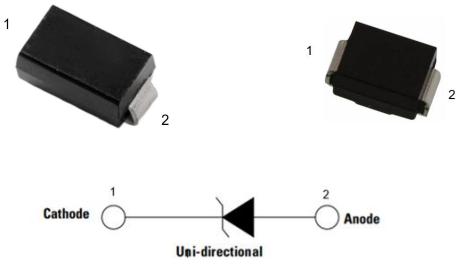
RS1X Series

1.0A Surface Mount Fast Recovery Rectifier

Features

- Fast Recovery Time For High Efficiency
- Glass Passivated Die Construction
- Surge Overload Rating to 30A Peak
- Ideally Suited for Automated Assembly
- Lead Free Finish/RoHS Compliant
- Green Molding Compound (No Halogen and Antimony)

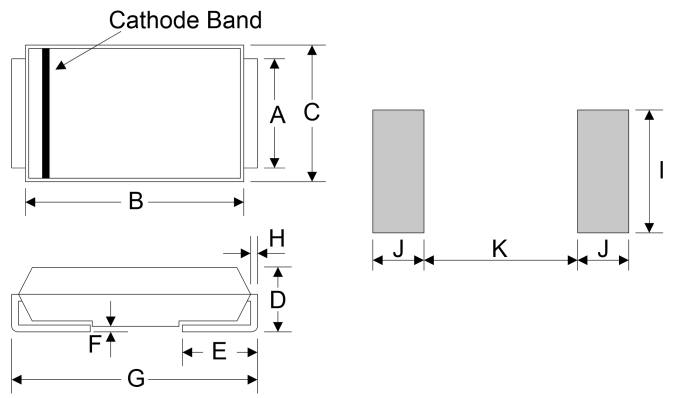


Mechanical Data

- Case: SMA/SMB
- Case Material: Molded Plastic. UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Polarity: Cathode Band or Cathode Notch
- SMA Weight: 0.064 grams (approximate)
- SMB Weight: 0.093 grams (approximate)

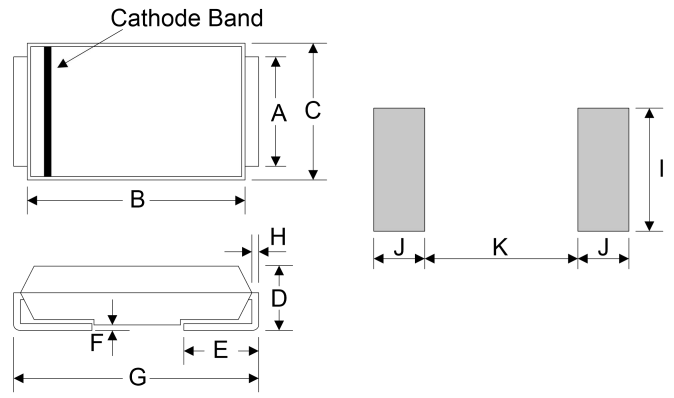
Dimensions (SMA/SMB)

SMA



Symbol	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	1.250	1.650	0.049	0.065
B	3.990	4.550	0.157	0.178
C	2.540	2.790	0.100	0.110
D	1.900	2.290	0.074	0.090
E	0.780	1.550	0.030	0.061
F	-	0.203	-	0.008
G	4.70	5.280	0.185	0.208
H	0.152	0.305	0.006	0.012
I	1.800	-	0.070	-
J	2.100	-	0.082	-
K	-	2.300	-	0.090

SMB



Ref.	Millimeters		Inches	
	Min	Max	Min.	Max.
A	1.850	2.200	0.072	0.086
B	4.060	4.650	0.160	0.183
C	3.300	3.940	0.130	0.155
D	2.050	2.440	0.080	0.096
E	0.760	1.520	0.030	0.060
F	-	0.203	-	0.008
G	5.050	5.590	0.198	0.220
H	0.152	0.305	0.006	0.012
I	2.260	-	0.089	-
J	2.160	-	0.085	-
K	-	2.740	-	0.107

Maximum Ratings (T_A=25℃ Unless otherwise specified）

Item	Symbol	RS1 A/AB	RS1 B/BB	RS1 D/DB	RS1 G/GB	RS1 J/JB	RS1 K/KB	RS1 M/MB	Unit
Peak Repetitive Reverse Voltage Working Peak Reverse Voltage DC Blocking Voltage (Note 4)	V_{RRM} V_{RWM} V_R	50	100	200	400	600	800	1000	V
RMS Reverse Voltage	$V_{R(RMS)}$	35	70	140	280	420	560	700	V
Average Rectified Output Current @ T_J= 120℃	I_O	1.0							A
Maximum Forward Voltage Drop @I_F= 1.0A	V_{FM}	1.3							V
Peak Reverse Current @T_A=25℃ at Rated DC Blocking Voltage (Note 1) @T_A=125℃	I_{RM}	5.0 200							μA
Typical Total Capacitance (Note 2)	C_T	15							pF
Reverse Recovery Time (Note 3)	trr	150				250	500		ns
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	30							A
Typical Thermal Resistance, Junction to Terminal (Note 3)	$R_{\theta JT}$	20							℃/W
Operating and Storage Temperature Range	T_J, T_{STG}	-55 to +150							℃

Notes:

1. Thermal Resistance: Junction to terminal, unit mounted on PC board with 5.0 mm^2 (0.013 mm thick) copper pads as heat sink.
2. Measured at 1.0MHz and applied reverse voltage of 4.0V DC.
3. Reverse recovery test conditions: I_F = 0.5A, I_R = 1.0A, I_{RR} = 0.25A.
4. Short duration pulse test used to minimize self-heating effect.

Ratings and Characteristic Curves (T_A=25℃ unless otherwise noted)

Figure 1. Forward Current Derating Curve

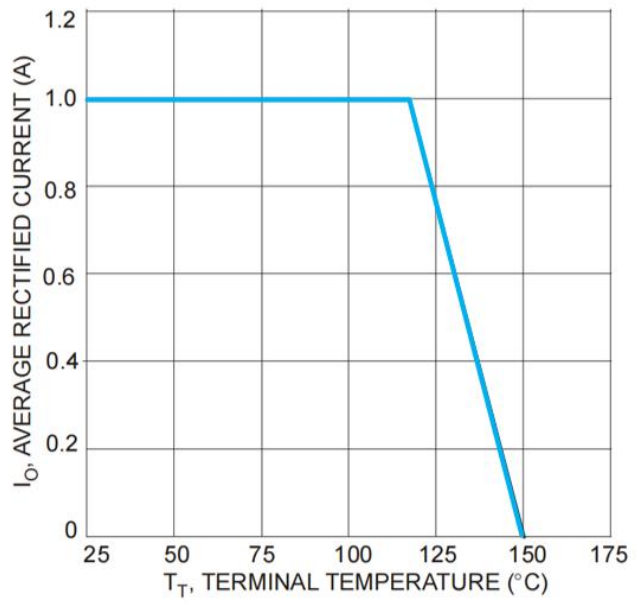


Figure 2. Typical Forward Characteristics

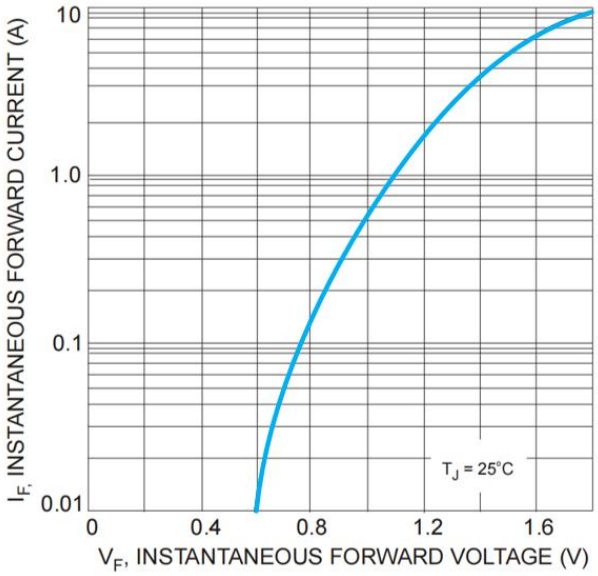


Figure 3. Forward Surge Current Derating Curve

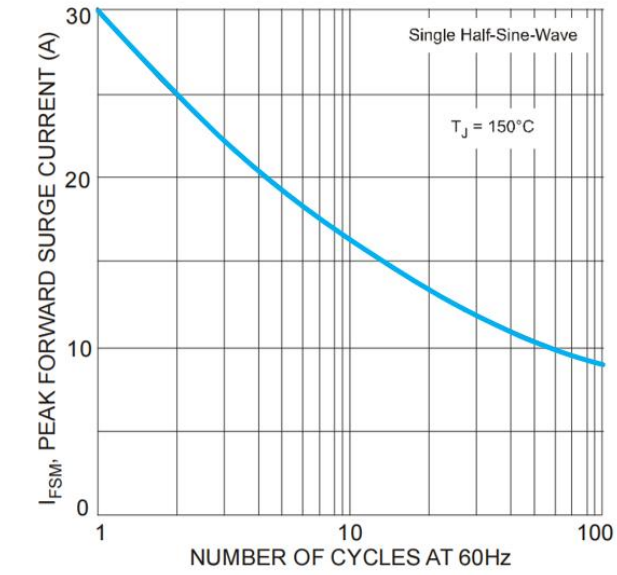
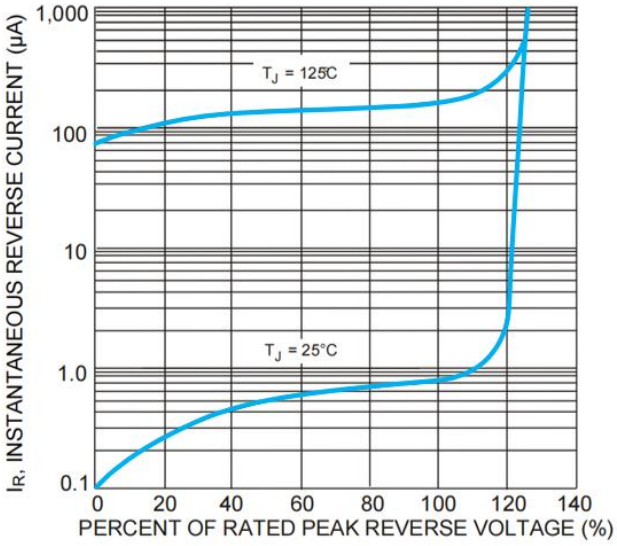
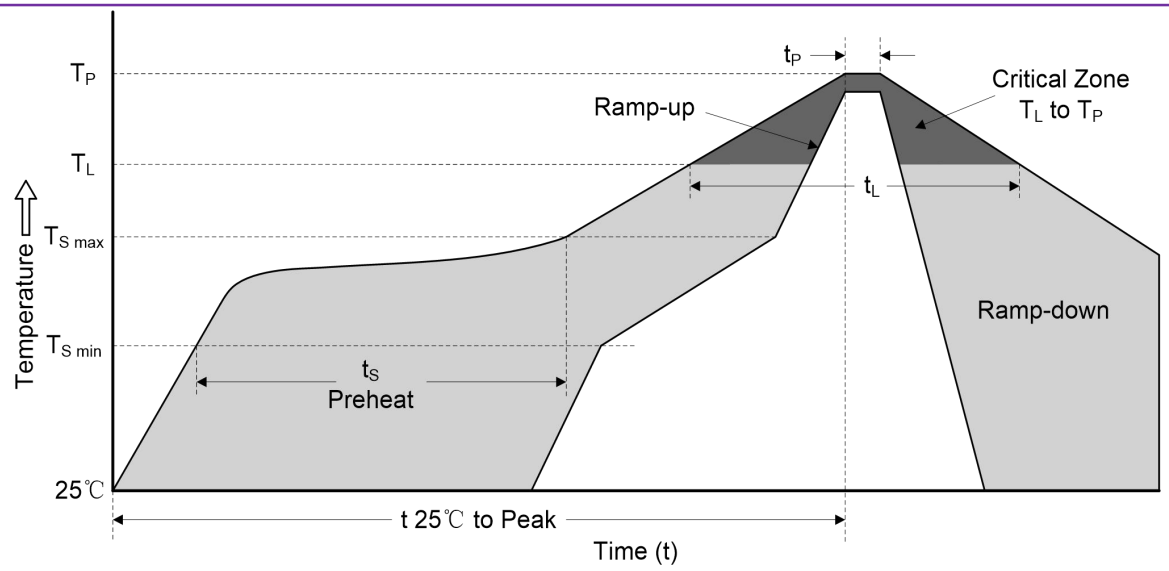


Figure 4. Typical Reverse Characteristics



Reflow Soldering Parameters



Reflow Condition		Lead-free Assembly
Preheat	-Temperature Min ($T_{S\ min}$)	150℃
	-Temperature Max ($T_{S\ max}$)	200℃
	-Time (min to max) (t_S)	60-180 seconds
Average ramp-up rate (T_L to T_P)		3℃/second max.
$T_{S\ max}$ to T_L -Ramp-up Rate		3℃/second max.
Reflow	-Temperature (T_L) (Liquidus)	217℃
	-Time (min to max) (t_S)	60-150 seconds
Peak Temperature (T_P)		260(+0/-5)℃
Time within 5℃ of actual Peak Temperature (t_P)		20-40 seconds
Ramp-down Rate		6℃/second max.
Time 25℃ to Peak Temperature(T_P)		8 minutes max.
Do not exceed		260℃