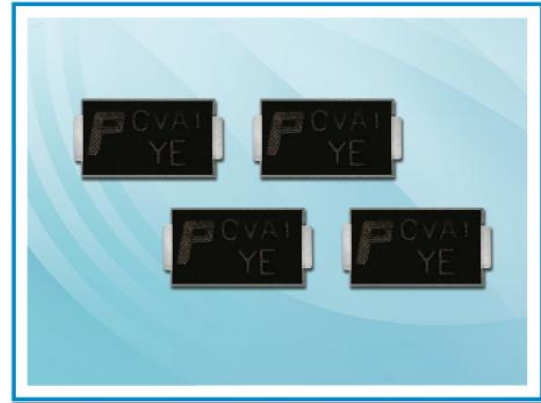


TVS Diode – ASMAJ Series

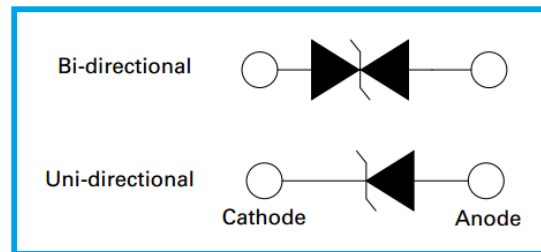
Features

- Plastic package, excellent insulation strength.
- Glass passivated chip junction in SMA package.
- Excellent voltage clamping capability.
- Automotive grade AEC-Q101 qualified.
- Low Zener impedance.
- 400W peak pulse power capability on 10/1000 μ s waveform.
- Typical leakage current less than 1 μ A above 13V.
- Very fast response time, typically less than 1.0ps from 0 volt to V_{BR} minimum.
- High temperature soldering guaranteed: 265 $^{\circ}$ 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 SMA molded plastic.
- Surface mount device, solderable per MIL-STD-750, Method 2026
- Polarity: Color band denoted cathode except bidirectional.

Maximum Ratings and Thermal Characteristics

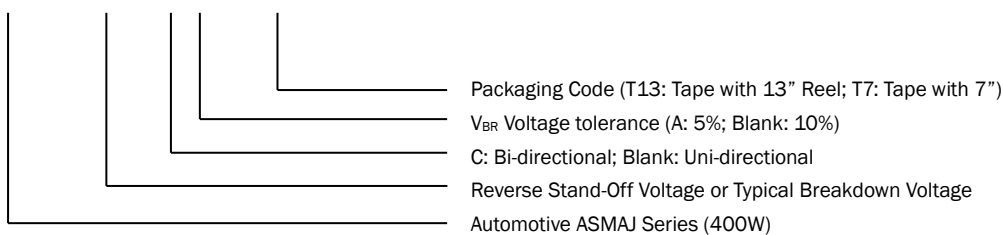
Parameter	Symbol	Value	Unit
Peak Pulse Power Dissipation on 10/1000 μ s waveform (Note 1, Fig.1).	P_{PPM}	Min 400	Watt
Peak Pulse Current of 10/1000 μ s waveform (Note 1, Fig.3).	I_{PPM}	See Table	Amp
Steady State Power Dissipation at $T_L = 75^{\circ}$ C, Lead lengths 0.375", (9.5mm) (Fig.5).	$P_{M(AV)}$	3.3	Watt
Peak Forward Surge Current, 8.3 ms Single Half Sine Wave Superimposed on Rated Load (Note 2, Fig.6).	I_{FSM}	40	Amp
Operating Junction and Storage Temperature Range.	T_J, T_{STG}	-55~150	$^{\circ}$ C

Note:

1. Non-repetitive current pulse, per Fig.3 and derated above $T_A = 25^{\circ}$ 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

ASMAJ □□□ CA - □□□



TVS Diode – ASMAJ 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 (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.				
ASMAJ5.0A	ASMAJ5.0CA	AGA	WGA	5.0	6.40	7.00	10	9.2	43.48	800
ASMAJ6.0A	ASMAJ6.0CA	AKA	WKA	6.0	6.67	7.37	10	10.3	38.83	800
ASMAJ6.5A	ASMAJ6.5CA	AMA	WMA	6.5	7.22	7.98	10	11.2	35.71	500
ASMAJ7.0A	ASMAJ7.0CA	APA	WPA	7.0	7.78	8.60	10	12.0	33.33	200
ASMAJ7.5A	ASMAJ7.5CA	ARA	WRA	7.5	8.33	9.21	1	12.9	31.01	100
ASMAJ8.0A	ASMAJ8.0CA	ATA	WTA	8.0	8.89	9.83	1	13.6	29.41	50
ASMAJ8.5A	ASMAJ8.5CA	ABA	WBA	8.5	9.44	10.40	1	14.4	27.78	10
ASMAJ9.0A	ASMAJ9.0CA	AVA	WVA	9.0	10.00	11.10	1	15.4	25.97	5
ASMAJ10A	ASMAJ10CA	AXA	WXA	10.0	11.10	12.30	1	17.0	23.53	5
ASMAJ11A	ASMAJ11CA	AZA	WZA	11.0	12.20	13.50	1	18.2	21.98	1
ASMAJ12A	ASMAJ12CA	BEA	XEA	12.0	13.30	14.70	1	19.9	20.10	1
ASMAJ13A	ASMAJ13CA	BGA	XGA	13.0	14.40	15.90	1	21.5	18.60	1
ASMAJ14A	ASMAJ14CA	BKA	XKA	14.0	15.60	17.20	1	23.2	17.24	1
ASMAJ15A	ASMAJ15CA	BMA	XMA	15.0	16.70	18.50	1	24.4	16.39	1
ASMAJ16A	ASMAJ16CA	BPA	XPA	16.0	17.80	19.70	1	26.0	15.38	1
ASMAJ17A	ASMAJ17CA	BRA	XRA	17.0	18.90	20.90	1	27.6	14.49	1
ASMAJ18A	ASMAJ18CA	BTA	XTA	18.0	20.00	22.10	1	29.2	13.70	1

TVS Diode – ASMAJ 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.				
ASMAJ19A	ASMAJ19CA	BBA	XBA	19.0	21.10	23.30	1	30.8	13.00	1
ASMAJ20A	ASMAJ20CA	BVA	XVA	20.0	22.20	24.50	1	32.4	12.35	1
ASMAJ22A	ASMAJ22CA	BXA	XXA	22.0	24.40	26.90	1	35.5	11.27	1
ASMAJ24A	ASMAJ24CA	BZA	XZA	24.0	26.70	29.50	1	38.9	10.28	1
ASMAJ26A	ASMAJ26CA	CEA	YEA	26.0	28.90	31.90	1	42.1	9.50	1
ASMAJ28A	ASMAJ28CA	CGA	YGA	28.0	31.10	34.40	1	45.4	8.81	1
ASMAJ30A	ASMAJ30CA	CKA	YKA	30.0	33.30	36.80	1	48.4	8.26	1
ASMAJ33A	ASMAJ33CA	CMA	YMA	33.0	36.70	40.60	1	53.3	7.50	1
ASMAJ36A	ASMAJ36CA	CPA	YPA	36.0	40.00	44.20	1	58.1	6.88	1
ASMAJ40A	ASMAJ40CA	CRA	YRA	40.0	44.40	49.10	1	64.5	6.20	1
ASMAJ43A	ASMAJ43CA	CTA	YTA	43.0	47.80	52.80	1	69.4	5.76	1
ASMAJ45A	ASMAJ45CA	CVA	YVA	45.0	50.00	55.30	1	72.7	5.50	1
ASMAJ48A	ASMAJ48CA	CXA	YXA	48.0	53.30	58.90	1	77.4	5.17	1
ASMAJ51A	ASMAJ51CA	CZA	YZA	51.0	56.70	62.70	1	82.4	4.89	1
ASMAJ54A	ASMAJ54CA	REA	ZEA	54.0	60.00	66.30	1	87.1	4.59	1
ASMAJ58A	ASMAJ58CA	RGA	ZGA	58.0	64.40	71.20	1	93.6	4.27	1
ASMAJ60A	ASMAJ60CA	RKA	ZKA	60.0	66.70	73.70	1	96.8	4.13	1
ASMAJ64A	ASMAJ64CA	RMA	ZMA	64.0	71.10	78.60	1	103.0	3.88	1
ASMAJ70A	ASMAJ70CA	RPA	ZPA	70.0	77.80	86.00	1	113.0	3.54	1
ASMAJ75A	ASMAJ75CA	RRA	ZRA	75.0	83.30	92.10	1	121.0	3.31	1
ASMAJ78A	ASMAJ78CA	RTA	ZTA	78.0	86.70	95.80	1	126.0	3.17	1
ASMAJ80A	ASMAJ80CA	RBA	ZBA	80.0	88.80	97.60	1	129.6	3.09	1
ASMAJ85A	ASMAJ85CA	RVA	ZVA	85.0	94.40	104.0	1	137.0	2.92	1

Note:

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

TVS Diode – ASMAJ Series

Ratings and Characteristic Curves

Fig 1 - Peak Pulse Power Rating Curve

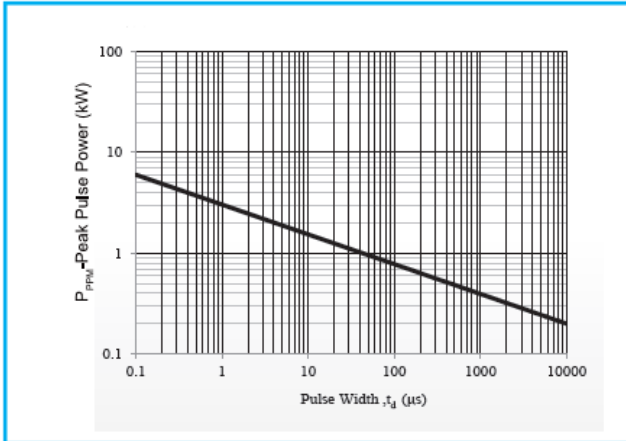


Fig 2 - Pulse Derating Curve

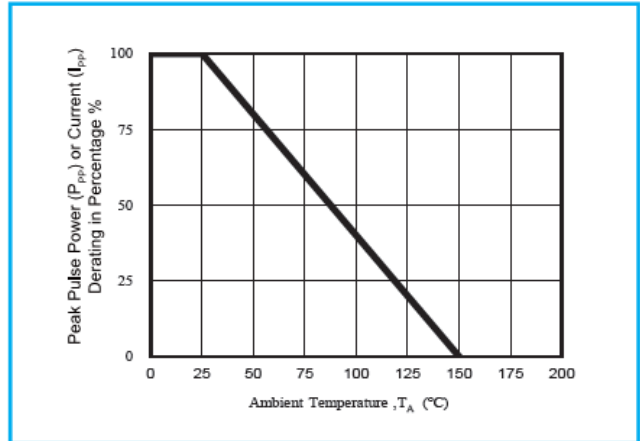


Fig 3 - Pulse Waveform

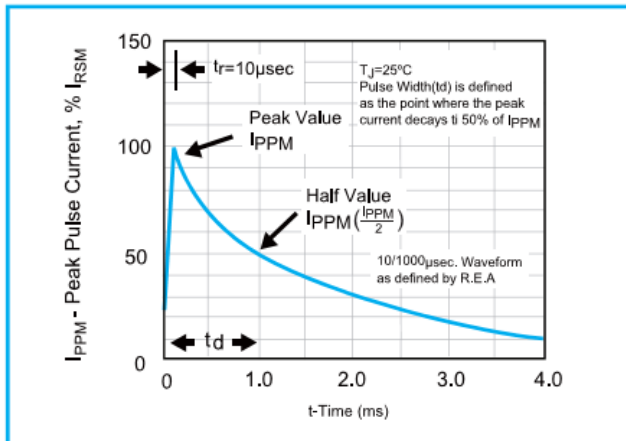


Fig 4 - Typical Junction Capacitance Uni-directional

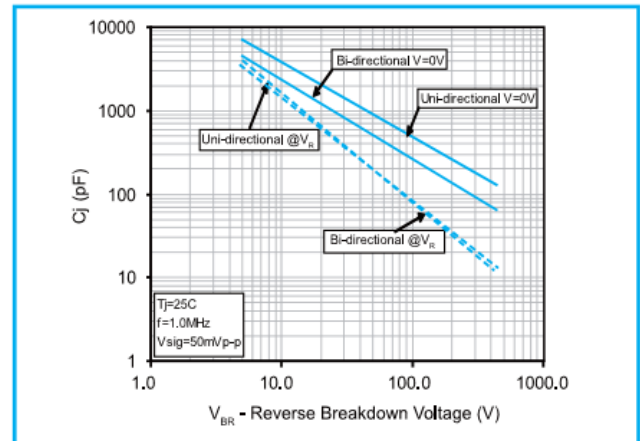


Fig 5 - Steady State Power Dissipation Derating Curve

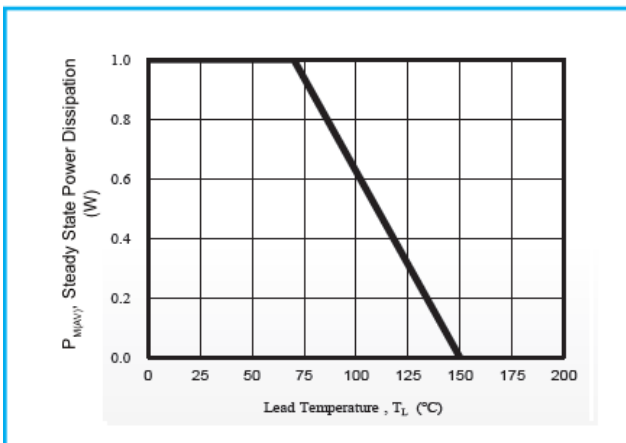
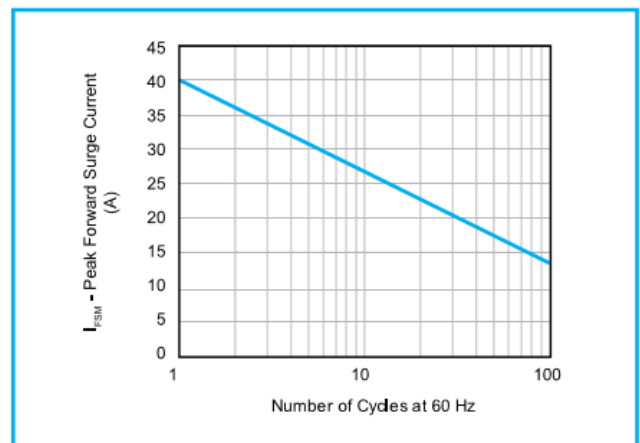
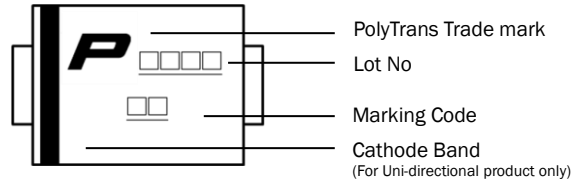


Fig 6 - Maximum Non-Repetitive Forward Surge Current (Uni-directional Only)

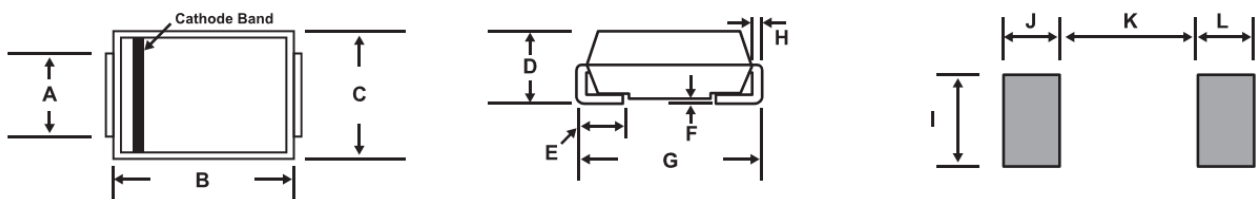


TVS Diode – ASMAJ Series

Marking Definitions



Physical Dimensions



Dimension	Millimeters		Inches	
	Min	Max	Min	Max
A	1.25	1.65	0.049	0.065
B	3.99	4.60	0.157	0.177
C	2.50	2.90	0.100	0.110
D	1.98	2.29	0.078	0.090
E	0.78	1.52	0.030	0.060
F	-	0.203	-	0.008
G	4.93	5.28	0.194	0.208
H	0.152	0.305	0.006	0.012
I	1.80	-	0.070	-
J	2.10	-	0.082	-
K	-	2.30	-	0.090
L	2.10	-	0.082	-

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 – ASMAJ Series

Packaging Information

Part Number	Packaging Code	Component Package	Quantity	Packaging Option	Packaging Specification
ASMAJ Series	T13	DO-214AC	5000	Tape & Reel - 12mm tape/13" reel	EIA STD RS-481
ASMAJ Series	T7	DO-214AC	2000	Tape & Reel - 12mm tape/7" reel	EIA STD RS-481

Tape and Reel Specifications

