5.0SMDJ12A - 170CA

SURFACE MOUNT TRANSIENT VOLTAGE SUPPRESSOR

V_R : 12 - 170 Volts

P_{PK} : 5,000 Watts

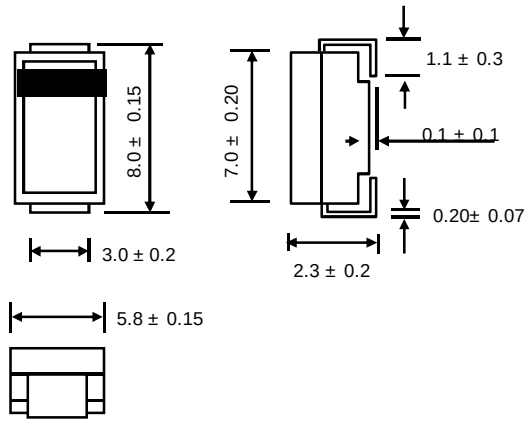
FEATURES :

* Glass passivated junction chip
* 5000W Peak Pulse Power
* Excellent clamping capability
* Low incremental surge resistance
* Pb / RoHS Free

MECHANICAL DATA

* Case : SMC Molded plastic
* Epoxy : UL94V-0 rate flame retardant
* Lead : Lead Formed for Surface Mount
* Mounting position : Any
* Weight : 0.21 gram

SMC (DO-214AB)



Dimensions in millimeters

MAXIMUM RATINGS (Ta = 25°C)

Rating	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000 µs waveform (1) (2)	P_{PPK}	5000	W
Power Dissipation on infinite heat sink at Ta = 50℃	P_D	6.5	W
Maximum Instantaneous Forward Voltage at 100 A for Unidirectional only	V_F	5.0	V
Peak Forward Surge Current, 8.3ms Single Half Sine-Wave Superimposed on Rated Load(Note 3) for Unidirectional only	I_{FSM}	300	A
Operating and Storage Temperature Range	T_J, T_{STG}	- 65 to + 150	℃

Notes :

(1) Non-repetitive Current pulse, per Fig. 5 and derated above Ta = 25 °C per Fig. 1

(2) Mounted on copper pad area of 0.31x0.31" (8.0 x 8.0mm) to each terminal.

(3) Measured on 8.3 ms single half sine-wave or equivalent square wave, duty cycle = 4 pulses per minutes maximum.

ELECTRICAL CHARACTERISTICS (Rating at 25°C ambient temperature unless otherwise specified)

Part Number (Uni-directional)	Part Number (Bi-directional)	Reverse Stand Off Voltage	Breakdown Voltage @ I_T			Maximum Reverse Leakage @ V_R	Maximum Peak Pulse Current	Maximum Clamping Voltage @ I_{PP}
		V_{WM}	V_{BR} (V)		I_T	I_R	I_{PPM}	V_C
		(V)	Min.	Max.	(mA)	(μA)	(A)	(V)
5.0SMDJ12A	**5.0SMDJ12CA**	12	13.30	14.70	10.0	1000	252	19.9
5.0SMDJ13A	**5.0SMDJ13CA**	13	14.40	15.90	10.0	1000	233	21.5
5.0SMDJ14A	**5.0SMDJ14CA**	14	15.60	17.20	10.0	500	216	23.2
5.0SMDJ15A	**5.0SMDJ15CA**	15	16.70	18.50	1.0	200	205	24.4
5.0SMDJ16A	**5.0SMDJ16CA**	16	17.80	19.70	1.0	100	193	26.0
5.0SMDJ17A	**5.0SMDJ17CA**	17	18.90	20.90	1.0	50	181	27.6
5.0SMDJ18A	**5.0SMDJ18CA**	18	20.00	22.10	1.0	25	172	29.2
5.0SMDJ20A	**5.0SMDJ20CA**	20	22.20	24.50	1.0	10	155	32.4
5.0SMDJ22A	**5.0SMDJ22CA**	22	24.40	26.90	1.0	5	141	35.5
5.0SMDJ24A	**5.0SMDJ24CA**	24	26.70	29.50	1.0	5	129	38.9
5.0SMDJ26A	**5.0SMDJ26CA**	26	28.90	31.90	1.0	5	119	42.1
5.0SMDJ28A	**5.0SMDJ28CA**	28	31.10	34.40	1.0	5	110	45.4
5.0SMDJ30A	**5.0SMDJ30CA**	30	33.30	36.80	1.0	5	103	48.4
5.0SMDJ33A	**5.0SMDJ33CA**	33	36.70	40.60	1.0	5	93.9	53.3
5.0SMDJ36A	**5.0SMDJ36CA**	36	40.00	44.20	1.0	5	86.1	58.1
5.0SMDJ40A	**5.0SMDJ40CA**	40	44.40	49.10	1.0	5	77.6	64.5
5.0SMDJ43A	**5.0SMDJ43CA**	43	47.80	52.80	1.0	5	72.1	69.4
5.0SMDJ45A	**5.0SMDJ45CA**	45	50.00	55.30	1.0	5	68.8	72.7
5.0SMDJ48A	**5.0SMDJ48CA**	48	53.30	58.90	1.0	5	64.7	77.4
5.0SMDJ51A	**5.0SMDJ51CA**	51	56.70	62.70	1.0	5	60.7	82.4
5.0SMDJ54A	**5.0SMDJ54CA**	54	60.00	66.30	1.0	5	57.5	87.1
5.0SMDJ58A	**5.0SMDJ58CA**	58	64.40	71.20	1.0	5	53.5	94.0
5.0SMDJ60A	**5.0SMDJ60CA**	60	66.70	73.70	1.0	5	51.7	97.0
5.0SMDJ64A	**5.0SMDJ64CA**	64	71.10	78.60	1.0	5	48.6	103
5.0SMDJ70A	**5.0SMDJ70CA**	70	77.80	86.00	1.0	5	44.3	113
5.0SMDJ75A	**5.0SMDJ75CA**	75	83.30	92.10	1.0	5	41.4	121
5.0SMDJ78A	**5.0SMDJ78CA**	78	86.70	95.80	1.0	5	39.7	126
5.0SMDJ85A	**5.0SMDJ85CA**	85	94.40	104.00	1.0	5	36.5	137
5.0SMDJ90A	**5.0SMDJ90CA**	90	100.0	111.0	1.0	5	34.3	146
5.0SMDJ100A	**5.0SMDJ100CA**	100	111.0	123.0	1.0	5	30.9	162
5.0SMDJ110A	**5.0SMDJ110CA**	110	122.0	135.0	1.0	5	28.3	177
5.0SMDJ120A	**5.0SMDJ120CA**	120	133.0	147.0	1.0	5	26.0	194
5.0SMDJ130A	**5.0SMDJ130CA**	130	144.0	159.0	1.0	5	24.0	209
5.0SMDJ150A	**5.0SMDJ150CA**	150	167.0	184.0	1.0	5	20.6	238
5.0SMDJ160A	**5.0SMDJ160CA**	160	178.0	197.0	1.0	5	19.3	263
5.0SMDJ170A	**5.0SMDJ170CA**	170	189.0	209.0	1.0	5	18.2	275

Notes:

(1) For Bi-directional devices having V_R of 20 Volts and under the I_R limit is doubled.

(2) "SMDJ" will be omitted on marking of the diode.

RATING AND CHARACTERISTIC CURVES (5.0SMDJ12A - 170CA)

FIG.1 - PULSE DERATING CURVE

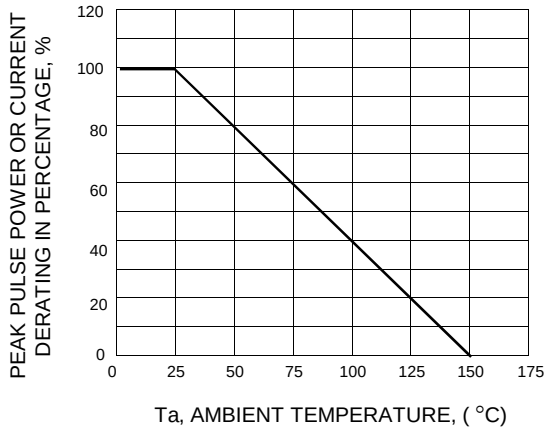


FIG.2 - MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

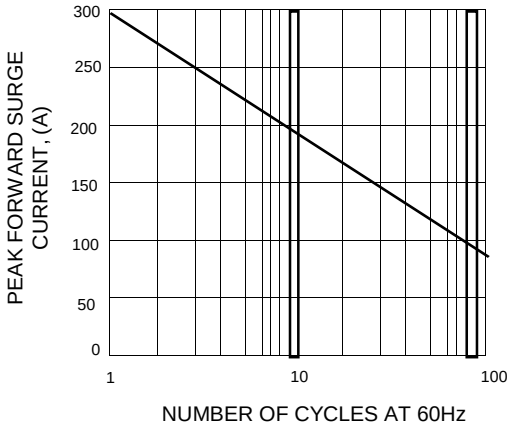


FIG.3 - STEADY STATE POWER DERATING

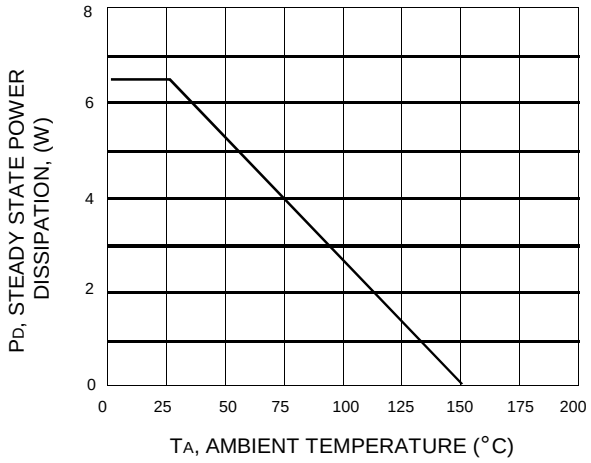


FIG.4 - PEAK PULSE POWER RATING CURVE

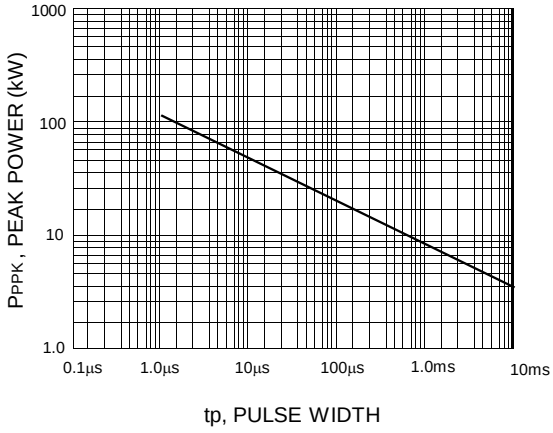


FIG.5 - PULSE WAVEFORM

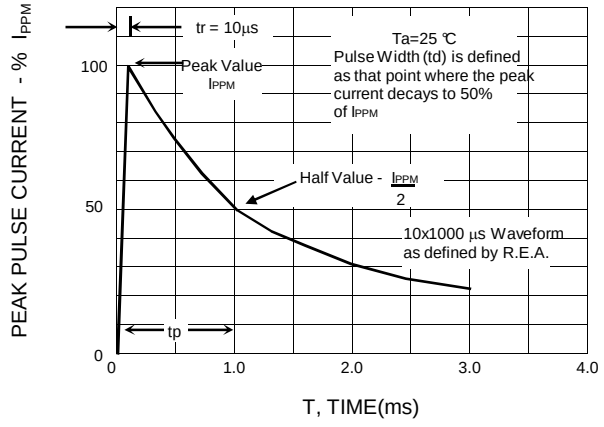


FIG.6 - TYPICAL JUNCTION CAPACITANCE