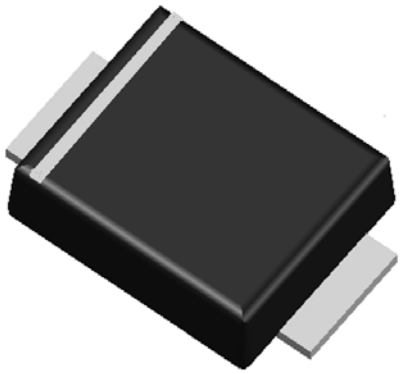
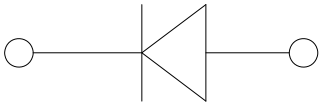
Surface Mount Super Fast Recovery Rectifier





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℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	UG3ABF	UG3BBF	UG3CBF	UG3DBF	UG3FBF	UG3GBF	UG3HBF	UG3JBF
Device marking code			UG3ABF	UG3BBF	UG3CBF	UG3DBF	UG3FBF	UG3GBF	UG3HBF	UG3JBF
Maximum Repetitive Peak Reverse Voltage	V_{RRM}	V	50	100	150	200	300	400	500	600
Maximum RMS Voltage	V_{RMS}	V	35	70	105	140	210	280	350	420
Maximum DC blocking Voltage	V_{DC}	V	50	100	150	200	300	400	500	600
Average rectified output current @60Hz sine wave, resistance load, TL (Fig.1)	I_O	A	3.0							
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave,1 cycle, Tj=25℃	I_{FSM}	A	100							
Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, Tj=25℃			200							
Current squared time @1ms≤t≤8.3ms Tj=25℃	I^2t	A^2s	41.5							
Storage temperature	T_{stg}	℃	-55 ~ +150							
Junction temperature	T_j	℃	-55 ~ +150							

■Electrical Characteristics（T_a=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	UG3ABF	UG3BBF	UG3CBF	UG3DBF	UG3FBF	UG3GBF	UG3HBF	UG3JBF
Maximum instantaneous forward voltage	V_F	V	I_{FM}=3.0A	0.92				1.25		1.7	
Maximum reverse recovery time	t_{rr}	ns	I_F=0.5A,I_R=1.0A, I_{rr}=0.25A	25						35	
Maximum DC reverse current at rated DC blocking voltage	IR	μA	Tj =25℃	5							
			Tj =125℃	50							
Typical junction capacitance	Cj	pF	Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C	65				58		55	

■Dynamic Characteristics

◆ UG3ABF THRU UG3DBF

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Min	Typ	Max
Reverse Recovery Time	T_{RR}	ns	Tj=25℃	I_F=1A，di/dt=-50A/us V_{RM}=30V	-	30	-
			Tj=25℃	I_F=3A di/dt=-200A/us V_{RM}=100V	-	29	-
			Tj=125℃		-	35	-
Peak recovery current	I_{RRM}	A	Tj=25℃		-	3.8	-
			Tj=125℃		-	6.5	-
Reverse recovery charge	Qrr	nC	Tj=25℃		-	39.9	-
			Tj=125℃		-	113.2	-
Non-repetitive avalanche energy	E_{AS}	mJ	Tj=25℃	I_R=3.6 A，L=15 mH	116.6	-	-

◆ UG3FBF THRU UG3GBF

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Min	Typ	Max
Reverse Recovery Time	T_{RR}	ns	Tj=25℃	I_F=1A，di/dt=-50A/us V_{RM}=30V	-	29	-
			Tj=25℃	I_F=3A di/dt=-200A/us V_{RM}=200V	-	27	-
			Tj=125℃		-	41	-
Peak recovery current	I_{RRM}	A	Tj=25℃		-	3.2	-
			Tj=125℃		-	5.6	-
Reverse recovery charge	Qrr	nC	Tj=25℃		-	43.0	-
			Tj=125℃		-	114.9	-
Non-repetitive avalanche energy	E_{AS}	mJ	Tj=25℃	I_R=0.7A，L=15 mH	3.7	-	-

◆ UG3HBF THRU UG3JBF

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Min	Typ	Max
Reverse Recovery Time	T_{RR}	ns	Tj=25℃	I_F=1A，di/dt=-50A/us V_{RM}=30V	-	39	-
			Tj=25℃	I_F=3A di/dt=-200A/us V_{RM}=400V	-	40	-
			Tj=125℃		-	62	-
Peak recovery current	I_{RRM}	A	Tj=25℃		-	4.8	-
			Tj=125℃		-	7.8	-
Reverse recovery charge	Qrr	nC	Tj=25℃		-	96.3	-
			Tj=125℃		-	241.4	-
Non-repetitive avalanche energy	E_{AS}	mJ	Tj=25℃	I_R=0.9A，L=15 mH	6.1	-	-

■Thermal Characteristics （T_a=25℃ Unless otherwise specified）

PARAMETER	SYMBOL	UNIT	UG3ABF	UG3BBF	UG3CBF	UG3DBF	UG3FBF	UG3GBF	UG3HBF	UG3JBF
Typical Thermal resistance	RθJ-A(1)	℃/W	60							
	RθJ-L(1)		20							
	RθJ-C(1)		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: Io-TL Curve

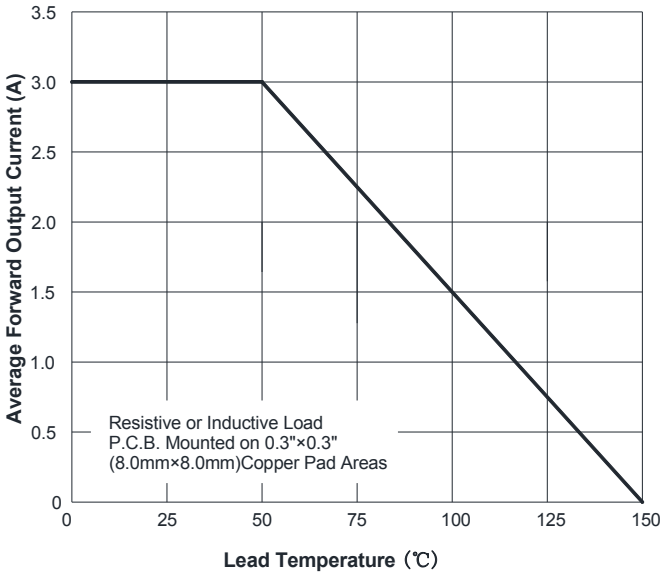


FIG.2: Forward Surge Current Capadility

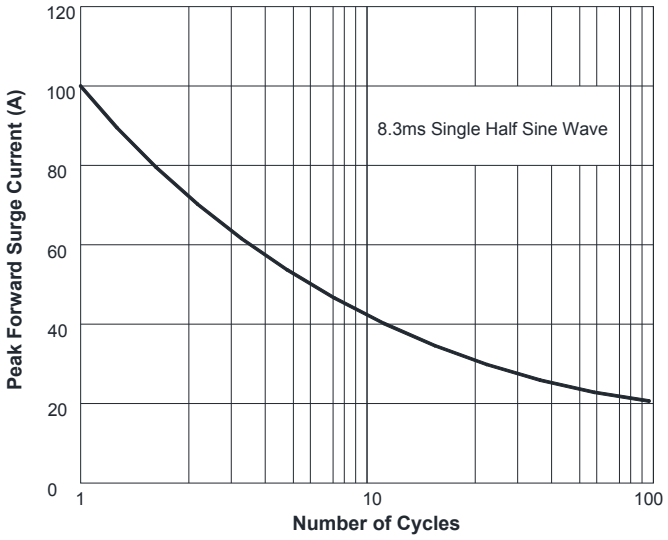


FIG.3: Typical Forward Voltage

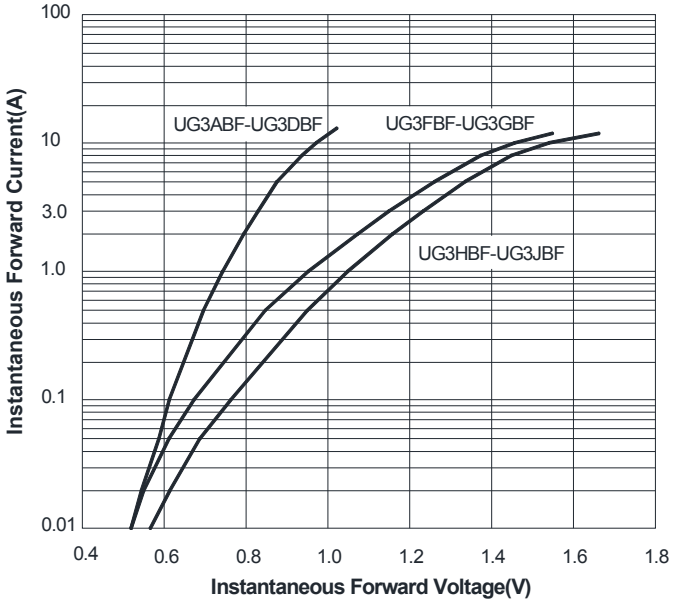


FIG.4: Typical Reverse Characteristics

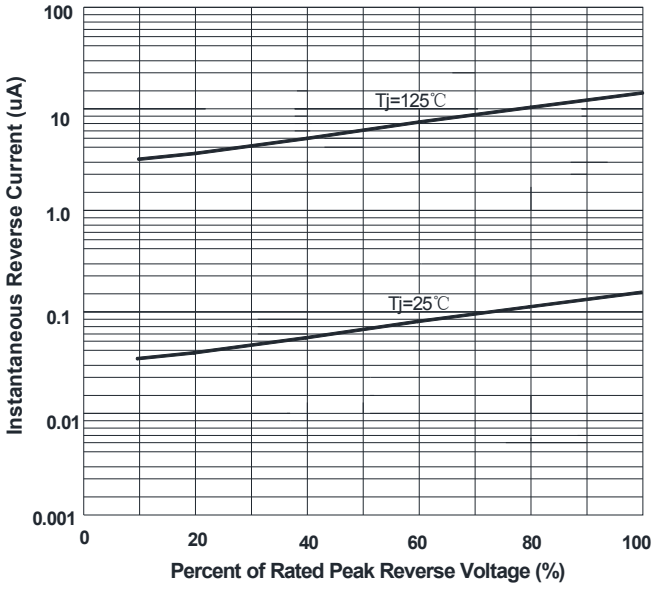
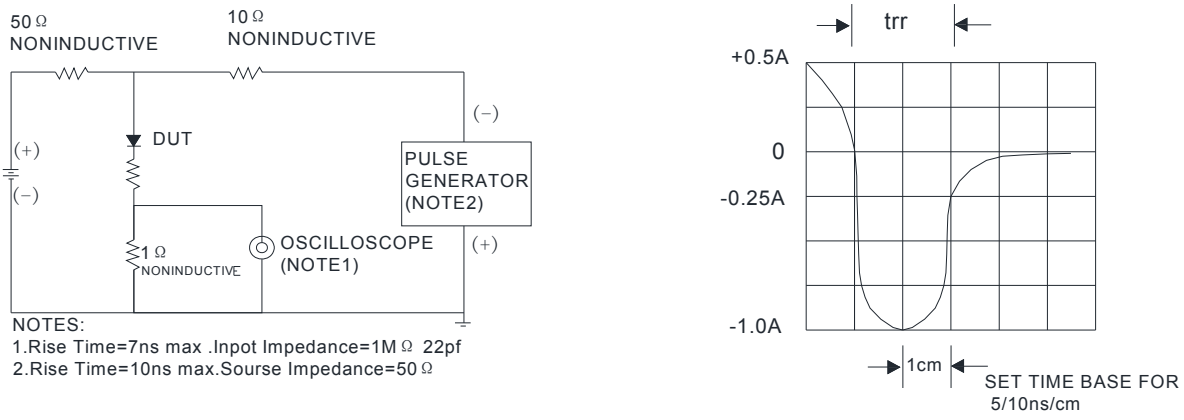


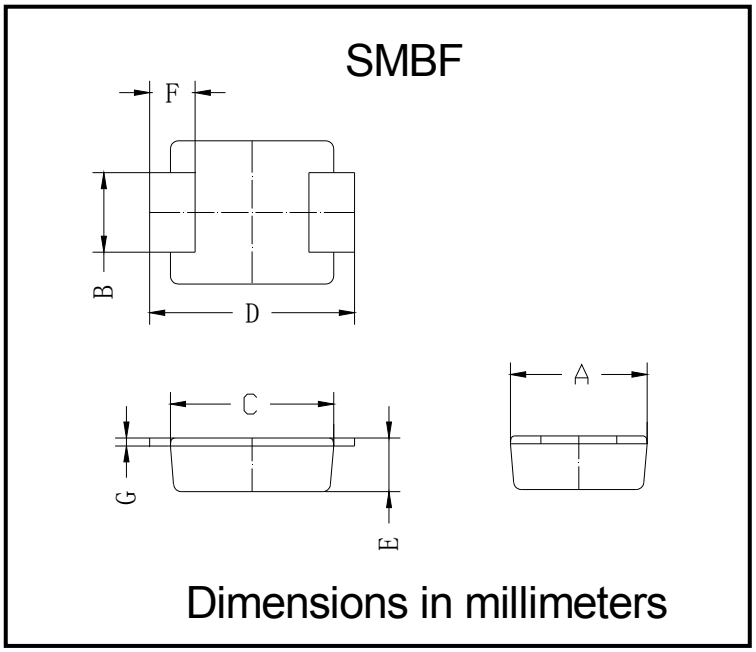
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



■Ordering Information (Example)

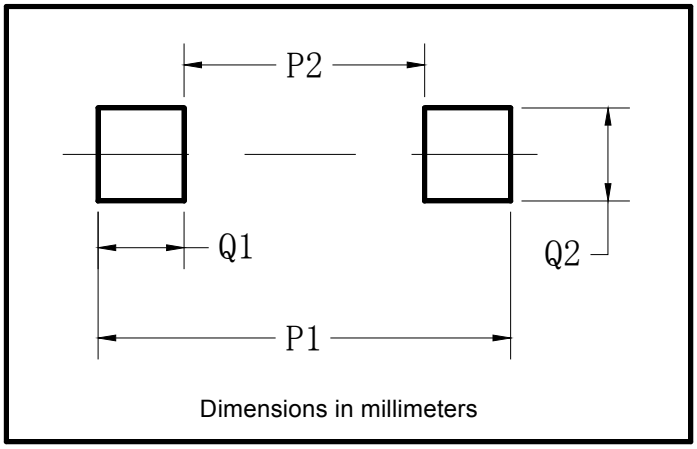
PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
UG3ABF - UG3JBF	F1	Approximate 0.065	5000	/	80000	13” reel

■ 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

■ Suggested pad layout



Dimensions in millimeters

Dim	Milimeters
P1	6.20
P2	2.40
Q1	1.90
Q2	2.20

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