



Surface Mount Uni/Bi-Directional Automotive TVS Diodes



Description

The SMBJ-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
- 600W Peak pulse power capability at 10/1000 μ s waveform
- Glass passivated junction
- Excellent clamping capability
- Typical IR less than 1 μ 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

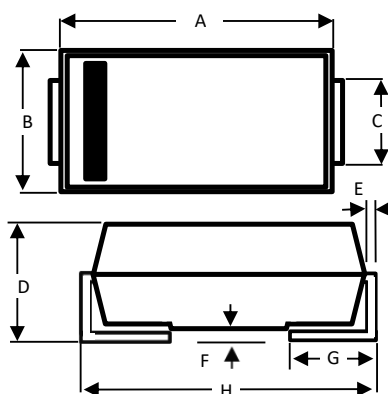
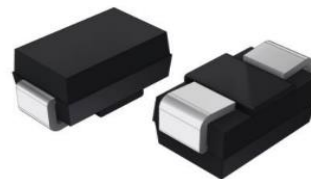
- Case:SMB(DO-214AA)package
 - Terminal: Solderable per MIL-STD-750, Method 2026
 - Polarity : by cathode band denotes uni-directional device, none cathode band denotes bi-directional device
 - Weight: 0.093 grams
- Note: Products with logo  or  are made by HY Electronic (Cayman) Limited

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.

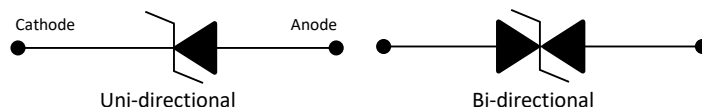
Peak Pulse Power - 600 W
Reverse Stand Off Voltage - 5 to 220 V

Package Outline Dimensions



SMB Package		
Dim	Min	Max
A	4.06	4.57
B	3.30	3.94
C	1.95	2.20
D	2.13	2.44
E	0.152	0.305
F	-	0.203
G	0.76	1.52
H	5.21	5.59
All Dimensions in mm		

Device Schematic



Ordering Information

- Package : SMB(DO-214AA)
- Reel Size : 13 (inches)
- Quantity Per Reel : 3Kpcs
- Quantity Per Box : 6Kpcs
- Quantity Per Carton : 48Kpcs

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

Absolute Ratings

Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation at TA=25°C by 10/1000us Waveform (Note 1)	PPp	600	W
Power Dissipation on Infinite Heat Sink at TL=50°C	PM(AV)	5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 2)	IFSM	100	A
Operating Temperature Range	T _j	-55 to +150	°C
Storage Temperature Range	T _{STG}	-55 to +150	

Note:

1. Non-repetitive current pulse, per Fig.4 and derated above T_j(initial) =25°C per Fig.1
2. For unidirectional units only

Electrical Characteristics (@T_A = 25°C, unless otherwise specified.)

Part Number		Marking Code		Reverse Working Voltage	Reverse Breakdown Voltage V _B (V)			Reverse Leakage (Max)	Reverse Clamping Voltage (Max)	Peak Pulse Current (Max)
Uni.	Bi.	Uni.	Bi.	V _{RWM} (V)	Min.	Max.	@I _T (mA)	I _R (μ A) @V _R	V _C (V) @I _{PP}	I _{PP} (A)
SMBJ5.0A-AT	SMBJ5.0CA-AT	BOD	BQB	5.0	6.40	7.00	10	800	9.2	65.3
SMBJ6.0A-AT	SMBJ6.0CA-AT	BOE	BQC	6.0	6.67	7.37	10	800	10.3	58.3
SMBJ6.5A-AT	SMBJ6.5CA-AT	BOF	BQD	6.5	7.22	7.98	10	500	11.2	53.6
SMBJ7.0A-AT	SMBJ7.0CA-AT	BOG	BQE	7.0	7.78	8.60	10	200	12.0	50.0
SMBJ7.5A-AT	SMBJ7.5CA-AT	BOH	BQF	7.5	8.33	9.21	1	100	12.9	46.6
SMBJ8.0A-AT	SMBJ8.0CA-AT	BOI	BQG	8.0	8.89	9.83	1	50	13.6	44.2
SMBJ8.5A-AT	SMBJ8.5CA-AT	BOJ	BQH	8.5	9.44	10.4	1	20	14.4	41.7
SMBJ9.0A-AT	SMBJ9.0CA-AT	BOK	BQI	9.0	10.0	11.1	1	10	15.4	39.0
SMBJ10A-AT	SMBJ10CA-AT	BOL	BQJ	10	11.1	12.3	1	5	17.0	35.3
SMBJ11A-AT	SMBJ11CA-AT	BOM	BQK	11	12.2	13.5	1	1	18.2	33.0
SMBJ12A-AT	SMBJ12CA-AT	BON	BQL	12	13.3	14.7	1	1	19.9	30.2
SMBJ13A-AT	SMBJ13CA-AT	BOO	BQM	13	14.4	15.9	1	1	21.5	28.0
SMBJ14A-AT	SMBJ14CA-AT	BOP	BQN	14	15.6	17.2	1	1	23.2	25.9
SMBJ15A-AT	SMBJ15CA-AT	BOQ	BQO	15	16.7	18.5	1	1	24.4	24.6
SMBJ16A-AT	SMBJ16CA-AT	BOR	BQP	16	17.8	19.7	1	1	26.0	23.1
SMBJ17A-AT	SMBJ17CA-AT	BOS	BQQ	17	18.9	20.9	1	1	27.6	21.8
SMBJ18A-AT	SMBJ18CA-AT	BOT	BQR	18	20.0	22.1	1	1	29.2	20.6
SMBJ20A-AT	SMBJ20CA-AT	BOU	BQS	20	22.2	24.5	1	1	32.4	18.6
SMBJ22A-AT	SMBJ22CA-AT	BOV	BQT	22	24.4	26.9	1	1	35.5	16.9
SMBJ24A-AT	SMBJ24CA-AT	BOW	BQU	24	26.7	29.5	1	1	38.9	15.5
SMBJ26A-AT	SMBJ26CA-AT	BOX	BQV	26	28.9	31.9	1	1	42.1	14.3
SMBJ28A-AT	SMBJ28CA-AT	BOY	BQW	28	31.1	34.4	1	1	45.4	13.3
SMBJ30A-AT	SMBJ30CA-AT	BOZ	BQX	30	33.3	36.8	1	1	48.4	12.4
SMBJ33A-AT	SMBJ33CA-AT	BPA	BQY	33	36.7	40.6	1	1	53.3	11.3
SMBJ36A-AT	SMBJ36CA-AT	BPB	BQZ	36	40.0	44.2	1	1	58.1	10.4
SMBJ40A-AT	SMBJ40CA-AT	BPC	BRA	40	44.4	49.1	1	1	64.5	9.3
SMBJ43A-AT	SMBJ43CA-AT	BPD	BRB	43	47.8	52.8	1	1	69.4	8.7
SMBJ45A-AT	SMBJ45CA-AT	BPE	BRC	45	50.0	55.3	1	1	72.7	8.3
SMBJ48A-AT	SMBJ48CA-AT	BPF	BRD	48	53.3	58.9	1	1	77.4	7.8
SMBJ51A-AT	SMBJ51CA-AT	BPG	BRE	51	56.7	62.7	1	1	82.4	7.3
SMBJ54A-AT	SMBJ54CA-AT	BPH	BRF	54	60.0	66.3	1	1	87.1	6.9
SMBJ58A-AT	SMBJ58CA-AT	BPI	BRG	58	64.4	71.2	1	1	93.6	6.5
SMBJ60A-AT	SMBJ60CA-AT	BPJ	BRH	60	66.7	73.7	1	1	96.8	6.2
SMBJ64A-AT	SMBJ64CA-AT	BPK	BRI	64	71.1	78.6	1	1	103	5.9
SMBJ70A-AT	SMBJ70CA-AT	BPL	BRJ	70	77.8	86.0	1	1	113	5.3
SMBJ75A-AT	SMBJ75CA-AT	BPM	BRK	75	83.3	92.1	1	1	121	5.0
SMBJ78A-AT	SMBJ78CA-AT	BPN	BRL	78	86.7	95.8	1	1	126	4.8
SMBJ85A-AT	SMBJ85CA-AT	BPO	BRM	85	94.4	104	1	1	137	4.4
SMBJ90A-AT	SMBJ90CA-AT	BPP	BRN	90	100	111	1	1	146	4.1
SMBJ100A-AT	SMBJ100CA-AT	BPQ	BRO	100	111	123	1	1	162	3.7
SMBJ110A-AT	SMBJ110CA-AT	BPR	BRP	110	122	135	1	1	177	3.4
SMBJ120A-AT	SMBJ120CA-AT	BPS	BRQ	120	133	147	1	1	193	3.1
SMBJ130A-AT	SMBJ130CA-AT	BPT	BRR	130	144	159	1	1	209	2.9
SMBJ150A-AT	SMBJ150CA-AT	BPU	BRS	150	167	185	1	1	243	2.5
SMBJ160A-AT	SMBJ160CA-AT	BPV	BRT	160	178	197	1	1	259	2.3
SMBJ170A-AT	SMBJ170CA-AT	BPW	BRU	170	189	209	1	1	275	2.2
SMBJ180A-AT	SMBJ180CA-AT	BPX	BRV	180	201	222	1	1	292	2.1
SMBJ200A-AT	SMBJ200CA-AT	BPZ	BRX	200	224	247	1	1	324	1.9
SMBJ220A-AT	SMBJ220CA-AT	BQA	BRY	220	246	272	1	1	356	1.7

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

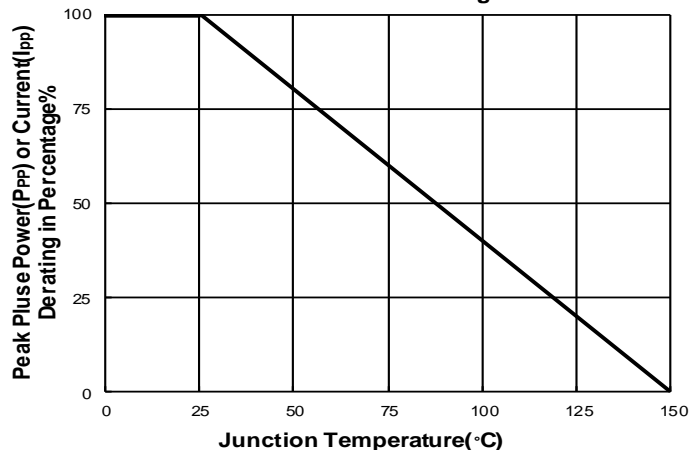


FIG.2 - Steady State Power Derating Curve

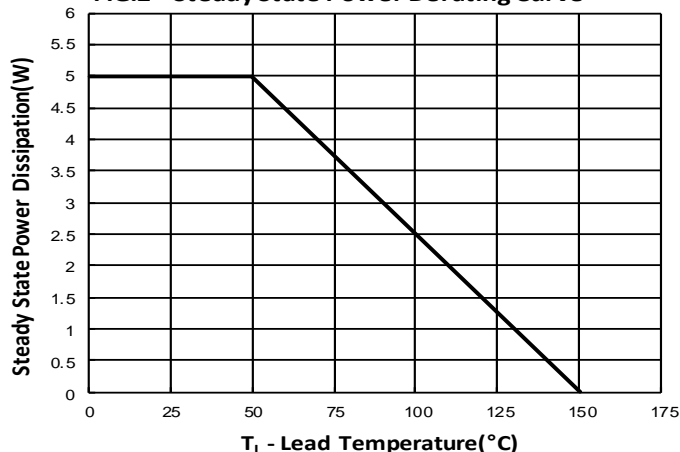


FIG.3 - Maximum Non-Repetitive Forward Surge Current Uni-Directional Only

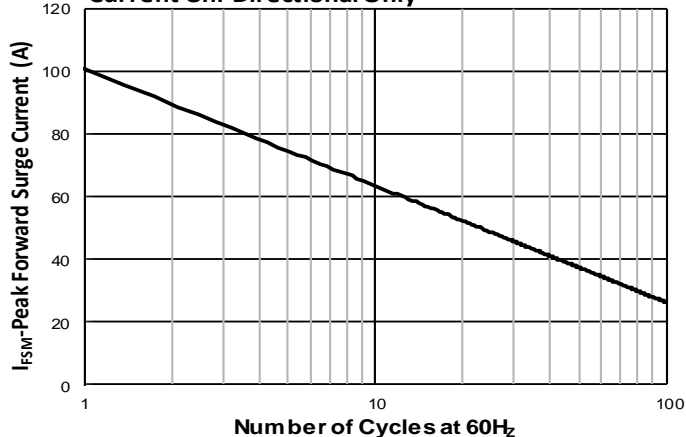


FIG.4 - Pulse Waveform

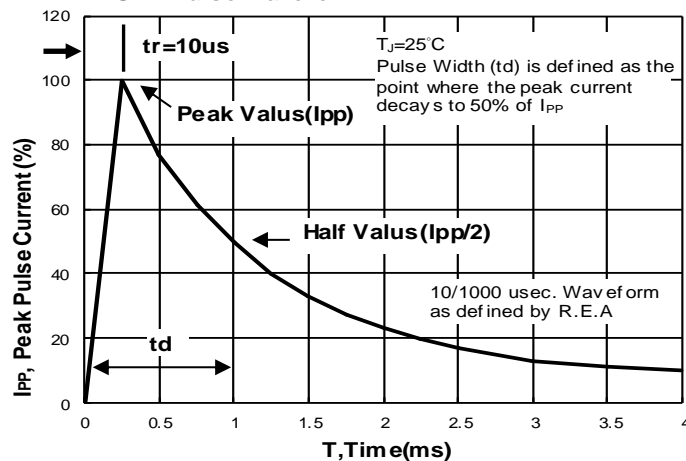


FIG.5 - Typical Junction Capacitance

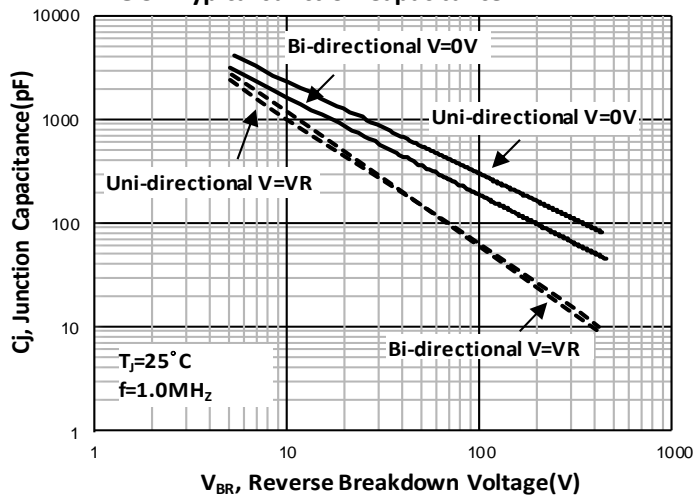
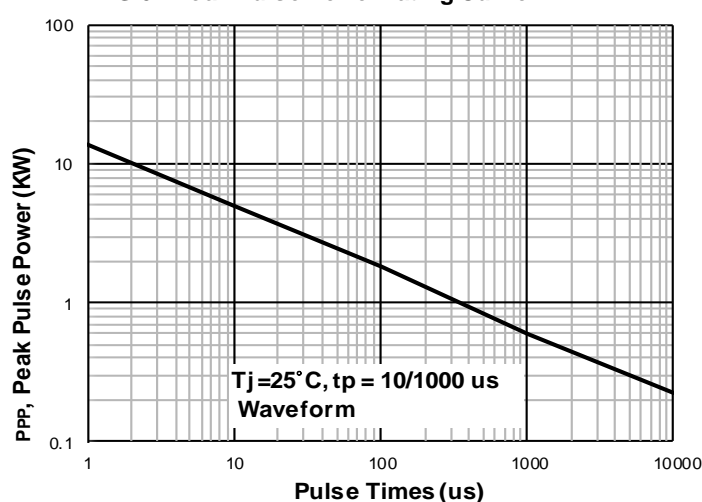


FIG.6 - Peak Pulse Power Rating Curve





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