

## Surface Mount Uni/Bi-Directional Automotive TVS Diodes

### Description

The 5.0SMCJ-AT automotive series is designed specifically to protect sensitive electronic equipment from voltage transients induced by lightning and other transient voltage events.

### Features

- For surface mounted applications
- Low profile package
- 5000W Peak pulse power capability at 10/1000 $\mu$ s waveform
- Glass passivated junction
- Excellent clamping capability
- Typical IR less than 2 $\mu$ A above 10V
- Fast response time: typically less than 1.0ps from 0 Volts to VBR min
- Plastic package has Underwriters Laboratory Flammability 94V-O
- Halogen-Free / RoHS compliant / Matte Tin Lead-free plated
- High temperature soldering: 260°C/40s
- High reliability and automotive grade (AEC-Q101 qualified)

### Mechanical Data

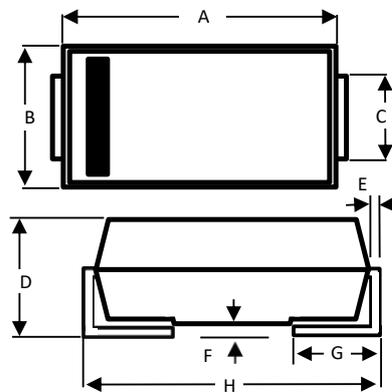
- Case: SMC(DO-214AB) package
  - Terminal: Solderable per MIL-STD-750, Method 2026
  - Polarity : by cathode band denotes uni-directional device, none cathode band denotes bi-directional device
  - Weight: 0.21 grams
- Note: Products with logo  or  are made by HY Electronic (Cayman) Limited

### Applications

TVS devices are ideal for the protection of I/O Interfaces, Vcc bus and other vulnerable circuits used in telecom, computer, industrial and consumer electronic applications.

**Peak Pulse Power - 5000 W**  
**Reverse Stand Off Voltage - 5 to 170 V**

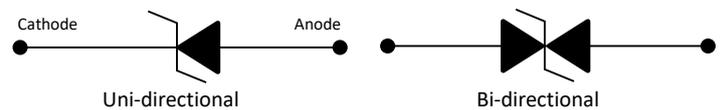
### Package Outline Dimensions



SMC Package		
Dim	Min	Max
A	6.60	7.11
B	5.59	6.22
C	2.90	3.20
D	2.00	2.62
E	0.152	0.305
F	-	0.203
G	0.76	1.52
H	7.75	8.13

All Dimensions in mm

### Device Schematic



### Ordering Information

- Package : SMC(DO-214AB)
- Reel Size : 13 (inches)
- Quantity Per Reel : 3Kpcs
- Quantity Per Box : 6Kpcs
- Quantity Per Carton : 42Kpcs

### Maximum Ratings (@TA = +25°C, unless otherwise specified.)

#### Absolute Ratings

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at TA=25°C by 10/1000 $\mu$ s Waveform (Note 1)	PPP	5000	W
Power Dissipation on Infinite Heat Sink at TL=50°C	P <sub>M(AV)</sub>	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 2)	I <sub>FSM</sub>	300	A
Operating Temperature Range	T <sub>j</sub>	-55 to +150	°C
Storage Temperature Range	T <sub>STG</sub>	-55 to +150	

Note:

1. Non-repetitive current pulse, per Fig.4 and derated above T<sub>j</sub>(initial) =25°C per Fig.1
2. For unidirectional units only

Electrical Characteristics (@T<sub>A</sub> = 25°C, unless otherwise specified.)

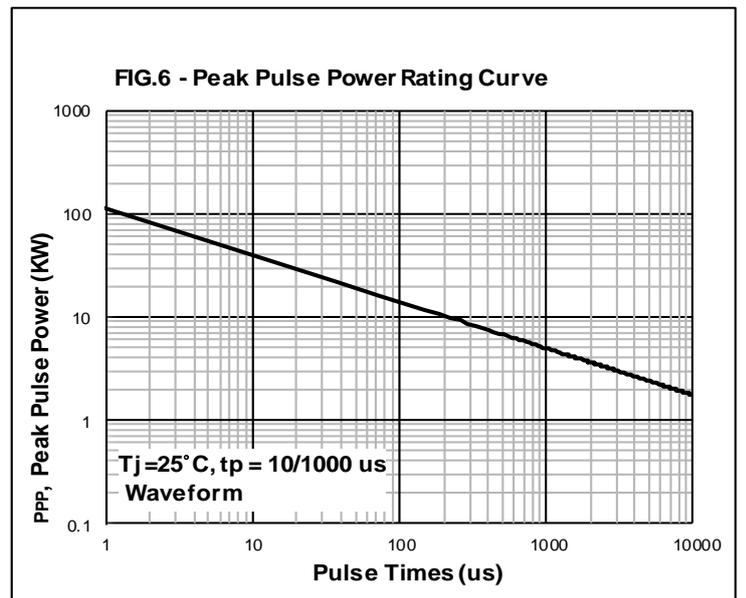
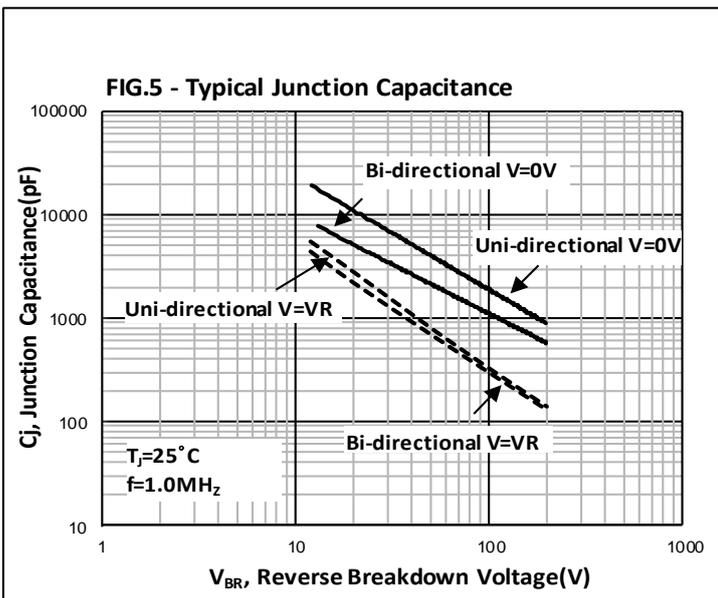
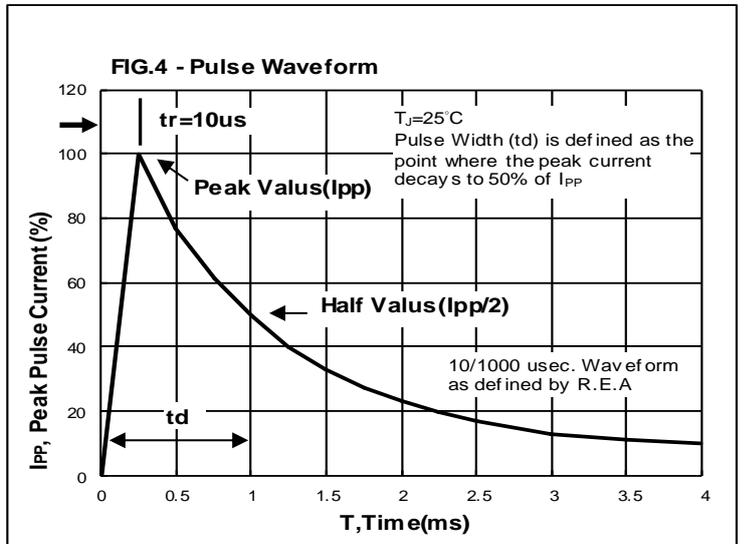
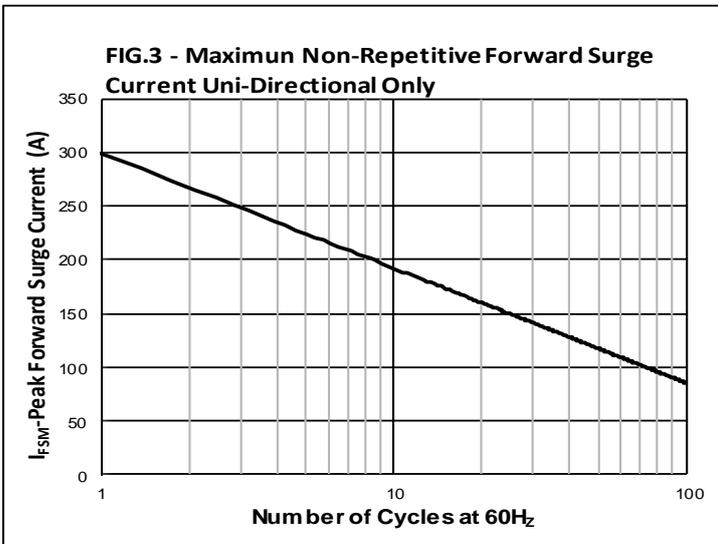
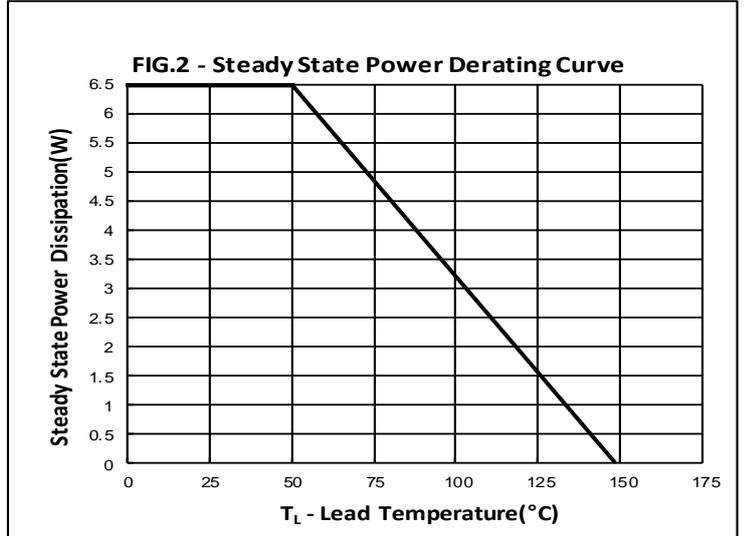
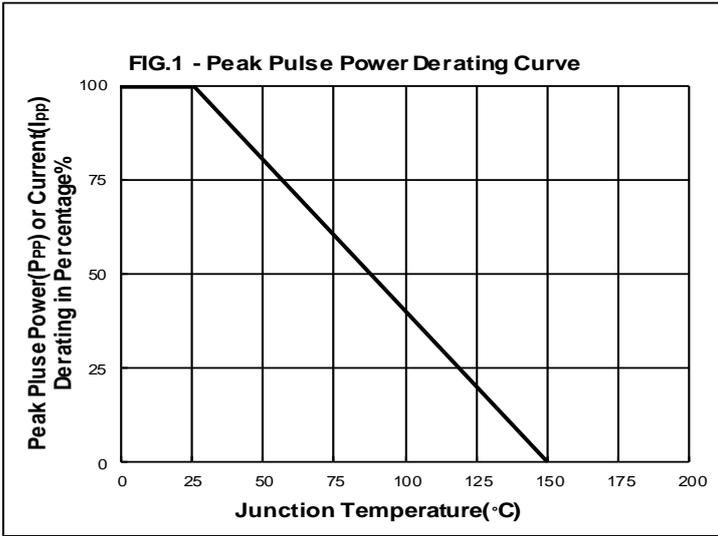
Part Number		Marking Code		Reverse Working Voltage V <sub>RWM</sub> (V)	Reverse Breakdown Voltage V <sub>B</sub> (V)			Reverse Leakage (Max) I <sub>R</sub> ( $\mu$ A) @V <sub>R</sub>	Reverse Clamping Voltage (Max) V <sub>C</sub> (V) @I <sub>PP</sub>	Peak Pulse Current (Max) I <sub>PP</sub> (A)
Uni.	Bi.	Uni.	Bi.		Min.	Max.	@I <sub>T</sub> (mA)			
5.0SMCJ5.0A-AT	5.0SMCJ5.0CA-AT	5DKX	5DMR	5.0	6.40	7.00	10	1050	9.2	543.6
5.0SMCJ6.0A-AT	5.0SMCJ6.0CA-AT	5DKY	5DMS	6.0	6.67	7.37	10	1050	10.3	485.5
5.0SMCJ6.5A-AT	5.0SMCJ6.5CA-AT	5DKZ	5DMT	6.5	7.22	7.98	10	750	11.2	446.5
5.0SMCJ7.0A-AT	5.0SMCJ7.0CA-AT	5DLA	5DMU	7.0	7.78	8.60	10	300	12.0	416.8
5.0SMCJ7.5A-AT	5.0SMCJ7.5CA-AT	5DLB	5DMV	7.5	8.33	9.21	1	150	12.9	387.7
5.0SMCJ8.0A-AT	5.0SMCJ8.0CA-AT	5DLC	5DMW	8.0	8.89	9.83	1	70	13.6	367.7
5.0SMCJ8.5A-AT	5.0SMCJ8.5CA-AT	5DLD	5DMX	8.5	9.44	10.4	1	30	14.4	347.3
5.0SMCJ9.0A-AT	5.0SMCJ9.0CA-AT	5DLE	5DMY	9.0	10.0	11.1	1	12	15.4	324.8
5.0SMCJ10A-AT	5.0SMCJ10CA-AT	5DLF	5DMZ	10	11.1	12.3	1	6	17.0	294.2
5.0SMCJ11A-AT	5.0SMCJ11CA-AT	5DLG	5DNA	11	12.2	13.5	1	2	18.2	274.8
5.0SMCJ12A-AT	5.0SMCJ12CA-AT	5DLH	5DNB	12	13.3	14.7	1	2	19.9	252
5.0SMCJ13A-AT	5.0SMCJ13CA-AT	5DLI	5DNC	13	14.4	15.9	1	2	21.5	233
5.0SMCJ14A-AT	5.0SMCJ14CA-AT	5DLJ	5DND	14	15.6	17.2	1	2	23.2	216
5.0SMCJ15A-AT	5.0SMCJ15CA-AT	5DLK	5DNE	15	16.7	18.5	1	2	24.4	205
5.0SMCJ16A-AT	5.0SMCJ16CA-AT	5DLL	5DNF	16	17.8	19.7	1	2	26.0	193
5.0SMCJ17A-AT	5.0SMCJ17CA-AT	5DLM	5DNG	17	18.9	20.9	1	2	27.6	181
5.0SMCJ18A-AT	5.0SMCJ18CA-AT	5DLN	5DNH	18	20.0	22.1	1	2	29.2	172
5.0SMCJ20A-AT	5.0SMCJ20CA-AT	5DLO	5DNI	20	22.2	24.5	1	2	32.4	155
5.0SMCJ22A-AT	5.0SMCJ22CA-AT	5DLP	5DNJ	22	24.4	26.9	1	2	35.5	141
5.0SMCJ24A-AT	5.0SMCJ24CA-AT	5DLQ	5DNK	24	26.7	29.5	1	2	38.9	129
5.0SMCJ26A-AT	5.0SMCJ26CA-AT	5DLR	5DNL	26	28.9	31.9	1	2	42.1	119
5.0SMCJ28A-AT	5.0SMCJ28CA-AT	5DLS	5DNM	28	31.1	34.4	1	2	45.4	110
5.0SMCJ30A-AT	5.0SMCJ30CA-AT	5DLT	5DNN	30	33.3	36.8	1	2	48.4	103
5.0SMCJ33A-AT	5.0SMCJ33CA-AT	5DLU	5DNO	33	36.7	40.6	1	2	53.3	93.9
5.0SMCJ36A-AT	5.0SMCJ36CA-AT	5DLV	5DNP	36	40.0	44.2	1	2	58.1	86.1
5.0SMCJ40A-AT	5.0SMCJ40CA-AT	5DLW	5DNQ	40	44.4	49.1	1	2	64.5	77.6
5.0SMCJ43A-AT	5.0SMCJ43CA-AT	5DLX	5DNR	43	47.8	52.8	1	2	69.4	72.1
5.0SMCJ45A-AT	5.0SMCJ45CA-AT	5DLY	5DNS	45	50.0	55.3	1	2	72.7	68.8
5.0SMCJ48A-AT	5.0SMCJ48CA-AT	5DLZ	5DNT	48	53.3	58.9	1	2	77.4	64.7
5.0SMCJ51A-AT	5.0SMCJ51CA-AT	5DMA	5DNU	51	56.7	62.7	1	2	82.4	60.7
5.0SMCJ54A-AT	5.0SMCJ54CA-AT	5DMB	5DNV	54	60.0	66.3	1	2	87.1	57.5
5.0SMCJ58A-AT	5.0SMCJ58CA-AT	5DMC	5DNW	58	64.4	71.2	1	2	93.6	53.5
5.0SMCJ60A-AT	5.0SMCJ60CA-AT	5DMD	5DNX	60	66.7	73.7	1	2	96.8	51.7
5.0SMCJ64A-AT	5.0SMCJ64CA-AT	5DME	5DNY	64	71.1	78.6	1	2	103	48.6
5.0SMCJ70A-AT	5.0SMCJ70CA-AT	5DMF	5DNZ	70	77.8	86.0	1	2	113	44.3
5.0SMCJ75A-AT	5.0SMCJ75CA-AT	5DMG	5DOA	75	83.3	92.1	1	2	121	41.4
5.0SMCJ78A-AT	5.0SMCJ78CA-AT	5DMH	5DOB	78	86.7	95.8	1	2	126	39.7
5.0SMCJ85A-AT	5.0SMCJ85CA-AT	5DMI	5DOC	85	94.4	104	1	2	137	36.5
5.0SMCJ90A-AT	-	5DMJ	-	90	100	111	1	2	146	34.3
5.0SMCJ100A-AT	-	5DMK	-	100	111	123	1	2	162	30.9
5.0SMCJ110A-AT	-	5DML	-	110	122	135	1	2	177	28.3
5.0SMCJ120A-AT	-	5DMM	-	120	133	147	1	2	193	26.0
5.0SMCJ130A-AT	-	5DMN	-	130	144	159	1	2	209	24.0
5.0SMCJ150A-AT	-	5DMO	-	150	167	185	1	2	243	20.6
5.0SMCJ160A-AT	-	5DMP	-	160	178	197	1	2	259	19.3
5.0SMCJ170A-AT	-	5DMQ	-	170	189	209	1	2	275	18.2

## Note:

- Suffix "A" denotes 5% tolerance device.
- Add suffix "CA" after part number to specify bi-directional devices.
- The IR limit is double for bi-directional devices.



## Rating and Characteristic Curves





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