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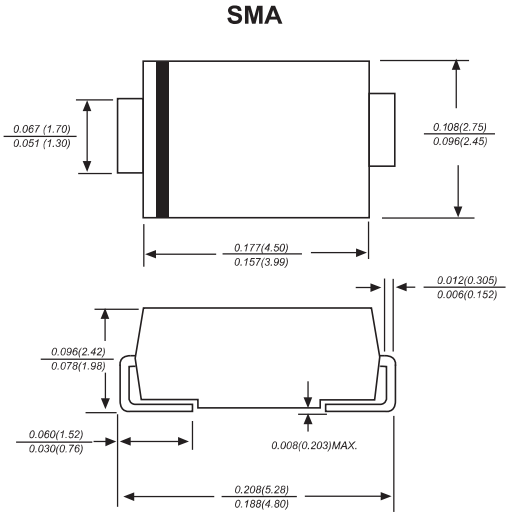
RS1A THRU RS1M

1.0A Surface Mount Fast Recovery Rectifiers-50-1000V

Features

- The plastic package carries Underwriters Laboratory Flammability Classification 94V-0
- For surface mounted applications
- Fast switching for high efficiency
- Low reverse leakage
- Built-in strain relief,ideal for automated placement
- High forward surge current capability
- High temperature soldering guaranteed: 250°C/10 seconds at terminals
- Glass passivated chip junction
- Compliant to RoHS Directive 2011/65/EU

Package outline



Dimensions in inches and (millimeters)

Mechanical data

- **Case**: JEDEC DO-214AC molded plastic body
- **Terminals**: Solder plated, solderable per MIL-STD-750, Method 2026
- **Polarity**: Color band denotes cathode end
- **Mounting Position**: Any

Maximum ratings and Electrical Characteristics (AT T_A=25°C unless otherwise noted)

PARAMETER	CONDITIONS	Symbol	MIN.	TYP.	MAX.	UNIT
Forward rectified current	See Fig.2	I_O			1.0	A
Forward surge current	8.3ms single half sine-wave (JEDEC methode)	I_{FSM}			30	A
Reverse current	V_R = V_{RRM} T_A = 25°C	I_R			5.0	μA
	V_R = V_{RRM} T_A = 100°C				50	
Thermal resistance	Junction to ambient NOTE 1	$R_{\theta JA}$		75		°C/W
Diode junction capacitance	f=1MHz and applied 4V DC reverse voltage	C_J		15		pF
Storage temperature		T_{STG}	-55		+150	°C

SYMBOLS	V_{RRM} *1 (V)	V_{RMS} *2 (V)	V_R *3 (V)	V_F *4 (V)	t_{rr} *5 (ns)	Operating temperature T_J, (°C)
RS1A	50	35	50	1.30	150	-55 to +150
RS1B	100	70	100			
RS1D	200	140	200			
RS1G	400	280	400			
RS1J	600	420	600		250	
RS1K	800	560	800		500	
RS1M	1000	700	1000			

*1 Repetitive peak reverse voltage

*2 RMS voltage

*3 Continuous reverse voltage

*4 Maximum forward voltage@I_F=1.0A

*5 Maximum Reverse recovery time, note 2

Note: 1.P.C.B. mounted with 2.0x2.0″(5.0x5.0cm) copper pad areas
2. Reverse recovery time test condition, I_F=0.5A, I_R=1.0A, I_{RR}=0.25A

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Rating and characteristic curves

FIG. 1- FORWARD CURRENT DERATING CURVE

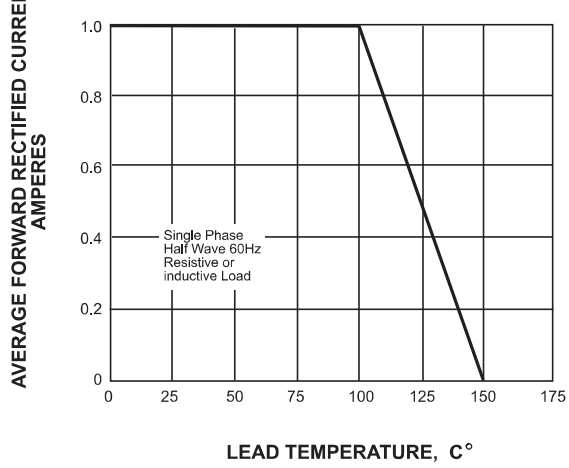


FIG. 2-MAXIMUM NON-REPETITIVE PEAK FORWARD SURGE CURRENT

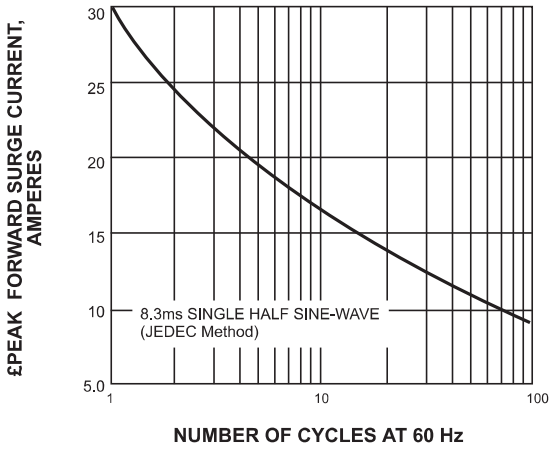


FIG. 3-TYPICAL INSTANTANEOUS FORWARD CHARACTERISTICS

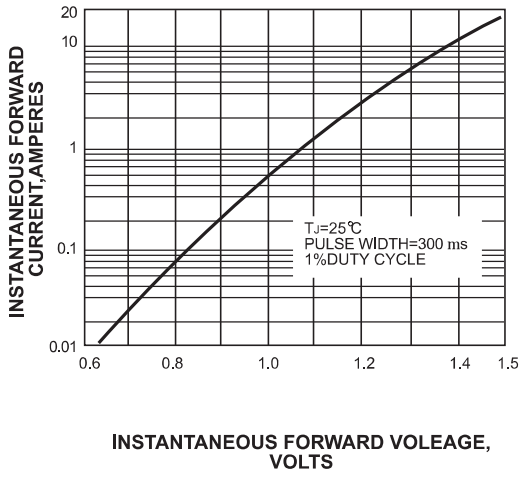


FIG. 4-TYPICAL REVERSE CHARACTERISTICS

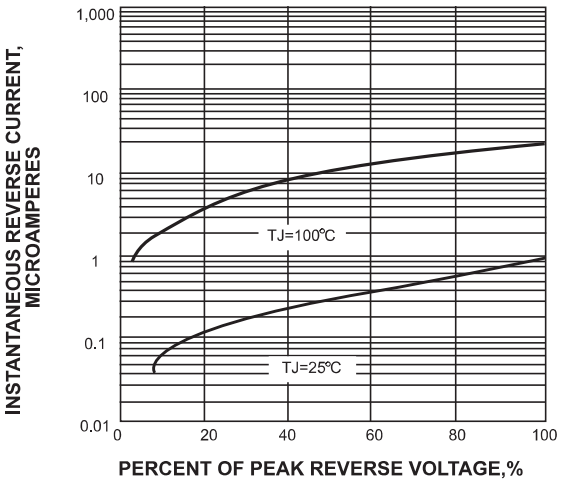


FIG. 5-TYPICAL JUNCTION CAPACITANCE

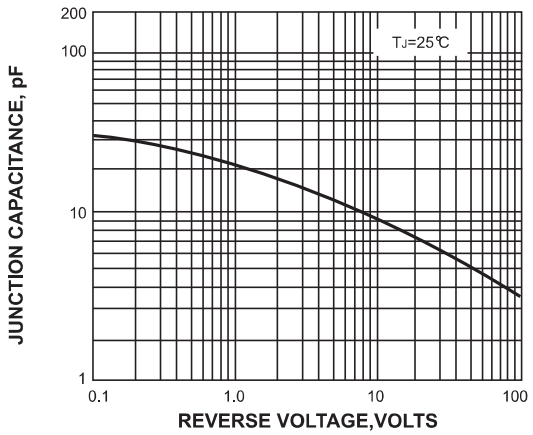
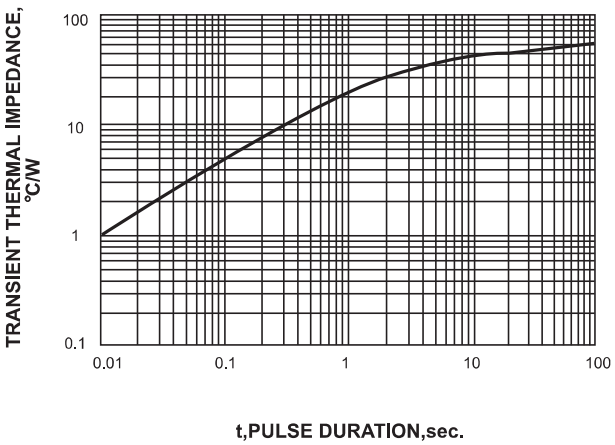


FIG. 6-TYPICAL TRANSIENT THERMAL IMPEDANCE



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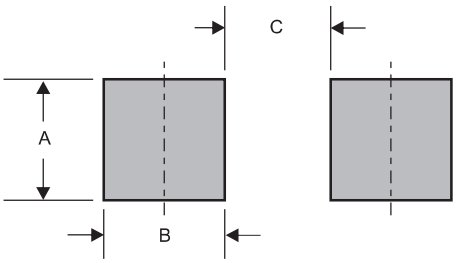
Pinning information

Pin	Simplified outline	Symbol
Pin1 cathode Pin2 anode		

Marking

Type number	Marking code	Example
RS1A RS1B RS1D RS1G RS1J RS1K RS1M	RS1A RS1B RS1D RS1G RS1J RS1K RS1M	For Halogen Device  Marking code

Suggested solder pad layout

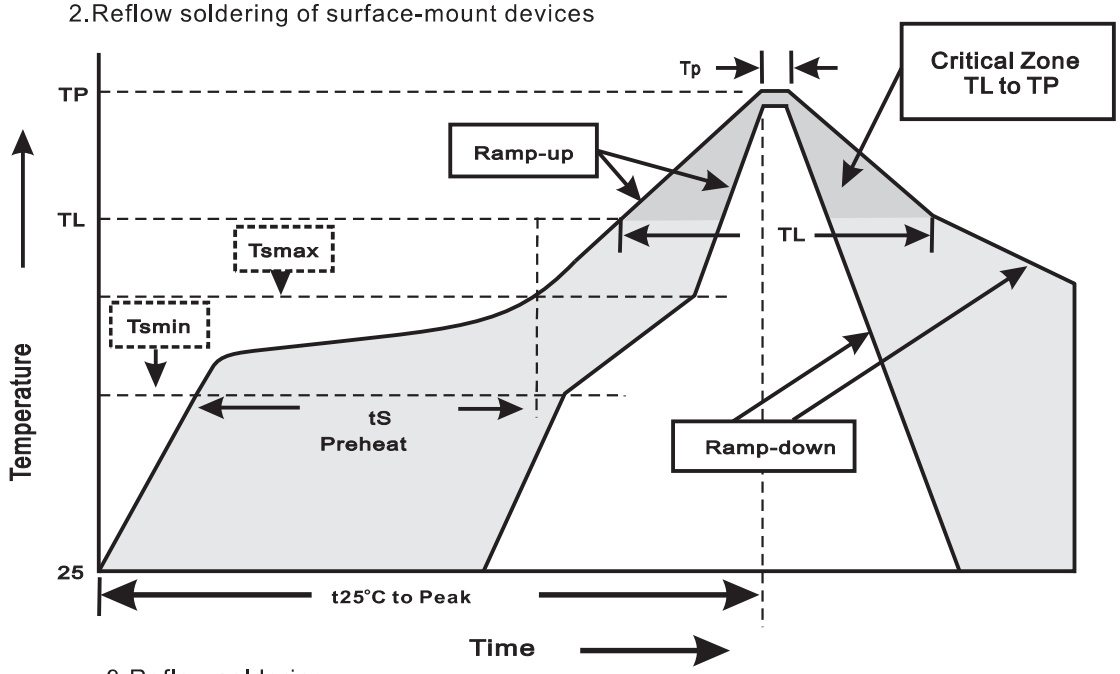


Dimensions in inches and (millimeters)

PACKAGE	A	B	C
SMA	0.110 (2.80)	0.063 (1.60)	0.087 (2.20)

Suggested thermal profiles for soldering processes

1.Storage environment: Temperature=5°C~40°C Humidity=55%±25%
2.Reflow soldering of surface-mount devices



3.Reflow soldering

Profile Feature	Soldering Condition
Average ramp-up rate(T_L to T_P)	<3°C/sec
Preheat -Temperature Min(Tsmin) -Temperature Max(Tsmax) -Time(min to max)(t_s)	 150°C 200°C 60~120sec
Tsmax to T_L -Ramp-upRate	 <3°C/sec
Time maintained above: -Temperature(T_L) -Time(t_L)	 217°C 60~260sec
Peak Temperature(T_P)	255°C-0/+5°C
Time within 5°C of actual Peak Temperature(t_P)	10~30sec
Ramp-down Rate	<6°C/sec
Time 25°C to Peak Temperature	<6minutes

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