



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



### Description

The SMCJ-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
- 1500W Peak pulse power capability at 10/1000 $\mu$ s waveform
- Glass passivated junction
- Excellent clamping capability
- Typical IR less than 1 $\mu$ 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

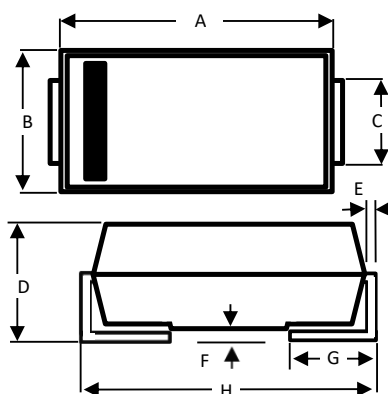
- Case: SMC(DO-214AB) package
  - Terminal: Solderable per MIL-STD-750, Method 2026
  - Polarity : by cathode band denotes uni-directional device, none cathode band denotes bi-directional device
  - Weight: 0.25 grams
- Note: Products with logo  or  are made by HY Electronic (Cayman) Limited

### 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.

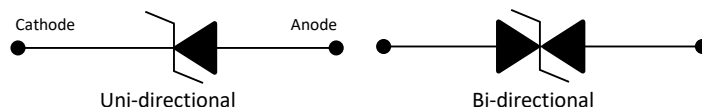
**Peak Pulse Power - 1500 W**  
**Reverse Stand Off Voltage - 5 to 220 V**

### 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)	P <sub>PP</sub>	1500	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>	200	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	Reverse Breakdown Voltage V <sub>B</sub> (V)			Reverse Leakage (Max)	Reverse Clamping Voltage (Max)	Peak Pulse Current (Max)
Uni.	Bi.	Uni.	Bi.	V <sub>RWM</sub> (V)	Min.	Max.	@I <sub>T</sub> (mA)	I <sub>R</sub> ( $\mu$ A) @V <sub>R</sub>	V <sub>C</sub> (V) @I <sub>PP</sub>	I <sub>PP</sub> (A)
SMCJ5.0A-AT	SMCJ5.0CA-AT	CDW	CFT	5.0	6.40	7.00	10	800	9.2	163.0
SMCJ6.0A-AT	SMCJ6.0CA-AT	CDX	CFU	6.0	6.67	7.37	10	800	10.3	145.7
SMCJ6.5A-AT	SMCJ6.5CA-AT	CDY	CFV	6.5	7.22	7.98	10	500	11.2	134.0
SMCJ7.0A-AT	SMCJ7.0CA-AT	CDZ	CFW	7.0	7.78	8.60	10	200	12.0	125.0
SMCJ7.5A-AT	SMCJ7.5CA-AT	CEA	CFX	7.5	8.33	9.21	1	100	12.9	116.3
SMCJ8.0A-AT	SMCJ8.0CA-AT	CEB	CFY	8.0	8.89	9.83	1	50	13.6	110.3
SMCJ8.5A-AT	SMCJ8.5CA-AT	CEC	CFZ	8.5	9.44	10.40	1	20	14.4	104.2
SMCJ9.0A-AT	SMCJ9.0CA-AT	CED	CGA	9.0	10.00	11.10	1	10	15.4	97.4
SMCJ10A-AT	SMCJ10CA-AT	CEE	CGB	10	11.10	12.30	1	5	17.0	88.3
SMCJ11A-AT	SMCJ11CA-AT	CEF	CGC	11	12.20	13.50	1	1	18.2	82.5
SMCJ12A-AT	SMCJ12CA-AT	CEG	CGD	12	13.30	14.70	1	1	19.9	75.4
SMCJ13A-AT	SMCJ13CA-AT	CEH	CGF	13	14.40	15.90	1	1	21.5	69.8
SMCJ14A-AT	SMCJ14CA-AT	CEI	CGG	14	15.60	17.20	1	1	23.2	64.7
SMCJ15A-AT	SMCJ15CA-AT	CEJ	CGH	15	16.70	18.50	1	1	24.4	61.5
SMCJ16A-AT	SMCJ16CA-AT	CEK	CGI	16	17.80	19.70	1	1	26.0	57.7
SMCJ17A-AT	SMCJ17CA-AT	CEL	CGJ	17	18.90	20.90	1	1	27.6	54.4
SMCJ18A-AT	SMCJ18CA-AT	CEM	CGK	18	20.00	22.10	1	1	29.2	51.4
SMCJ20A-AT	SMCJ20CA-AT	CEN	CGL	20	22.20	24.50	1	1	32.4	46.3
SMCJ22A-AT	SMCJ22CA-AT	CEO	CGM	22	24.40	26.90	1	1	35.5	42.3
SMCJ24A-AT	SMCJ24CA-AT	CEP	CGN	24	26.70	29.50	1	1	38.9	38.6
SMCJ26A-AT	SMCJ26CA-AT	CEQ	CGO	26	28.90	31.90	1	1	42.1	35.7
SMCJ28A-AT	SMCJ28CA-AT	CER	CGP	28	31.10	34.40	1	1	45.4	33.1
SMCJ30A-AT	SMCJ30CA-AT	CES	CGQ	30	33.30	36.80	1	1	48.4	31.0
SMCJ33A-AT	SMCJ33CA-AT	CET	CGR	33	36.70	40.60	1	1	53.3	28.2
SMCJ36A-AT	SMCJ36CA-AT	CEU	CGS	36	40.00	44.20	1	1	58.1	25.9
SMCJ40A-AT	SMCJ40CA-AT	CEV	CGT	40	44.40	49.10	1	1	64.5	23.3
SMCJ43A-AT	SMCJ43CA-AT	CEW	CGU	43	47.80	52.80	1	1	69.4	21.7
SMCJ45A-AT	SMCJ45CA-AT	CEX	CGV	45	50.00	55.30	1	1	72.7	20.6
SMCJ48A-AT	SMCJ48CA-AT	CEY	CGW	48	53.30	58.90	1	1	77.4	19.4
SMCJ51A-AT	SMCJ51CA-AT	CEZ	CGX	51	56.70	62.70	1	1	82.4	18.2
SMCJ54A-AT	SMCJ54CA-AT	CFA	CGY	54	60.00	66.30	1	1	87.1	17.3
SMCJ58A-AT	SMCJ58CA-AT	CFB	CGZ	58	64.40	71.20	1	1	93.6	16.1
SMCJ60A-AT	SMCJ60CA-AT	CFC	CHA	60	66.70	73.70	1	1	96.8	15.5
SMCJ64A-AT	SMCJ64CA-AT	CFD	CHB	64	71.10	78.60	1	1	103	14.6
SMCJ70A-AT	SMCJ70CA-AT	CFE	CHC	70	77.80	86.00	1	1	113	13.3
SMCJ75A-AT	SMCJ75CA-AT	CFF	CHD	75	83.30	92.10	1	1	121	12.4
SMCJ78A-AT	SMCJ78CA-AT	CFG	CHE	78	86.70	95.80	1	1	126	11.9
SMCJ85A-AT	SMCJ85CA-AT	CFH	CHF	85	94.40	104	1	1	137	11.0
SMCJ90A-AT	SMCJ90CA-AT	CFI	CHG	90	100	111	1	1	146	10.3
SMCJ100A-AT	SMCJ100CA-AT	CFJ	CHH	100	111	123	1	1	162	9.3
SMCJ110A-AT	SMCJ110CA-AT	CFK	CHI	110	122	135	1	1	177	8.5
SMCJ120A-AT	SMCJ120CA-AT	CFL	CHJ	120	133	147	1	1	193	7.8
SMCJ130A-AT	SMCJ130CA-AT	CFM	CHK	130	144	159	1	1	209	7.2
SMCJ150A-AT	SMCJ150CA-AT	CFN	CHL	150	167	185	1	1	243	6.2
SMCJ160A-AT	SMCJ160CA-AT	CFO	CHM	160	178	197	1	1	259	5.8
SMCJ170A-AT	SMCJ170CA-AT	CFP	CHN	170	189	209	1	1	275	5.5
SMCJ180A-AT	SMCJ180CA-AT	CFQ	CHO	180	201	222	1	1	292	5.1
SMCJ200A-AT	SMCJ200CA-AT	CFR	CHP	200	224	247	1	1	324	4.6
SMCJ220A-AT	SMCJ220CA-AT	CFS	CHQ	220	246	272	1	1	356	4.2

Note:

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



## Rating and Characteristic Curves

FIG.1 - Peak Pulse Power Derating Curve

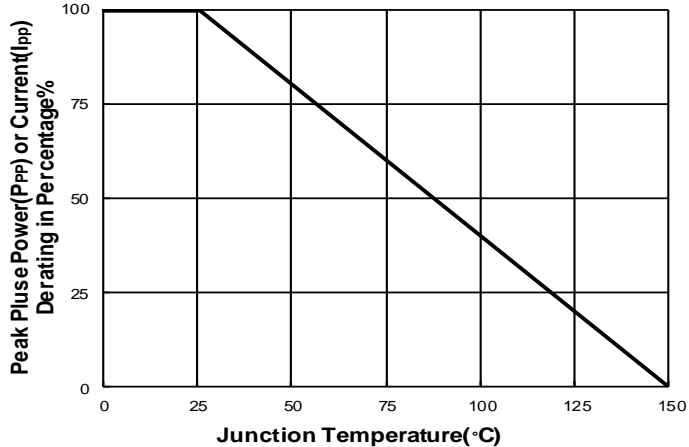


FIG.2 - Steady State Power Derating Curve

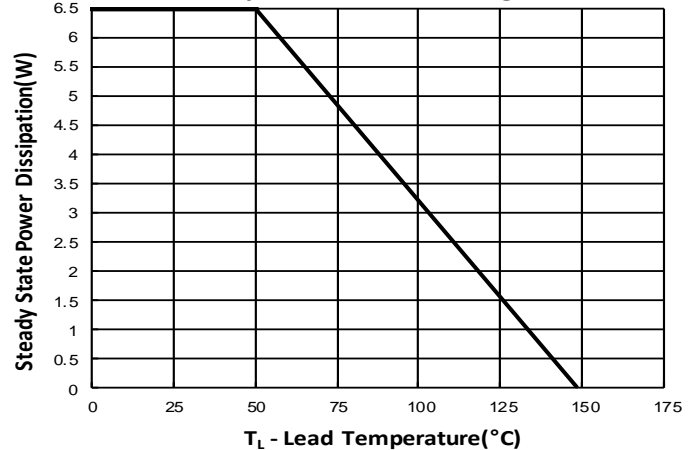


FIG.3 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

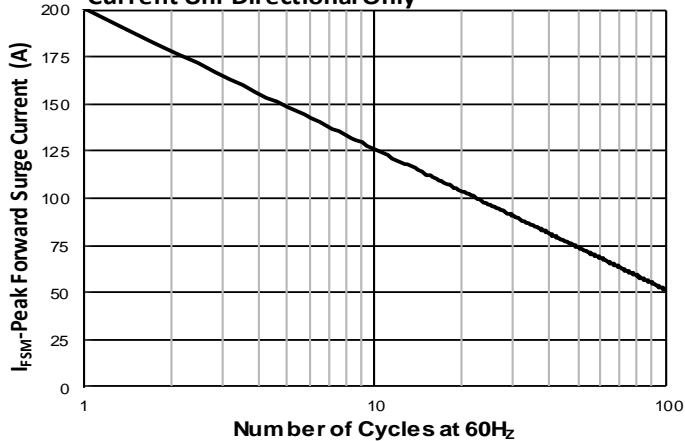


FIG.4 - Pulse Waveform

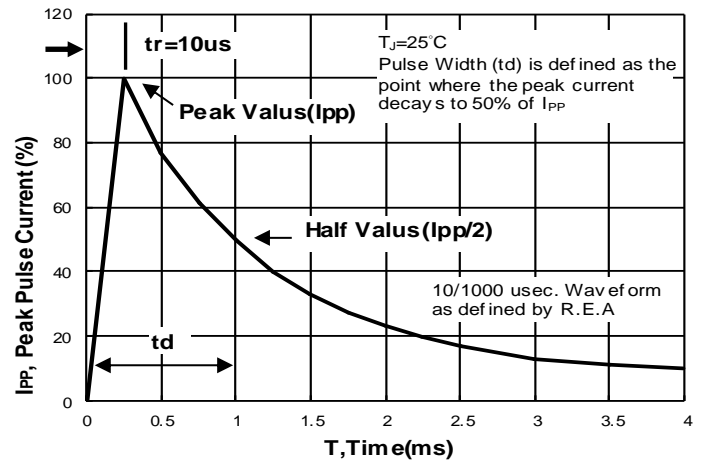


FIG.5 - Typical Junction Capacitance

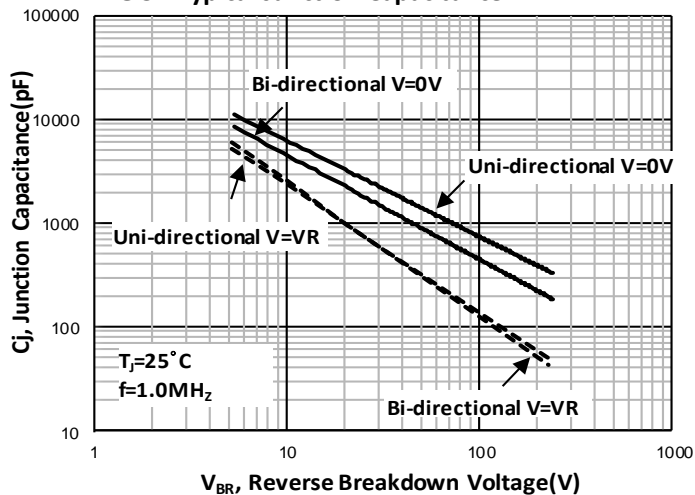
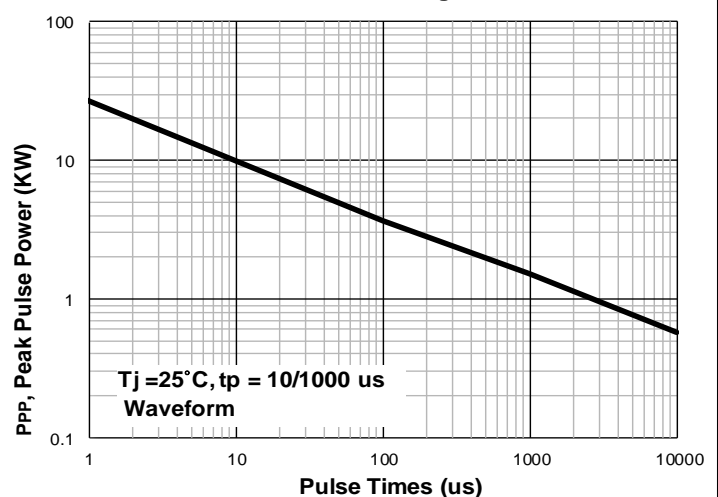


FIG.6 - Peak Pulse Power Rating Curve





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