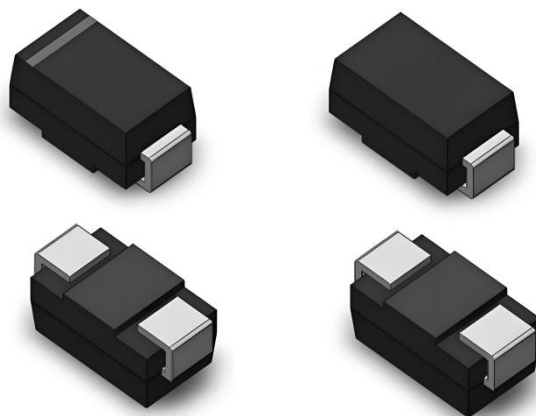


Mechanical Data

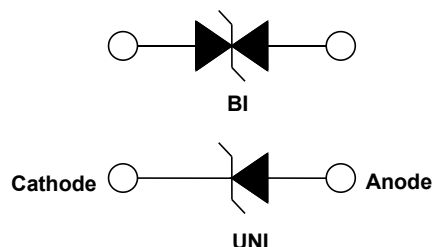
- Case: Molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any

Features

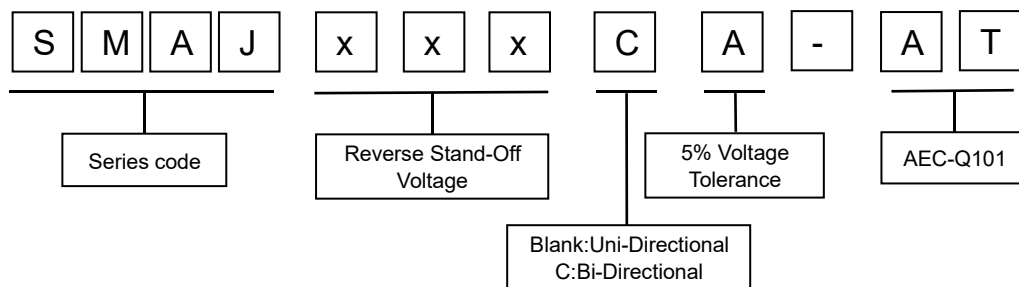
- Glass passivated chip
- 400 W peak pulse power capability with a 10/1000 μ s waveform, repetitive rate (duty cycle): 0.01 %
- High reliability application and automotive grade
- Meet MSL level1, per J-STD-020
- AEC Q101 qualified
- Low leakage
- Uni and Bidirectional unit
- Excellent clamping capability
- Very fast response time
- RoHS compliant



Electrical symbol



Part Number Code



Mechanical Characteristics

Rating	Symbol	Value	Units
Peak power dissipation with a 10/1000 μ s waveform (Fig.4)(Note 1)	P_{PP}	400	W
Power Dissipation on Infinite Heat Sink at $T_L=75^{\circ}\text{C}$ (Fig.3)	P_D	1.0	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 2)	I_{FSM}	40	A
Maximum instantaneous forward voltage at 50 A for unidirectional only ⁽²⁾	V_F	3.5/5.0	V
Operating Temperature Range Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^{\circ}\text{C}$

Notes:

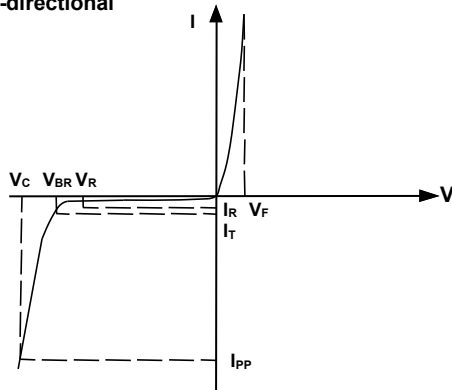
1. Non-repetitive current pulse, per Fig.2 and derated above $T_A=25^{\circ}\text{C}$ per Fig. 1.
2. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

ElecATical Characteristics($T_A=25^{\circ}\text{C}$ unless otherwise noted)

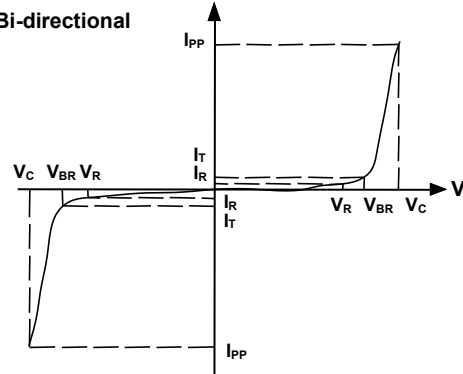
Type Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage		Test Current	Max. Clamping Voltage 10/1000 μs	Max. Peak Pulse Current 10/1000 μs	Reverse Leakage
				V_{RWM}	$V_{\text{BR}} @ I_{\text{T}}$		I_{T}	$V_{\text{C}} @ I_{\text{PP}}$	I_{PP}	$I_{\text{R}} @ V_{\text{RWM}}$
					Min	Max				
UNI	BI	UNI	BI	V	V	V	mA	V	A	μA
SMAJ10A-AT	SMAJ10CA-AT	AXA	WXA	10.0	11.1	12.3	1	17.0	23.53	1
SMAJ11A-AT	SMAJ11CA-AT	AZA	WZA	11.0	12.2	13.5	1	18.2	21.98	1
SMAJ12A-AT	SMAJ12CA-AT	BEA	XEA	12.0	13.3	14.7	1	19.9	20.10	1
SMAJ13A-AT	SMAJ13CA-AT	BGA	XGA	13.0	14.4	15.9	1	21.5	18.60	1
SMAJ14A-AT	SMAJ14CA-AT	BKA	XKA	14.0	15.6	17.2	1	23.2	17.24	1
SMAJ15A-AT	SMAJ15CA-AT	BMA	XMA	15.0	16.7	18.5	1	24.4	16.39	1
SMAJ16A-AT	SMAJ16CA-AT	BPA	XPA	16.0	17.8	19.7	1	26.0	15.38	1
SMAJ17A-AT	SMAJ17CA-AT	BRA	XRA	17.0	18.9	20.9	1	27.6	14.49	1
SMAJ18A-AT	SMAJ18CA-AT	BTA	XTA	18.0	20.0	22.1	1	29.2	13.70	1
SMAJ19A-AT	SMAJ19CA-AT	BBA	XBA	19.0	21.1	23.3	1	30.8	13.00	1
SMAJ20A-AT	SMAJ20CA-AT	BVA	XVA	20.0	22.2	24.5	1	32.4	12.35	1
SMAJ22A-AT	SMAJ22CA-AT	BXA	XXA	22.0	24.4	26.9	1	35.5	11.27	1
SMAJ24A-AT	SMAJ24CA-AT	BZA	XZA	24.0	26.7	29.5	1	38.9	10.28	1
SMAJ26A-AT	SMAJ26CA-AT	CEA	YEA	26.0	28.9	31.9	1	42.1	9.50	1
SMAJ28A-AT	SMAJ28CA-AT	CGA	YGA	28.0	31.1	34.4	1	45.4	8.81	1
SMAJ30A-AT	SMAJ30CA-AT	CKA	YKA	30.0	33.3	36.8	1	48.4	8.26	1
SMAJ33A-AT	SMAJ33CA-AT	CMA	YMA	33.0	36.7	40.6	1	53.3	7.50	1
SMAJ36A-AT	SMAJ36CA-AT	CPA	YPA	36.0	40.0	44.2	1	58.1	6.88	1
SMAJ40A-AT	SMAJ40CA-AT	CRA	YRA	40.0	44.4	49.1	1	64.5	6.20	1
SMAJ43A-AT	SMAJ43CA-AT	CTA	YTA	43.0	47.8	52.8	1	69.4	5.76	1
SMAJ45A-AT	SMAJ45CA-AT	CVA	YVA	45.0	50.0	55.3	1	72.7	5.50	1
SMAJ48A-AT	SMAJ48CA-AT	CXA	YXA	48.0	53.3	58.9	1	77.4	5.17	1
SMAJ51A-AT	SMAJ51CA-AT	CZA	YZA	51.0	56.7	62.7	1	82.4	4.85	1
SMAJ54A-AT	SMAJ54CA-AT	REA	ZEA	54.0	60.0	66.3	1	87.1	4.59	1
SMAJ58A-AT	SMAJ58CA-AT	RGA	ZGA	58.0	64.4	71.2	1	93.6	4.27	1
SMAJ60A-AT	SMAJ60CA-AT	RKA	ZKA	60.0	66.7	73.7	1	96.8	4.13	1
SMAJ64A-AT	SMAJ64CA-AT	RMA	ZMA	64.0	71.1	78.6	1	103.0	3.88	1
SMAJ70A-AT	SMAJ70CA-AT	RPA	ZPA	70.0	77.8	86.0	1	113.0	3.54	1
SMAJ75A-AT	SMAJ75CA-AT	RRA	ZRA	75.0	83.3	92.1	1	121.0	3.31	1
SMAJ78A-AT	SMAJ78CA-AT	RTA	ZTA	78.0	86.7	95.8	1	126.0	3.17	1
SMAJ80A-AT	SMAJ80CA-AT	RBA	ZBA	80.0	88.8	97.6	1	129.6	3.09	1
SMAJ85A-AT	SMAJ85CA-AT	RVA	ZVA	85.0	94.4	104.0	1	137.0	2.92	1

I-V Curve Characteristics

Uni-directional



Bi-directional



P_{PPM} Peak Pulse Power Dissipation -- Max 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

Ratings and Characteristic Curves ($T_A=25^\circ\text{C}$ unless otherwise noted)

Figure 1 - Pulse Derating Curve

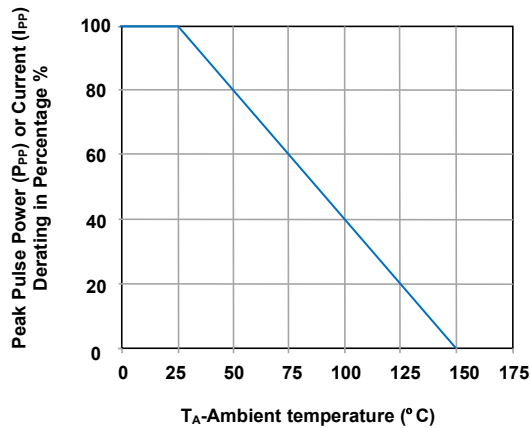


Figure 2 - Pulse Waveform

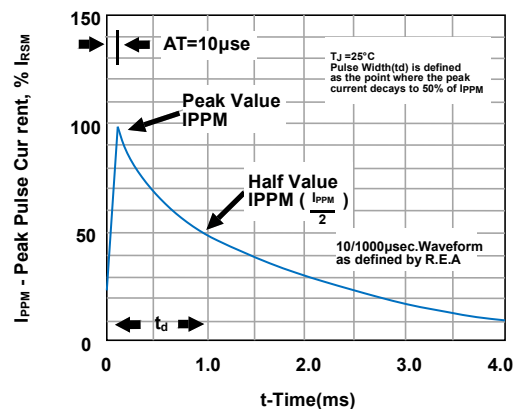


Figure 3 - Steady State Power Derating Curve

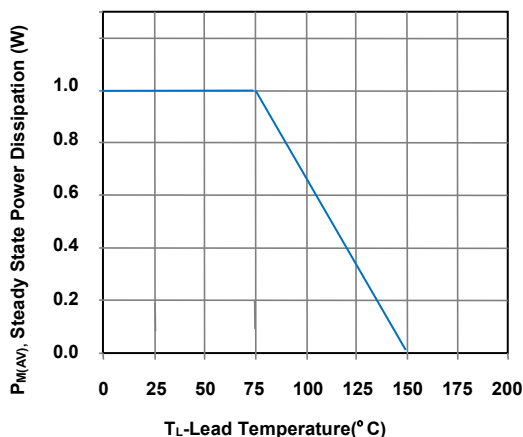


Figure 4 - Peak Pulse Power Rating Curve

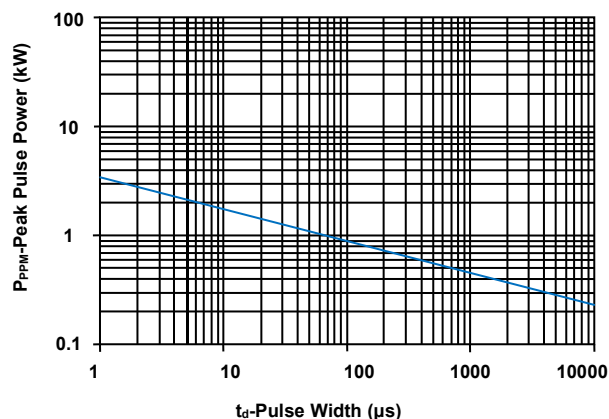


Figure 5 - Maximum Non-Repetitive Surge Current

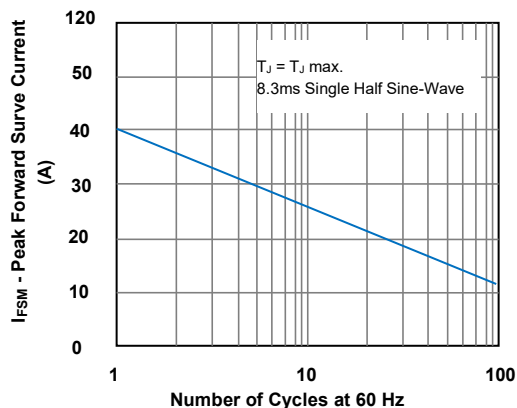
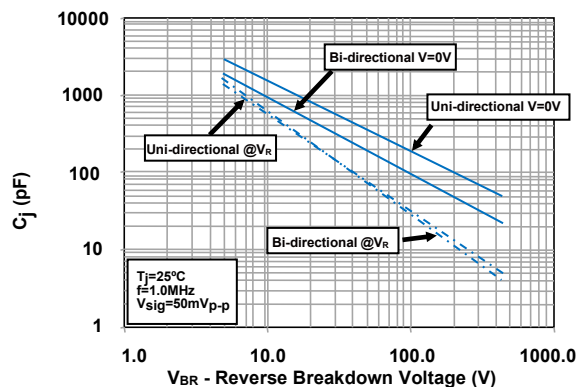
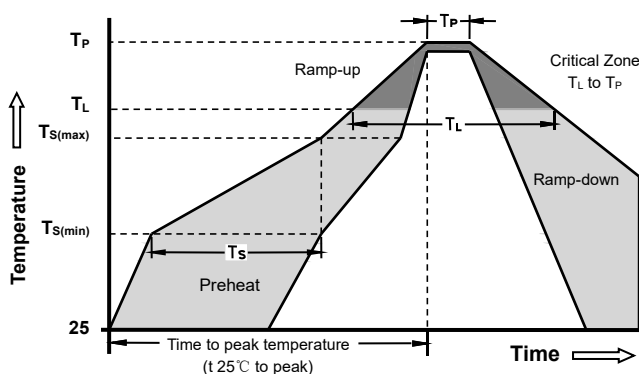


Figure 6 - Typical Junction Capacitance

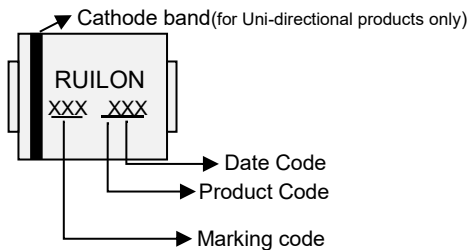


Soldering Parameters - Reflow Soldering (Surface Mount Devices)

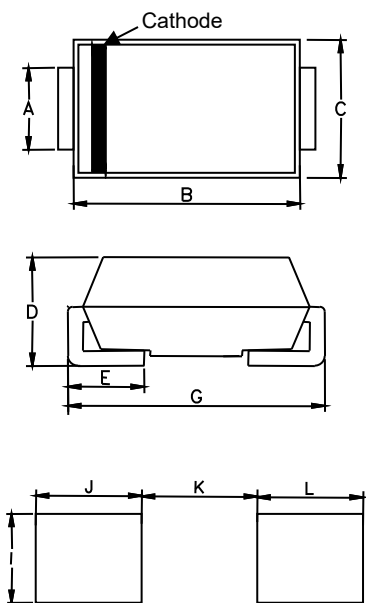


Reflow Condition		Pb - Free assembly
Pre Heat	-Temperature Min ($T_{s(min)}$)	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 -180 Seconds
Average ramp up rate (Liquids Temp T_L to peak		3°C/second max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/second max
Reflow	- Temperature (T_L) (Liquids)	217°C
	- Time (min to max) (t_s)	60 -150 Seconds
Peak Temperature (T_P)		260 +0/-5°C
Time within 5°C of actual peak Temperature (t_p)		20 - 40 Seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_P)		8 minutes Max
Do not exceed		260°C

Part Marking System

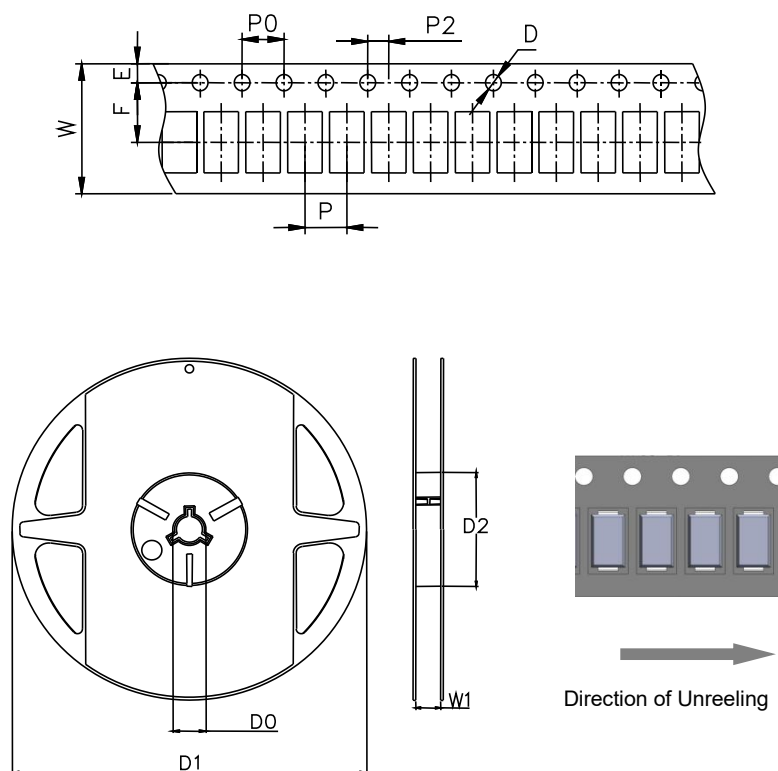


Dimensions



DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	1.23	1.63	0.049	0.064
B	4.10	4.55	0.162	0.179
C	2.51	2.76	0.099	0.109
D	1.96	2.26	0.077	0.089
E	0.75	1.51	0.030	0.060
G	4.87	5.22	0.192	0.206
I	1.800	-	0.070	-
J	2.100	-	0.082	-
K	-	2.300	-	0.090
L	2.100	-	0.082	-

Taping and Reel Specifications



Symbol	Millimeters	Inches
W	12±0.3	0.472±0.012
P	4±0.1	0.157±0.004
F	5.5±0.1	0.217±0.004
E	1.75±0.1	0.069±0.004
D	1.5+0.1/-0.0	0.059+0.004/-0.0
P0	4±0.1	0.157±0.004
P2	2±0.1	0.079±0.004
D0	16.7±0.15	0.657±0.006
D1	330±2	13.0±0.079
D2	59.6+1/-2	2.346+0.039/-0.079
W1	12.64±0.4	0.498±0.016

Part Number	Component package	Quantity	Packaging option	Packaging specification
SMAJXXXXA/CA-AT	DO-214AC(SMA)	5000	Tape&Reel-12mm/13"tape	EIA STD RS-481