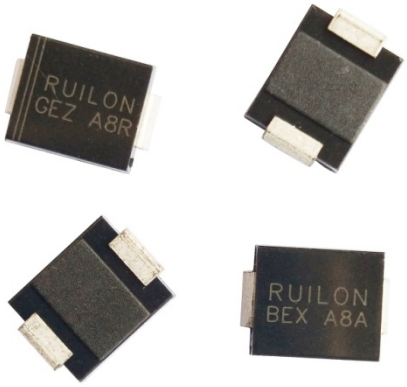
Mechanical Data

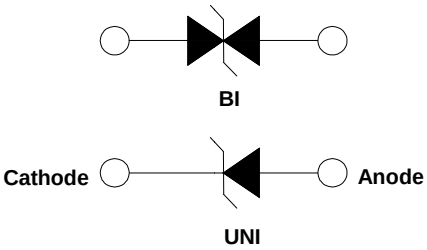
- Case: Molded plastic
- Epoxy: UL 94V-0 rate flame retardant
- Lead: Solderable per MIL-STD-750, method 2026
- Polarity: Color band denotes cathode end except Bipolar
- Mounting position: Any



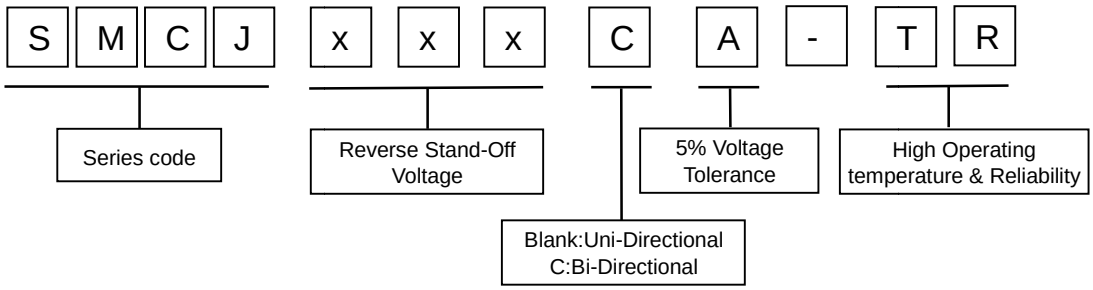
Features

- Glass passivated chip
- 1500 W peak pulse power capability with a 10/1000 μs waveform, repetitive rate (duty cycle):0.01 %
- High reliability application and automotive grade 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 10/1000μs waveform (Fig.4)(Note 1)	P_{PP}	1500	W
Power Dissipation on Infinite Heat Sink at T_L=75°C(Fig.3)	P_D	6.5	W
Peak Forward Surge Current, 8.3ms Single Half Sine Wave (Note 2)	I_{FSM}	200	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	°C

Notes:

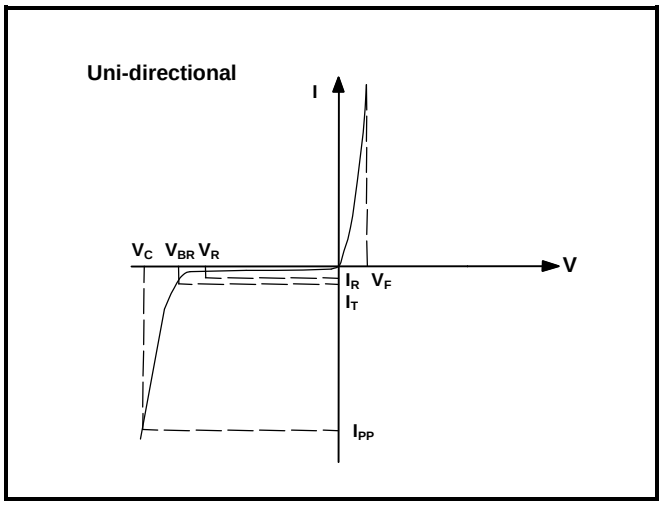
1. Non-repetitive current pulse, per Fig.2 and derated above T_A=25° C per Fig. 1.
2. Measured on 8.3ms single half sine wave or equivalent square wave for unidirectional device only, duty cycle=4 per minute maximum.

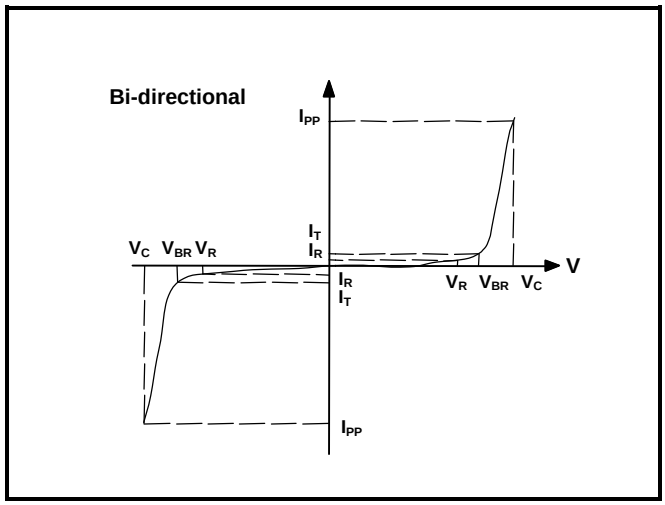
Electrical Characteristics

Type Number		Marking		Reverse Stand-Off Voltage	Breakdown Voltage		Test Current	Max. Clamping Voltage 10/1000μs	Max. Peak Pulse Current 10/1000μs	Reverse Leakage
				V_{RWM}	V_{BR} @I_T		I_T	V_C@I_{PP}	I_{PP}	I_R@V_{RWM}
					Min	Max				
UNI	BI	UNI	BI	V	V	V	mA	V	A	μA
SMCJ10A-TR	SMCJ10CA-TR	GDXA	BDXA	10.0	11.1	12.3	1	17.0	88.2	5
SMCJ11A-TR	SMCJ11CA-TR	GDZA	BDZA	11.0	12.2	13.5	1	18.2	82.4	1
SMCJ12A-TR	SMCJ12CA-TR	GEEA	BEEA	12.0	13.3	14.7	1	19.9	75.4	1
SMCJ13A-TR	SMCJ13CA-TR	GEGA	BEGA	13.0	14.4	15.9	1	21.5	69.8	1
SMCJ14A-TR	SMCJ14CA-TR	GEKA	BEKA	14.0	15.6	17.2	1	23.2	64.7	1
SMCJ15A-TR	SMCJ15CA-TR	GEMA	BEMA	15.0	16.7	18.5	1	24.4	61.5	1
SMCJ16A-TR	SMCJ16CA-TR	GEPA	BEPA	16.0	17.8	19.7	1	26.0	57.7	1
SMCJ17A-TR	SMCJ17CA-TR	GERA	BERA	17.0	18.9	20.9	1	27.6	54.3	1
SMCJ18A-TR	SMCJ18CA-TR	GETA	BETA	18.0	20.0	22.1	1	29.2	51.4	1
SMCJ19A-TR	SMCJ19CA-TR	GEBA	BEBA	19.0	21.1	23.3	1	30.8	48.7	1
SMCJ20A-TR	SMCJ20CA-TR	GEVA	BEVA	20.0	22.2	24.5	1	32.4	46.3	1
SMCJ22A-TR	SMCJ22CA-TR	GEXA	BEXA	22.0	24.4	26.9	1	35.5	42.3	1
SMCJ24A-TR	SMCJ24CA-TR	GEZA	BEZA	24.0	26.7	29.5	1	38.9	38.6	1
SMCJ26A-TR	SMCJ26CA-TR	GFEA	BFEA	26.0	28.9	31.9	1	42.1	35.6	1
SMCJ28A-TR	SMCJ28CA-TR	GFGA	BFGA	28.0	31.1	34.4	1	45.4	33.0	1
SMCJ30A-TR	SMCJ30CA-TR	GFKA	BFKA	30.0	33.3	36.8	1	48.4	31.0	1
SMCJ33A-TR	SMCJ33CA-TR	GFMA	BFMA	33.0	36.7	40.6	1	53.3	28.1	1
SMCJ36A-TR	SMCJ36CA-TR	GFPA	BFPA	36.0	40.0	44.2	1	58.1	25.8	1
SMCJ40A-TR	SMCJ40CA-TR	GFRA	BFRA	40.0	44.4	49.1	1	64.5	23.3	1
SMCJ43A-TR	SMCJ43CA-TR	GFTA	BFTA	43.0	47.8	52.8	1	69.4	21.6	1
SMCJ45A-TR	SMCJ45CA-TR	GFVA	BFVA	45.0	50.0	55.3	1	72.7	20.6	1
SMCJ48A-TR	SMCJ48CA-TR	GFXA	BFXA	48.0	53.3	58.9	1	77.4	19.4	1
SMCJ51A-TR	SMCJ51CA-TR	GFZA	BFZA	51.0	56.7	62.7	1	82.4	18.2	1
SMCJ54A-TR	SMCJ54CA-TR	GGEA	BGEA	54.0	60.0	66.3	1	87.1	17.2	1
SMCJ58A-TR	SMCJ58CA-TR	GGGA	BGGA	58.0	64.4	71.2	1	93.6	16.0	1
SMCJ60A-TR	SMCJ60CA-TR	GGKA	BGKA	60.0	66.7	73.7	1	96.8	15.5	1
SMCJ64A-TR	SMCJ64CA-TR	GGMA	BGMA	64.0	71.1	78.6	1	103.0	14.6	1
SMCJ70A-TR	SMCJ70CA-TR	GGPA	BGPA	70.0	77.8	86.0	1	113.0	13.3	1
SMCJ75A-TR	SMCJ75CA-TR	GGRA	BGRA	75.0	83.3	92.1	1	121.0	12.4	1
SMCJ78A-TR	SMCJ78CA-TR	GGTA	BGTA	78.0	86.7	95.8	1	126.0	11.9	1

Notes: For bidirectional type having V_R of 10V and less, the I_R limit is double.

I-V Curve Characteristics





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 though the TVS at a specified test current (I_T)

V_C Clamping Voltage -- Peak voltage measured across the TVS at a specified Ippm (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°C unless otherwise noted)

Figure 1 - Pulse Derating Curve

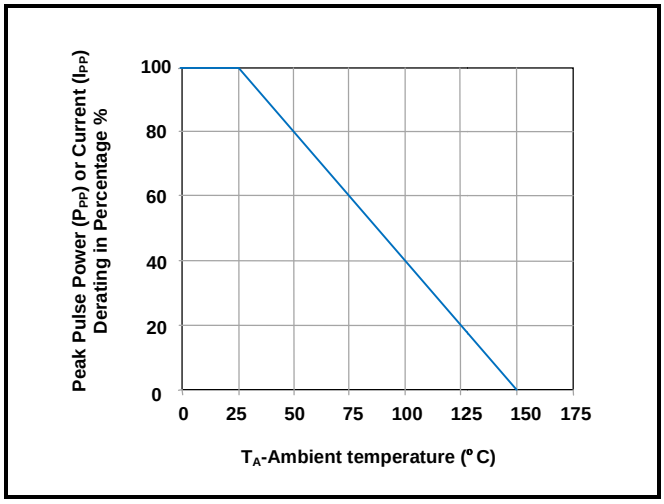


Figure 2 - Pulse Waveform

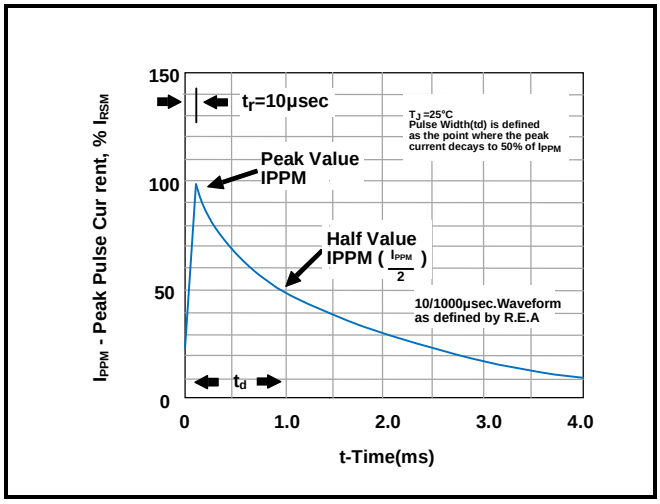


Figure 3 - Steady State Power Derating Curve

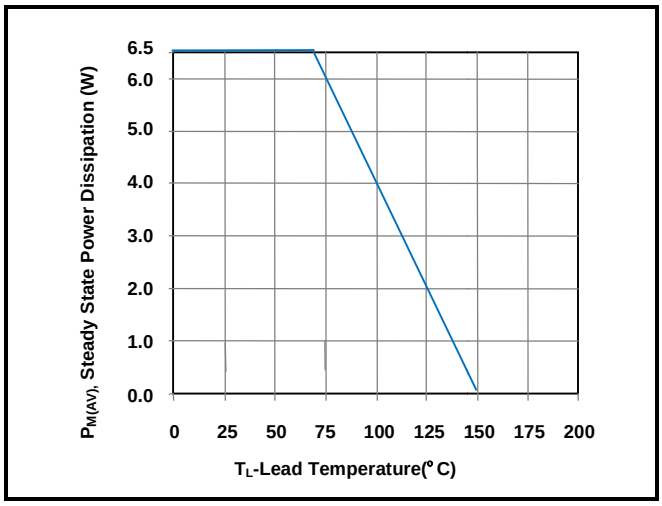


Figure 4 - Peak Pulse Power Rating Curve

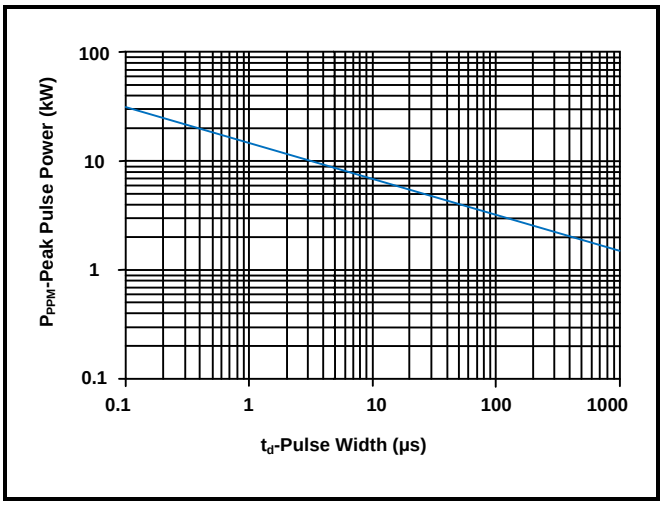


Figure 5 - Maximum Non-Repetitive Surge Current

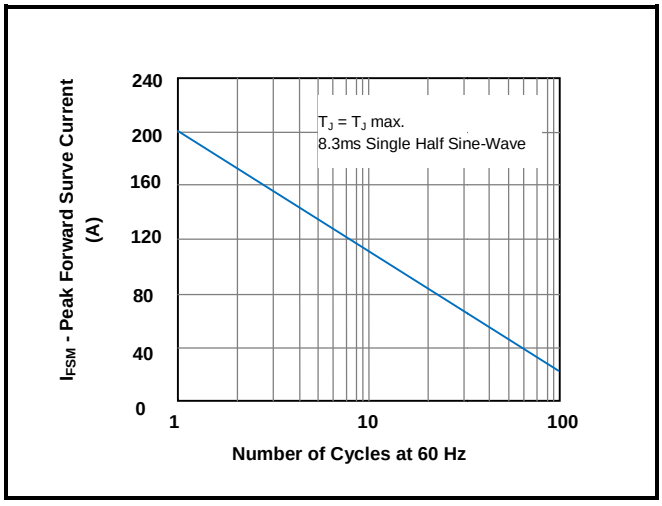
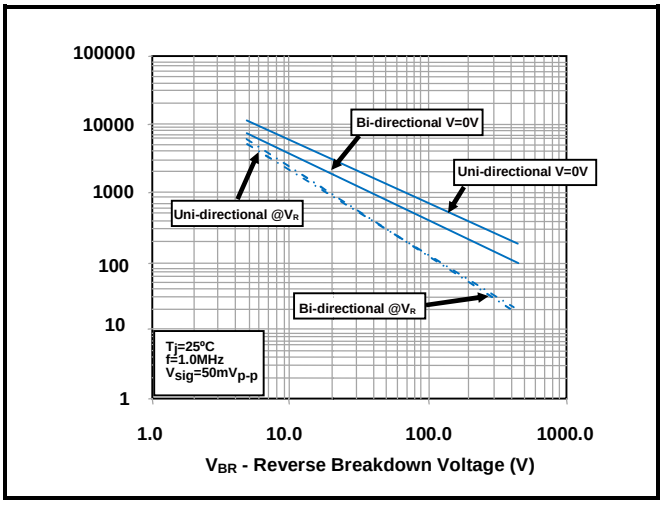
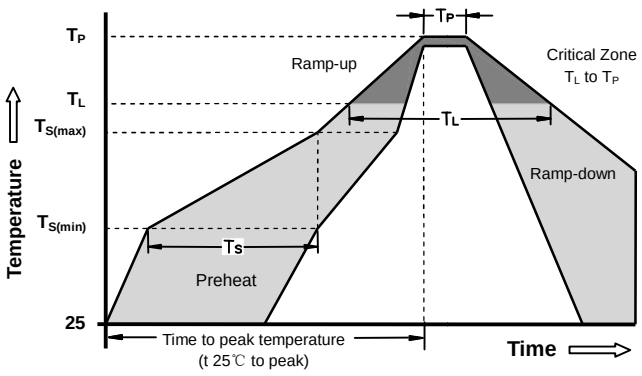


Figure 6 - Typical Junction Capacitance

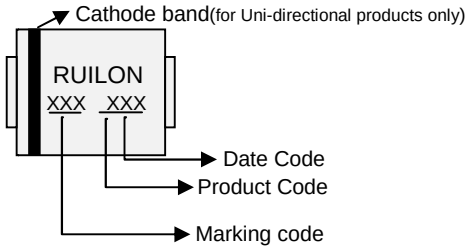


Soldering Parameters - Reflow Soldering (Surface Mount Devices)

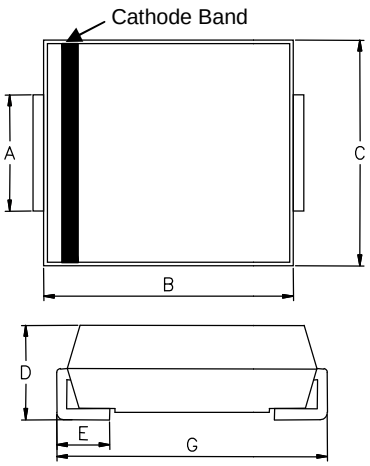


Reflow Condition		Pb - Free assembly
Pre Heat	-Temperature Min ($T_{s(min)}$)	150°C
	-Temperature Max ($T_{s(max)}$)	200°C
	- Time (min to max) (t_s)	60 -180 Seconds
Average ramp up rate (Liquids Temp T_L) to peak		3°C/second max
$T_{S(max)}$ to TL - Ramp-up Rate		3°C/second max
Reflow	- Temperature (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

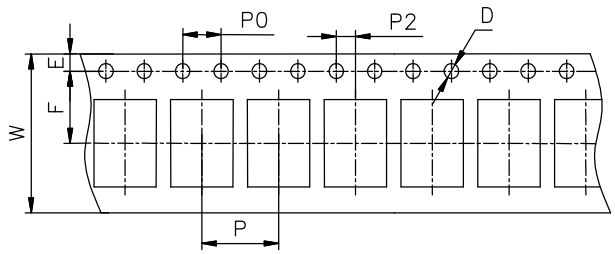


Dimensions

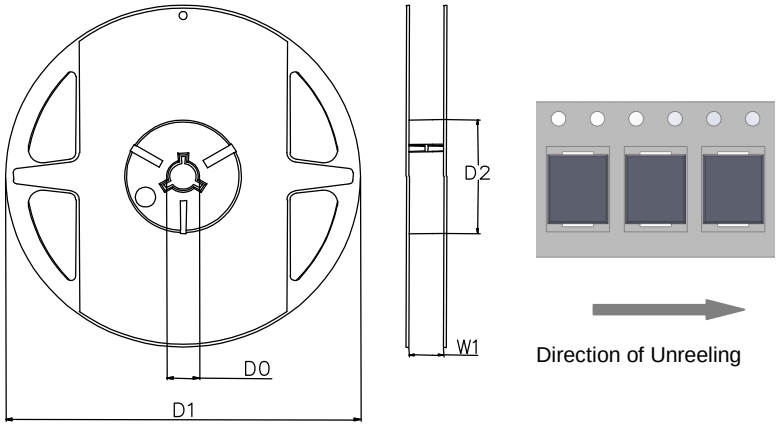


DIM	Millimeters		Inches	
	Min	Max	Min	Max
A	2.90	3.20	0.114	0.126
B	6.60	7.15	0.260	0.281
C	5.55	6.04	0.219	0.238
D	1.98	2.53	0.078	0.100
E	0.75	1.51	0.030	0.059
G	7.75	7.95	0.305	0.313

Taping and Reel Specifications



Symbol	Millimeters	Inches
W	16±0.3	0.630±0.012
P	8±0.1	0.315±0.004
F	7.25±0.1	0.285±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	178±2	7.007±0.079
D2	59.6+1/-2	2.346+0.039/-0.079
W1	17.2±0.4	0.677±0.016



Part Number	Component package	Quantity	Packaging option	Packaging specification
SMCJXXXA/CA-TR	DO-214AB(SMC)	500	Tape&Reel-16mm/7”tape	EIA STD RS-481