

Surface Mount Ultra Fast Recovery Rectifier

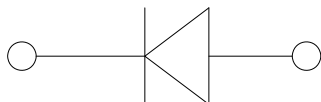


Features

- 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, -compliant, halogen-free
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Polarity:** Cathode line denotes the cathode end

■ Maximum Ratings (Ta=25°C Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	UG1JB
Device marking code			UG1JB
Maximum Repetitive Peak Reverse Voltage	VRRM	V	600
Maximum RMS Voltage	VRMS	V	420
Maximum DC blocking Voltage	VDC	V	600
Average rectified output current @60Hz sine wave, resistance load, TL (Fig.1)	IO	A	1.0
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave, 1 cycle, Tj=25°C	IFSM	A	30
Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, Tj=25°C			60
Current squared time @1ms ≤ t ≤ 8.3ms Tj=25°C	I²t	A²s	3.735
Storage temperature	Tstg	°C	-55 ~ +150
Junction temperature	Tj	°C	-55 ~ +150

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

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	UG1JB
Maximum instantaneous forward voltage	VF	V	IFM=1.0A	1.7
Maximum reverse recovery time	trr	ns	IF=0.5A, IR=1.0A, IR=0.25A	35
Maximum DC reverse current at rated DC blocking voltage	IR	μA	Tj =25°C	5
			Tj =125°C	50
Typical junction capacitance	Cj	pF	Measured at 1MHz and Applied Reverse Voltage of 4.0 V.D.C	16

■Dynamic Characteristics

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		Min	Typ	Max
Reverse Recovery Time	T_{RR}	ns	$T_j=25^{\circ}\text{C}$	$I_F=1\text{A}$, $di/dt=-50\text{A/us}$ $V_{RM}=30\text{V}$	-	38	-
			$T_j=25^{\circ}\text{C}$	$I_F=1\text{A}$ $di/dt=-200\text{A/us}$ $V_{RM}=400\text{V}$	-	32	-
			$T_j=125^{\circ}\text{C}$		-	52	-
Peak recovery current	I_{RRM}	A	$T_j=25^{\circ}\text{C}$		-	2.9	-
			$T_j=125^{\circ}\text{C}$		-	4.7	-
Reverse recovery charge	Q_{rr}	nC	$T_j=25^{\circ}\text{C}$		-	45.8	-
			$T_j=125^{\circ}\text{C}$		-	121.9	-
Non-repetitive avalanche energy	E_{AS}	mJ	$T_j=25^{\circ}\text{C}$	$I_R=0.3\text{A}$, $L=15\text{ mH}$	0.7	-	-

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

PARAMETER	SYMBOL	UNIT	UG1JB
Typical Thermal resistance	$R_{\theta J-A}^{(1)}$	$^{\circ}\text{C/W}$	60
	$R_{\theta J-L}^{(1)}$		20
	$R_{\theta J-C}^{(1)}$		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 mmx8.0 mm) copper pad areas

■ Characteristics (Typical)

FIG.1: Io-TL Cure

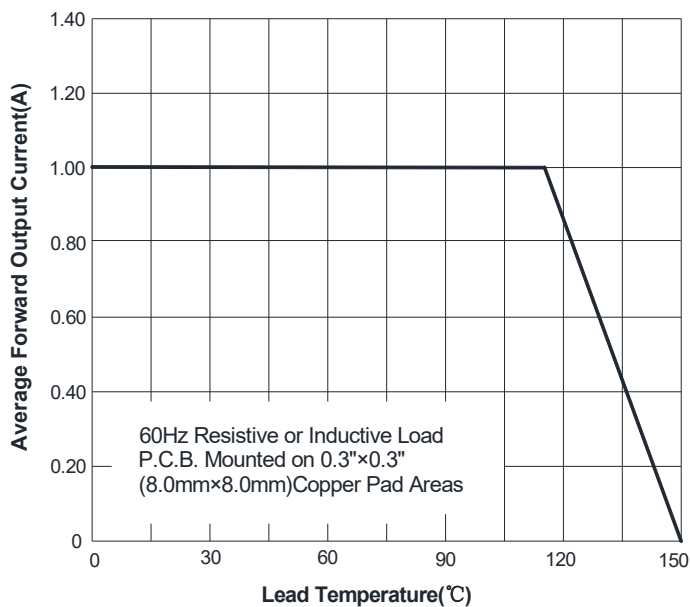


FIG.2: Forward Surge Current Capability

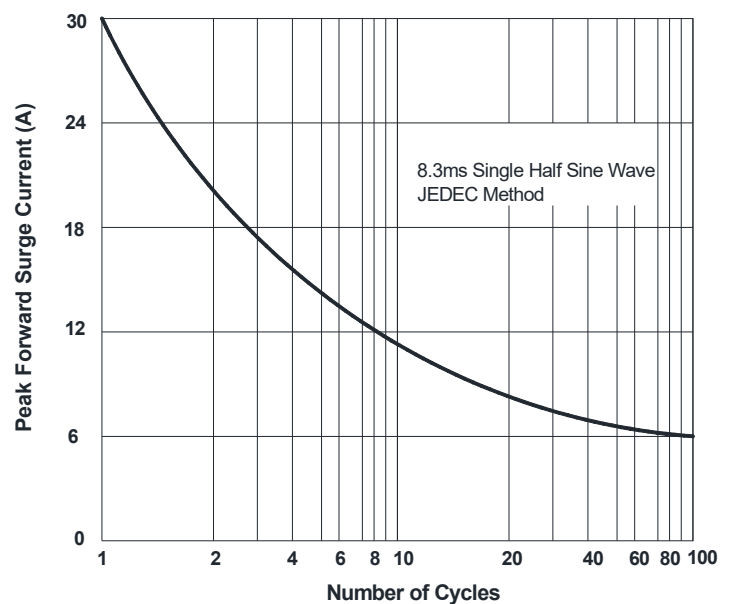


FIG.3: Typical Forward Characteristics

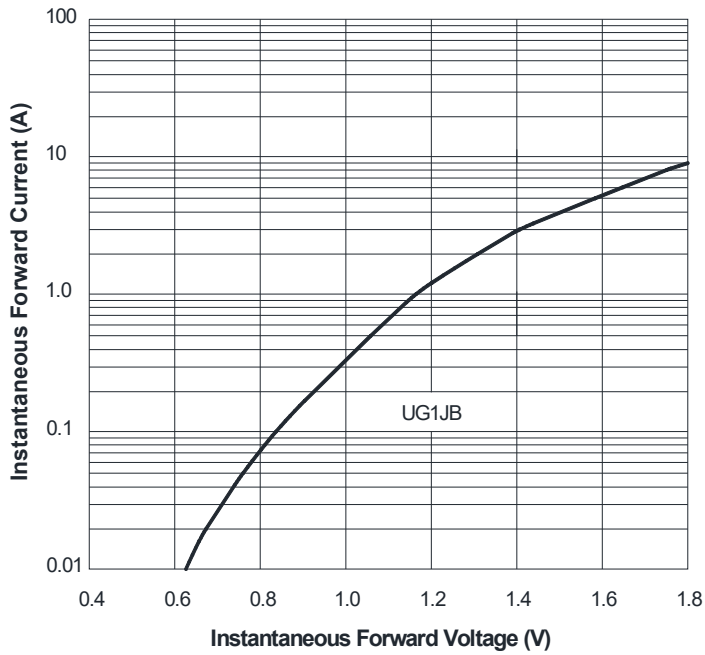


FIG.4: Typical Reverse Characteristics

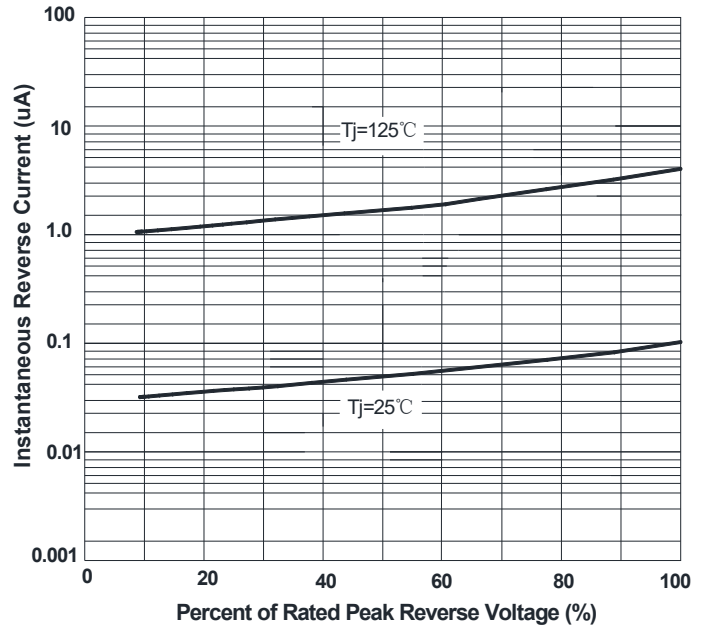
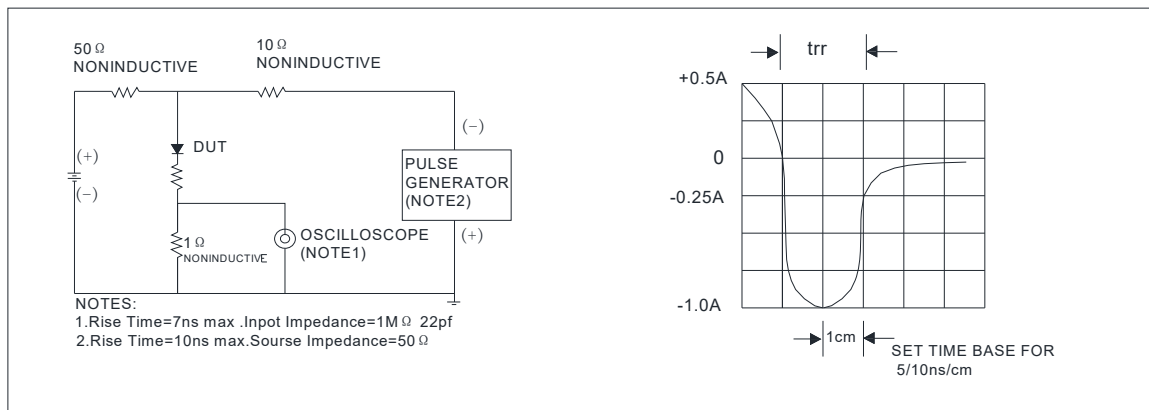


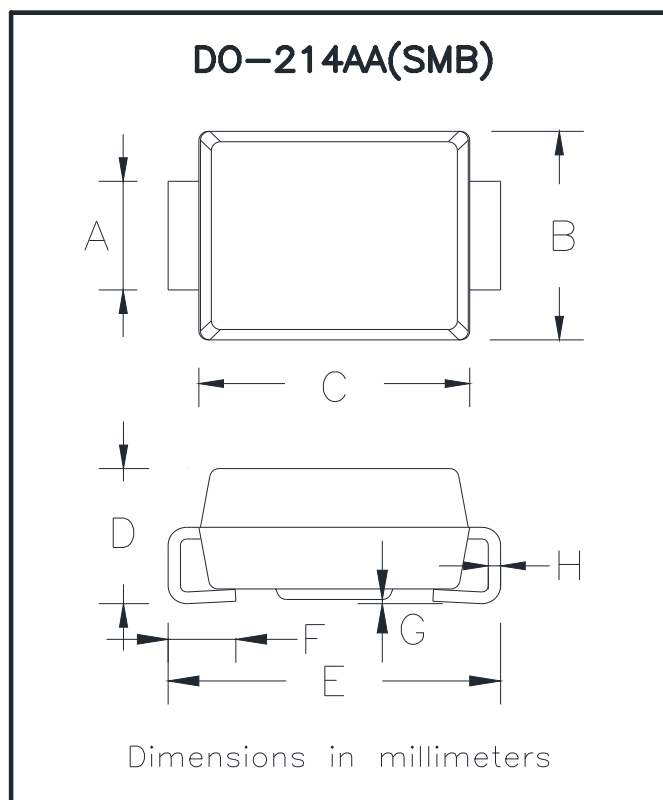
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



Ordering Information (Example)

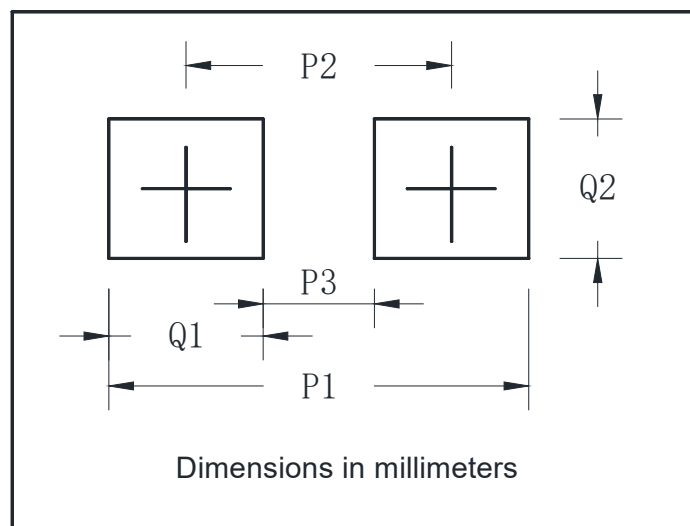
PREFERRED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
UG1JB	F1	Approximate 0.059	5000	/	80000	13" reel
UG1JB	F2	Approximate 0.059	7500	/	120000	13" reel
UG1JB	F3	Approximate 0.059	7500	/	60000	13" reel
UG1JB	F4	Approximate 0.059	1800	14400	57600	7" reel
UG1JB	F5	Approximate 0.059	2000	16000	64000	7" reel
UG1JB	F6	Approximate 0.059	5000	/	100000	13" 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	0.05	0.20
H	0.15	0.31

■ Suggested Pad Layout



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

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