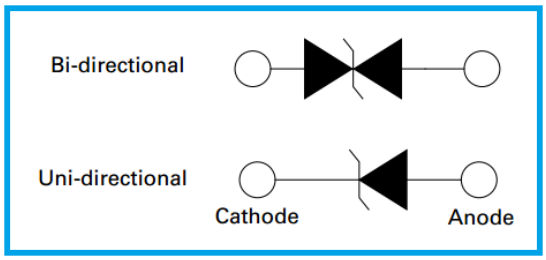
TVS Diode – ASMDJ Series

Features

- Plastic package, excellent insulation strength.
- Glass passivated chip junction in SMC package.
- Excellent voltage clamping capability.
- Automotive grade AEC–Q101 qualified.
- Low Zener impedance.
- 3000W 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 SMC 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 3000	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).	$P_{M(AV)}$	6.5	Watt
Peak Forward Surge Current, 8.3 ms Single Half Sine Wave Superimposed on Rated Load (Note 2, Fig.6).	I_{FSM}	300	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 TA = 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

ASMDJ □□□ 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 ASMDJ Series (3000W)

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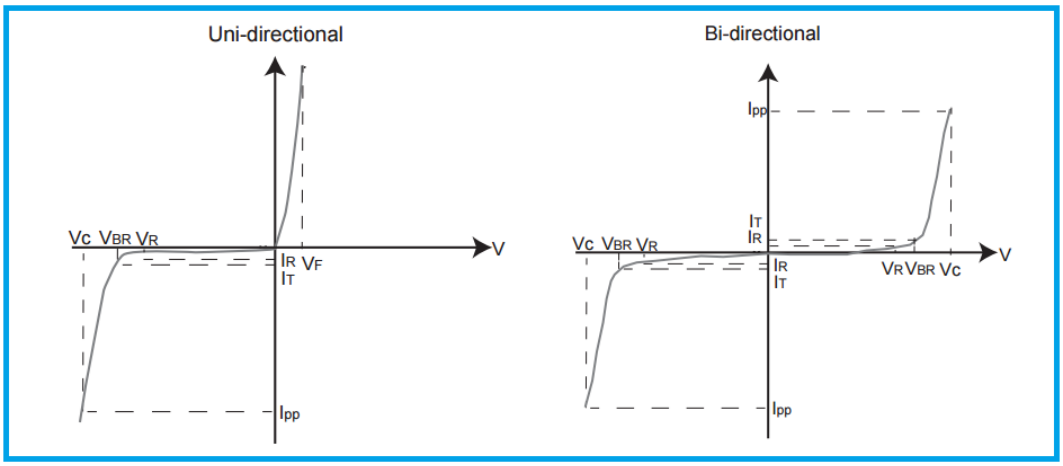
I-V Curve Characteristics



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_RReverse 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	
ASMDJ10A	ASMDJ10CA	PDXA	DDXA	10.0	11.1	12.3	5	17.0	176.5	15	Pending
ASMDJ11A	ASMDJ11CA	PDZA	DDZA	11.0	12.2	13.5	5	18.2	164.8	2	Pending
ASMDJ12A	ASMDJ12CA	PEEA	DEEA	12.0	13.3	14.7	5	19.9	150.8	2	Pending
ASMDJ13A	ASMDJ13CA	PEGA	DEGA	13.0	14.4	15.9	5	21.5	139.5	2	Pending
ASMDJ14A	ASMDJ14CA	PEKA	DEKA	14.0	15.6	17.2	5	23.2	129.3	2	Pending
ASMDJ15A	ASMDJ15CA	PEMA	DEMA	15.0	16.7	18.5	5	24.4	123.0	2	Pending
ASMDJ16A	ASMDJ16CA	PEPA	DEPA	16.0	17.8	19.7	5	26.0	115.4	2	Pending
ASMDJ17A	ASMDJ17CA	PERA	DERA	17.0	18.9	20.9	5	27.6	108.7	2	Pending
ASMDJ18A	ASMDJ18CA	PETA	DETA	18.0	20.0	22.1	5	29.2	102.7	2	Pending
ASMDJ19A	ASMDJ19CA	PEBA	DEBA	19.0	21.1	23.3	5	30.8	97.5	2	Pending
ASMDJ20A	ASMDJ20CA	PEVA	DEVA	20.0	22.2	24.5	5	32.4	92.6	2	Pending
ASMDJ22A	ASMDJ22CA	PEXA	DEXA	22.0	24.4	26.9	5	35.5	84.5	2	Pending
ASMDJ24A	ASMDJ24CA	PEZA	DEZA	24.0	26.7	29.5	5	38.9	77.1	2	Pending
ASMDJ26A	ASMDJ26CA	PFEA	DFEA	26.0	28.9	31.9	5	42.1	71.3	2	Pending
ASMDJ28A	ASMDJ28CA	PFGA	DFGA	28.0	31.1	34.4	5	45.4	66.1	2	Pending
ASMDJ30A	ASMDJ30CA	PFKA	DFKA	30.0	33.3	36.8	5	48.4	62.0	2	Pending
ASMDJ33A	ASMDJ33CA	PFMA	DFMA	33.0	36.7	40.6	5	53.3	56.3	2	Pending
ASMDJ36A	ASMDJ36CA	PFPA	DFPA	36.0	40.0	44.2	5	58.1	51.6	2	Pending
ASMDJ40A	ASMDJ40CA	PFRA	DFRA	40.0	44.4	49.1	5	64.5	46.5	2	Pending
ASMDJ43A	ASMDJ43CA	PFTA	DFTA	43.0	47.8	52.8	5	69.4	43.2	2	Pending

Note:

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

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Ratings and Characteristic Curves

Fig 1 - Peak Pulse Power Rating Curve

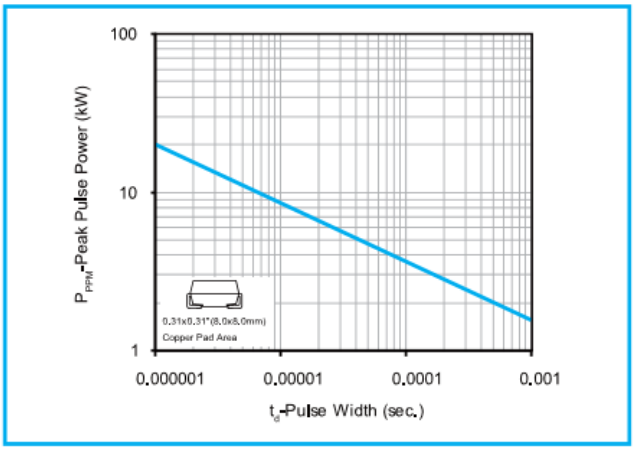


Fig 2 - Pulse Derating Curve

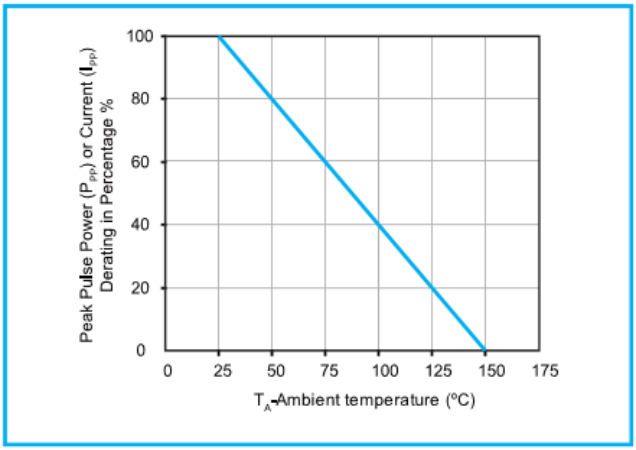


Fig 3 - Pulse Waveform

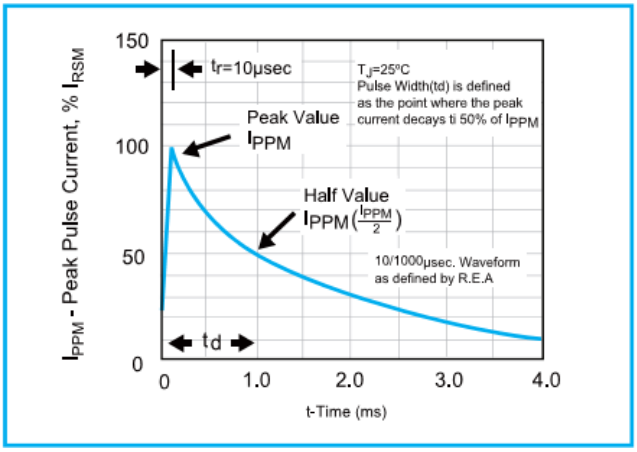


Fig 4 – Typical Junction Capacitance Uni-directional

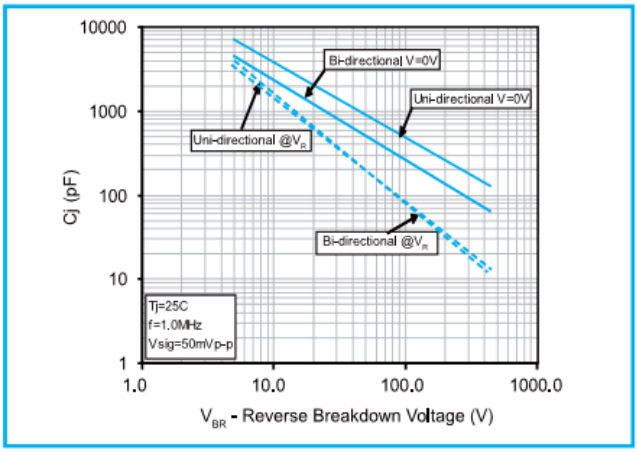


Fig 5 – Steady State Power Dissipation Derating Curve

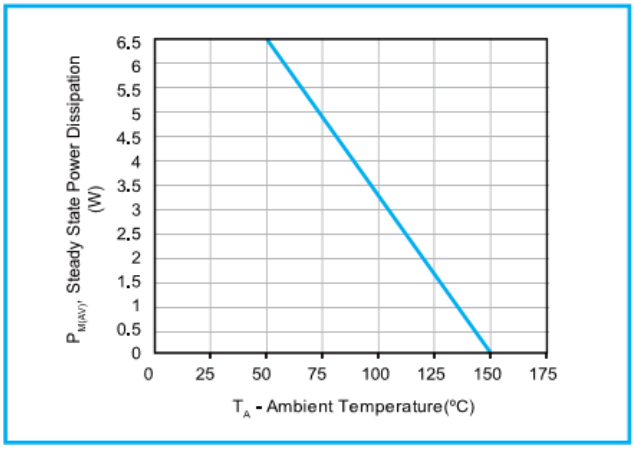
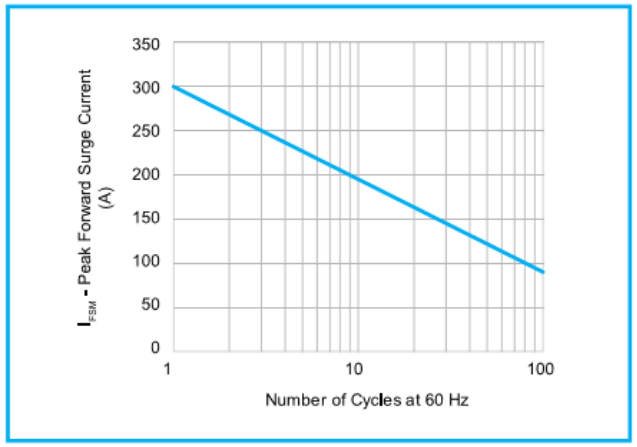


Fig 6 – Maximum Non-Repetitive Forward Surge Current (Uni-directional Only)



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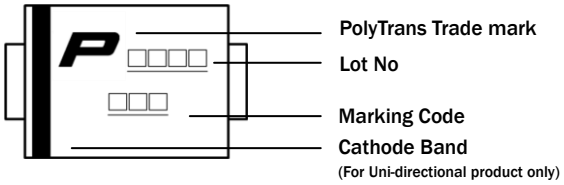
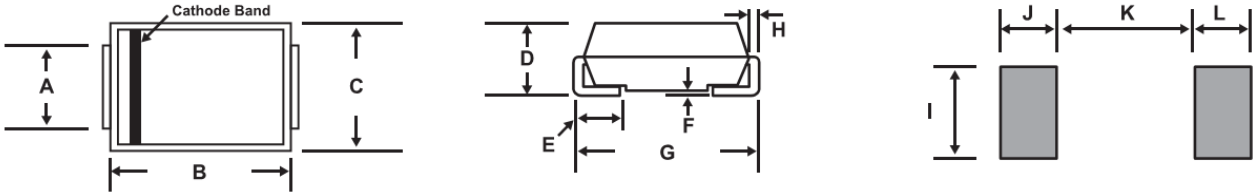
Marking Definitions



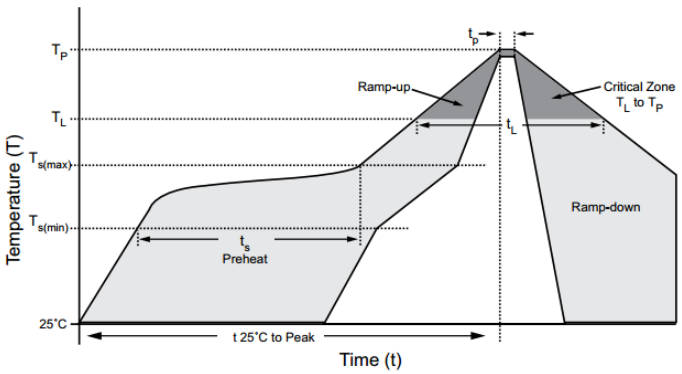
Physical Dimensions



Dimension	Millimeters		Inches	
	Min	Max	Min	Max
A	2.90	3.20	0.114	0.126
B	6.60	7.11	0.260	0.280
C	5.59	6.22	0.220	0.245
D	2.20	2.80	0.087	0.110
E	0.76	1.52	0.030	0.060
F	-	0.20	-	0.008
G	7.75	8.13	0.305	0.320
H	0.15	0.31	0.006	0.012
I	3.30	-	0.129	-
J	2.40	-	0.094	-
K	-	4.20	-	0.165
L	2.40	-	0.094	-

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
ASMDJ Series	T13	DO-214AB	3000	Tape & Reel – 16mm tape/13" reel	EIA STD RS-481
ASMDJ Series	T7	DO-214AB	500	Tape & Reel – 16mm tape/7" reel	EIA STD RS-481

Tape and Reel Specifications