

Surface Mount Super Fast Recovery Rectifier

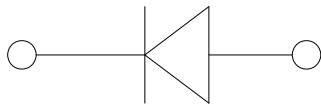


Features

- 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, -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°C 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	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)	IO	A	3.0							
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave,1 cycle, Tj=25°C	IFSM	A	100							
Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, Tj=25°C			200							
Current squared time @1ms≤t≤8.3ms Tj=25°C, Rating of per diode	I²t	A²s	41.5							
Typical junction capacitance @Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C	Cj	pF	65				58		55	
Storage temperature	Tstg	°C	-55 ~ +150							
Junction temperature	Tj	°C	-55 ~ +150							

UG3ABF THRU UG3JBF

■ Electrical Characteristics (T_a=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	UG3ABF	UG3BBF	UG3CBF	UG3DBF	UG3FBF	UG3GBF	UG3HBF	UG3JBF
Maximum instantaneous forward voltage drop per diode	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 per diode	I _R	μA	T _j =25°C	5							
			T _j =125°C	50							

■ Dynamic Characteristics

◆ UG3ABF THRU UG3DBF

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Min	Typ	Max
Reverse Recovery Time	T _{RR}	ns	T _j =25°C	I _F =1A, di/dt=-50A/us V _{RM} =30V	-	30	-
			T _j =25°C	I _F =3A di/dt=-200A/us V _{RM} =100V	-	29	-
			T _j =125°C		-	35	-
Peak recovery current	I _{RRM}	A	T _j =25°C		-	3.8	-
			T _j =125°C		-	6.5	-
Reverse recovery charge	Q _{rr}	nC	T _j =25°C		-	39.9	-
			T _j =125°C		-	113.2	-
Non-repetitive avalanche energy	E _{AS}	mJ	T _j =25°C	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	T _j =25°C	I _F =1A, di/dt=-50A/us V _{RM} =30V	-	29	-
			T _j =25°C	I _F =3A di/dt=-200A/us V _{RM} =200V	-	27	-
			T _j =125°C		-	41	-
Peak recovery current	I _{RRM}	A	T _j =25°C		-	3.2	-
			T _j =125°C		-	5.6	-
Reverse recovery charge	Q _{rr}	nC	T _j =25°C		-	43.0	-
			T _j =125°C		-	114.9	-
Non-repetitive avalanche energy	E _{AS}	mJ	T _j =25°C	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	T _j =25°C	I _F =1A, di/dt=-50A/us V _{RM} =30V	-	39	-
			T _j =25°C	I _F =3A di/dt=-200A/us V _{RM} =400V	-	40	-
			T _j =125°C		-	62	-
Peak recovery current	I _{RRM}	A	T _j =25°C		-	4.8	-
			T _j =125°C		-	7.8	-
Reverse recovery charge	Q _{rr}	nC	T _j =25°C		-	96.3	-
			T _j =125°C		-	241.4	-
Non-repetitive avalanche energy	E _{AS}	mJ	T _j =25°C	I _R =0.9A, L=15 mH	6.1	-	-

UG3ABF THRU UG3JBF

■ Thermal Characteristics (T_a=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	UG3ABF	UG3BBF	UG3CBF	UG3DBF	UG3FBF	UG3GBF	UG3HBF	UG3JBF
Typical Thermal resistance	R _{θJ-A} ⁽¹⁾	°C/W	60							
	R _{θJ-L} ⁽¹⁾		20							
	R _{θJ-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: I_o-T_L Curve

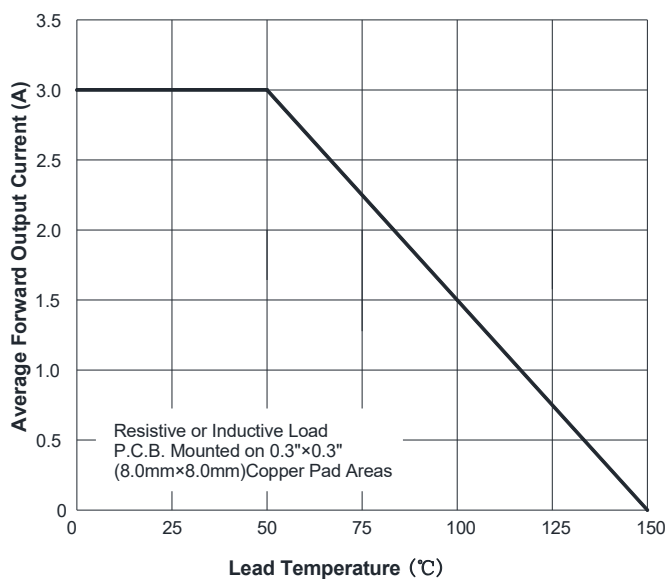


FIG.2: Forward Surge Current Capability

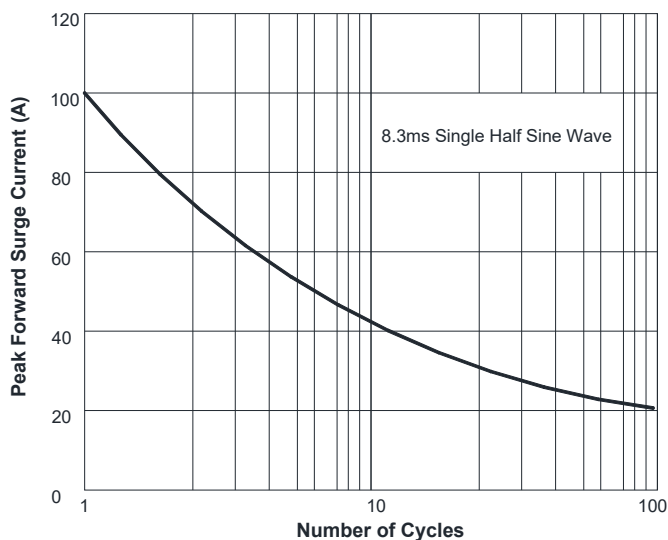


FIG.3: Typical Forward Voltage

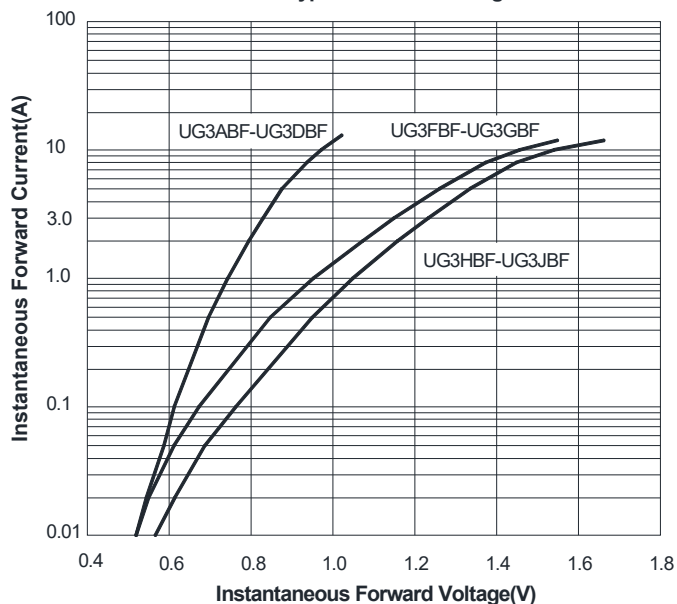
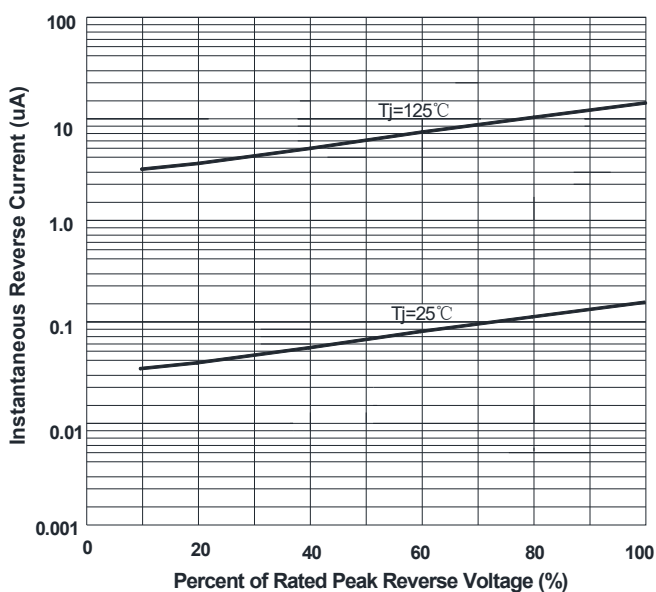
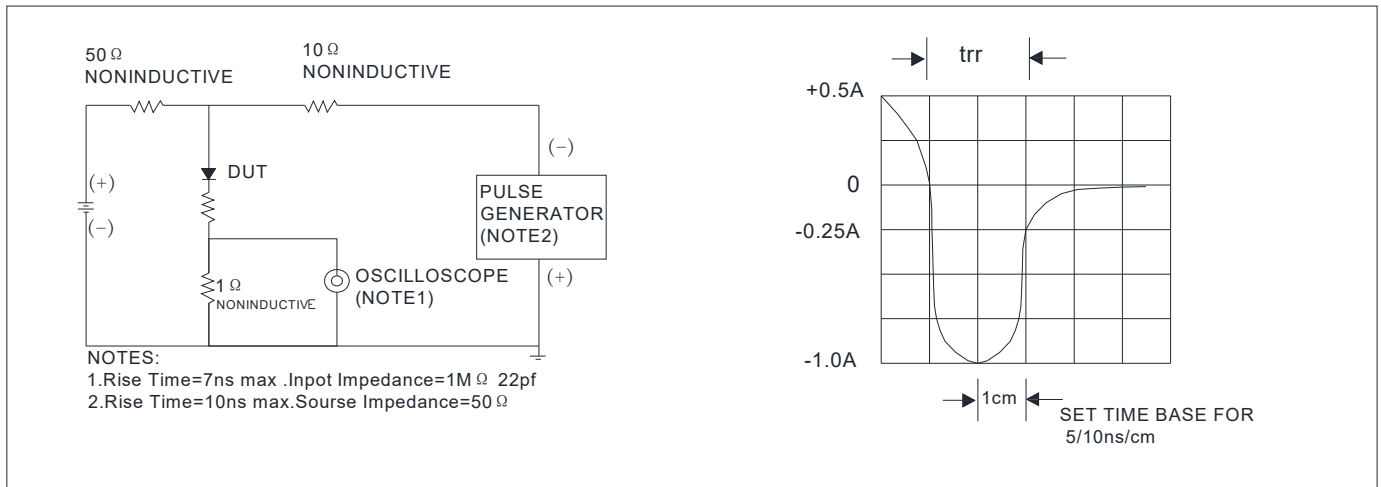


FIG.4: Typical Reverse Characteristics



UG3ABF THRU UG3JBF

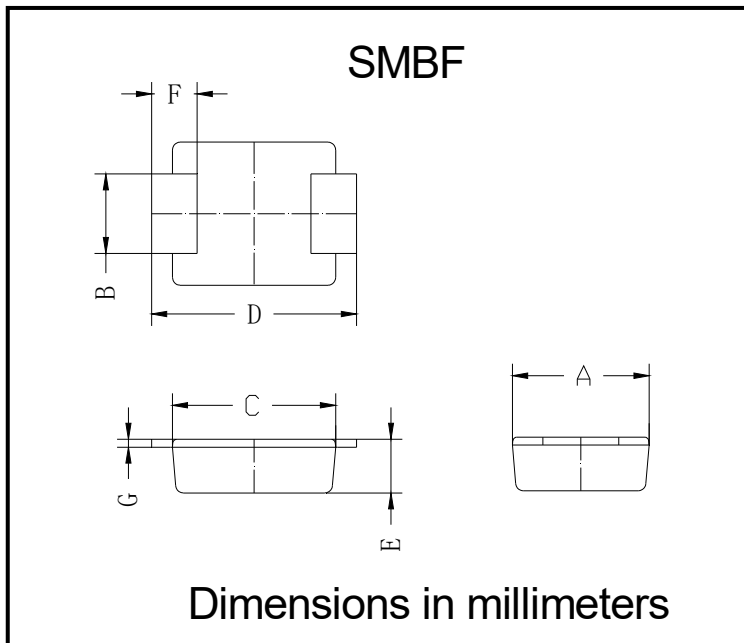
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



■ Ordering Information (Example)

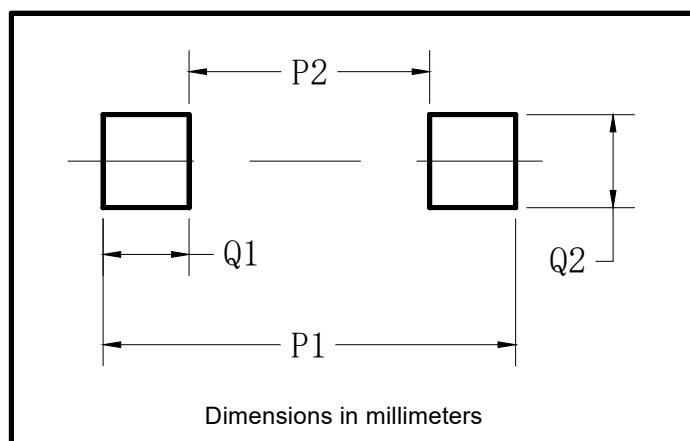
PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
UG3ABF - UG3JBF	F1	Approximate 0.065	5000	/	80000	13" reel

■ 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



Dim	Milimeters
P1	6.20
P2	2.40
Q1	1.90
Q2	2.20

Disclaimer

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