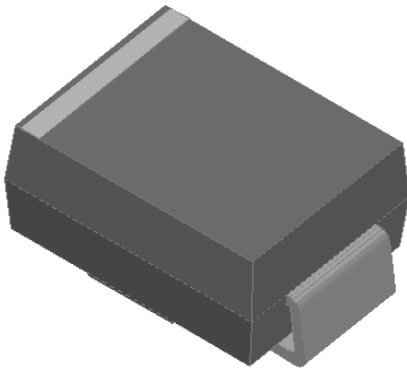


## Surface Mount Super Fast Recovery Rectifier

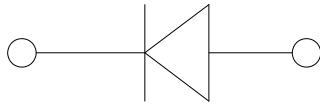


### Features

- 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:** DO-214AA (SMB)  
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	UG3AB	UG3BB	UG3CB	UG3DB	UG3FB	UG3GB	UG3HB	UG3JB
Device marking code			UG3AB	UG3BB	UG3CB	UG3DB	UG3FB	UG3GB	UG3HB	UG3JB
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	3.0							
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave, 1 cycle, $T_j=25^{\circ}\text{C}$	$I_{FSM}$	A	100							
Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, $T_j=25^{\circ}\text{C}$			200							
Current squared time @1ms $\leq t \leq$ 8.3ms $T_j=25^{\circ}\text{C}$	$I^2t$	A <sup>2</sup> s	41.5							
Storage temperature	$T_{stg}$	°C	-55 ~ +150							
Junction temperature	$T_j$	°C	-55 ~ +150							



# UG3AB THRU UG3JB

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

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	UG3AB	UG3BB	UG3CB	UG3DB	UG3FB	UG3GB	UG3HB	UG3JB
Maximum instantaneous forward voltage	V <sub>F</sub>	V	I <sub>FM</sub> =3.0A	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>rr</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							
			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	65			58		55		

## ■ Dynamic Characteristics

### ◆ UG3AB THRU UG3DB

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	-	30	-
			T <sub>j</sub> =25°C		-	29	-
			T <sub>j</sub> =125°C		-	35	-
Peak recovery current	I <sub>RRM</sub>	A	T <sub>j</sub> =25°C	I <sub>F</sub> =3A di/dt=-200A/us V <sub>RM</sub> =100V	-	3.8	-
			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> =3A di/dt=-200A/us V <sub>RM</sub> =100V	-	39.9	-
			T <sub>j</sub> =125°C		-	113.2	-
Non-repetitive avalanche energy	E <sub>AS</sub>	mJ	T <sub>j</sub> =25°C	I <sub>R</sub> =3.6 A, L=15 mH	116.6	-	-

### ◆ UG3FB THRU UG3GB

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	-	29	-
			T <sub>j</sub> =25°C		-	27	-
			T <sub>j</sub> =125°C		-	41	-
Peak recovery current	I <sub>RRM</sub>	A	T <sub>j</sub> =25°C	I <sub>F</sub> =3A di/dt=-200A/us V <sub>RM</sub> =200V	-	3.2	-
			T <sub>j</sub> =125°C		-	5.6	-
Reverse recovery charge	Q <sub>rr</sub>	nC	T <sub>j</sub> =25°C	I <sub>F</sub> =3A di/dt=-200A/us V <sub>RM</sub> =200V	-	43.0	-
			T <sub>j</sub> =125°C		-	114.9	-
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	-	-

### ◆ UG3HB THRU UG3JB

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	-	39	-
			T <sub>j</sub> =25°C		-	40	-
			T <sub>j</sub> =125°C		-	62	-
Peak recovery current	I <sub>RRM</sub>	A	T <sub>j</sub> =25°C	I <sub>F</sub> =3A di/dt=-200A/us V <sub>RM</sub> =400V	-	4.8	-
			T <sub>j</sub> =125°C		-	7.8	-
Reverse recovery charge	Q <sub>rr</sub>	nC	T <sub>j</sub> =25°C	I <sub>F</sub> =3A di/dt=-200A/us V <sub>RM</sub> =400V	-	96.3	-
			T <sub>j</sub> =125°C		-	241.4	-
Non-repetitive avalanche energy	E <sub>AS</sub>	mJ	T <sub>j</sub> =25°C	I <sub>R</sub> =0.9A, L=15 mH	6.1	-	-



# UG3AB THRU UG3JB

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

PARAMETER	SYMBOL	UNIT	UG3AB	UG3BB	UG3CB	UG3DB	UG3FB	UG3GB	UG3HB	UG3JB
Typical Thermal resistance	R <sub>θJ-A</sub> <sup>(1)</sup>	°C/W	65							
	R <sub>θJ-L</sub> <sup>(1)</sup>		20							
	R <sub>θJ-C</sub> <sup>(1)</sup>		18							

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

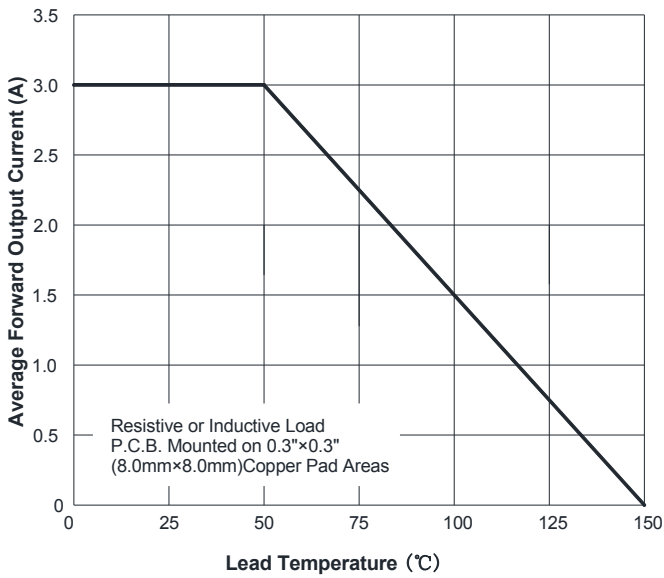


FIG.2: Forward Surge Current Capacity

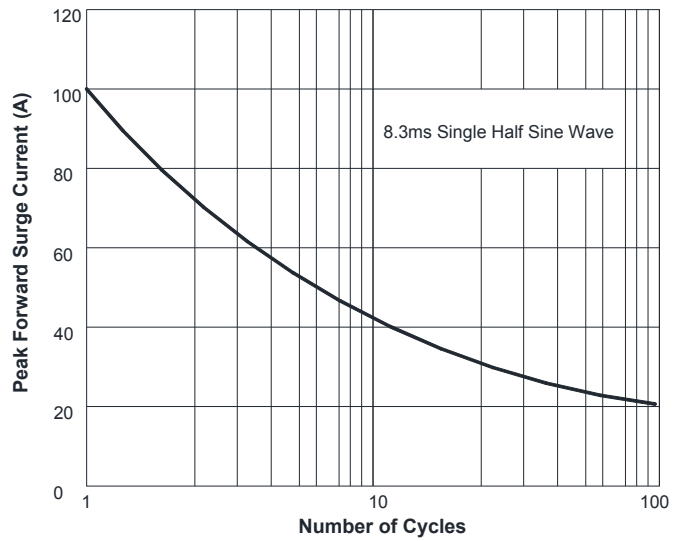


FIG.3: Typical Forward Voltage

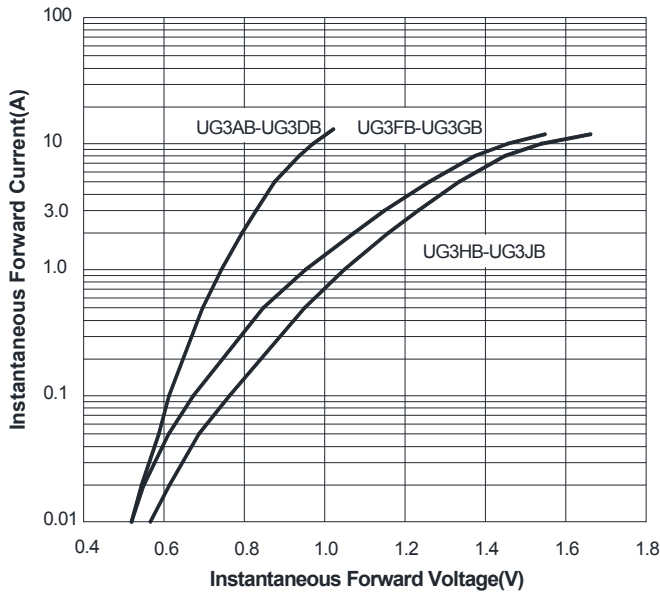


FIG.4: Typical Reverse Characteristics

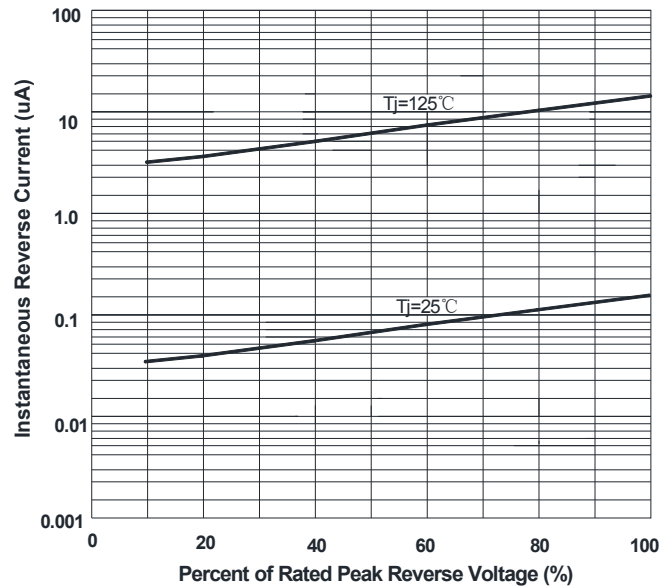
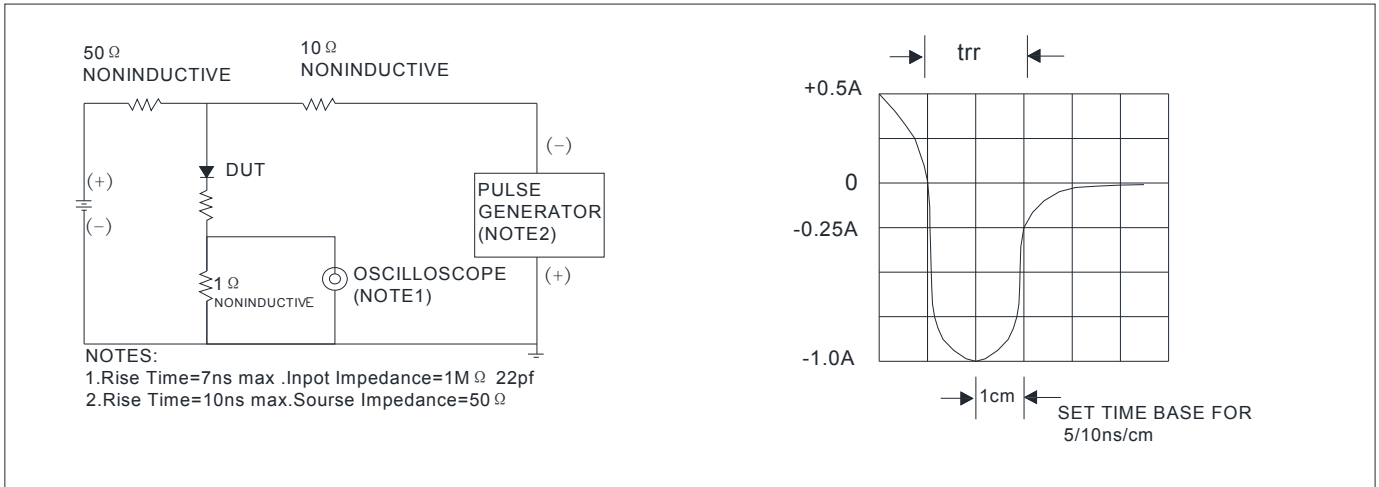


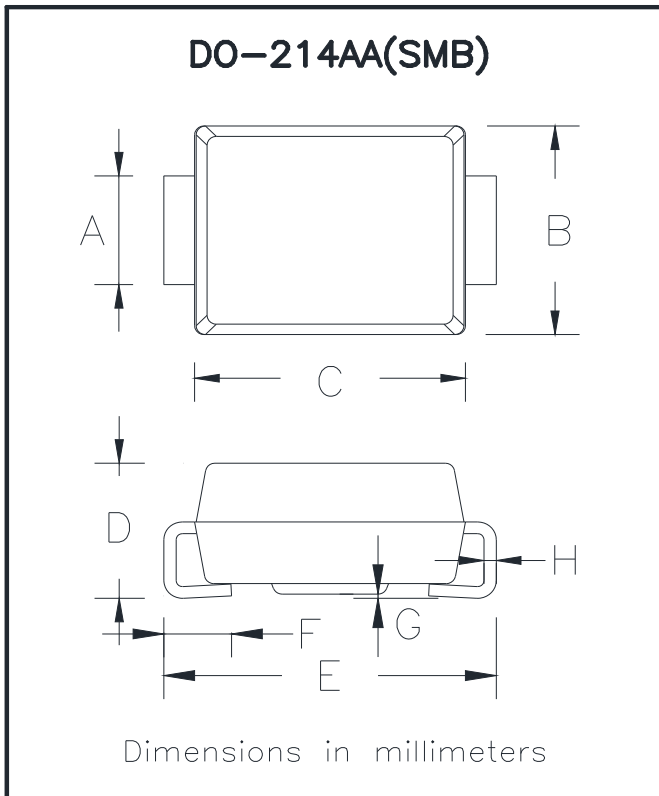
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



### Ordering Information (Example)

PREFERRED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
UG3AB-UG3JB	F1	Approximate 0.096	3000	/	48000	13" reel
UG3AB-UG3JB	F2	Approximate 0.096	750	6000	24000	7" reel
UG3AB-UG3JB	F3	Approximate 0.096	500	4000	16000	7" reel

### Outline Dimensions

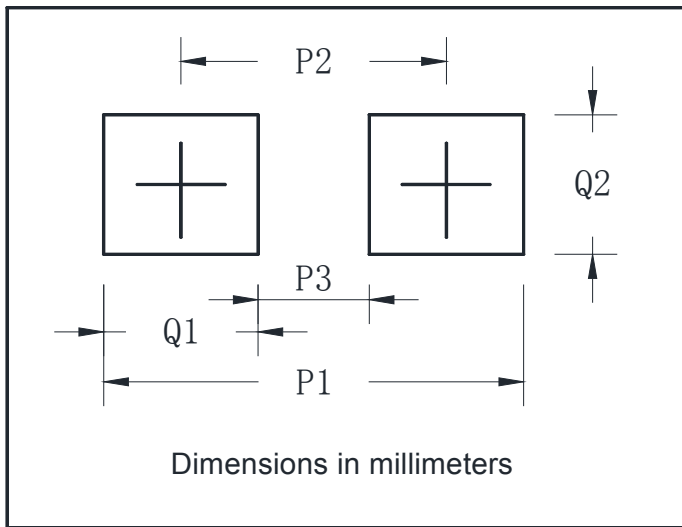


DO-214AA(SMB)		
Dim	Min	Max
A	1.85	2.15
B	3.30	3.94
C	4.05	4.75
D	1.99	2.61
E	5.21	5.59
F	0.90	1.41
G	0.10	0.20
H	0.15	0.31



## UG3AB THRU UG3JB

### ■ Suggested pad layout



DO-214AA(SMB)	
Dim	Millimeters
P1	6.8
P2	4.3
P3	1.8
Q1	2.5
Q2	2.3



## UG3AB THRU UG3JB

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