

TVS Diode – ASMBJ Series

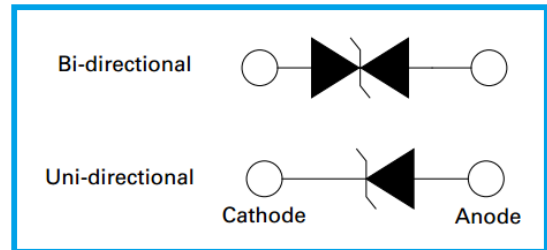
Features

- Plastic package, excellent insulation strength.
- Glass passivated chip junction in SMB package.
- Excellent voltage clamping capability.
- Automotive grade AEC-Q101 qualified.
- Low Zener impedance.
- 600W peak pulse power capability on 10/1000μs waveform.
- Typical leakage current less than 1μA above 13V.
- Very fast response time, typically less than 1.0ps from 0 volt to V_{BR} minimum.
- High temperature soldering guaranteed: 265°C/10 sec.
- MSL: JEDEC-J-STD-020, Level 1



Applications

- I/O interface, V_{CC} bus
- Telecom / Automotive
- Industrial and consumer electronic applications.
- Relay and electromagnetic valve surge absorption.



Mechanical and Physical Data

- Case: JEDEC SMB molded plastic.
- Surface mount device, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denoted cathode except bidirectional.

Maximum Ratings and Thermal Characteristics

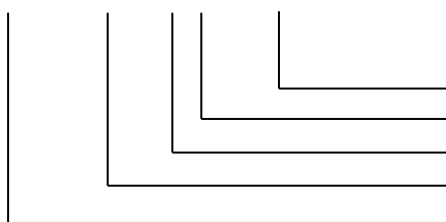
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000μs waveform (Note 1, Fig.1).	P _{PPM}	Min 600	Watt
Peak Pulse Current of 10/1000μs waveform (Note 1, Fig.3).	I _{PPM}	See Table	Amp
Steady State Power Dissipation at T _L = 75°C, Lead lengths 0.375", (9.5mm) (Fig.5).	P _{M(AV)}	5.0	Watt
Peak Forward Surge Current, 8.3 ms Single Half Sine Wave Superimposed on Rated Load (Note 2, Fig.6).	I _{FSM}	100	Amp
Operating Junction and Storage Temperature Range.	T _J , T _{STG}	-55~150	°C

Note:

1. Non-repetitive current pulse, per Fig.3 and derated above T_A = 25°C per Fig.2.
2. 8.3ms single half sine wave, or equivalent square wave, Duty cycle = 4 pulses per minutes maximum.

Part Number Code

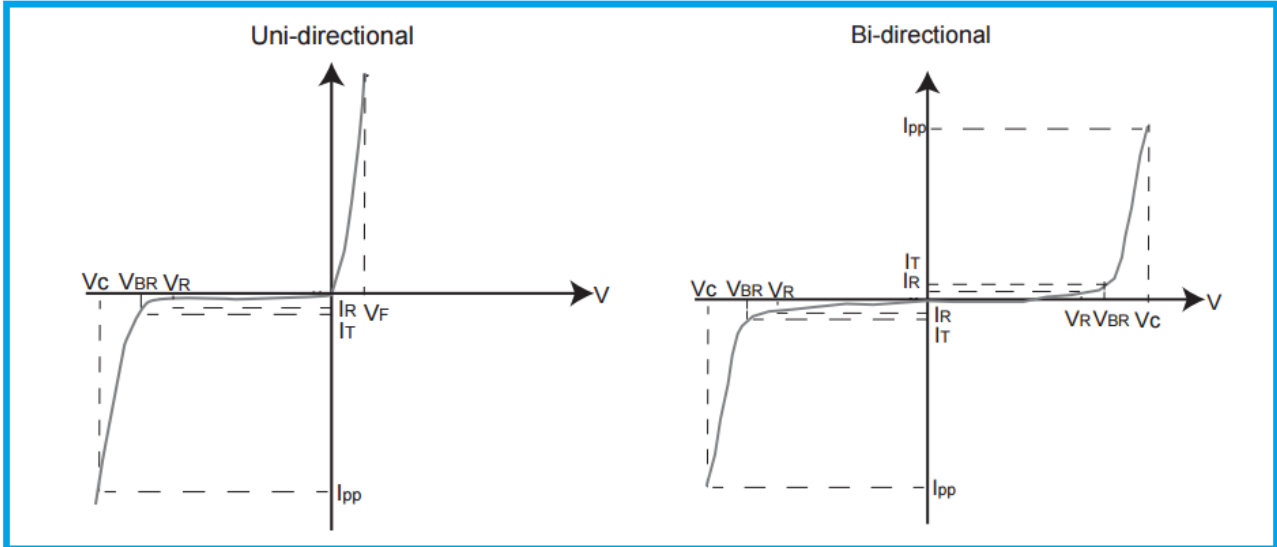
ASMBJ □□□ CA - □□□



- Packaging Code (T13: Tape with 13" Reel; T7: Tape with 7")
- V_{BR} Voltage tolerance (A: 5%; Blank: 10%)
- C: Bi-directional; Blank: Uni-directional
- Reverse Stand-Off Voltage or Typical Breakdown Voltage
- Automotive ASMBJ Series (600W)

TVS Diode – ASMBJ Series

I-V Curve Characteristics



- I_{PPM} Peak Pulse Power Dissipation – Maximum power dissipation
- V_R Stand-off Voltage – Maximum voltage that can be applied to the TVS without operation
- V_{BR} Breakdown Voltage – Maximum voltage that flows through the TVS at a specified test current (I_T)
- V_C Clamping Voltage – Peak voltage measured across the TVS at a specified I_{PPM} (Peak Impulse Current)
- I_R Reverse Leakage Current – Current measured at V_R
- V_F Forward Voltage Drop for Uni-directional

Electrical Characteristics

Part Number		Marking		Reverse Stand Off Voltage V_R (V)	Breakdown Voltage V_{BR} (V) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C (V) @ I_{PP}	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R (μ A) @ V_R
Uni	Bi	Uni	Bi		Min.	Max.				
ASMBJ5.0A	ASMBJ5.0CA	KGA	AGA	5.0	6.40	7.00	10	9.2	65.22	800
ASMBJ6.0A	ASMBJ6.0CA	KKA	AKA	6.0	6.67	7.37	10	10.3	58.25	800
ASMBJ6.5A	ASMBJ6.5CA	KMA	AMA	6.5	7.22	7.98	10	11.2	53.57	500
ASMBJ7.0A	ASMBJ7.0CA	KPA	APA	7.0	7.78	8.60	10	12.0	50.00	200
ASMBJ7.5A	ASMBJ7.5CA	KRA	ARA	7.5	8.33	9.21	1	12.9	46.51	100
ASMBJ8.0A	ASMBJ8.0CA	KTA	ATA	8.0	8.89	9.83	1	13.6	44.12	50
ASMBJ8.5A	ASMBJ8.5CA	KBA	ABA	8.5	9.44	10.40	1	14.4	41.67	10
ASMBJ9.0A	ASMBJ9.0CA	LTA	BTA	9.0	10.00	11.10	1	15.4	38.96	5
ASMBJ10A	ASMBJ10CA	KVA	AVA	10.0	11.10	12.30	1	17.0	35.29	5
ASMBJ11A	ASMBJ11CA	KZA	AZA	11.0	12.20	13.50	1	18.2	32.97	1
ASMBJ12A	ASMBJ12CA	LEA	BEA	12.0	13.30	14.70	1	19.9	30.15	1
ASMBJ13A	ASMBJ13CA	LGA	BGA	13.0	14.40	15.90	1	21.5	27.91	1
ASMBJ14A	ASMBJ14CA	LKA	BKA	14.0	15.60	17.20	1	23.2	25.86	1
ASMBJ15A	ASMBJ15CA	LMA	BMA	15.0	16.70	18.50	1	24.4	24.59	1
ASMBJ16A	ASMBJ16CA	LPA	BPA	16.0	17.80	19.70	1	26.0	23.08	1
ASMBJ17A	ASMBJ17CA	LRA	BRA	17.0	18.90	20.90	1	27.6	21.74	1
ASMBJ18A	ASMBJ18CA	LTA	BTA	18.0	20.00	22.10	1	29.2	20.55	1



TVS Diode – ASMBJ Series

Part Number		Marking		Reverse Stand Off Voltage V_R (V)	Breakdown Voltage V_{BR} (V) @ I_T		Test Current I_T (mA)	Maximum Clamping Voltage V_C (V) @ I_{PP}	Maximum Peak Pulse Current I_{PP} (A)	Maximum Reverse Leakage I_R (μ A) @ V_R
Uni	Bi	Uni	Bi		Min.	Max.				
ASMBJ19A	ASMBJ19CA	LBA	BBA	19.0	21.10	23.30	1	30.8	19.49	1
ASMBJ20A	ASMBJ20CA	LVA	BVA	20.0	22.20	24.50	1	32.4	18.52	1
ASMBJ22A	ASMBJ22CA	LXA	BXA	22.0	24.40	26.90	1	35.5	16.90	1
ASMBJ24A	ASMBJ24CA	LZA	BZA	24.0	26.70	29.50	1	38.9	15.42	1
ASMBJ26A	ASMBJ26CA	MEA	CEA	26.0	28.90	31.90	1	42.1	14.25	1
ASMBJ28A	ASMBJ28CA	MGA	CGA	28.0	31.10	34.40	1	45.4	13.22	1
ASMBJ30A	ASMBJ30CA	MKA	CKA	30.0	33.30	36.80	1	48.4	12.40	1
ASMBJ33A	ASMBJ33CA	MMA	CMA	33.0	36.70	40.60	1	53.3	11.26	1
ASMBJ36A	ASMBJ36CA	MPA	CPA	36.0	40.00	44.20	1	58.1	10.33	1
ASMBJ40A	ASMBJ40CA	MRA	CRA	40.0	44.40	49.10	1	64.5	9.30	1
ASMBJ43A	ASMBJ43CA	MTA	CTA	43.0	47.80	52.80	1	69.4	8.65	1
ASMBJ45A	ASMBJ45CA	MVA	CVA	45.0	50.00	55.30	1	72.7	8.25	1
ASMBJ48A	ASMBJ48CA	MXA	CXA	48.0	53.30	58.90	1	77.4	7.75	1
ASMBJ51A	ASMBJ51CA	MZA	CZA	51.0	56.70	62.70	1	82.4	7.28	1
ASMBJ54A	ASMBJ54CA	NEA	DEA	54.0	60.00	66.30	1	87.1	6.89	1
ASMBJ58A	ASMBJ58CA	NGA	DGA	58.0	64.40	71.20	1	93.6	6.41	1
ASMBJ60A	ASMBJ60CA	NKA	DKA	60.0	66.70	73.70	1	96.8	6.20	1
ASMBJ64A	ASMBJ64CA	NMA	DMA	64.0	71.10	78.60	1	103.0	5.83	1
ASMBJ70A	ASMBJ70CA	NPA	DPA	70.0	77.80	86.00	1	113.0	5.31	1
ASMBJ75A	ASMBJ75CA	NRA	DRA	75.0	83.30	92.10	1	121.0	4.96	1
ASMBJ78A	ASMBJ78CA	NTA	DTA	78.0	86.70	95.80	1	126.0	4.76	1
ASMBJ85A	ASMBJ85CA	NVA	DVA	85.0	94.40	104.00	1	137.0	4.38	1
ASMBJ90A	ASMBJ90CA	NXA	DXA	90.0	100.00	111.00	1	146.0	4.11	1
ASMBJ100A	ASMBJ100CA	NZA	DZA	100.0	111.00	123.00	1	162.0	3.70	1
ASMBJ110A	ASMBJ110CA	PEA	EEA	110.0	122.0	135.0	1	177.0	3.39	1
ASMBJ120A	ASMBJ120CA	PGA	EGA	120.0	133.0	147.0	1	193.0	3.11	1
ASMBJ130A	ASMBJ130CA	PKA	EKA	130.0	144.0	159.0	1	209.0	2.87	1
ASMBJ150A	ASMBJ150CA	PMA	EMA	150.0	167.0	185.0	1	243.0	2.47	1
ASMBJ160A	ASMBJ160CA	PPA	EPA	160.0	178.0	197.0	1	259.0	2.32	1
ASMBJ170A	ASMBJ170CA	PRA	ERA	170.0	189.0	209.0	1	275.0	2.18	1
ASMBJ180A	ASMBJ180CA	PTA	ETA	180.0	201.0	222.0	1	292.0	2.06	1
ASMBJ190A	ASMBJ190CA	PAA	ECA	190.0	209.0	243.0	1	308.0	1.95	1
ASMBJ200A	ASMBJ200CA	PVA	EVA	200.0	224.0	247.0	1	324.0	1.85	1
ASMBJ220A	ASMBJ220CA	PXA	EXA	220.0	246.0	272.0	1	356.0	1.69	1
ASMBJ250A	ASMBJ250CA	PZA	EZA	250.0	279.0	309.0	1	405.0	1.48	1
ASMBJ300A	ASMBJ300CA	QEA	FEA	300.0	335.0	371.0	1	486.0	1.23	1
ASMBJ350A	ASMBJ350CA	QGA	FGA	350.0	391.0	432.0	1	567.0	1.06	1
ASMBJ400A	ASMBJ400CA	QKA	FKA	400.0	447.0	494.0	1	648.0	0.93	1
ASMBJ440A	ASMBJ440CA	QMA	FMA	440.0	492.0	543.0	1	713.0	0.84	1

Note:

- For bi-directional type having V_R of 10 volts and less, the I_R limit is double.

TVS Diode – ASMBJ Series

Ratings and Characteristic Curves

Fig 1 - Peak Pulse Power Rating Curve

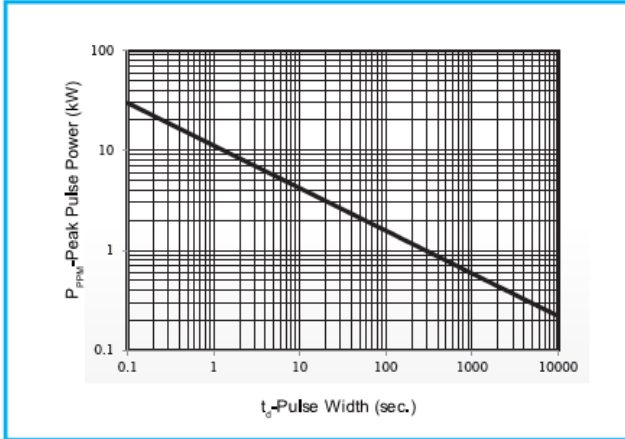


Fig 2 - Pulse Derating Curve

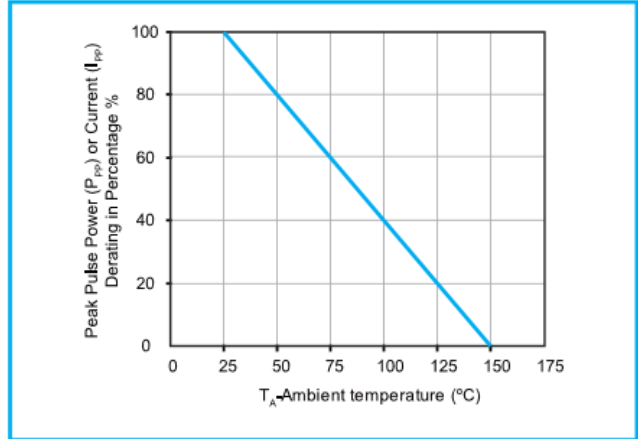


Fig 3 - Pulse Waveform

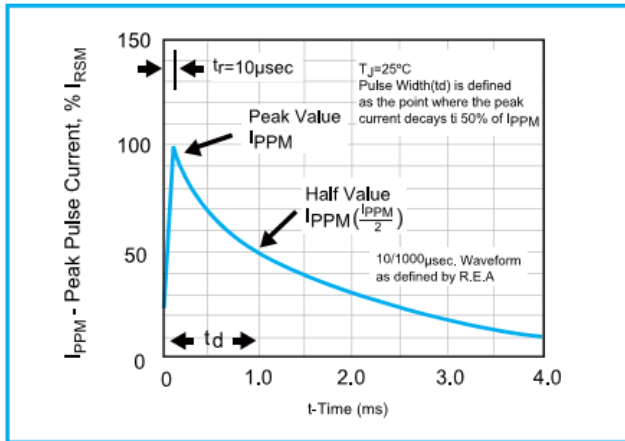


Fig 4 - Typical Junction Capacitance Uni-directional

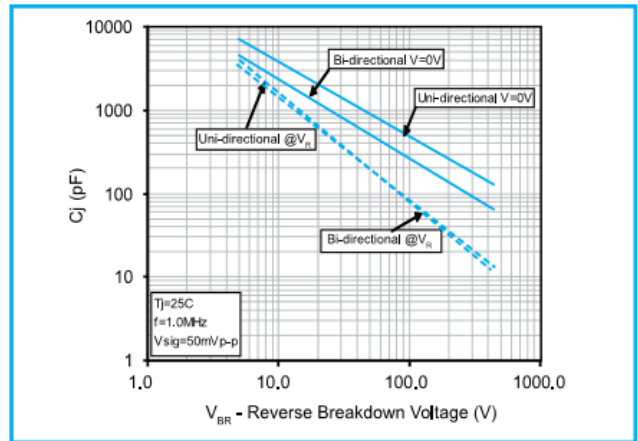


Fig 5 - Steady State Power Dissipation Derating Curve

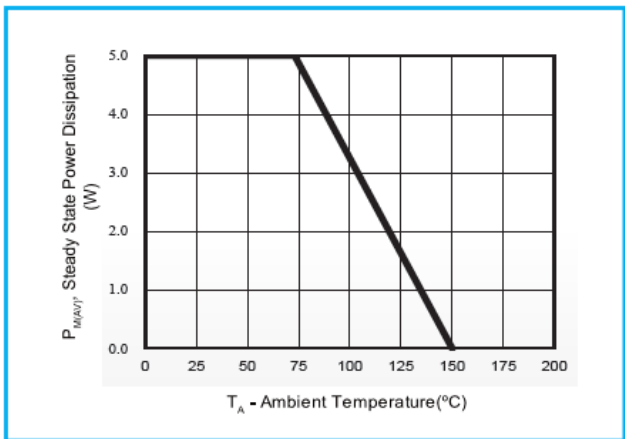
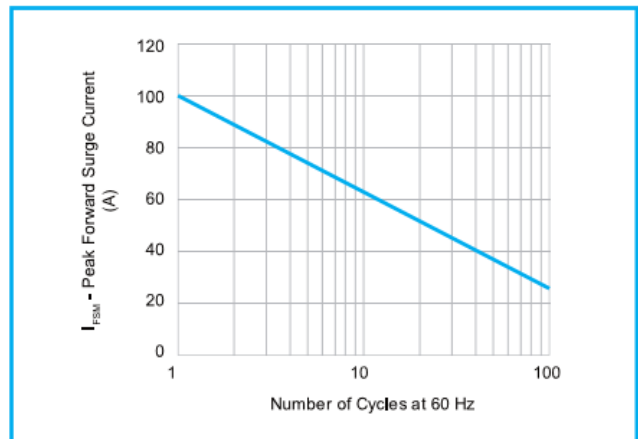
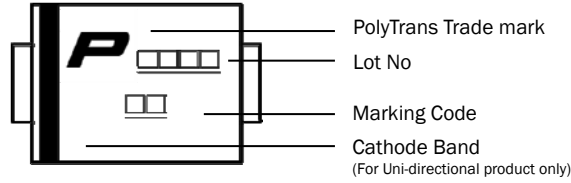


Fig 6 - Maximum Non-Repetitive Forward Surge Current (Uni-directional Only)

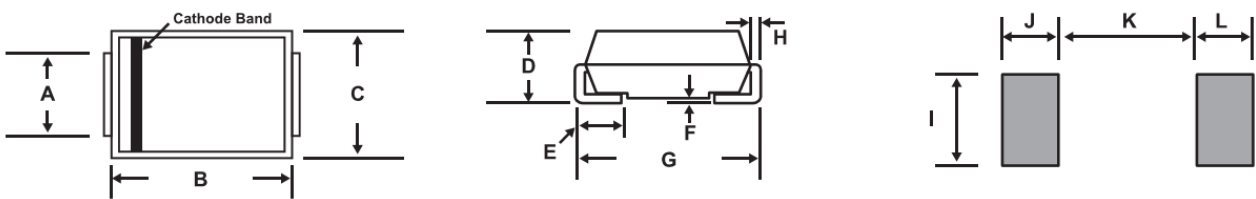


TVS Diode – ASMBJ Series

Marking Definitions



Physical Dimensions



Dimension	Millimeters		Inches	
	Min	Max	Min	Max
A	1.90	2.20	0.077	0.086
B	4.06	4.85	0.160	0.191
C	3.30	3.94	0.130	0.155
D	1.95	2.44	0.084	0.096
E	0.76	1.52	0.030	0.060
F	-	0.20	-	0.008
G	5.21	5.59	0.205	0.220
H	0.15	0.31	0.006	0.012
I	2.26	-	0.089	-
J	2.16	-	0.085	-
K	-	2.74	-	0.107
L	2.16	-	0.085	-

Lead Free Reflow Soldering Recommendations

Preheat	
- Temperature Min (T_{s_min})	150°C
- Temperature Max (T_{s_max})	200°C
- Time (T_{s_min} to T_{s_max})	60-180 seconds
- Average Ramp-Up Rate	1~3°C/second
Peak Temperature	260°C max.
Time within 5°C of actual Peak Temperature (t_p)	40 seconds max.
Ramp-Down Rate	6 °C /second max.



Note: If the soldering temperatures exceed the recommended profile, devices may not meet the performance requirements.

TVS Diode – ASMBJ Series

Packaging Information

Part Number	Packaging Code	Component Package	Quantity	Packaging Option	Packaging Specification
ASMBJ Series	T13	DO-214AA	3000	Tape & Reel - 12mm tape/13" reel	EIA STD RS-481
ASMBJ Series	T7	DO-214AA	500	Tape & Reel - 12mm tape/7" reel	EIA STD RS-481

Tape and Reel Specifications

