SEMIWARE®

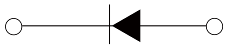
RS3AF-RS3MF

Ultra-Fast Recovery Rectifier Diode

FEATURES

- Idea for printed circuit board
- Glass passivated Junction chip
- Low reverse leakage
- High forward surge current capability

SMAF



Schematic Symbol

MECHANICAL DATA

- Case : Molded plastic body
- Polarity : Polarity symbol marking on body
- Mounting Position : Any

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

MAXIMUM RATINGS AND CHARACTERISTICS (T_A=25°C)

Parameter		Symbol	RS3AF	RS3BF	RS3DF	RS3GF	RS3JF	RS3KF	RS3MF	Unit
Marking			RS3AF	RS3BF	RS3DF	RS3GF	RS3JF	RS3KF	RS3MF	
Maximum repetitive peak reverse voltage		V_{RRM}	50	100	200	400	600	800	1000	V
Maximum RMS voltage		V_{RMS}	35	70	140	280	420	560	700	
Maximum DC blocking voltage		V_{DC}	50	100	200	400	600	800	1000	
Maximum average forward rectified current at T_L=100°C		$I_{F(AV)}$	3.0							A
Surge peak forward current,8.3ms single half sine-wave superimposed on rated load per diode		I_{FSM}	100.0							
Maximum instantaneous forward voltage at 3.0A		V_F	1.30							V
Maximum DC reverse current at rated DC blocking voltage	T_A=25°C	I_R	5.0							µA
	T_A=125°C		500							
Maxinum reverse recovery time(Note 1)		T_{rr}	150				250	500		ns
Typical junction capacitance (Note2)		C_J	54.0							pF
Typical thermal resistance		$R_{\theta JA}$	70.0							°C/W
Operating junction and storage temperature range		T_J,T_{STG}	-55 to +150							°C

Note :

1.Reverse recovery time test condition: I_F=0.5A I_R=1.0A I_{RR}=0.25A
2.Measured at 1MHz and applied reverse voltage of 4.0V D.C.

CHARACTERISTIC CURVES

Fig. 1- Derating Curve Output Rectified Current

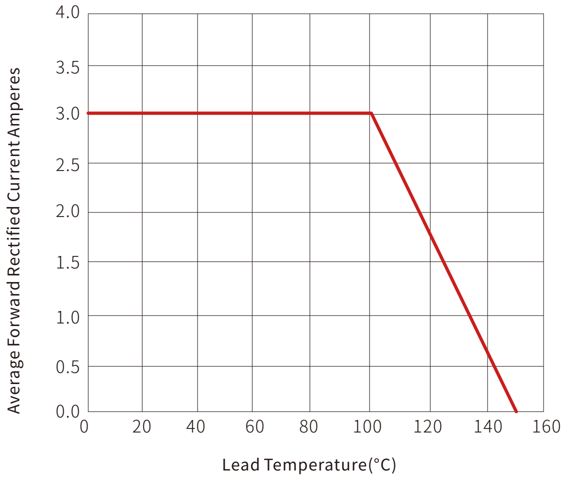


Fig. 2-Maximum Non-Repetitive Peak Forward Surge Current Perleg

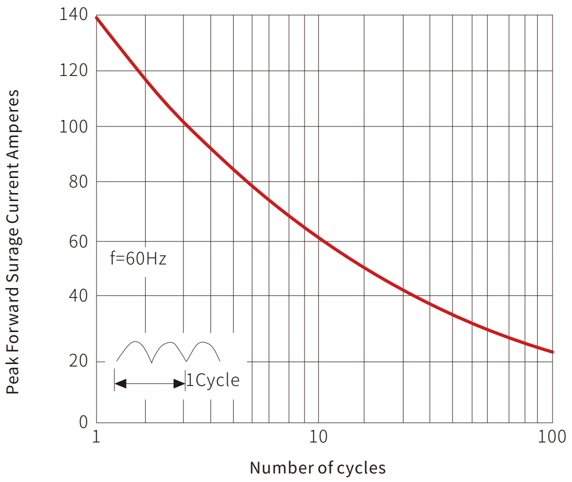


Fig. 3-Typical Forward Voltage Characteristics

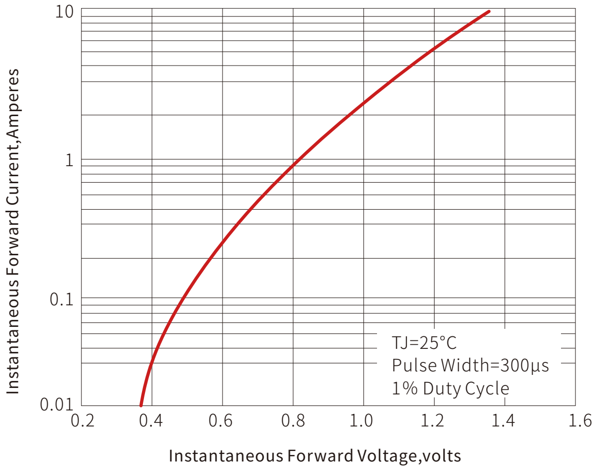
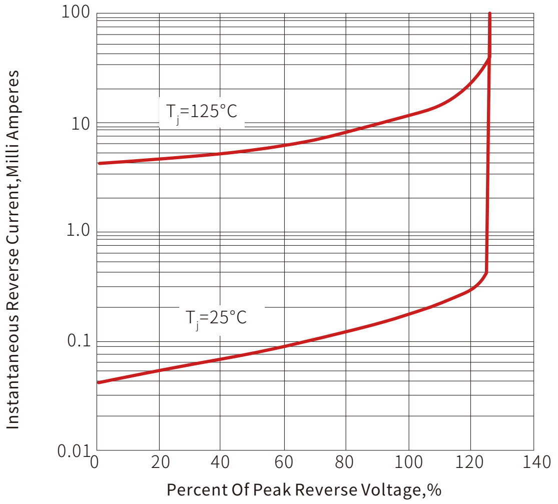
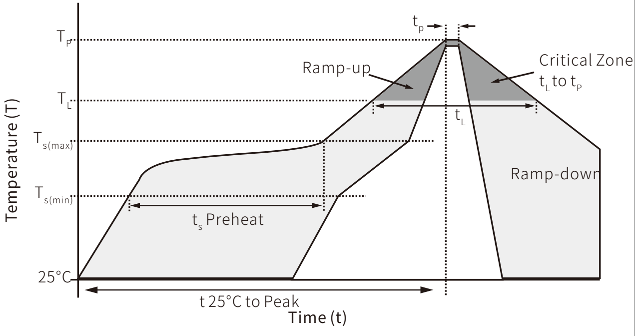


Fig. 4-Typical Reverse Leakage Characteristics

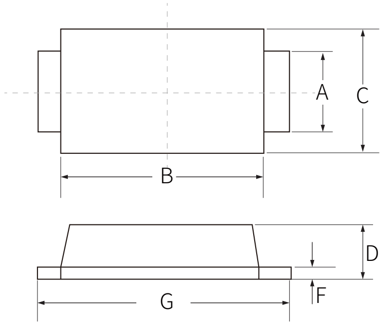


SOLDERING PARAMETERS

Reflow Condition		Lead–free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus 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) (Liquidus)	217°C
	Time (min to max) (t_L)	60 – 150 seconds
Peak Temperature (T_P)		260°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

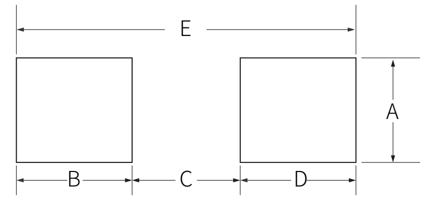


SMAF PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min	Max	Min	Max
A	1.35	1.60	0.053	0.063
B	3.40	3.80	0.134	0.145
C	2.40	2.80	0.094	0.110
D	0.95	1.45	0.037	0.057
F	0.15	0.22	0.006	0.009
G	4.40	4.80	0.173	0.189

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min	Max	Min	Max
A	1.70	-	0.067	-
B	2.50	-	0.098	-
C	-	1.5	-	0.059
D	2.50	-	0.098	-
E	6.50REF		0.256REF	

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
RS3AF-RS3MF	SMAF	3000PCS	7"

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