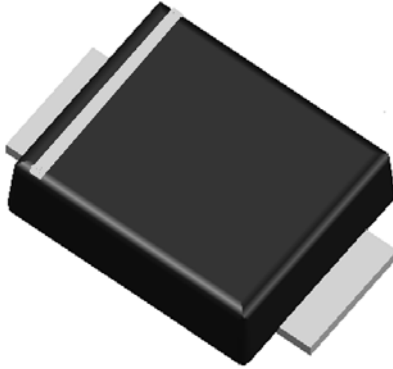


## Surface Mount Super Fast Recovery Rectifier

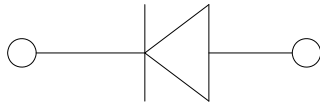


### Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Super Fast reverse recovery time
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C

### Typical Applications

For use in high frequency rectification of power supplies, inverters, converters, and freewheeling diodes for consumer, and telecommunication.



### Mechanical Data

- **Package:** SMBF  
Molding compound meets UL 94 V-0 flammability rating, RoHS-compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** Cathode line denotes the cathode end

### ■ Maximum Ratings (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	MURS220BF	MURS240BF	MURS260BF
Device marking code			MURS220BF	MURS240BF	MURS260BF
Maximum Repetitive Peak Reverse Voltage	VRRM	V	200	400	600
Maximum RMS Voltage	VRMS	V	140	280	420
Maximum DC blocking Voltage	VDC	V	200	400	600
Average rectified output current @60Hz sine wave, resistance load, TL (Fig.1)	I <sub>O</sub>	A	2.0		
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave, 1 cycle, T <sub>j</sub> =25°C	I <sub>FSM</sub>	A	50		
Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, T <sub>j</sub> =25°C			100		
Current squared time @1ms≤t≤8.3ms T <sub>j</sub> =25°C, Rating of per diode	I <sup>2</sup> t	A <sup>2</sup> s	10.375		
Typical junction capacitance @Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C	C <sub>j</sub>	pF	25	25	24
Storage temperature	T <sub>stg</sub>	°C	-55 ~ +150		
Junction temperature	T <sub>j</sub>	°C	-55 ~ +150		



# MURS220BF THRU MURS260BF

## ■ Electrical Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	MURS220BF	MURS240BF	MURS260BF
Maximum instantaneous forward voltage drop per diode	V <sub>F</sub>	V	I <sub>FM</sub> =2.0A	0.92	1.25	
Maximum reverse recovery time	t <sub>rr</sub>	ns	I <sub>F</sub> =0.5A, I <sub>R</sub> =1.0A, I <sub>rr</sub> =0.25A	25	50	
Maximum DC reverse current at rated DC blocking voltage per diode	I <sub>R</sub>	μA	T <sub>j</sub> =25°C	5.0		
			T <sub>j</sub> =125°C	50		

## ■ Dynamic Characteristics

### ◆ MURS220BF

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Min	Typ	Max
Reverse Recovery Time	T <sub>RR</sub>	ns	T <sub>j</sub> =25°C	I <sub>F</sub> =1A, di/dt=-50A/us V <sub>RM</sub> =30V	-	26	-
			T <sub>j</sub> =25°C	I <sub>F</sub> =2A di/dt=-200A/us V <sub>RM</sub> =100V	-	23	-
			T <sub>j</sub> =125°C		-	30	-
Peak recovery current	I <sub>RRM</sub>	A	T <sub>j</sub> =25°C	I <sub>F</sub> =2A di/dt=-200A/us V <sub>RM</sub> =100V	-	3.1	-
			T <sub>j</sub> =125°C		-	5.0	-
Reverse recovery charge	Q <sub>rr</sub>	nC	T <sub>j</sub> =25°C	I <sub>F</sub> =2A di/dt=-200A/us V <sub>RM</sub> =100V	-	35.4	-
			T <sub>j</sub> =125°C		-	73.8	-
Non-repetitive avalanche energy	E <sub>AS</sub>	mJ	T <sub>j</sub> =25°C	I <sub>R</sub> =1.8 A, L=15 mH	24.3	-	-

### ◆ MURS240BF

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Min	Typ	Max
Reverse Recovery Time	T <sub>RR</sub>	ns	T <sub>j</sub> =25°C	I <sub>F</sub> =1A, di/dt=-50A/us V <sub>RM</sub> =30V	-	35	-
			T <sub>j</sub> =25°C	I <sub>F</sub> =2A di/dt=-200A/us V <sub>RM</sub> =200V	-	30	-
			T <sub>j</sub> =125°C		-	45	-
Peak recovery current	I <sub>RRM</sub>	A	T <sub>j</sub> =25°C	I <sub>F</sub> =2A di/dt=-200A/us V <sub>RM</sub> =200V	-	3.7	-
			T <sub>j</sub> =125°C		-	5.8	-
Reverse recovery charge	Q <sub>rr</sub>	nC	T <sub>j</sub> =25°C	I <sub>F</sub> =2A di/dt=-200A/us V <sub>RM</sub> =200V	-	55.4	-
			T <sub>j</sub> =125°C		-	130.6	-
Non-repetitive avalanche energy	E <sub>AS</sub>	mJ	T <sub>j</sub> =25°C	I <sub>R</sub> =0.5A, L=15 mH	1.9	-	-

### ◆ MURS260BF

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Min	Typ	Max
Reverse Recovery Time	T <sub>RR</sub>	ns	T <sub>j</sub> =25°C	I <sub>F</sub> =1A, di/dt=-50A/us V <sub>RM</sub> =30V	-	50	-
			T <sub>j</sub> =25°C	I <sub>F</sub> =2A di/dt=-200A/us V <sub>RM</sub> =400V	-	43	-
			T <sub>j</sub> =125°C		-	66	-
Peak recovery current	I <sub>RRM</sub>	A	T <sub>j</sub> =25°C	I <sub>F</sub> =2A di/dt=-200A/us V <sub>RM</sub> =400V	-	5.0	-
			T <sub>j</sub> =125°C		-	7.4	-
Reverse recovery charge	Q <sub>rr</sub>	nC	T <sub>j</sub> =25°C	I <sub>F</sub> =2A di/dt=-200A/us V <sub>RM</sub> =400V	-	105.9	-
			T <sub>j</sub> =125°C		-	243.8	-
Non-repetitive avalanche energy	E <sub>AS</sub>	mJ	T <sub>j</sub> =25°C	I <sub>R</sub> =0.5A, L=15 mH	1.9	-	-



# MURS220BF THRU MURS260BF

## ■ Thermal Characteristics (T<sub>a</sub>=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	MURS220BF	MURS240BF	MURS260BF
Typical Thermal resistance	R <sub>θJ-A</sub> <sup>(1)</sup>	°C/W	60		
	R <sub>θJ-L</sub> <sup>(1)</sup>		20		
	R <sub>θJ-C</sub> <sup>(1)</sup>		15		

Note:  
 (1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.3" x 0.3" (8.0 mm x 8.0 mm) copper pad areas

## ■ Characteristics (Typical)

FIG.1: I<sub>o</sub>-TL Curve

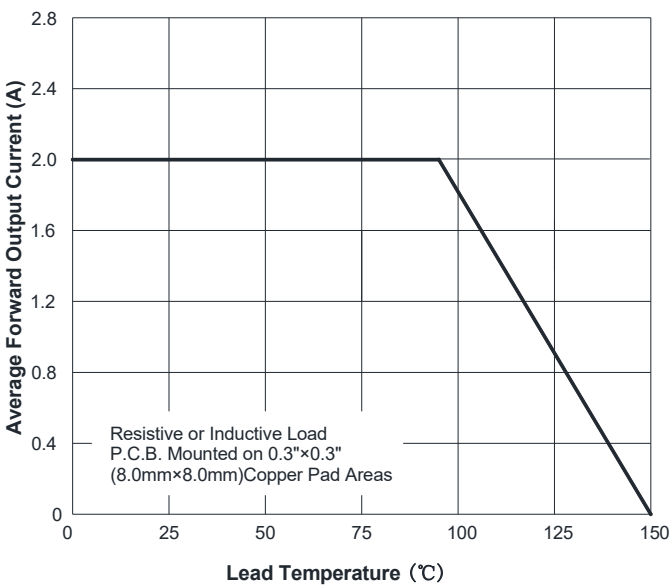


FIG.2: Forward Surge Current Capability

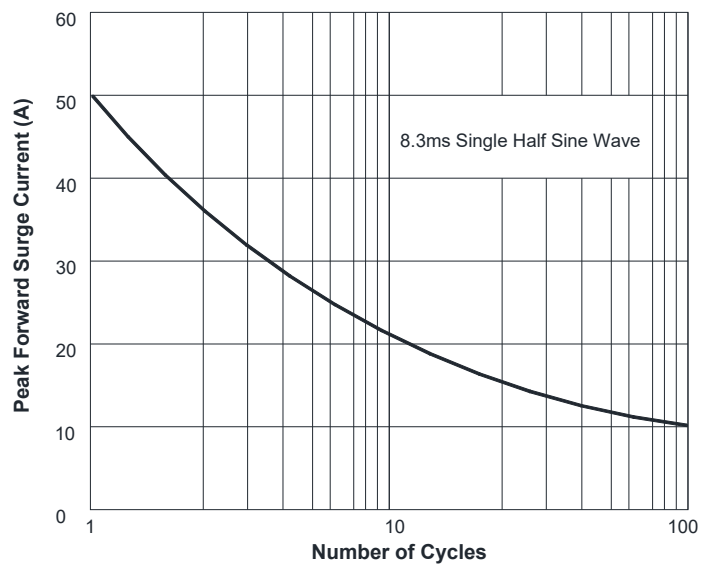


FIG.3: Typical Forward Voltage

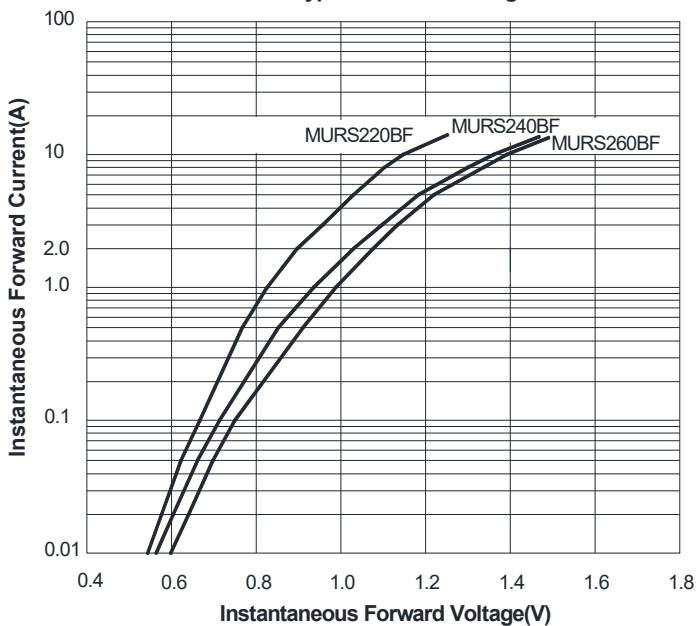
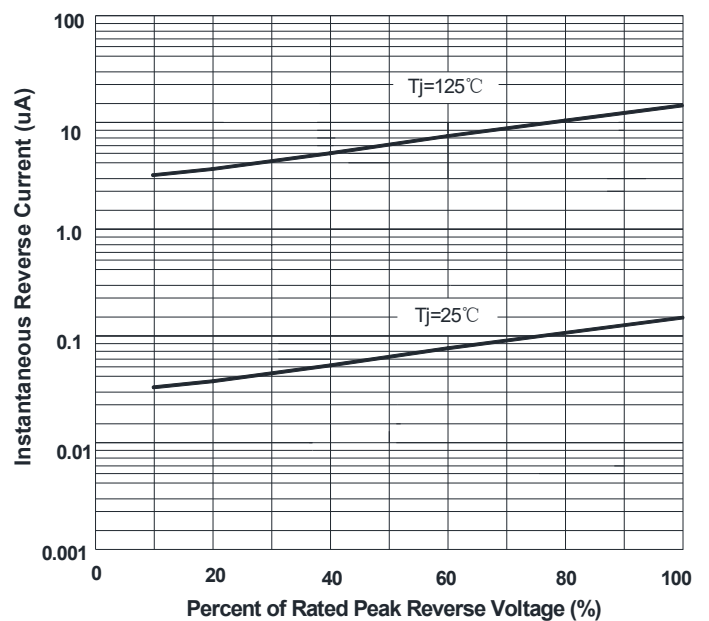


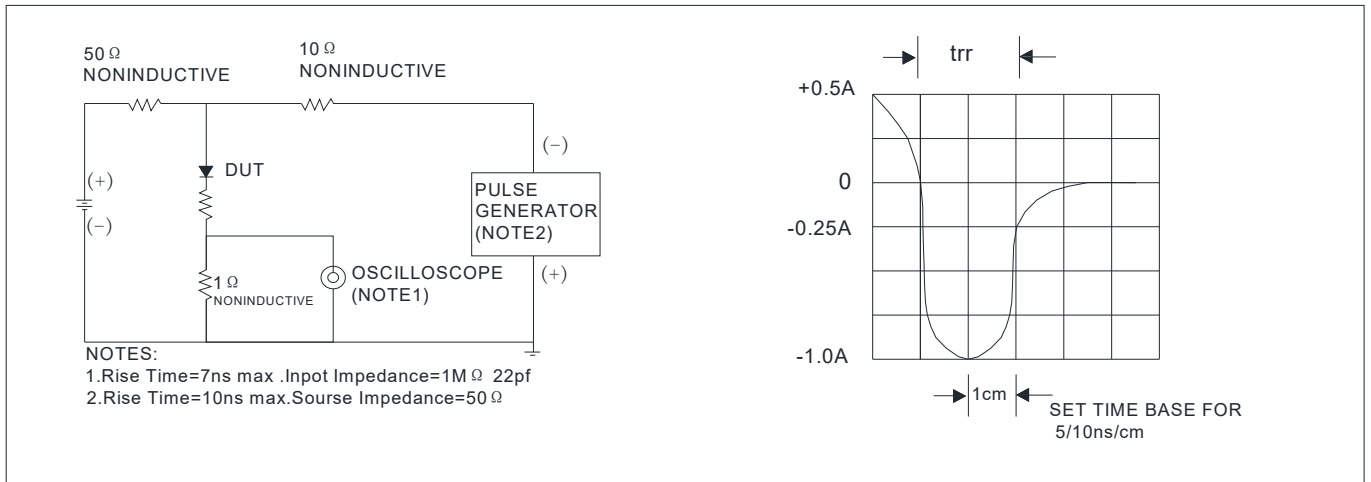
FIG.4: Typical Reverse Characteristics





# MURS220BF THRU MURS260BF

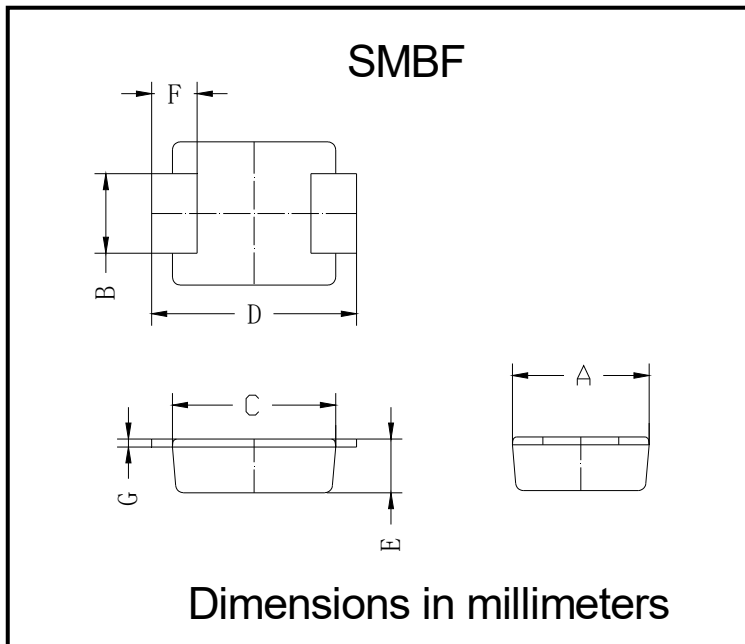
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



## Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MURS220BF - MURS260BF	F1	Approximate 0.065	5000	/	80000	13" reel

## Outline Dimensions

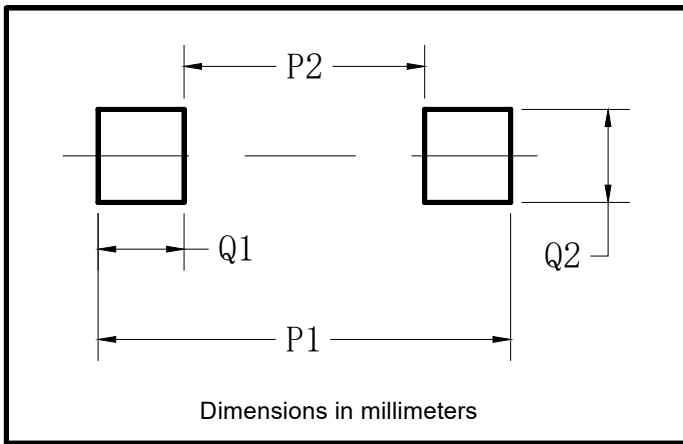


SMBF		
Dim	Min	Max
A	3.40	3.80
B	1.90	2.10
C	4.15	4.45
D	5.10	5.60
E	1.05	1.55
F	0.70	1.35
G	0.15	0.25



# MURS220BF THRU MURS260BF

## ■ Suggested pad layout



Dim	Milimeters
P1	6.20
P2	2.40
Q1	1.90
Q2	2.20



## MURS220BF THRU MURS260BF

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