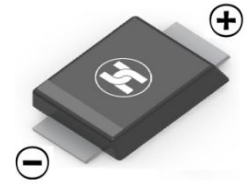


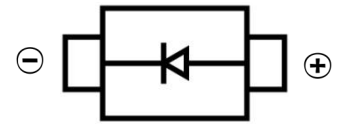
## ULTRA FAST RECOVERY RECTIFIER DIODE

### FEATURES

- Surface Mount device
- Low Reverse voltage leakage current
- Glass passivated junction
- High forward surge current capability
- Low forward voltage drop
- Ultra Fast Recovery Time for High Efficiency



SMBF



### MECHANICAL DATA

- Case: SMBF
- Case Material: Molded Plastic. UL flammability
- Classification Rating: 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020
- Weight: 0.057 grams (approximate)

### MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25 °C ambient temperature unless otherwise specified. Single phase, half wave, 60 Hz, resistive or inductive load. For capacitive load, derate current by 20%.

Parameter	Symbol	US1ABF	US1BBF	US1DBF	US1GBF	US1JBF	US1KBF	US1MBF	Unit	
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	V	
Maximum DC Blocking Voltage	$V_{DC}$	50	100	200	400	600	800	1000	V	
Maximum Average Forward Rectified Current at $T_A=75\text{ }^\circ\text{C}$	$I_{F(AV)}$	2.0							A	
Peak Forward Surge Current 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC)	$I_{FSM}$	50.0							A	
Maximum Instantaneous Forward Voltage at 2 A	$V_F$	1.0		1.4		1.7			V	
Maximum DC Reverse Current at Rated DC Blocking Voltage	$I_R$	$T_A=25\text{ }^\circ\text{C}$							5.0	$\mu\text{A}$
		$T_A=100\text{ }^\circ\text{C}$							50.0	
Maximum reverse recovery time (NOTE1)	$t_{rr}$	50				75				nS
Typical Junction Capacitance (NOTE2)	$C_J$	60.0							pF	
Maximum Thermal Resistance (NOTE3)	$R_{\theta JL}$	50.0							$^\circ\text{C/W}$	
Operating and Storage Temperature Range	$T_{J, TS}$	-50 to + 150							$^\circ\text{C}$	

Note: 1.Reverse recovery condition  $I_F=0.5A, I_R=1.0A, I_{rr}=0.25A$

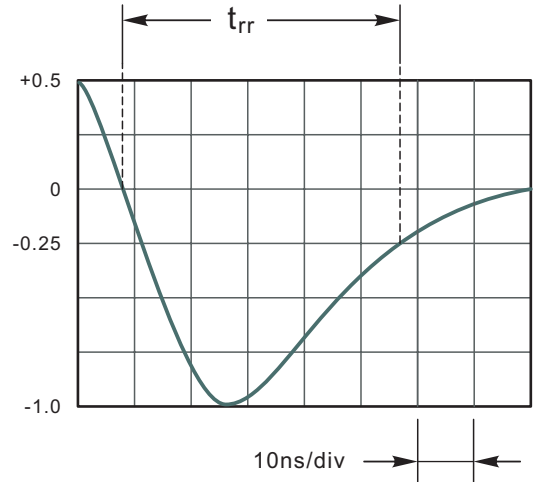
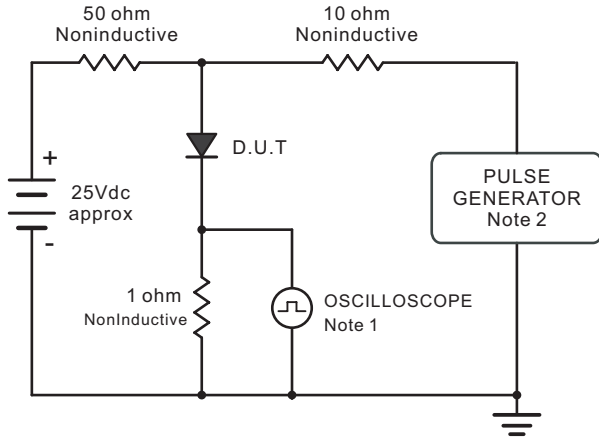
2.Measured at 1MHz and applied reverse voltage of 4.0V D.C.

3.P.C.B. mounted with 0.2x0.2"(5.0x5.0mm) copper pad areas

**ULTRA FAST RECOVERY RECTIFIER DIODE**

**Typical Characteristics**

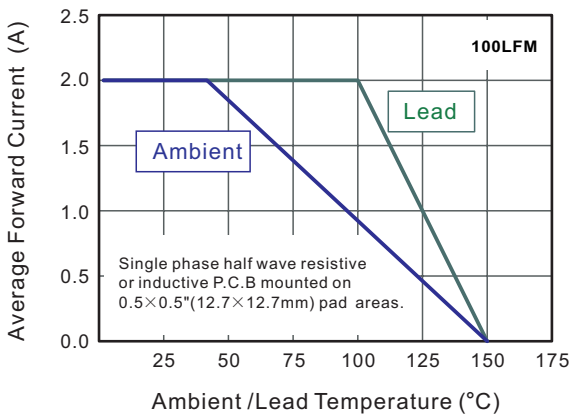
**Fig.1 Reverse Recovery Time Characteristic And Test Circuit Diagram**



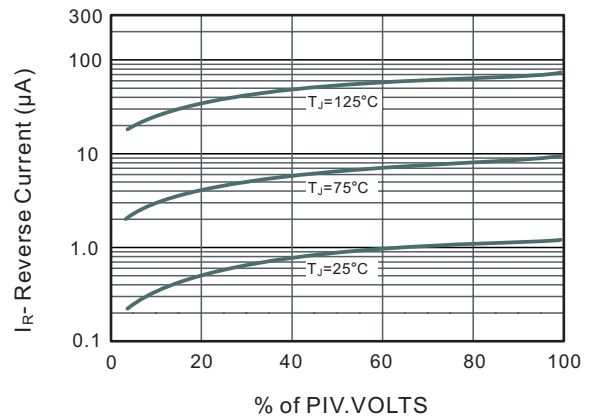
Note: 1. Rise Time = 7ns, max.  
Input Impedance = 1megohm, 22pF.  
2. Rises Time = 10ns, max.  
Source Impedance = 50 ohms.

Set time Base for 10ns/div

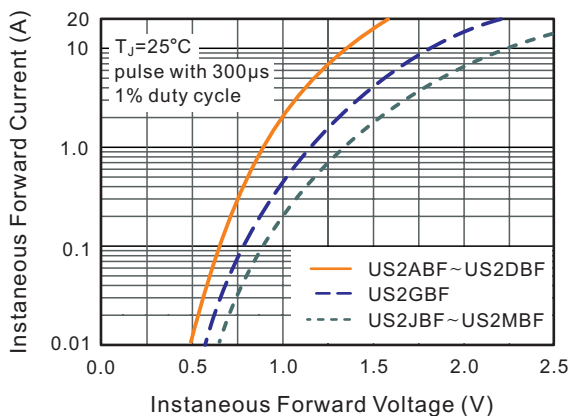
**Fig.2 Maximum Average Forward Current Rating**



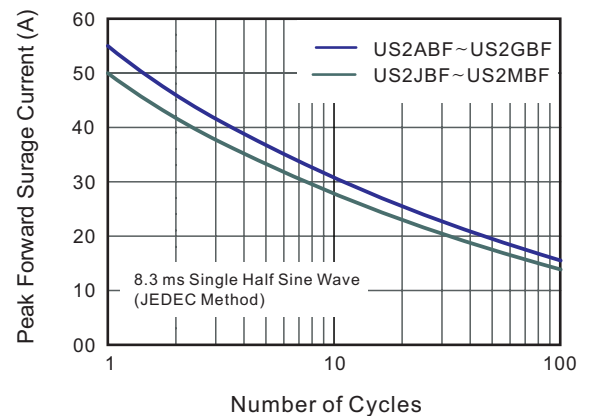
**Fig.3 Typical Reverse Characteristics**

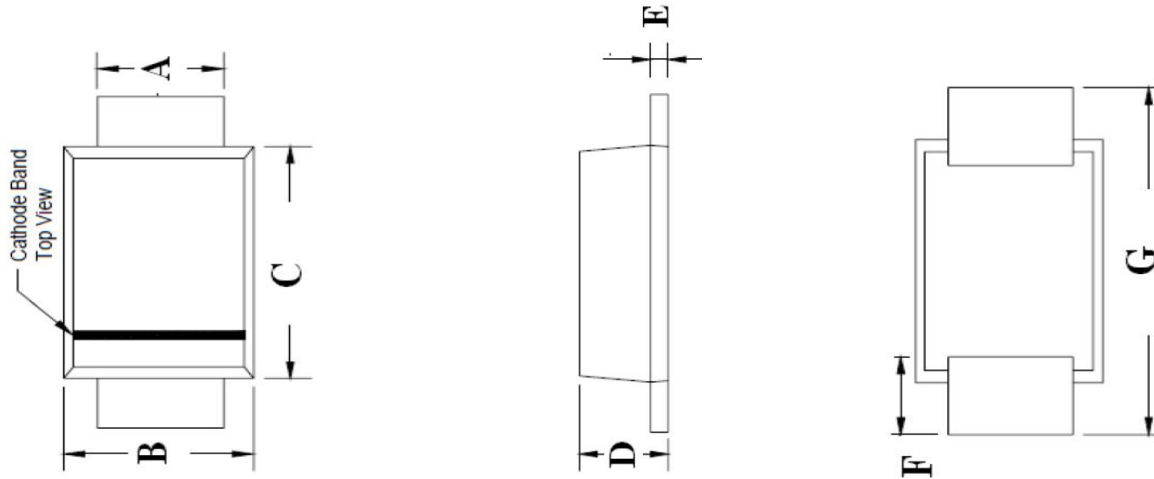


**Fig.3 Typical Instaneous Forward Characteristics**

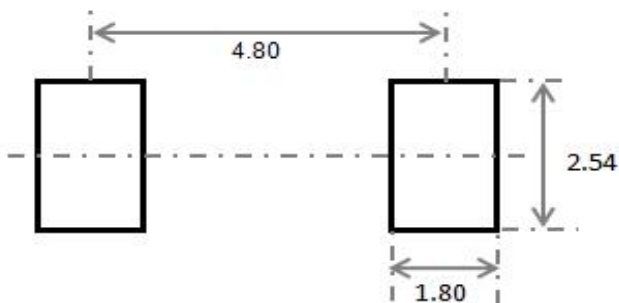


**Fig.4 Maximum Non-Repetitive Peak Forward Surge Current**

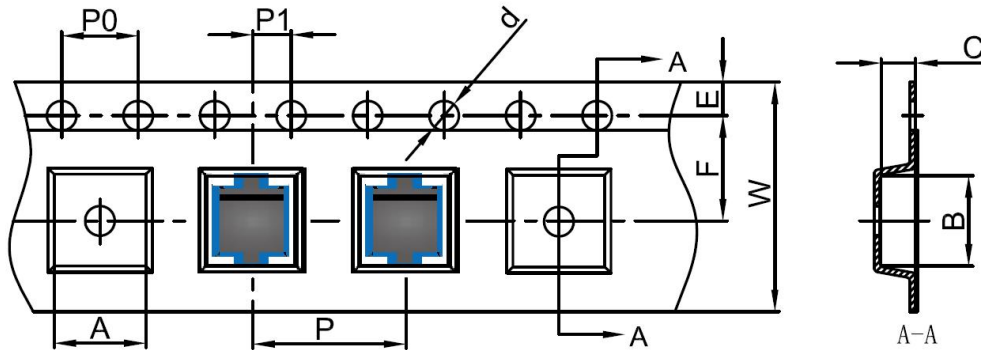


**ULTRA FAST RECOVERY RECTIFIER DIODE**
**SMBF Package Outline Dimensions**


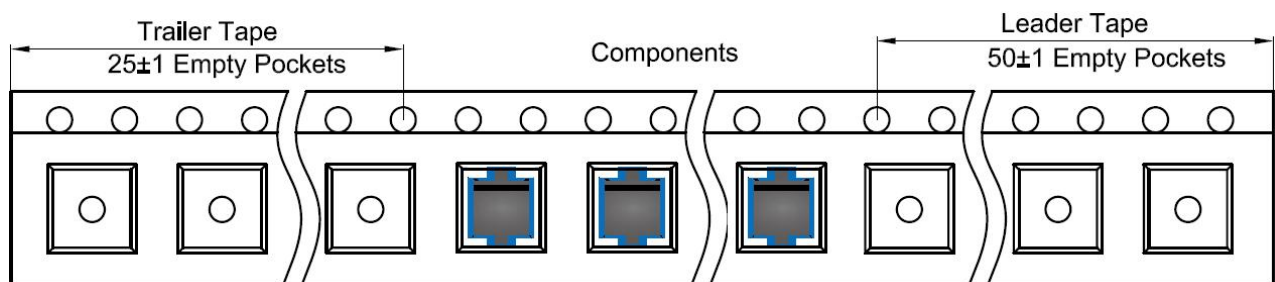
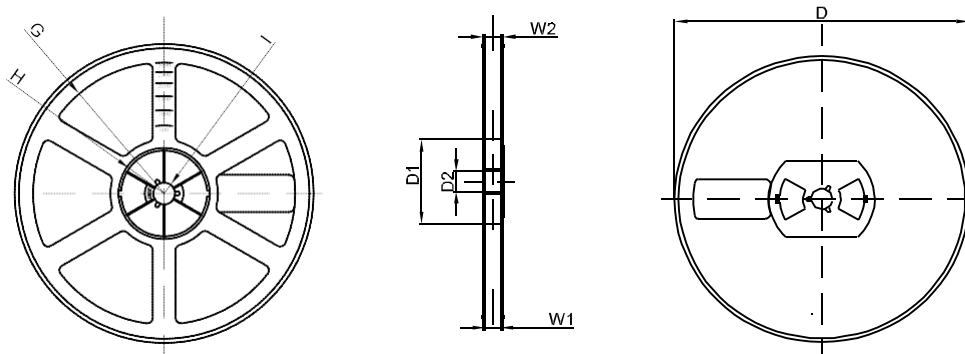
Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.90	2.20	0.075	0.086
B	3.50	3.70	0.094	0.110
C	4.20	4.40	0.165	0.173
D	1.10	1.40	0.043	0.055
E	0.15	0.25	0.006	0.010
F	0.95	1.05	0.038	0.041
G	5.10	5.50	0.200	0.216

**SMBF Suggested Pad Layout**

**Note:**

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

**ULTRA FAST RECOVERY RECTIFIER DIODE**
**SMBF Tape and Reel**
**SMBF Embossed Carrier Tape**


DIMENSIONS ARE IN MILLIMETER										
TYPE	A	B	C	d	E	F	P0	P	P1	W
SMBF	3.80	5.65	1.48	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00
TOLERANCE	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1	±0.1

**SMBF Tape Leader and Trailer**

**SMBF Reel**


DIMENSIONS ARE IN MILLIMETER								
REEL OPTION	D	D1	D2	G	H	I	W1	W2
13" DIA	Ø330	75.0	13.00	R165	R37.50	R6.50	12.40	17.60
TOLERANCE	±2	±1	±1	±1	±1	±1	±1	±1