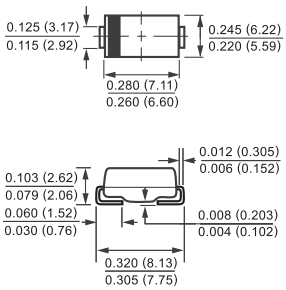
RECTRON SEMICONDUCTOR
TECHNICAL SPECIFICATION

TVS SMCJ SERIES

GPP TRANSIENT VOLTAGE SUPPRESSOR
1500 WATT PEAK POWER 5.0 WATT STEADY STATE

FEATURES
* Plastic package has underwriters laboratory
* Glass passivated chip construction
* 1500 watt surage capability at 1ms
* Excellent clamping capability
* Low zener impedance
* Fast response time
* P/N suffix V means AEC-Q101 qualified, eg:SMCJ5.0AV
* Halogen-free
* MSL: Level 1

DO-214AB



Dimensions in inches and (millimeters)

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS
Ratings at 25 °C ambient temperature unless otherwise specified.

DEVICES FOR BIPOLAR APPLICATIONS

For Bidirectional use C or CA suffix for types SMCJ5.0 thru SMCJ550

Electrical characteristics apply in both direction

MAXIMUM RATINGS (At T_A = 25°C unless otherwise noted)

RATINGS	SYMBOL	VALUE	UNITS
Peak Power Dissipation with a 10/1000uS (Note 1, F ig.1)	P_{PPM}	Minimum 1500	Watts
Peak Pulse Current with a 10/1000uS waveform (Note 1, Fig.3)	I_{PPM}	SEE TABLE 1	Amps
Steady State Power Dissipation at T_L = 75°C	$P_{M(AV)}$	5.0	Watts
Peak Forward Surge Current 8.3mS single half sine-wave superimposed on rated load (JEDEC method) (Note 2) unidirectional only	I_{FSM}	200	Amps
Typical Current Squared Time	I^2t	166	A^2S
Maximum Instantaneous Forward Voltage at 100A for unidirectional only (Note 2,3)	V_F	SEE NOTE 3,4	Volts
Typical Thermal Resistance，Junction to Ambient air (Note 5)	$R_{\theta JA}$	75	°C/W
Typical Thermal Resistance，Junction to Lead (Note 5)	$R_{\theta JL}$	15	°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. Lead temperature at T_L = 25°C
3. Measured on 8.3mS single half sine-wave duty cycle = 4 pules per minute maximum.
4. V_F = 3.5V on SMCJ-5.0 thru SMCJ-90 devices and V_F = 5.0V on SMCJ-100 thru SMCJ-550 devices.
5.Thermal Resistance :Mounted on PCB.

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RATING AND CHARACTERISTICS CURVES (SMCJ5.0 THRU SMCJ550CA)

FIG. 1 - PEAK PULSE POWER RATING CURVE

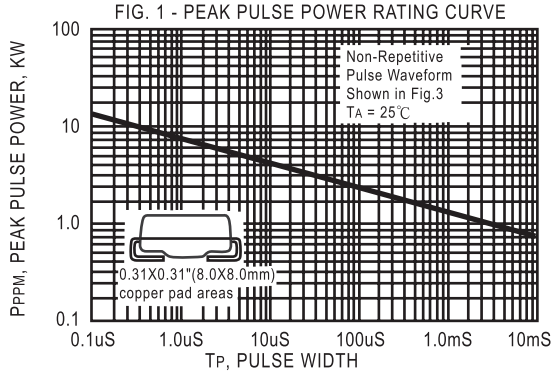


FIG. 2 - PULSE DERATING CURVE

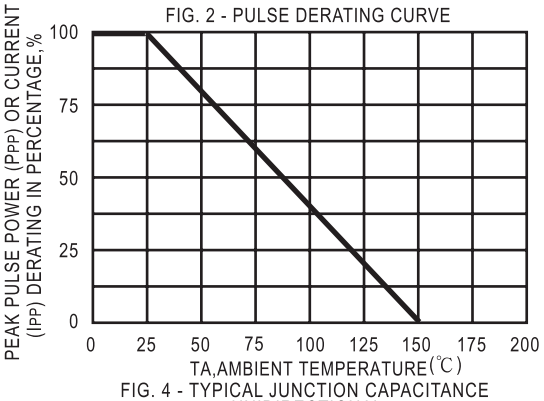


FIG. 3 - PULSE WAVEFORM

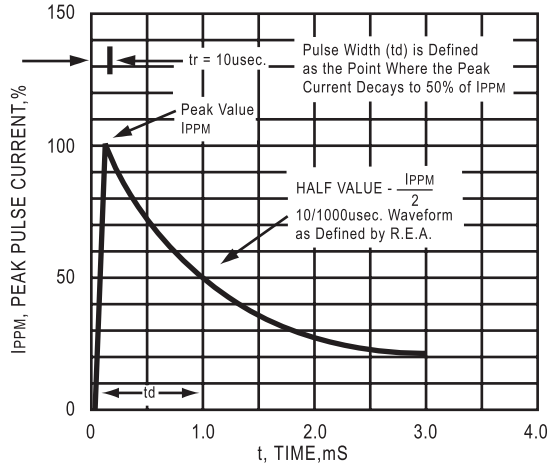


FIG. 4 - TYPICAL JUNCTION CAPACITANCE
UNIDIRECTIONAL

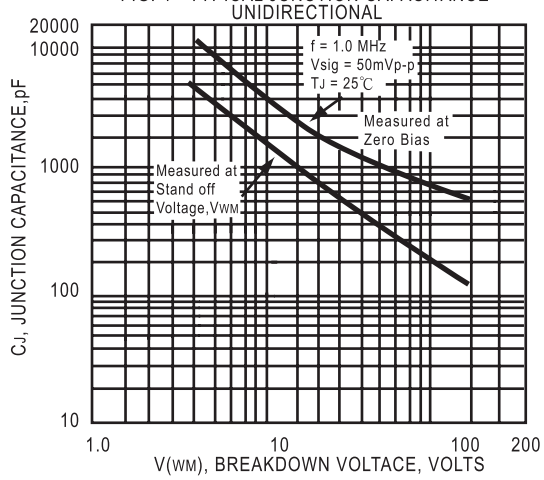


FIG. 5 - TYPICAL JUNCTION CAPACITANCE
BIDIRECTIONAL

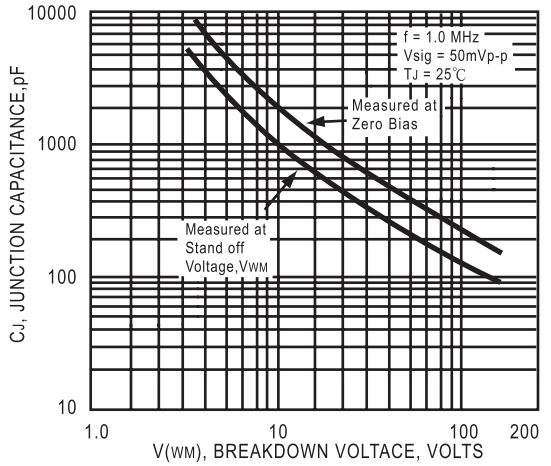
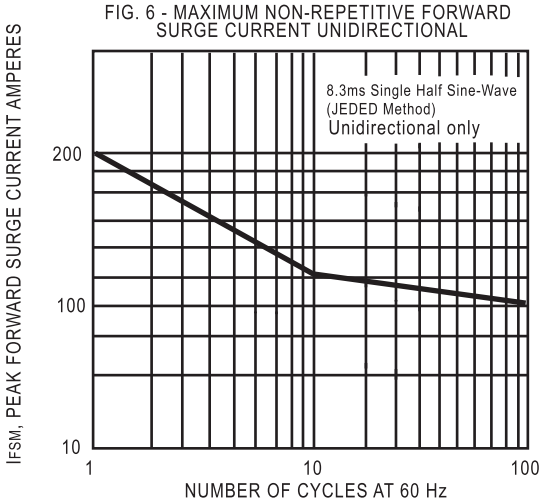


FIG. 6 - MAXIMUM NON-REPETITIVE FORWARD
SURGE CURRENT UNIDIRECTIONAL



TRANSIENT VOLTAGE SUPPRESSORS

1500W SERIES TVS DIODES／ DO-214AB (CASE 4) 1500W

TYPE	Breakdown Voltage			Reverse Stand off Voltage V_{WM} (Volts)	Maximum Reverse Leakage at V_{WM} I_D(uA)	Maximum Peak Pulse Current I_{PPM} (Amps)	Maximum Clamping Voltage at I_{PPM} V_C (Volts)
	V_{BR} (Volts)		@I_T				
	MIN.	MAX.	(mA)				
SMCJ5.0	6.40	7.30	10	5.0	1000	164.0	9.6
SMCJ5.0A	6.40	7.00	10	5.0	1000	171.0	9.2
SMCJ6.0	6.67	8.15	10	6.0	1000	138.0	11.4
SMCJ6.0A	6.67	7.37	10	6.0	1000	152.0	10.3
SMCJ6.5	7.22	8.82	10	6.5	500.0	128.0	12.3
SMCJ6.5A	7.22	7.98	10	6.5	500.0	140.0	11.2
SMCJ7.0	7.78	9.51	10	7.0	200.0	118.0	13.3
SMCJ7.0A	7.78	8.86	10	7.0	200.0	131.0	12.0
SMCJ7.5	8.33	10.2	1.0	7.5	100.0	110.0	14.3
SMCJ7.5A	8.33	9.21	1.0	7.5	100.0	122.0	12.9
SMCJ8.0	8.89	10.9	1.0	8.0	50.0	105.0	15.0
SMCJ8.0A	8.89	9.83	1.0	8.0	50.0	115.0	13.6
SMCJ8.5	9.44	11.5	1.0	8.5	25	99.0	15.9
SMCJ8.5A	9.44	10.4	1.0	8.5	25	109.0	14.4
SMCJ9.0	10.0	12.2	1.0	9.0	10	93.0	16.9
SMCJ9.0A	10.0	11.1	1.0	9.0	10	102.0	15.4
SMCJ10	11.1	13.6	1.0	10.0	5.0	83.0	18.8
SMCJ10A	11.1	12.3	1.0	10.0	5.0	92.0	17.0
SMCJ11	12.2	14.9	1.0	11.0	1.0	78.0	20.1
SMCJ11A	12.2	13.5	1.0	11.0	1.0	86.0	18.2
SMCJ12	13.3	16.3	1.0	12.0	1.0	71.0	22.0
SMCJ12A	13.3	14.7	1.0	12.0	1.0	79.0	19.9
SMCJ13	14.4	17.6	1.0	13.0	1.0	66.0	23.8
SMCJ13A	14.4	15.9	1.0	13.0	1.0	73.0	21.5
SMCJ14	15.6	19.1	1.0	14.0	1.0	61.0	25.8
SMCJ14A	15.6	17.2	1.0	14.0	1.0	67.0	23.2
SMCJ15	16.7	20.4	1.0	15.0	1.0	58.0	26.9
SMCJ15A	16.7	18.5	1.0	15.0	1.0	64.0	24.4
SMCJ16	17.8	21.8	1.0	16.0	1.0	54.0	28.8
SMCJ16A	17.8	19.7	1.0	16.0	1.0	60.0	26.0
SMCJ17	18.9	23.1	1.0	17.0	1.0	51.0	30.5
SMCJ17A	18.9	20.9	1.0	17.0	1.0	57.0	27.6
SMCJ18	20.0	24.2	1.0	18.0	1.0	48.0	32.2
SMCJ18A	20.0	22.1	1.0	18.0	1.0	53.0	29.2
SMCJ20	22.2	27.1	1.0	20.0	1.0	43.0	35.8
SMCJ20A	22.2	24.5	1.0	20.0	1.0	48.0	32.4
SMCJ22	24.4	29.8	1.0	22.0	1.0	39.0	39.4
SMCJ22A	24.4	26.9	1.0	22.0	1.0	44.0	35.5
SMCJ24	26.7	32.6	1.0	24.0	1.0	36.0	43.0
SMCJ24A	26.7	29.5	1.0	24.0	1.0	40.0	38.9
SMCJ26	28.9	35.3	1.0	26.0	1.0	33.0	46.6
SMCJ26A	28.9	31.9	1.0	26.0	1.0	37.0	42.1
SMCJ28	31.1	38.0	1.0	28.0	1.0	31.0	50.1
SMCJ28A	31.1	34.4	1.0	28.0	1.0	34.0	45.4
SMCJ30	33.3	40.7	1.0	30.0	1.0	29.0	53.5
SMCJ30A	33.3	36.8	1.0	30.0	1.0	32.0	48.4
SMCJ33	36.7	44.9	1.0	33.0	1.0	26.0	59.0
SMCJ33A	36.7	40.6	1.0	33.0	1.0	29.0	53.3
SMCJ36	40.0	48.9	1.0	36.0	1.0	24.0	64.3
SMCJ36A	40.0	44.2	1.0	36.0	1.0	27.0	58.1

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TYPE	Breakdown Voltage			Reverse Stand off Voltage V_{WM} (Volts)	Maximum Reverse Leakage at V_{WM} I_D(uA)	Maximum Peak Pulse Current I_{PPM} (Amps)	Maximum Clamping Voltage at I_{PPM} V_C (Volts)
	V_{BR} (Volts)		@I_T				
	MIN.	MAX.	(mA)				
SMCJ40	44.4	54.3	1.0	40	1.0	22.0	71.4
SMCJ40A	44.4	49.1	1.0	40	1.0	24.0	64.5
SMCJ43	47.8	58.4	1.0	43	1.0	20.0	76.7
SMCJ43A	47.8	52.8	1.0	43	1.0	22.0	69.4
SMCJ45	50.0	61.1	1.0	45	1.0	19.0	80.3
SMCJ45A	50.0	55.3	1.0	45	1.0	21.0	72.7
SMCJ48	53.3	65.1	1.0	48	1.0	18.0	85.5
SMCJ48A	53.3	58.9	1.0	48	1.0	20.0	77.4
SMCJ51	56.7	69.3	1.0	51	1.0	17.0	91.1
SMCJ51A	56.7	62.7	1.0	51	1.0	19.0	82.4
SMCJ54	60.0	73.3	1.0	54	1.0	16.0	96.3
SMCJ54A	60.0	66.3	1.0	54	1.0	18.0	87.1
SMCJ58	64.4	78.7	1.0	58	1.0	15.0	103
SMCJ58A	64.4	71.2	1.0	58	1.0	16.0	93.6
SMCJ60	66.7	81.5	1.0	60	1.0	14.0	107
SMCJ60A	66.7	73.7	1.0	60	1.0	16.0	96.8
SMCJ64	71.1	86.9	1.0	64	1.0	13.8	114
SMCJ64A	71.1	78.6	1.0	64	1.0	15.0	103
SMCJ70	77.8	95.1	1.0	70	1.0	12.6	125
SMCJ70A	77.8	86.0	1.0	70	1.0	13.9	113
SMCJ75	83.3	102	1.0	75	1.0	11.7	134
SMCJ75A	83.3	92.1	1.0	75	1.0	13.0	121
SMCJ78	86.7	106	1.0	78	1.0	11.3	139
SMCJ78A	86.7	95.8	1.0	78	1.0	12.5	126
SMCJ85	94.4	115	1.0	85	1.0	10.4	151
SMCJ85A	94.4	104	1.0	85	1.0	11.5	137
SMCJ90	100	122	1.0	90	1.0	9.8	160
SMCJ90A	100	111	1.0	90	1.0	10.7	146
SMCJ100	110	136	1.0	100	1.0	8.8	179
SMCJ100A	110	123	1.0	100	1.0	9.7	162
SMCJ110	122	149	1.0	110	1.0	8.0	196
SMCJ110A	122	135	1.0	110	1.0	8.9	177
SMCJ120	133	163	1.0	120	1.0	7.3	214
SMCJ120A	133	147	1.0	120	1.0	8.1	193
SMCJ130	144	176	1.0	130	1.0	6.8	231
SMCJ130A	144	159	1.0	130	1.0	7.5	209
SMCJ150	167	204	1.0	150	1.0	5.8	268
SMCJ150A	167	185	1.0	150	1.0	6.4	243
SMCJ160	178	218	1.0	160	1.0	5.4	287
SMCJ160A	178	197	1.0	160	1.0	6.0	259
SMCJ170	189	231	1.0	170	1.0	5.1	304
SMCJ170A	189	209	1.0	170	1.0	5.7	275

TRANSIENT VOLTAGE SUPPRESSORS

1500W SERIES TVS DIODES / DO-214AB (CASE 4) 1500W

Rectron Industry No.	Breakdown Voltage VBR (Volts) MIN.	Breakdown Voltage VBR (Volts) MAX.	@IT (mA)	Reverse Stand off Voltage VWM (Volts)	Maximum Reverse Leakage at VWM ID(uA)	Maximum Peak Pulse Current IPPM (Amps)	Maximum Clamping Voltage at IPPM VC (Volts)
SMCJ180A	201	222	1.0	180	1.0	5.1	292
SMCJ190A	209	243	1.0	190	1.0	4.8	308
SMCJ200A	224	247	1.0	200	1.0	4.6	324
SMCJ210A	231	268	1.0	210	1.0	4.4	340
SMCJ220A	246	272	1.0	220	1.0	4.2	358
SMCJ250A	279	309	1.0	250	1.0	3.7	405
SMCJ300A	335	371	1.0	300	1.0	3.1	486
SMCJ350A	391	432	1.0	350	1.0	2.6	567
SMCJ400A	447	494	1.0	400	1.0	2.3	648
SMCJ440A	492	543	1.0	440	1.0	2.1	713
SMCJ480A	536	593	1.0	480	1.0	2.0	750
SMCJ520A	578	640	1.0	520	1.0	2.0	762
SMCJ550A	615	680	1.0	550	1.0	1.7	860

Notes :
1. V_{BR} measured after I_T applied for 300ms. I_T = square pulse or equivalent.
2. For bidirectional use C or CA suffixs for all types (ex. SMCJ5.0C,SMCJ170CA) electrical characteristics apply in both directions.
3. For bidirectional types having V_{WM} of 10 volts and less, the I_D limit is doubled.

PACKAGING OF DIODE AND BRIDGE RECTIFIERS

REEL PACK

PACKAGE	PACKING CODE	EA PER REEL	EA PER INNER BOX	COMPONENT SPACE (mm)	TAPE SPACE (mm)	REEL DIA (mm)	CARTON SIZE (mm)	EA PER CARTON	GROSS WEIGHT(Kg)
SMC	-W/-T	3,000	3,000	---	---	330	360*355*360	24,000	11.50

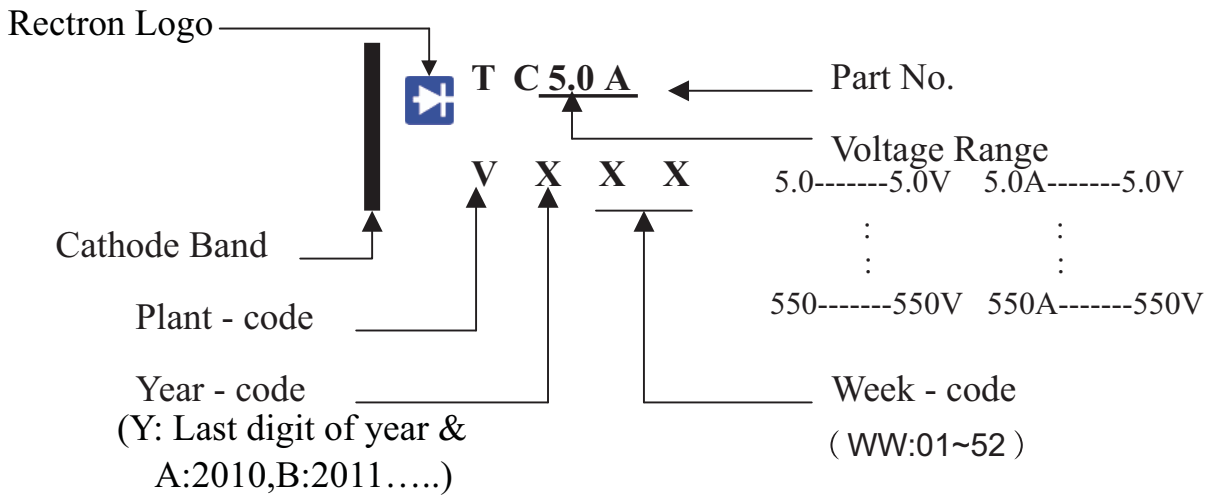
RECTRON

Attachment information about SMCJXXX

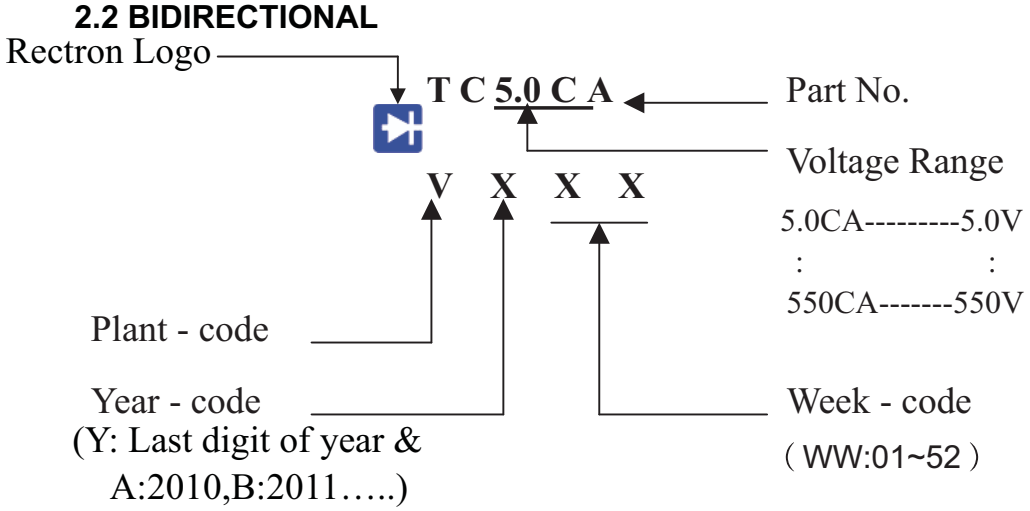
1. Internal Circuit

2. Marking on the body

2.1 UNIDIRECTIONAL



2.2 BIDIRECTIONAL



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