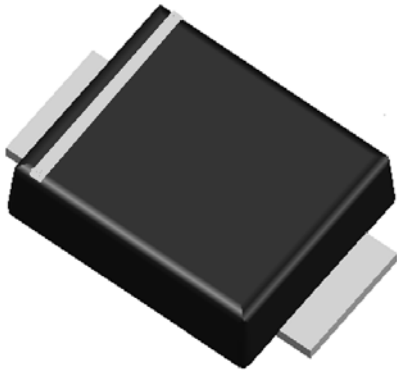


## Surface Mount Super Fast Recovery Rectifier

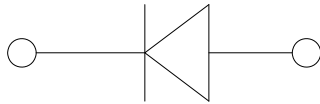


### Features

- 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 ( $T_a=25^\circ\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	UG2ABF	UG2BBF	UG2CBF	UG2DBF	UG2FBF	UG2GBF	UG2HBF	UG2JBF
Device marking code			UG2ABF	UG2BBF	UG2CBF	UG2DBF	UG2FBF	UG2GBF	UG2HBF	UG2JBF
Maximum Repetitive Peak Reverse Voltage	VRRM	V	50	100	150	200	300	400	500	600
Maximum RMS Voltage	VRMS	V	35	70	105	140	210	280	350	420
Maximum DC blocking Voltage	VDC	V	50	100	150	200	300	400	500	600
Average rectified output current @60Hz sine wave, resistance load, TL (Fig.1)	$I_O$	A	2.0							
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave, 1 cycle, $T_j=25^\circ\text{C}$	$I_{FSM}$	A	50							
Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, $T_j=25^\circ\text{C}$			100							
Current squared time @1ms≤t≤8.3ms $T_j=25^\circ\text{C}$	$I^2t$	A <sup>2</sup> s	10.375							
Storage temperature	$T_{stg}$	°C	-55 ~ +150							
Junction temperature	$T_j$	°C	-55 ~ +150							



# UG2ABF THRU UG2JBF

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

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	UG2ABF	UG2BBF	UG2CBF	UG2DBF	UG2FBF	UG2GBF	UG2HBF	UG2JBF
Maximum instantaneous forward voltage	V <sub>F</sub>	V	I <sub>F</sub> =2.0A	0.92			1.25		1.7		
Maximum reverse recovery time	t <sub>rr</sub>	ns	I <sub>F</sub> =0.5A, I <sub>R</sub> =1.0A, I <sub>r</sub> =0.25A	25						35	
Maximum DC reverse current at rated DC blocking voltage	I <sub>R</sub>	μA	T <sub>j</sub> =25°C	5.0							
			T <sub>j</sub> =125°C	50							
Typical junction capacitance	C <sub>j</sub>	pF	Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C	40			26		23		

## ■ Dynamic Characteristics

### ◆ UG2ABF THRU UG2DBF

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		-	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	-	-

### ◆ UG2FBF THRU UG2GBF

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		-	24	-
			T <sub>j</sub> =125°C		-	36	-
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	-	2.7	-
			T <sub>j</sub> =125°C		-	4.5	-
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	-	32.3	-
			T <sub>j</sub> =125°C		-	82.8	-
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	-	-

### ◆ UG2HBF THRU UG2JBF

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	-	40	-
			T <sub>j</sub> =25°C		-	38	-
			T <sub>j</sub> =125°C		-	59	-
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	-	4.2	-
			T <sub>j</sub> =125°C		-	6.5	-
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	-	78.9	-
			T <sub>j</sub> =125°C		-	192.7	-
Non-repetitive avalanche energy	E <sub>AS</sub>	mJ	T <sub>j</sub> =25°C	I <sub>R</sub> =0.7A, L=15 mH	3.7	-	-



# UG2ABF THRU UG2JBF

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

PARAMETER	SYMBOL	UNIT	UG2ABF	UG2BBF	UG2CBF	UG2DBF	UG2FBF	UG2GBF	UG2HBF	UG2JBF
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>-T<sub>L</sub> Curve

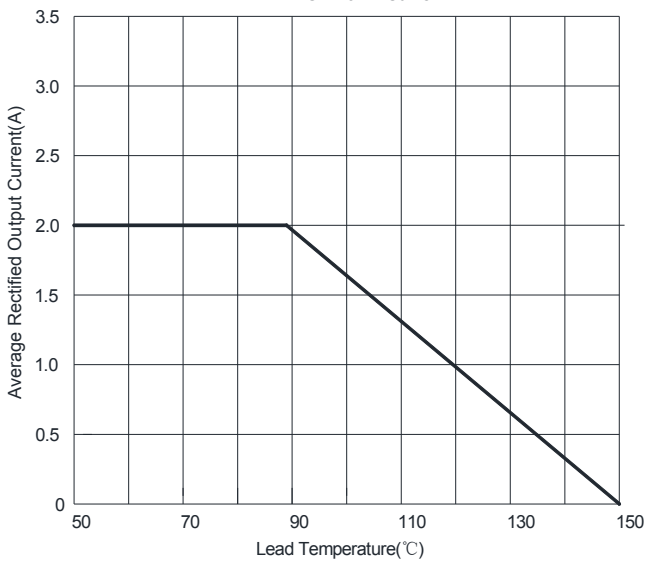


FIG2: Surge Forward Current Capability

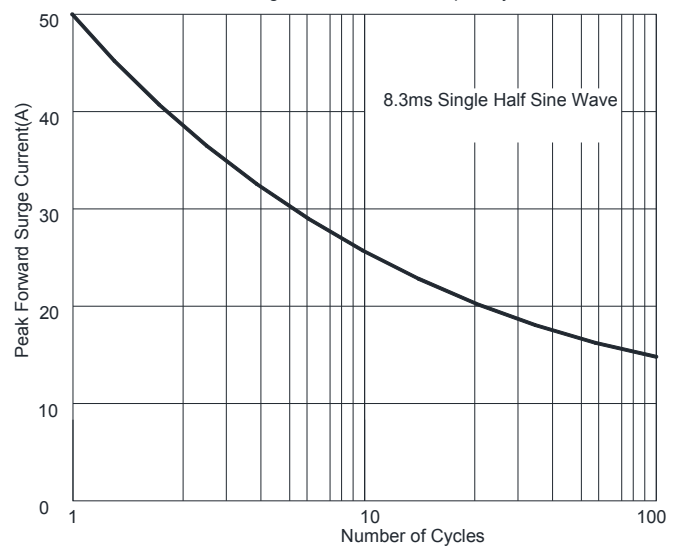


FIG.3: Typical Forward Characteristics

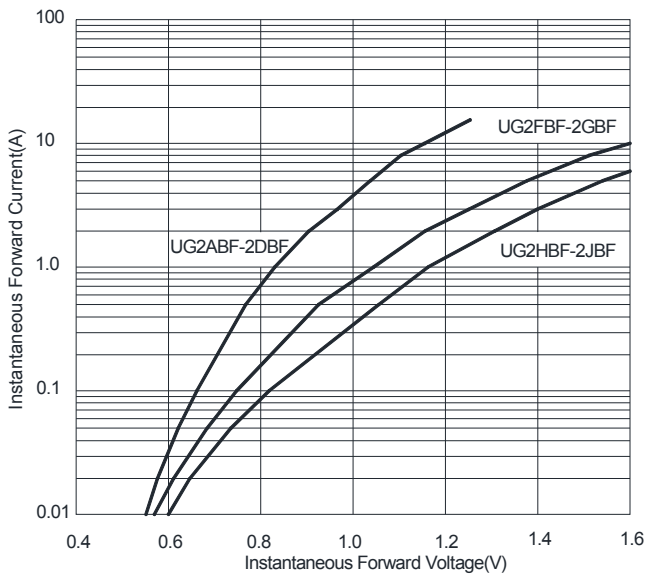


FIG4: Typical Reverse Characteristics

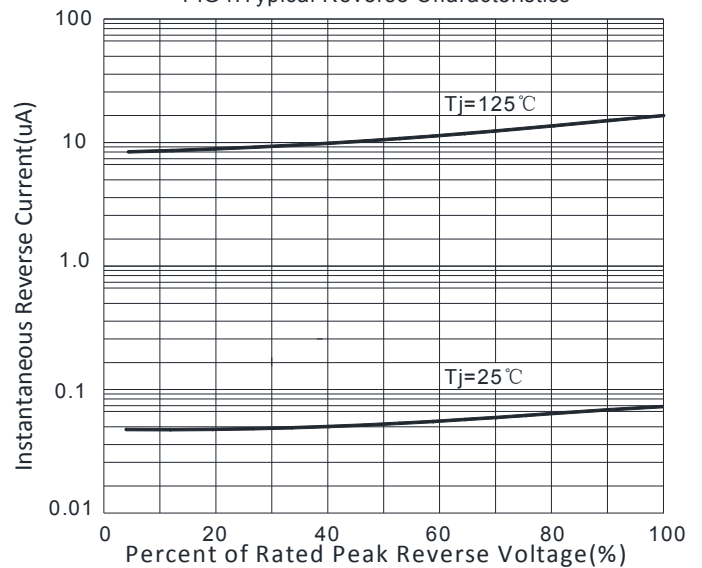
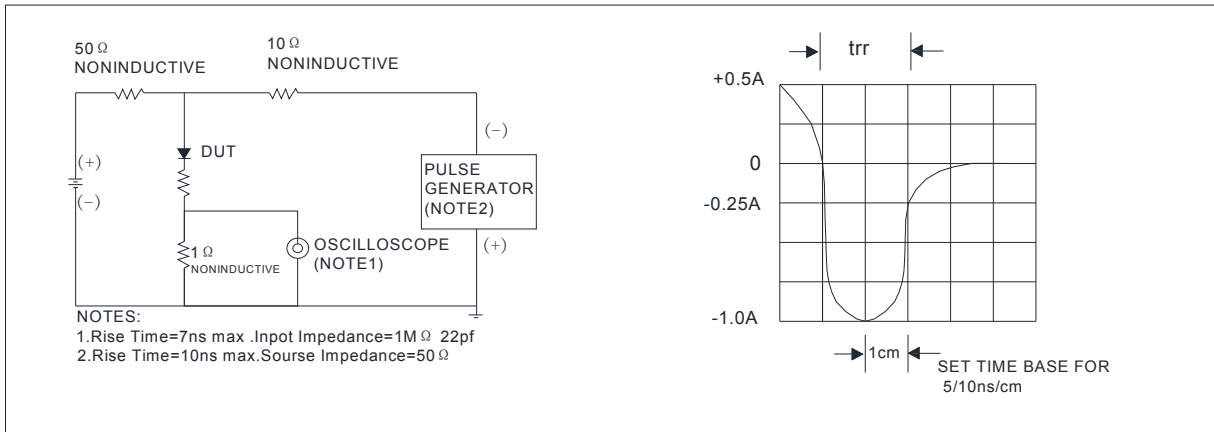


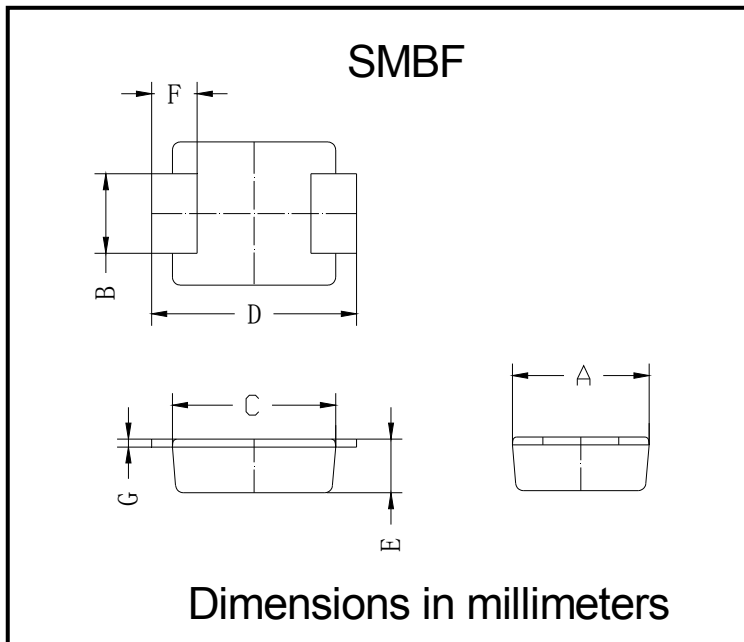
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



## Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
UG2ABF - UG2JBF	F1	Approximate 0.065	5000	/	80000	13" reel

## Outline Dimensions

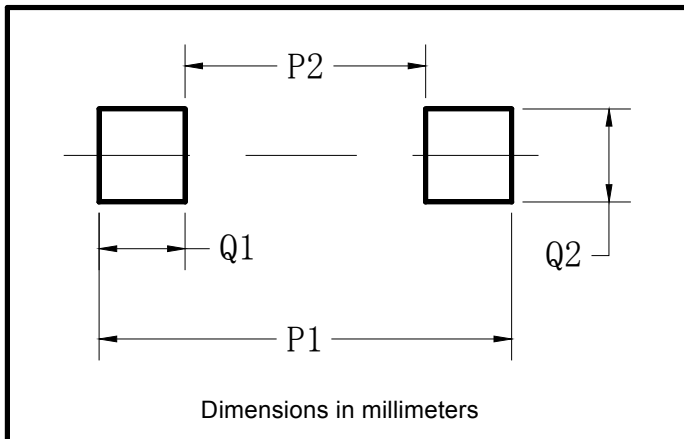


SMBF		
Dim	Min	Max
A	3.40	3.80
B	1.90	2.10
C	4.15	4.45
D	5.10	5.60
E	1.05	1.55
F	0.70	1.35
G	0.15	0.25



## UG2ABF THRU UG2JBF

### ■ Suggested pad layout



Dim	Milimeters
P1	6.20
P2	2.40
Q1	1.90
Q2	2.20



## UG2ABF THRU UG2JBF

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