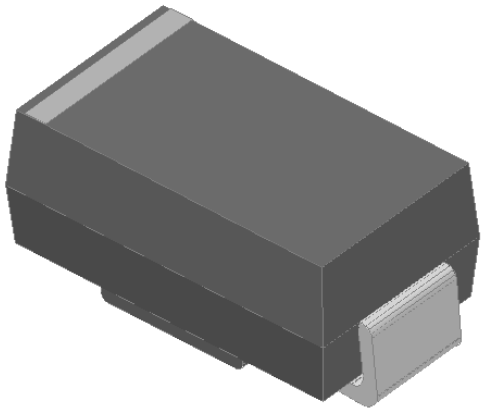
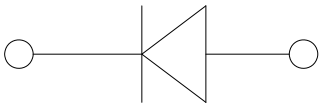
Surface Mount Ultra Fast Recovery Rectifier





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-214AC (SMA)
  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 (Ta=25℃ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	UG1A	UG1B	UG1C	UG1D	UG1F	UG1G	UG1H	UG1J
Device marking code			UG1A	UG1B	UG1C	UG1D	UG1F	UG1G	UG1H	UG1J
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	1.0							
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave,1 cycle, Tj=25℃	I_{FSM}	A	30							
Forward Surge Current (Non-repetitive) @1ms, square wave, 1 cycle, Tj=25℃			60							
Current squared time @1ms≤t≤8.3ms Tj=25℃	I^2t	A^2s	3.735							
Storage temperature	T_{stg}	℃	-55 ~ +150							
Junction temperature	T_j	℃	-55 ~ +150							

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

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	UG1A	UG1B	UG1C	UG1D	UG1F	UG1G	UG1H	UG1J
Maximum instantaneous forward voltage	VF	V	I_{FM}=1.0A	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	17				15		16	

■Dynamic Characteristics

◆ UG1A THRU UG1D

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	-	27	-
			Tj=25℃	I_F=1A di/dt=-200A/us V_{RM}=100V	-	18	-
			Tj=125℃		-	24	-
Peak recovery current	I_{RRM}	A	Tj=25℃		-	2.4	-
			Tj=125℃		-	3.9	-
Reverse recovery charge	Qrr	nC	Tj=25℃		-	21.6	-
			Tj=125℃		-	46.6	-
Non-repetitive avalanche energy	E_{AS}	mJ	Tj=25℃	I_R=1.5 A，L=15 mH	16.9	-	-

◆ UG1F THRU UG1G

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	-	26	-
			Tj=25℃	I_F=1A di/dt=-200A/us V_{RM}=200V	-	22	-
			Tj=125℃		-	31	-
Peak recovery current	I_{RRM}	A	Tj=25℃		-	1.9	-
			Tj=125℃		-	3.5	-
Reverse recovery charge	Qrr	nC	Tj=25℃		-	21.1	-
			Tj=125℃		-	54.9	-
Non-repetitive avalanche energy	E_{AS}	mJ	Tj=25℃	I_R=0.4A，L=15 mH	1.2	-	-

◆ UG1H THRU UG1J

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	-	38	-
			Tj=25℃	I_F=1A di/dt=-200A/us V_{RM}=400V	-	32	-
			Tj=125℃		-	52	-
Peak recovery current	I_{RRM}	A	Tj=25℃		-	2.9	-
			Tj=125℃		-	4.7	-
Reverse recovery charge	Qrr	nC	Tj=25℃		-	45.8	-
			Tj=125℃		-	121.9	-
Non-repetitive avalanche energy	E_{AS}	mJ	Tj=25℃	I_R=0.3A，L=15 mH	0.7	-	-

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

PARAMETER	SYMBOL	UNIT	UG1A	UG1B	UG1C	UG1D	UG1F	UG1G	UG1H	UG1J
Typical Thermal resistance	$R_{\theta J-A}$(1)	℃/W	70							
	$R_{\theta J-L}$(1)		25							
	$R_{\theta J-C}$(1)		20							

Note

(1) Thermal resistance from junction to ambient and from junction to lead mounted on P.C.B. with 0.2" x 0.2" (5.0 mm x 5.0 mm) copper pad areas

■ Characteristics (Typical)

FIG.1: Io-TL Cure

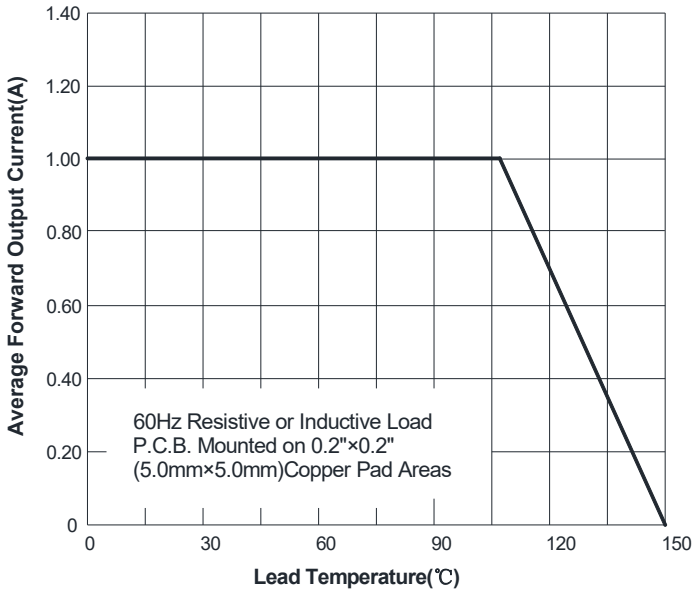


FIG.2: Forward Surge Current Capability

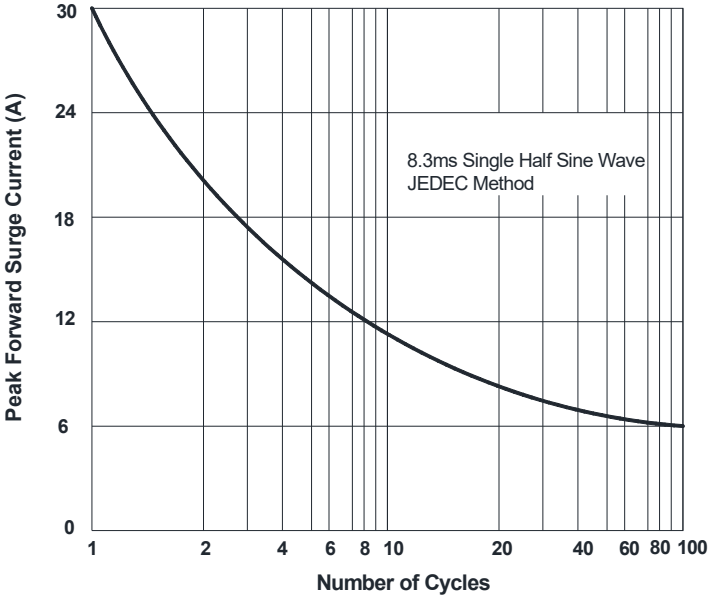


FIG.3: Typical Forward Characteristics

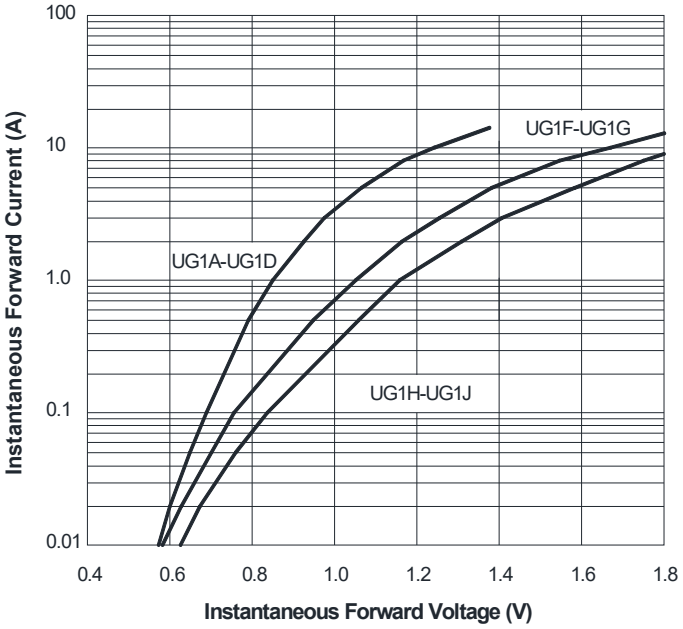


FIG.4: Typical Reverse Characteristics

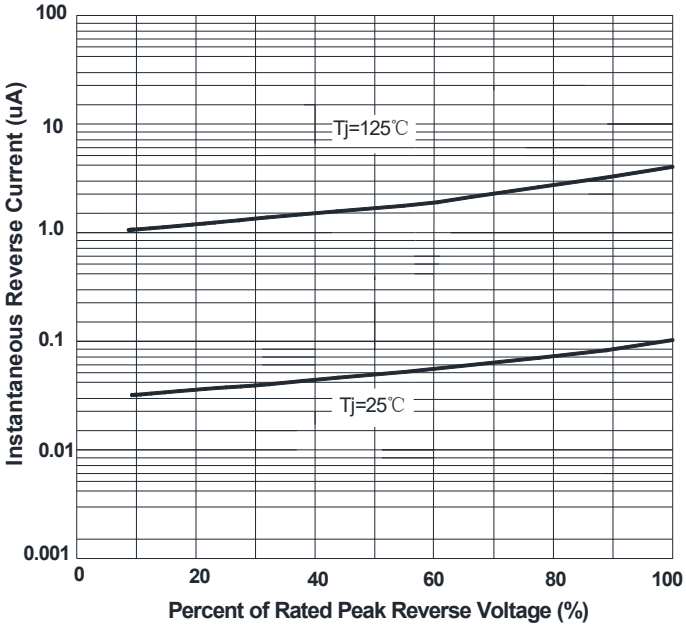
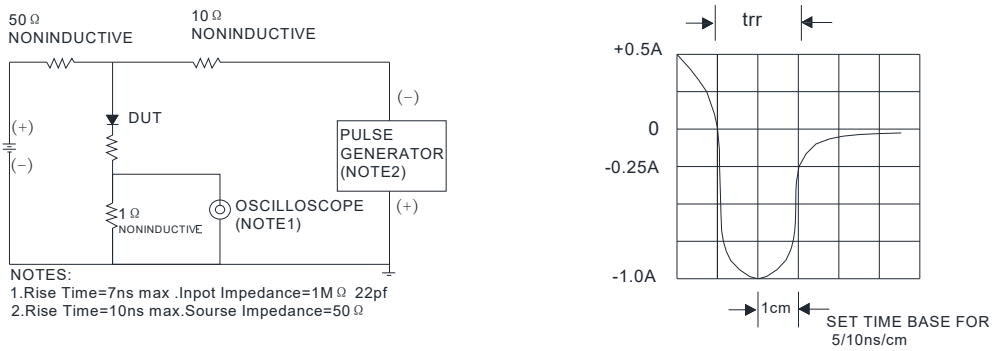


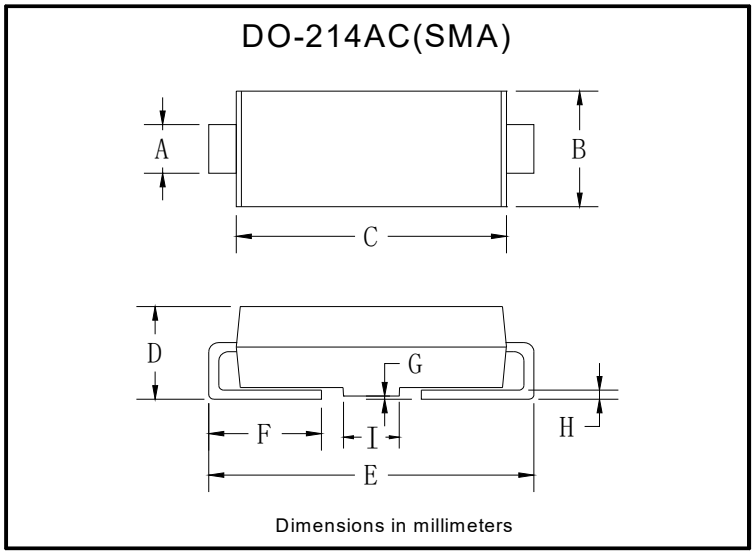
FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



■Ordering Information (Example)

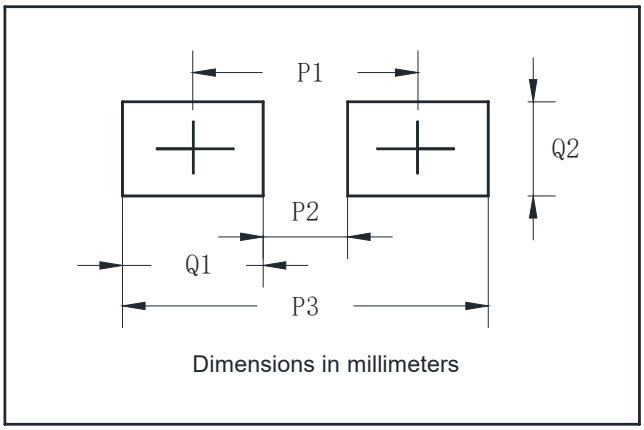
PREFERED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
UG1A- UG1J	F1	Approximate 0.059	5000	/	80000	13” reel
UG1A- UG1J	F2	Approximate 0.059	7500	/	120000	13” reel
UG1A- UG1J	F3	Approximate 0.059	7500	/	60000	13” reel
UG1A- UG1J	F4	Approximate 0.059	1800	14400	57600	7” reel
UG1A- UG1J	F5	Approximate 0.059	2000	16000	64000	7” reel
UG1A- UG1J	F6	Approximate 0.059	5000	/	100000	13” reel

■ Outline Dimensions



DO-214AC(SMA)		
Dim	Min	Max
A	1.25	1.58
B	2.40	2.83
C	4.00	4.75
D	1.90	2.30
E	4.93	5.28
F	0.76	1.41
G	0.05	0.20
H	0.15	0.31
I	1.70	2.10

■Suggested Pad Layout



DO-214AC(SMA)	
Dim	Millimeters
P1	4.00
P2	1.50
P3	6.50
Q1	2.50
Q2	1.70

Notice

All products, product specifications and data are subject to change without notice to improve reliability, function or design or otherwise.
Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in STARSEA's terms and conditions of sale for such products, STARSEA assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of STARSEA products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.