VOLTAGE RANGE

5.0 to 440 Volts

1500 Watts Peak Power

FEATURES

* For surface mount application
* Built-in strain relief
* Excellent clamping capability
* Low profile package
* Fast response time: Typically less than 1.0ps from 0 volt to BV min.
* Typical I_R less than 1μA above 10V
* High temperature soldering guaranteed: 260°C / 10 seconds at terminals

MECHANICAL DATA

* Case: Molded plastic
* Epoxy: UL 94V-0 rate flame retardant
* Lead: Solderable per MIL-STD-202, method 208 guranteed
* Polarity: Color band denotes cathode end except Bidirectional
* Mounting position: Any
* Weight: 0.21 grams



- "GK" represents the brand name
- "XXX" represents the periodic code
- "YY" represents the product type marking

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Rating 25°C ambient temperature uniess otherwies specified.
Single phase half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

RATINGS	SYMBOL	VALUE	UNITS
Peak Power Dissipation at T_A=25°C, T_P=1ms(NOTE 1)	P_{PK}	Minimum 1500	Watts
Peak Forward Surge Current at 8.3ms Single Half Sine-Wave superimposed on rated load (JEDEC method) (NOTE 3)	I_{FSM}	200	Amps
Power dissipation on Infinite heat sink at T_A=50°C	P_D	6.5	W
Maximum Instantenous Forward Voltage at 35.0A for Unidirectional only	V_F	3.5	Volts
Typical Thermal Resistance Between junction and case Typical Thermal Resistance Between junction and Air	RθJ-C RθJ-A	15 75	°C/W °C/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150	°C

NOTES:
1. Non-repetitive current pulse per Fig. 3 and derated above T_A=25°C per Fig. 2.
2. Mounted on Copper Pad area of 8.0mm^2(.013mm Thick) to each terminal.
3. 8.3ms single half sine-wave, duty cycle = 4 pulses per minute maximum.

DEVICES FOR BIDIRECTIONAL APPLICATIONS

- 1. For bi-directional use C suffix for Types .
- 2. Electrical characteristics apply in both directions.

RATING AND CHARACTERISTIC CURVES

FIG.1-PEAK PULSE POWER DERATING CURVE

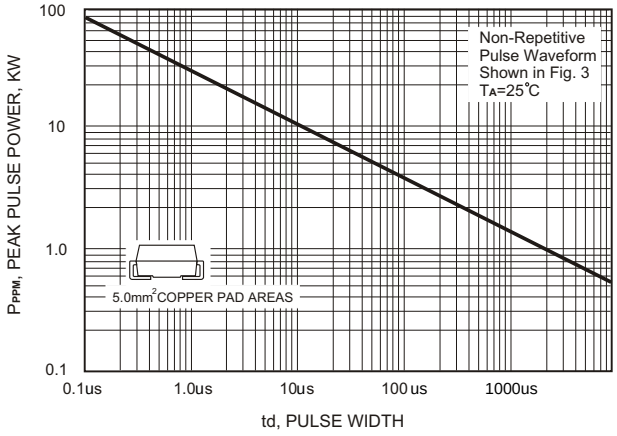


FIG.2-PULSE DERATING CURVE

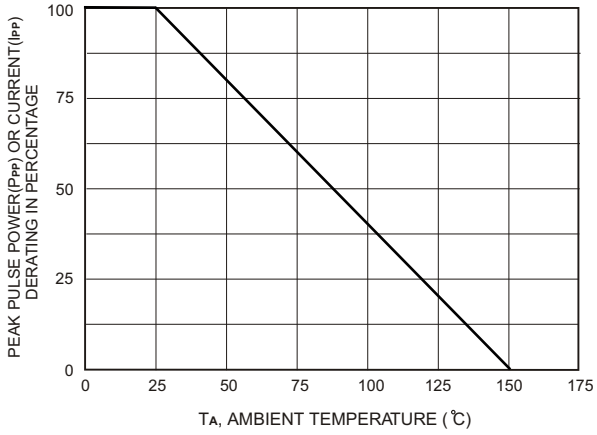


FIG.3-PULSE WAVE FORM

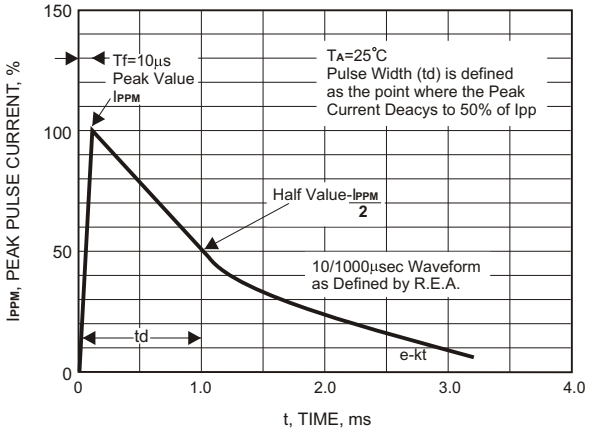


FIG .4 MAXIMUM NON REPETITIVE PEAK FORWARD SURGE CURRENT

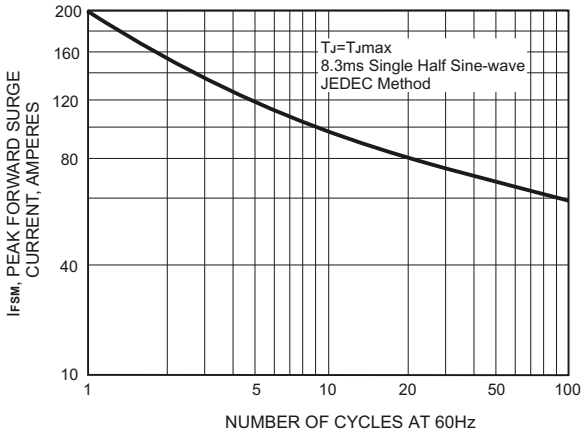
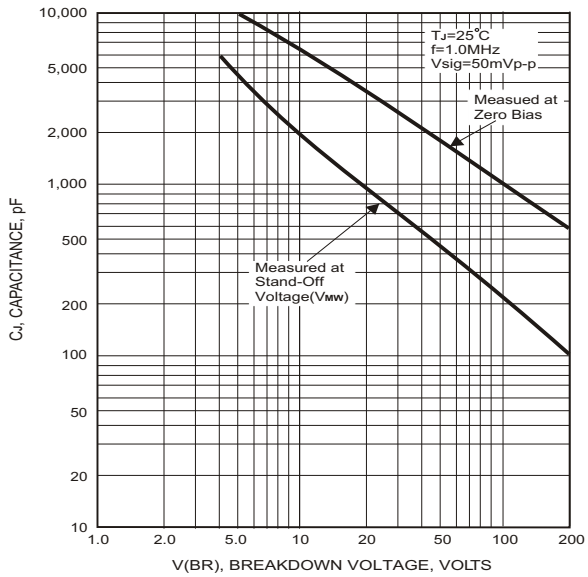


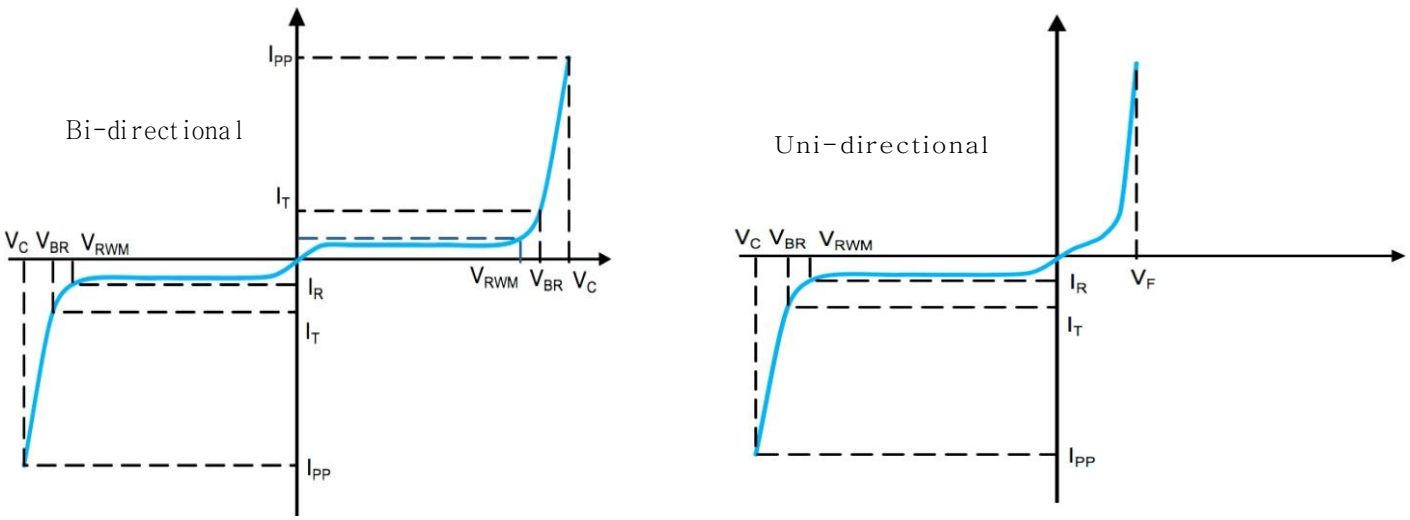
FIG. 5-TYPICAL JUNCTION CAPACITANCE



PART NUMBER ADD C FOR BI-DIRECTIONAL See Note 1	REVERSE STAND-OFF VOLTAGE VRWM (V)	BREAKDOWN VOLTAGE VBR (V) MIN. @IT	BREAKDOWN VOLTAGE VBR (V) MAX. @IT	TEST CURRENT IT (mA)	MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V)	PEAK PULSE CURRENT Ipp (A)	REVERSE LEAKAGE @ VRWM IR(μA)	MARKING CODE UNI	MARKING CODE BI
SMCJ5.0(C)A	5.0	6.40	7.25	10	9.2	163.0	1000	GDE	GDE
SMCJ6.0(C)A	6.0	6.67	7.67	10	10.3	145.6	1000	GDG	GDG
SMCJ6.5(C)A	6.5	7.22	8.30	10	11.2	133.9	500	GDK	BDK
SMCJ7.0(C)A	7.0	7.78	8.95	10	12.0	125.0	200	GDM	GDM
SMCJ7.5(C)A	7.5	8.33	9.58	1	12.9	116.3	100	GDP	BDP
SMCJ8.0(C)A	8.0	8.89	10.23	1	13.6	110.3	50	GDR	BDR
SMCJ8.5(C)A	8.5	9.44	10.82	1	14.4	104.2	20	GDT	BDT
SMCJ9.0(C)A	9.0	10.0	11.50	1	15.4	97.4	10	GDV	BDV
SMCJ10(C)A	10	11.1	12.80	1	17.0	88.2	5	GDX	BDX
SMCJ11(C)A	11	12.2	14.00	1	18.2	82.4	5	GDZ	GDZ
SMCJ12(C)A	12	13.3	15.30	1	19.9	75.3	5	GEE	BEE
SMCJ13(C)A	13	14.4	16.50	1	21.5	69.7	5	GEG	GEG
SMCJ14(C)A	14	15.6	17.90	1	23.2	64.7	5	GEK	BEK
SMCJ15(C)A	15	16.7	19.20	1	24.4	61.5	5	GEM	BEM
SMCJ16(C)A	16	17.8	20.50	1	26.0	57.7	5	GEP	GEP
SMCJ17(C)A	17	18.9	21.70	1	27.6	53.3	5	GER	GER
SMCJ18(C)A	18	20.0	23.30	1	29.2	51.4	5	GET	BET
SMCJ20(C)A	20	22.2	25.50	1	32.4	46.3	5	GEV	BEV
SMCJ22(C)A	22	24.4	28.00	1	35.5	42.2	5	GEX	BEX
SMCJ24(C)A	24	26.7	30.70	1	38.9	38.6	5	GEZ	BEZ
SMCJ26(C)A	26	28.9	33.20	1	42.1	35.6	5	GFE	BFE
SMCJ28(C)A	28	31.1	35.80	1	45.4	33.0	5	GFG	BFG
SMCJ30(C)A	30	33.3	38.30	1	48.4	31.0	5	GFK	BFK
SMCJ33(C)A	33	36.7	42.20	1	53.3	28.1	5	GFM	BFM
SMCJ36(C)A	36	40.0	46.00	1	58.1	25.8	5	GFP	BFP
SMCJ40(C)A	40	44.4	51.10	1	64.5	23.2	5	GFR	BFR
SMCJ43(C)A	43	47.8	54.90	1	69.4	21.6	5	GFT	BFT
SMCJ45(C)A	45	50.0	57.50	1	72.7	20.6	5	GFV	GFV
SMCJ48(C)A	48	53.3	61.30	1	77.4	19.4	5	GFX	GFX
SMCJ51(C)A	51	56.7	65.20	1	82.4	18.2	5	GFZ	GFZ
SMCJ54(C)A	54	60.0	69.00	1	87.1	17.2	5	GGE	GGE
SMCJ58(C)A	58	64.4	74.10	1	93.6	16.0	5	GGG	GGG

PART NUMBER ADD C FOR BI-DIRECTIONAL See Note 1	REVERSE STAND-OFF VOLTAGE VRWM (V)	BREAKDOWN VOLTAGE VBR (V) MIN. @IT	BREAKDOWN VOLTAGE VBR (V) MAX. @IT	TEST CURRENT IT (mA)	MAXIMUM CLAMPING VOLTAGE @Ipp Vc (V)	PEAK PULSE CURRENT Ipp (A)	REVERSE LEAKAGE @ VRWM IR(μA)	MARKING CODE UNI	MARKING CODE BI
SMCJ60(C)A	60	66.7	76.7	1	96.8	15.5	5	GGK	GGK
SMCJ64(C)A	64	71.1	81.8	1	103	14.6	5	GGM	GGM
SMCJ70(C)A	70	77.8	89.5	1	113	13.3	5	GGP	GGP
SMCJ75(C)A	75	83.3	95.8	1	121	12.4	5	GGR	GGR
SMCJ78(C)A	78	86.7	99.7	1	126	11.4	5	GGT	GGT
SMCJ85(C)A	85	94.4	108.2	1	137	10.4	5	GGV	GGV
SMCJ90(C)A	90	100	115.5	1	146	10.3	5	GGX	GGX
SMCJ100(C)A	100	111	128.0	1	162	9.3	5	GGZ	GGZ
SMCJ110(C)A	110	122	140.5	1	177	8.4	5	GHE	GHE
SMCJ120(C)A	120	133	153.0	1	193	7.9	5	GHG	GHG
SMCJ130(C)A	130	144	165.5	1	209	7.2	5	GHK	GHK
SMCJ150(C)A	150	167	192.5	1	243	6.2	5	GHM	GHM
SMCJ160(C)A	160	178	205.0	1	259	5.8	5	GHP	GHP
SMCJ170(C)A	170	189	217.5	1	275	5.5	5	GHR	GHR
SMCJ188(C)A	188	209	231.0	1	308	4.6	5	GHS	GHS
SMCJ200(C)A	200	224	247	1	324	4.6	5	GHV	BHV
SMCJ220(C)A	220	246	272	1	356	4.2	5	GHX	BHX
SMCJ250(C)A	250	279	309	1	405	3.7	5	GHZ	BHZ
SMCJ300(C)A	300	335	371	1	486	3.1	5	GJE	BJE
SMCJ350(C)A	350	391	432	1	567	2.6	5	GJG	BJG
SMCJ400(C)A	400	447	494	1	648	2.3	5	GJK	BJK
SMCJ440(C)A	440	492	543	1	713	2.1	5	GJM	BJM

I-V Curve Characteristics

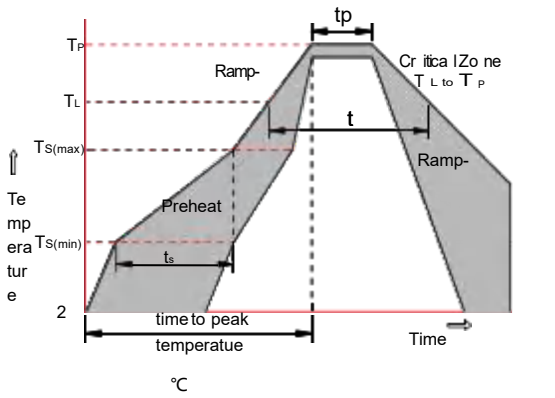


P_{PPM}	Peak Pulse Power Dissipation - Max power dissipation
V_{RWM}	Reverse Stand-off Voltage - Maximum voltage that can be applied to TVS without operation
V_{BR}	Breakdown Voltage – Maximum voltage that flows though the TVS at a specified current (I_T)
V_C	Clamping Voltage – Peak voltage measured across the TVS at a specified I_{PPM} (peak impulse current)
I_R	Reverse Leakage Current – Current measured at V_R
V_F	Forward Voltage Drop for Uni-directional

Soldering parameters

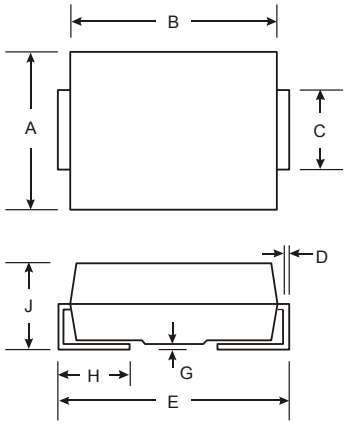
Reflow Condition		Pb-Free assembly (see as bellow)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃ of actual Peak Temp (t_p)		30 secs. Max
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃

FIG5: Reflow condition

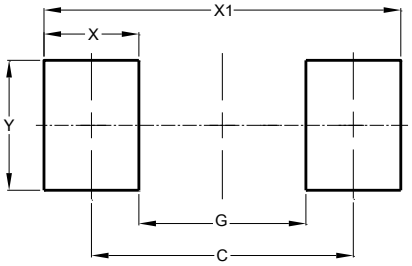


Package Dimensions & Suggested Pad Layout

SMC



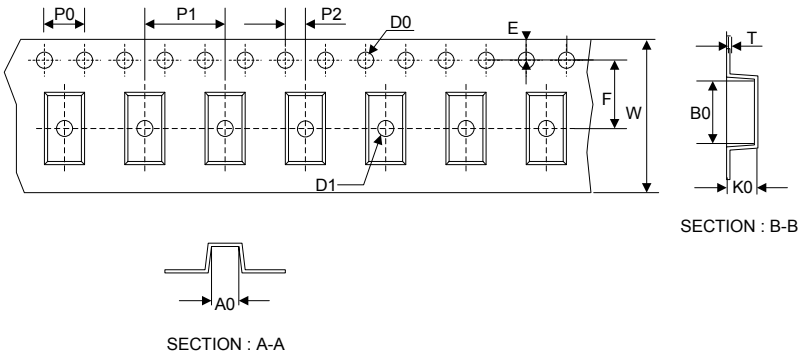
SMC		
Dim	**Min**	**Max**
A	5.59	6.22
B	6.60	7.11
C	2.75	3.15
D	0.15	0.31
E	7.75	8.13
G		0.20
H	0.76	1.52
J	2.00	2.62
All Dimensions in mm		



Dimensions	Value (in mm)
C	7.60
G	4.10
X	3.50
X1	11.10
Y	4.50

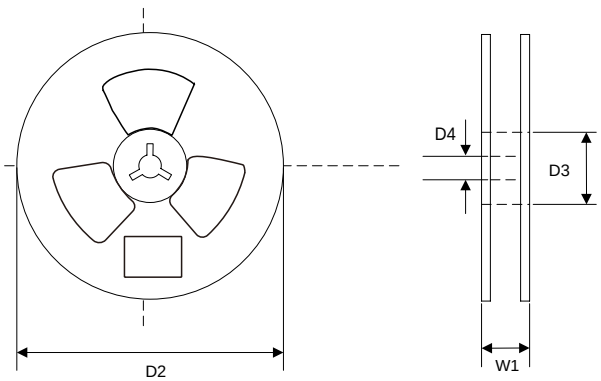
Tape & rell specification

Tape



SECTION : A-A

13” Reel



Symbol	Dimension (mm)
P0	4.00±0.20
P1	8.00±0.20
P2	2.00±0.20
D0	1.60±0.20
D1	1.60±0.20
E	1.75±0.20
F	7.50±0.20
W	16.00±0.20
A0	6.30±0.20
B0	8.20±0.20
K0	2.60±0.20
T	0.23±0.10
D2	330.0±5.0
D3	73Min.
D4	16.0±2.5
W1	20.0±2.0
Quantity: 3000PCS	