

(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.

ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

Type No.	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)	(% / ℃)
STUK06I	6.12	7.48	10	5.50	1000	139	10.8	0.057
STUK56I	6.45	7.14	10	5.80	1000	143	10.5	0.057
STUK07F	6.75	8.25	10	6.05	500	128	11.7	0.061
STUK57F	7.13	7.88	10	6.40	500	132	11.3	0.061
STUK08C	7.38	9.02	10	6.63	200	120	12.5	0.065
STUK58C	7.79	8.61	10	7.02	200	124	12.1	0.065
STUK09B	8.19	10.0	1.0	7.37	50	109	13.8	0.068
STUK59B	8.65	9.6	1.0	7.78	50	112	13.4	0.068
STUK010	9.00	11.0	1.0	8.10	10	100	15.0	0.073
STUK510	9.50	10.5	1.0	8.55	10	103	14.5	0.073
STUK011	9.90	12.1	1.0	8.92	5.0	93.0	16.2	0.075
STUK511	10.5	11.6	1.0	9.40	5.0	96.0	15.6	0.075
STUK012	10.8	13.2	1.0	9.72	5.0	87.0	17.3	0.078
STUK512	11.4	12.6	1.0	10.2	5.0	90.0	16.7	0.078
STUK013	11.7	14.3	1.0	10.5	5.0	79.0	19.0	0.081
STUK513	12.4	13.7	1.0	11.1	5.0	82.0	18.2	0.081
STUK015	13.5	16.5	1.0	12.1	1.0	68.0	22.0	0.084
STUK515	14.3	15.8	1.0	12.8	1.0	71.0	21.2	0.084
STUK016	14.4	17.6	1.0	12.9	1.0	64.0	23.5	0.086
STUK516	15.2	16.8	1.0	13.6	1.0	67.0	22.5	0.086
STUK018	16.2	19.8	1.0	14.5	1.0	56.5	26.5	0.088
STUK518	17.1	18.9	1.0	15.3	1.0	59.5	25.2	0.088
STUK020	18.0	22.0	1.0	16.2	1.0	51.5	29.1	0.090
STUK520	19.0	21.0	1.0	17.1	1.0	54.0	27.7	0.090
STUK022	19.8	24.2	1.0	17.8	1.0	47.0	31.9	0.092
STUK522	20.9	23.1	1.0	18.8	1.0	49.0	30.6	0.092
STUK024	21.6	26.4	1.0	19.4	1.0	43.0	34.7	0.094
STUK524	22.8	25.2	1.0	20.5	1.0	45.0	33.2	0.094
STUK027	24.3	29.7	1.0	21.8	1.0	38.5	39.1	0.096
STUK527	25.7	28.4	1.0	23.1	1.0	40.0	37.5	0.096
STUK030	27.0	33.0	1.0	24.3	1.0	34.5	43.5	0.097
STUK530	28.5	31.5	1.0	25.6	1.0	36.0	41.4	0.097
STUK033	29.7	36.3	1.0	26.8	1.0	31.5	47.7	0.098
STUK533	31.4	34.7	1.0	28.2	1.0	33.0	45.7	0.098
STUK036	32.4	39.6	1.0	29.1	1.0	29.0	52.0	0.099
STUK536	34.2	37.8	1.0	30.8	1.0	30.0	49.9	0.099
STUK039	35.1	42.9	1.0	31.6	1.0	26.5	56.4	0.100
STUK539	37.1	41.0	1.0	33.3	1.0	28.0	53.9	0.100
STUK043	38.7	47.3	1.0	34.8	1.0	24.0	61.9	0.101
STUK543	40.9	45.2	1.0	36.8	1.0	25.3	59.3	0.101
STUK047	42.3	51.7	1.0	38.1	1.0	22.2	67.8	0.101
STUK547	44.7	49.4	1.0	40.2	1.0	23.2	64.8	0.101
STUK051	45.9	56.1	1.0	41.3	1.0	20.4	73.5	0.102
STUK551	48.5	53.6	1.0	43.6	1.0	21.4	70.1	0.102
STUK056	50.4	61.6	1.0	45.4	1.0	18.6	80.5	0.103
STUK556	53.2	58.8	1.0	47.8	1.0	19.5	77.0	0.103

ELECTRICAL CHARACTERISTICS

Rating at 25 °C ambient temperature unless otherwise specified

Type No.	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)	(% / ℃)
STUK062	55.8	68.2	1.0	50.2	1.0	16.9	89.0	0.104
STUK562	58.9	65.1	1.0	53.0	1.0	17.7	85.0	0.104
STUK068	61.2	74.8	1.0	55.1	1.0	15.3	98.0	0.104
STUK568	64.6	71.4	1.0	58.1	1.0	16.3	92.0	0.104
STUK075	67.5	82.5	1.0	60.7	1.0	13.9	108	0.105
STUK575	71.3	78.8	1.0	64.1	1.0	14.6	103	0.105
STUK082	73.8	90.2	1.0	66.4	1.0	12.7	118	0.105
STUK582	77.9	86.1	1.0	70.1	1.0	13.3	113	0.105
STUK091	81.9	100	1.0	73.7	1.0	11.4	131	0.106
STUK591	86.5	95.5	1.0	77.8	1.0	12.0	125	0.106
STUK0B0	90.0	110	1.0	81.0	1.0	10.4	144	0.106
STUK5B0	95.0	105	1.0	85.5	1.0	11.0	137	0.106
STUK0B1	99.0	121	1.0	89.2	1.0	9.5	158	0.107
STUK5B1	105	116	1.0	94.0	1.0	9.9	152	0.107
STUK0B2	108	132	1.0	97.2	1.0	8.7	173	0.107
STUK5B2	114	126	1.0	102	1.0	9.1	165	0.107
STUK0B3	117	143	1.0	105	1.0	8.0	187	0.107
STUK5B3	124	137	1.0	111	1.0	8.4	179	0.107
STUK0B5	135	165	1.0	121	1.0	7.0	215	0.108
STUK5B5	143	158	1.0	128	1.0	7.2	207	0.108
STUK0B6	144	176	1.0	130	1.0	6.5	230	0.108
STUK5B6	152	168	1.0	136	1.0	6.8	219	0.108
STUK0B7	153	187	1.0	138	1.0	6.2	244	0.108
STUK5B7	162	179	1.0	145	1.0	6.4	234	0.108
STUK0B8	162	198	1.0	146	1.0	5.8	258	0.108
STUK5B8	171	189	1.0	154	1.0	6.1	246	0.108
STUK0D0	180	220	1.0	162	1.0	5.2	287	0.108
STUK5D0	190	210	1.0	171	1.0	5.5	274	0.108
STUK0D2	198	242	1.0	175	1.0	4.3	344	0.108
STUK5D2	209	231	1.0	185	1.0	4.6	328	0.108
STUK0D5	225	275	1.0	202	1.0	4.2	360	0.110
STUK5D5	237	263	1.0	214	1.0	4.4	344	0.110
STUK0E0	270	330	1.0	243	1.0	3.5	430	0.110
STUK5E0	285	315	1.0	256	1.0	3.6	414	0.110
STUK0E5	315	385	1.0	284	1.0	3.0	504	0.110
STUK5E5	332	368	1.0	300	1.0	3.1	482	0.110
STUK0G0	360	440	1.0	324	1.0	2.6	574	0.110
STUK5G0	380	420	1.0	342	1.0	2.7	548	0.110
STUK0G4	396	484	1.0	356	1.0	2.4	631	0.110
STUK5G4	418	462	1.0	376	1.0	2.5	602	0.110

Notes:

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

(2) V_F = 3.5 Vmax., I_F = 100 Amps. (6.8 Volts thru 91 Volts)
V_F = 5.0 Vmax., I_F = 100 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) " STU " or "STB" will be omitted in marking on the diode.

RATING AND CHARACTERISTIC CURVES (STUK06I - STUK5G4)

FIG.1 - PULSE DERATING CURVE

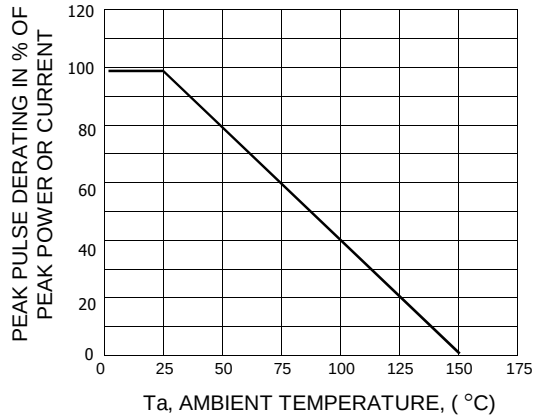


FIG.2 - MAXIMUM NON-REPETITIVE SURGE CURRENT

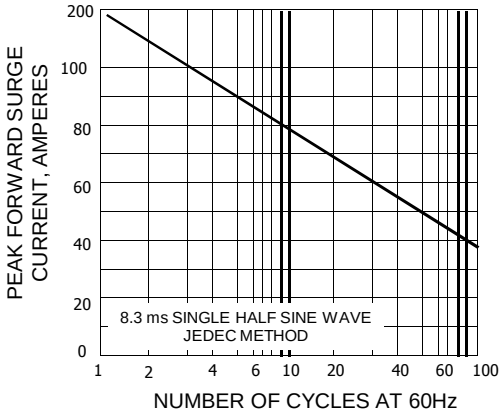


FIG.3 - STEADY STATE POWER DERATING

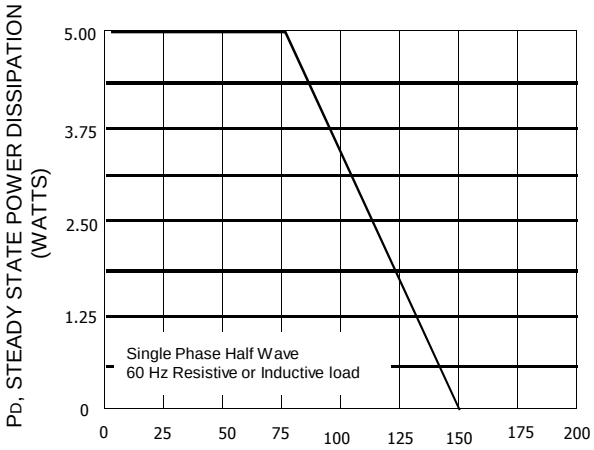


FIG.4 - PULSE RATING CURVE

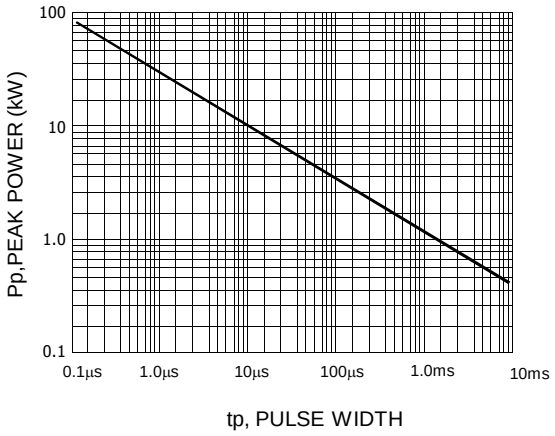


FIG.5 - PULSE WAVEFORM