

## SMAF Plastic-Encapsulate Diodes

### US1AF THRU US1MF High Efficient Rectifier Diodes

#### Features

- $I_{F(AV)}$  1A
- $V_{RRM}$  50V-1000V
- High surge current capability
- Polarity: Color band denotes cathode

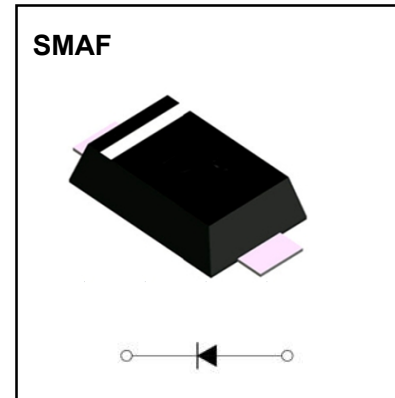
#### Applications

- Rectifier

#### Marking

- US1X

X : From A To M



#### Limiting Values(Absolute Maximum Rating)

Item	Symbol	Unit	Test Conditions	US1						
				AF	BF	DF	GF	JF	KF	MF
Repetitive Peak Reverse Voltage	$V_{RRM}$	V		50	100	200	400	600	800	1000
Maximum RMS Voltage	$V_{RMS}$	V		35	70	140	280	420	560	700
Average Forward Current	$I_{F(AV)}$	A	60Hz Half-sine wave, Resistance load	1.0						
Surge(Non-repetitive)Forward Current	$I_{FSM}$	A	60Hz Half-sine wave, 1 cycle, $T_a=25^\circ\text{C}$	30						
Operation Junction and Storage Temperature Range	$T_J, T_{STG}$	$^\circ\text{C}$		-55 ~ +150						

#### Electrical Characteristics (T=25°C Unless otherwise specified)

Item	Symbol	Unit	Test Condition	US1						
				AF	BF	DF	GF	JF	KF	MF
Peak Forward Voltage	$V_F$	V	$I_F=1.0\text{A}$	1.0			1.3	1.7		
Maximum reverse recovery time	$t_{rr}$	ns	$I_F=0.5\text{A}, I_R=1.0\text{A}, I_{rr}=0.25\text{A}$	50				75		
Peak Reverse Current	$I_{RRM1}$	$\mu\text{A}$	$V_{RM}=V_{RRM}$	$T_a=25^\circ\text{C}$			5			
	$I_{RRM2}$			$T_a=125^\circ\text{C}$			50			
Thermal Resistance(Typical)	$R_{\theta J-A}$	$^\circ\text{C/W}$	Between junction and ambient		92					
	$R_{\theta J-L}$		Between junction and terminal		10					
Juction Capacitance (Typical)	$C_j$	pF	Measured at 1MHZ and Applied Reverse Voltage of 4.0 V.D.C		14		12	6		

#### Notes:

Thermal resistance from junction to ambient and from junction to lead mounted on FR4 PCB double sided copper mini pad

# Typical Characteristics

FIG.1: FORWARD CURRENT DERATING CURVE

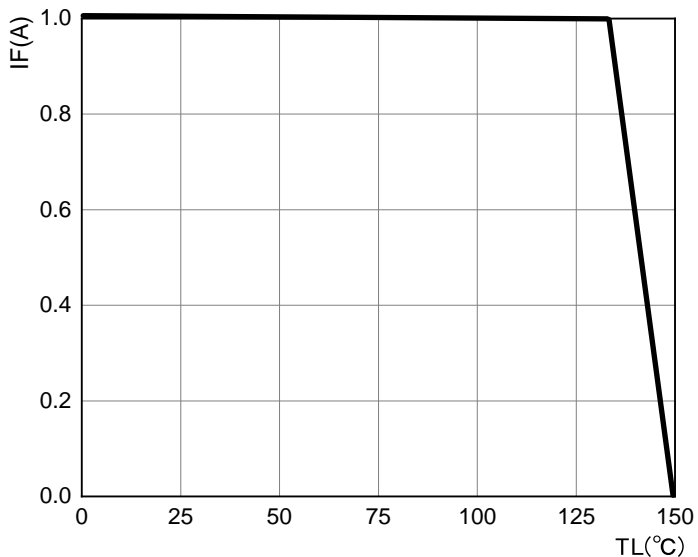
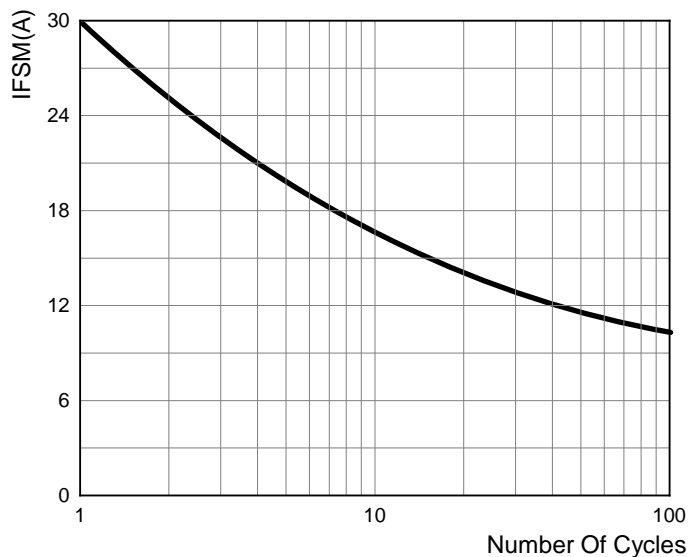
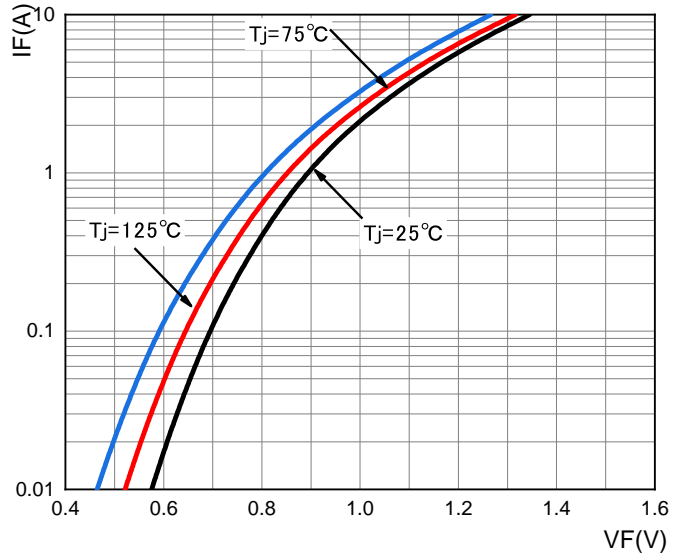


FIG 2: MAXIMUM NON-REPETITIVE FORWARD SURGE CURRENT



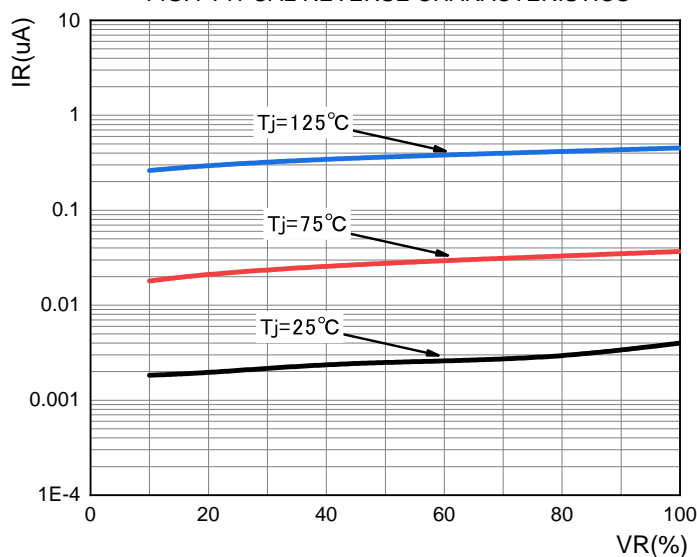
US1AF-US1DF

FIG.3 : TYPICAL FORWARD CHARACTERISTICS



US1AF-US1DF

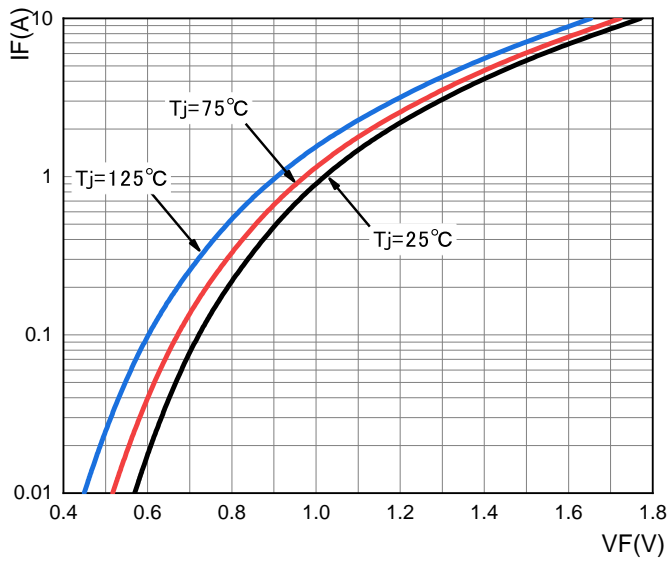
FIG.4 TYPICAL REVERSE CHARACTERISTICS



# Typical Characteristics

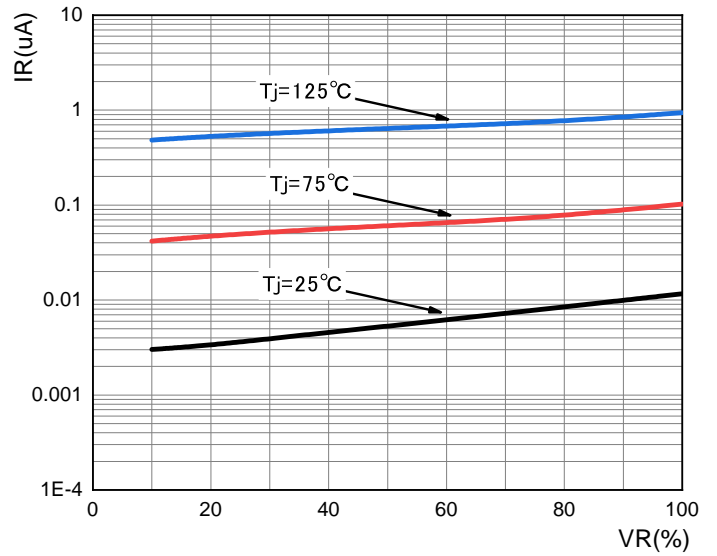
US1GF

FIG.5 : TYPICAL FORWARD CHARACTERISTICS



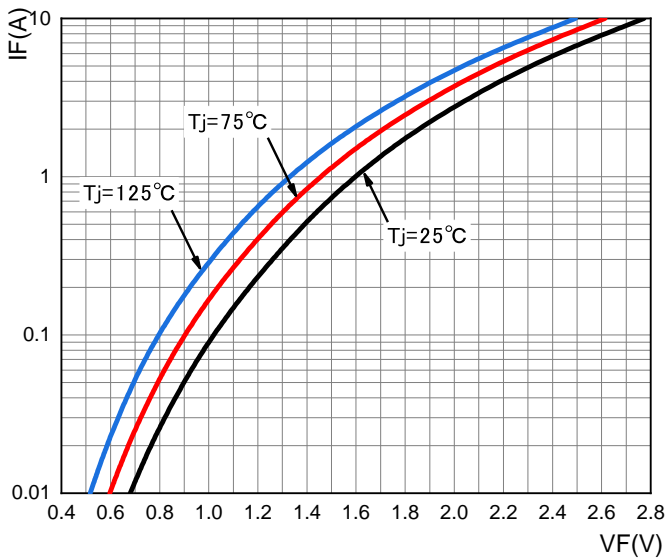
US1GF

FIG.6 TYPICAL REVERSE CHARACTERISTICS



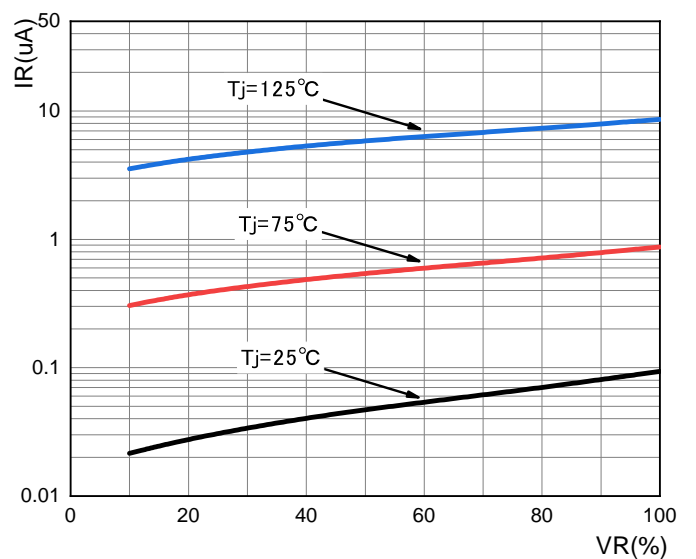
US1JF-US1MF

FIG.7 : TYPICAL FORWARD CHARACTERISTICS

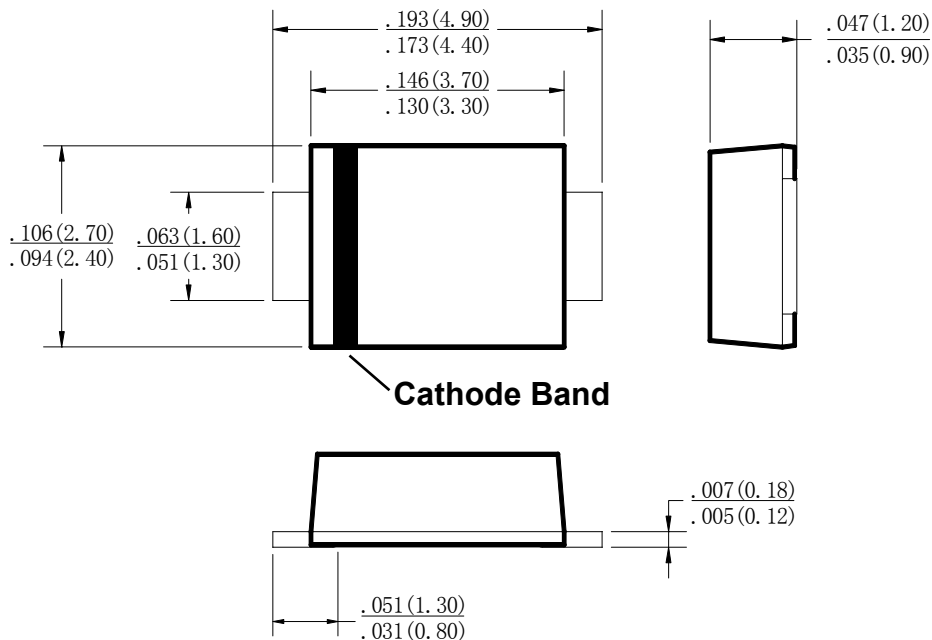


US1JF-US1MF

FIG.8 TYPICAL REVERSE CHARACTERISTICS



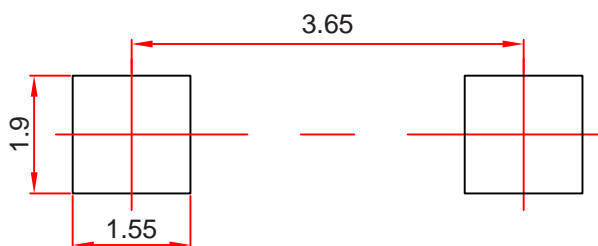
## SMAF Package Outline Dimensions



Cathode Band

Dimensions in inches and (millimeters)

## SMAF Suggested Pad Layout



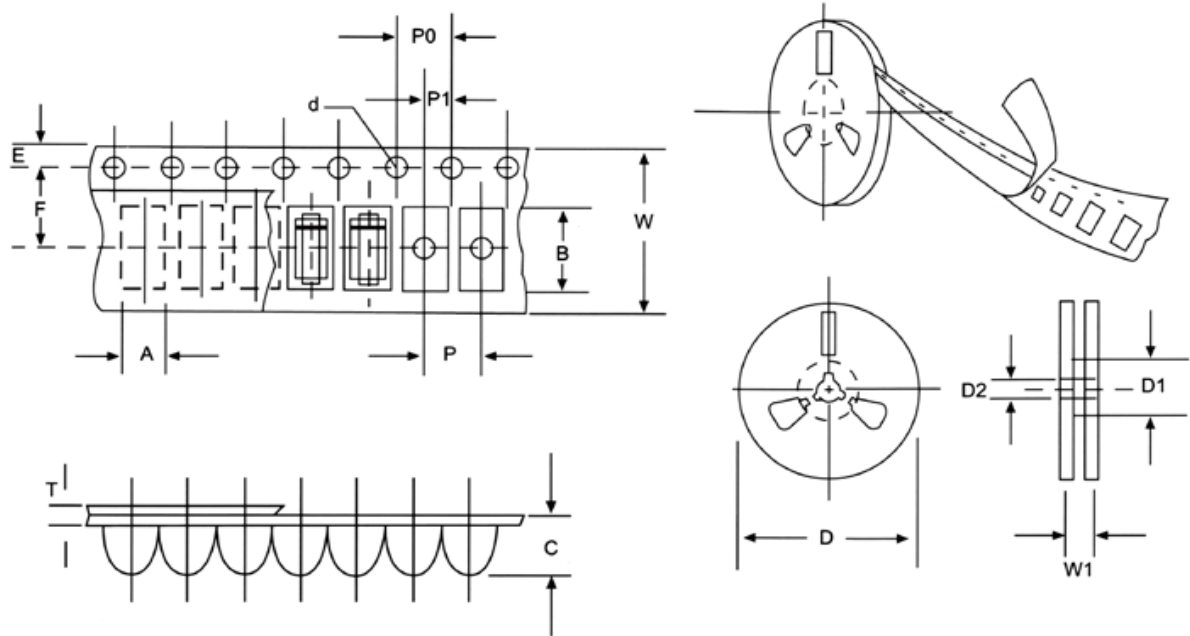
### Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05$ mm.
3. The pad layout is for reference purposes only.

### NOTICE

JSCJ reserves the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. JSCJ does not assume any liability arising out of the application or use of any product described herein.

## Reel Taping Specifications For Surface Mount Devices- SMAF



**FIG: CONFIGURATION OF SURFACE MOUNTED DEVICES TAPING**

ITEM	SYMBOL	SMAF mm(inch)
Carrier width	A	2.83±0.1(0.112±0.004)
Carrier length	B	4.90±0.1(0.193±0.004)
Carrier depth	C	1.45±0.1(0.057±0.004)
Sprocket hole	d	1.55±0.05(0.061±0.002)
Reel outside diameter	D	178±2.0(7.0±0.079)
Reel inner diameter	D1	54±1.0(2.13±0.039)
Feed hole diameter	D2	13±0.5(0.512±0.020)
Sprocket hole position	E	1.75±0.1(0.069±0.004)
Punch hole position	F	5.5±0.05(0.217±0.002)
Punch hole pitch	P	4.0±0.1(0.157±0.004)
Sprocket hole pitch	P0	4.0±0.1(0.157±0.004)
Embossment center	P1	2.0±0.1(0.079±0.004)
Total tape thickness	T	0.23-0.29(0.009-0.011)
Tape width	W	12.0±0.1(0.472±0.004)
Reel width	W1	16.8±2.0(0.661±0.079)

NOTE: Devices are packed in accordance with EIA standard RS-481-A and specification given above.