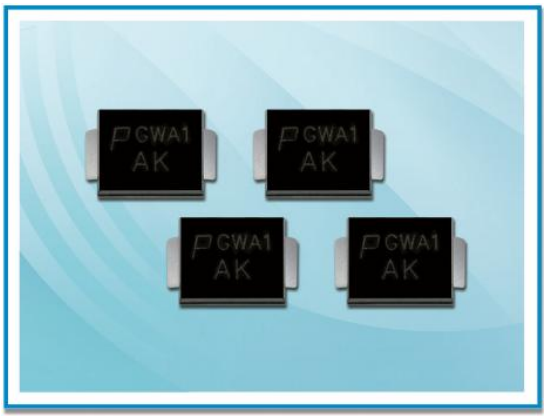
TVS Diode – ASMBJ Series

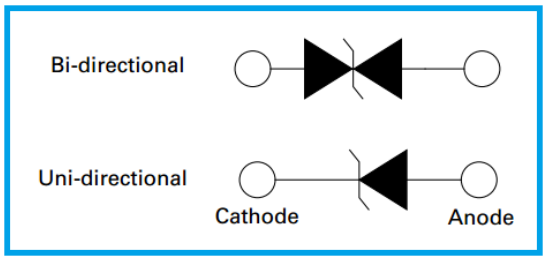
Features

- 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.



Agency Approval

- UL certification pending

Mechanical and Physical Data

- Case: JEDEC SMB molded plastic.
- Axial leaded, 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 TL = 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.

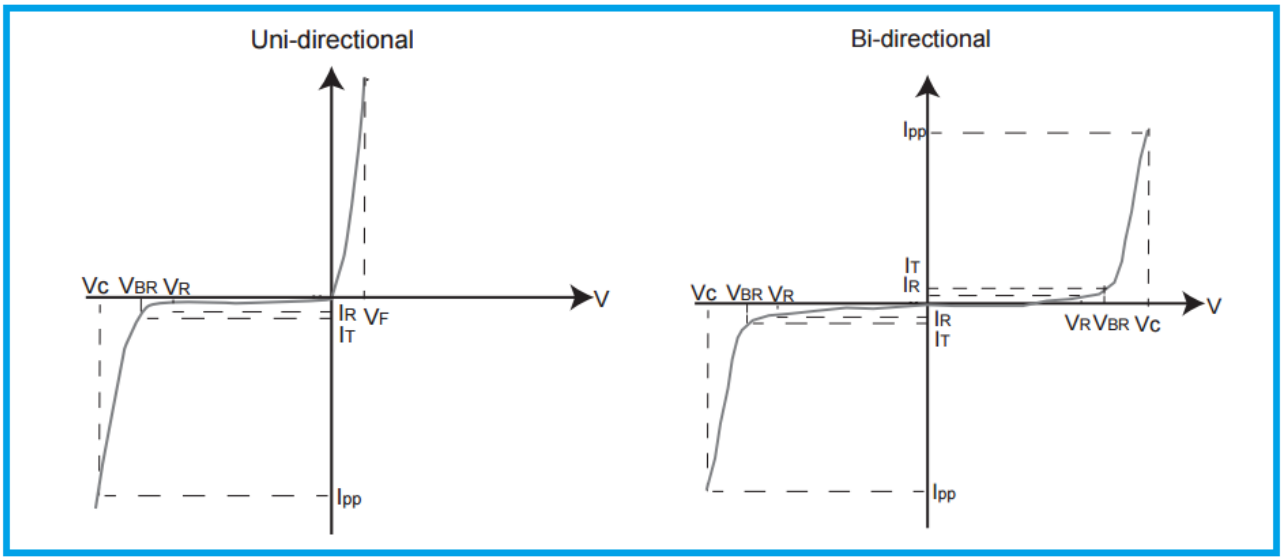
Part Number Code

ASMBJ □□□ C A - □□□

- 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



P_{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	Breakdown Voltage V_{BR} (V) @ I_T		Test Current I_T	Maximum Clamping Voltage	Maximum Peak Pulse Current	Maximum Reverse Leakage	UL
Uni	Bi	Uni	Bi	(V)	Min.	Max.	(mA)	V_C (V) @ I_{PP}	I_{PP} (A)	I_R (μA) @ V_R	
ASMBJ11A	ASMBJ11CA	KZA	AZA	11.0	12.2	13.5	1	18.2	33.0	1	Pending
ASMBJ12A	ASMBJ12CA	LEA	BEA	12.0	13.3	14.7	1	19.9	30.2	1	Pending
ASMBJ13A	ASMBJ13CA	LGA	BGA	13.0	14.4	15.9	1	21.5	28.0	1	Pending
ASMBJ14A	ASMBJ14CA	LKA	BKA	14.0	15.6	17.2	1	23.2	25.9	1	Pending
ASMBJ15A	ASMBJ15CA	LMA	BMA	15.0	16.7	18.5	1	24.4	24.6	1	Pending
ASMBJ16A	ASMBJ16CA	LPA	BPA	16.0	17.8	19.7	1	26.0	23.1	1	Pending
ASMBJ17A	ASMBJ17CA	LRA	BRA	17.0	18.9	20.9	1	27.6	21.8	1	Pending
ASMBJ18A	ASMBJ18CA	LTA	BTA	18.0	20.0	22.1	1	29.2	20.6	1	Pending
ASMBJ19A	ASMBJ19CA	LBA	BBA	19.0	21.1	23.3	1	30.8	48.7	1	Pending
ASMBJ20A	ASMBJ20CA	LVA	BVA	20.0	22.2	24.5	1	32.4	18.6	1	Pending
ASMBJ22A	ASMBJ22CA	LXA	BXA	22.0	24.4	26.9	1	35.5	16.9	1	Pending
ASMBJ24A	ASMBJ24CA	LZA	BZA	24.0	26.7	29.5	1	38.9	15.5	1	Pending
ASMBJ26A	ASMBJ26CA	MEA	CEA	26.0	28.9	31.9	1	42.1	14.3	1	Pending
ASMBJ28A	ASMBJ28CA	MGA	CGA	28.0	31.1	34.4	1	45.4	13.3	1	Pending
ASMBJ30A	ASMBJ30CA	MKA	CKA	30.0	33.3	36.8	1	48.4	12.4	1	Pending
ASMBJ33A	ASMBJ33CA	MMA	CMA	33.0	36.7	40.6	1	53.3	11.3	1	Pending
ASMBJ36A	ASMBJ36CA	MPA	CPA	36.0	40.0	44.2	1	58.1	10.4	1	Pending
ASMBJ40A	ASMBJ40CA	MRA	CRA	40.0	44.4	49.1	1	64.5	9.3	1	Pending

TVS Diode – ASMBJ Series

Part Number		Marking		Reverse Stand Off Voltage V_R	Breakdown Voltage V_{BR} (V) @ I_T		Test Current I_T	Maximum Clamping Voltage	Maximum Peak Pulse Current	Maximum Reverse Leakage	UL
Uni	Bi	Uni	Bi	(V)	Min.	Max.	(mA)	V_C (V) @ I_{PP}	I_{PP} (A)	I_R (μA) @ V_R	
ASMBJ43A	ASMBJ43CA	MTA	CTA	43.0	47.8	52.8	1	69.4	8.7	1	Pending
ASMBJ45A	ASMBJ45CA	MVA	CVA	45.0	50.0	55.3	1	72.7	8.3	1	Pending
ASMBJ48A	ASMBJ48CA	MXA	CXA	48.0	53.3	58.9	1	77.4	7.8	1	Pending
ASMBJ51A	ASMBJ51CA	MZA	CZA	51.0	56.7	62.7	1	82.4	7.3	1	Pending
ASMBJ54A	ASMBJ54CA	NEA	DEA	54.0	60.0	66.3	1	87.1	6.9	1	Pending
ASMBJ58A	ASMBJ58CA	NGA	DGA	58.0	64.4	71.2	1	93.6	6.5	1	Pending
ASMBJ60A	ASMBJ60CA	NKA	DKA	60.0	66.7	73.7	1	96.8	6.2	1	Pending
ASMBJ64A	ASMBJ64CA	NMA	DMA	64.0	71.1	78.6	1	103.0	5.9	1	Pending
ASMBJ70A	ASMBJ70CA	NPA	DPA	70.0	77.8	86.0	1	113.0	5.3	1	Pending
ASMBJ75A	ASMBJ75CA	NRA	DRA	75.0	83.3	92.1	1	121.0	5.0	1	Pending
ASMBJ78A	ASMBJ78CA	NTA	DTA	78.0	86.7	95.8	1	126.0	4.8	1	Pending

Note:

1. 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

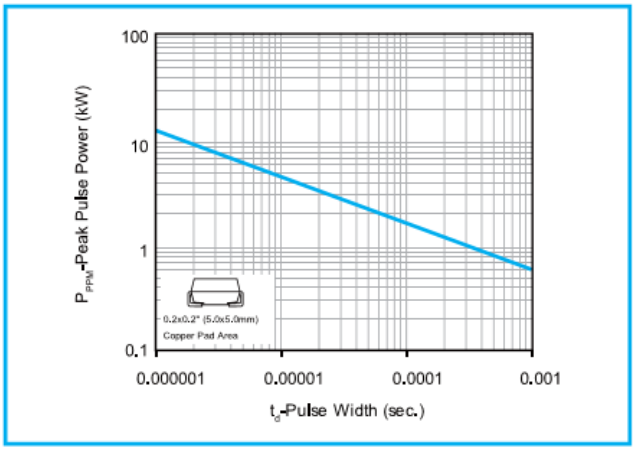


Fig 2 - Pulse Derating Curve

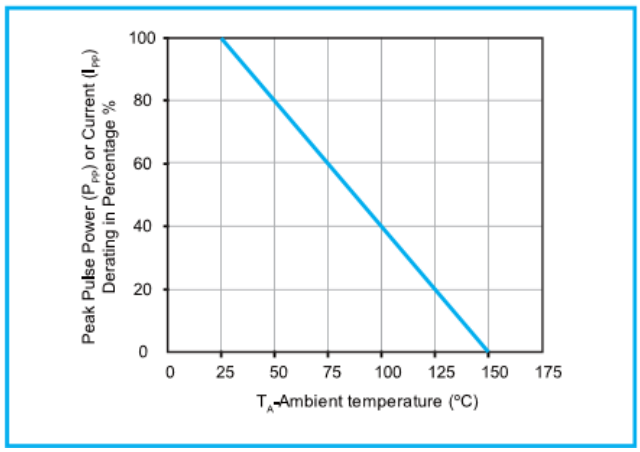


Fig 3 - Pulse Waveform

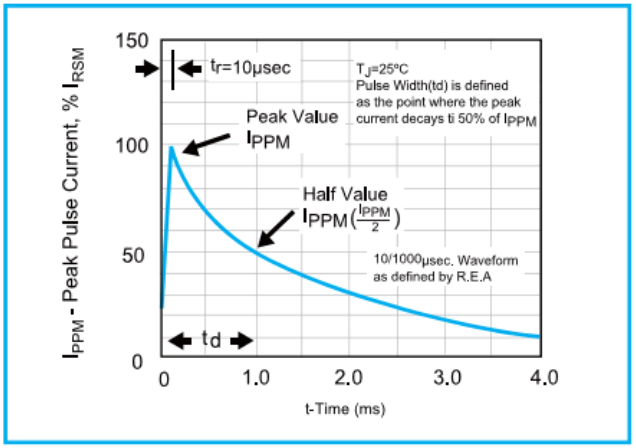


Fig 4 – Typical Junction Capacitance Uni-directional

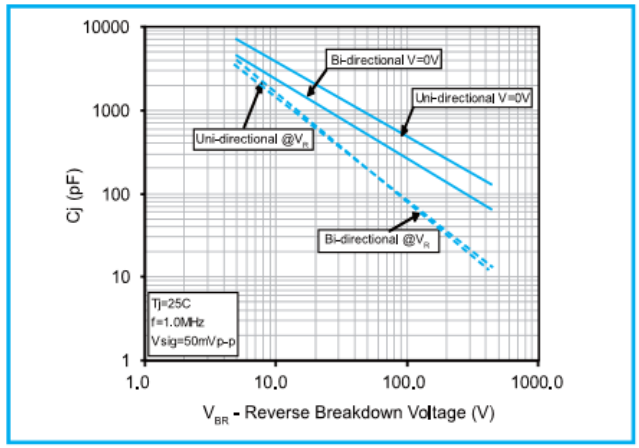


Fig 5 – Steady State Power Dissipation Derating Curve

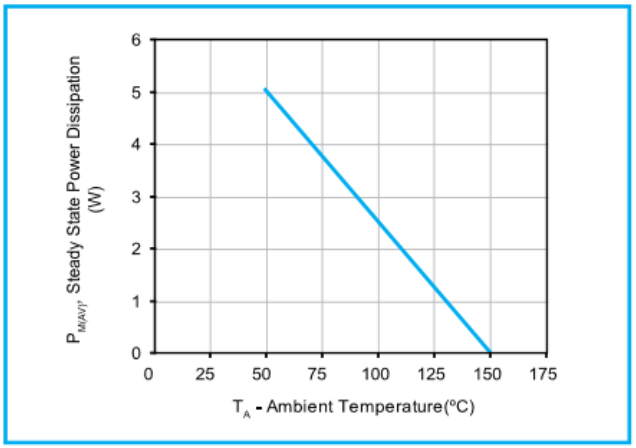
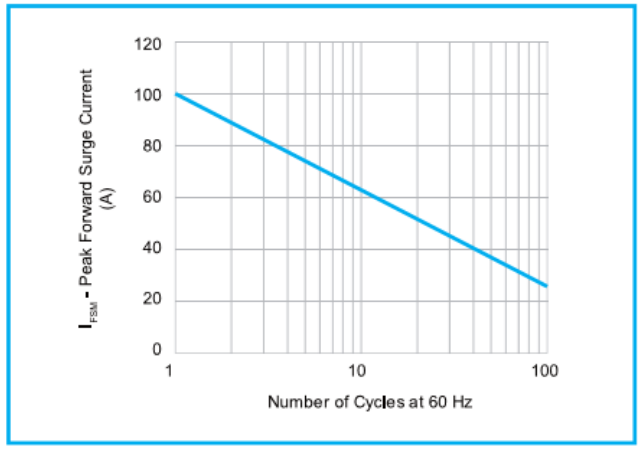
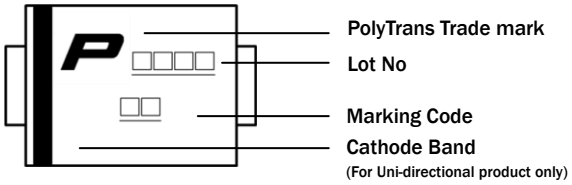


Fig 6 – Maximum Non-Repetitive Forward Surge Current (Uni-directional Only)

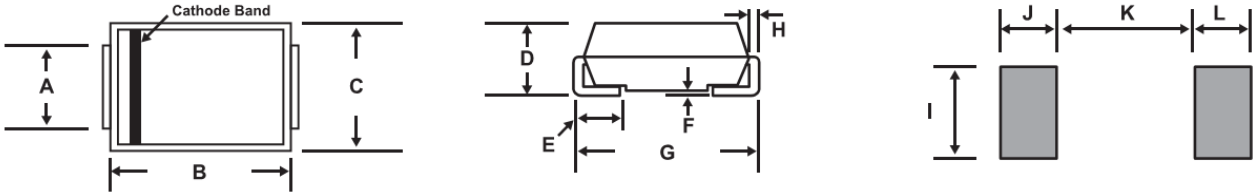


TVS Diode – ASMBJ Series

Marking Definitions



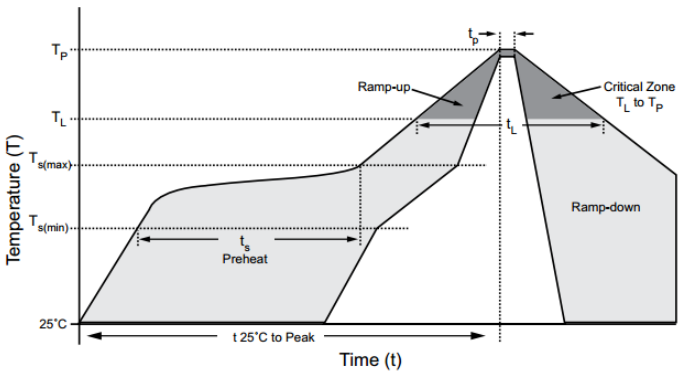
Physical Dimensions



Dimension	Millimeters		Inches	
	Min	Max	Min	Max
A	1.90	2.20	0.077	0.086
B	4.06	4.70	0.160	0.180
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.

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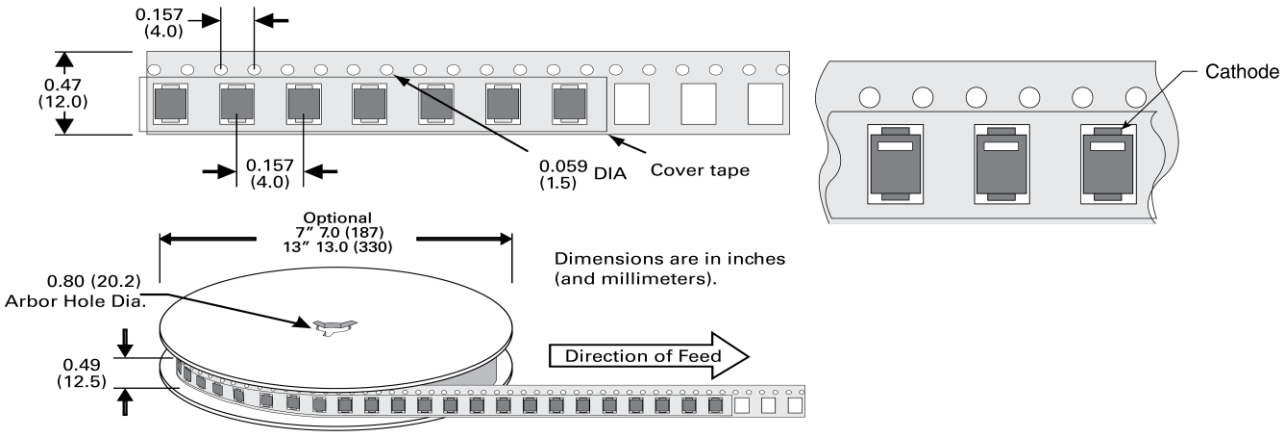
Packaging Information

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



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