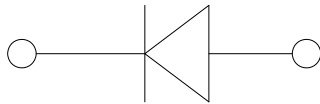
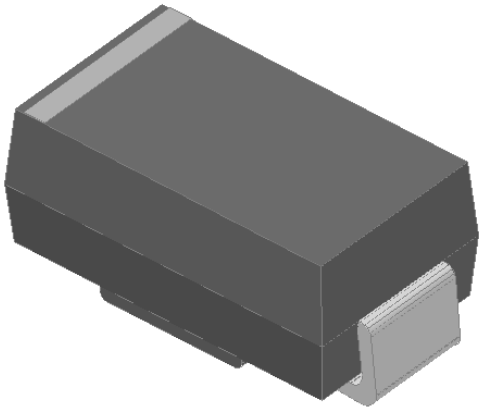


## Surface Mount Ultra Fast Recovery Rectifier



### Features

- Low profile package
- Ideal for automated placement
- Glass passivated chip junction
- High forward surge capability
- Meets MSL level 1, per J-STD-020, LF maximum peak of 260 °C
- Part no. with suffix "Q" means AEC-Q101 qualified

### Typical Applications

For use in general purpose rectification of power supplies, inverters, converters, and freewheeling diodes for consumer, automotive 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 ( $T_a=25^\circ\text{C}$ Unless otherwise specified)

PARAMETER	SYMBOL	UNIT	UG1AQ	UG1BQ	UG1CQ	UG1DQ
Device marking code			UG1A	UG1B	UG1C	UG1D
Maximum Repetitive Peak Reverse Voltage	$V_{RRM}$	V	50	100	150	200
Maximum RMS Voltage	$V_{RMS}$	V	35	70	105	140
Maximum DC blocking Voltage	$V_{DC}$	V	50	100	150	200
Average rectified output current @60Hz sine wave, Resistance load, $T_L$ (Fig.1)	$I_o$	A	1.0			
Forward Surge Current (Non-repetitive) @60Hz Half-sine wave, 1 cycle, $T_J=25^\circ\text{C}$	$I_{FSM}$	A	30			
Current squared time @1ms≤t≤8.3ms $T_J=25^\circ\text{C}$	$I^2t$	A <sup>2</sup> s	3.735			
Storage temperature	$T_{stg}$	°C	-55 ~ +150			
Junction temperature	$T_J$	°C	-55 ~ +150			



# UG1AQ THRU UG1DQ

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

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS	UG1AQ	UG1BQ	UG1CQ	UG1DQ
Maximum instantaneous forward voltage	V <sub>F</sub>	V	I <sub>F</sub> =1.0A	0.92			
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			
Maximum DC reverse current at rated DC blocking voltage per diode@ V <sub>RM</sub> =V <sub>RRM</sub>	I <sub>R</sub>	μA	T <sub>J</sub> =25°C	2			
			T <sub>J</sub> =125°C	20			
Typical junction capacitance	C <sub>J</sub>	pF	V <sub>R</sub> =4V, f=1MHz	15			

## ■ Dynamic Characteristics

PARAMETER	SYMBOL	UNIT	TEST CONDITIONS		UG1AQ	UG1BQ	UG1CQ	UG1DQ
Typical 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	25			
			T <sub>J</sub> =25°C		18			
			T <sub>J</sub> =125°C		24			
Typical peak recovery current	I <sub>RRM</sub>	A	T <sub>J</sub> =25°C	I <sub>F</sub> =1A di/dt=-200A/us V <sub>RM</sub> =100V	2.4			
			T <sub>J</sub> =125°C		4			
Typical reverse recovery charge	Q <sub>rr</sub>	nC	T <sub>J</sub> =25°C		20			
			T <sub>J</sub> =125°C		45			

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

PARAMETER	SYMBOL	UNIT	UG1AQ	UG1BQ	UG1CQ	UG1DQ
Typical Thermal resistance	R <sub>θJ-A(1)</sub>	°C/W	70			
	R <sub>θJ-L(1)</sub>		25			

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 mm x 5 mm) copper pad areas



# UG1AQ THRU UG1DQ

## ■ Characteristics (Typical)

Fig.1: Forward Current Derating Curve

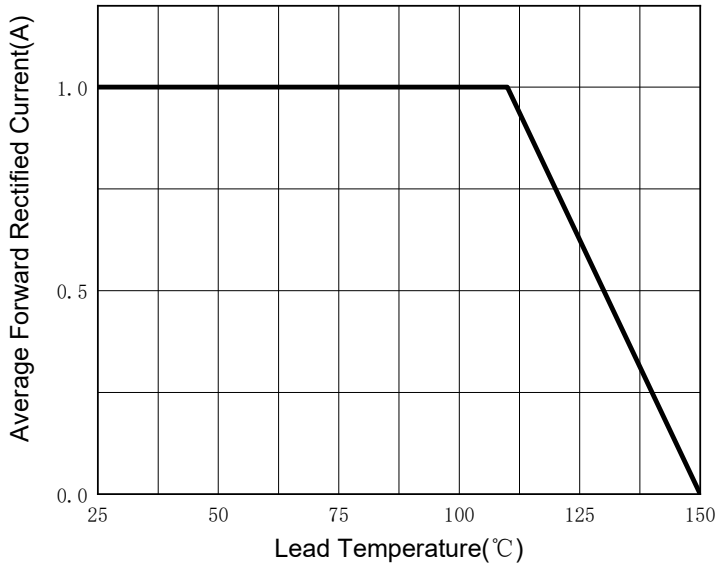


Fig.2: Maximum Non-Repetitive Peak Forward Surge Current

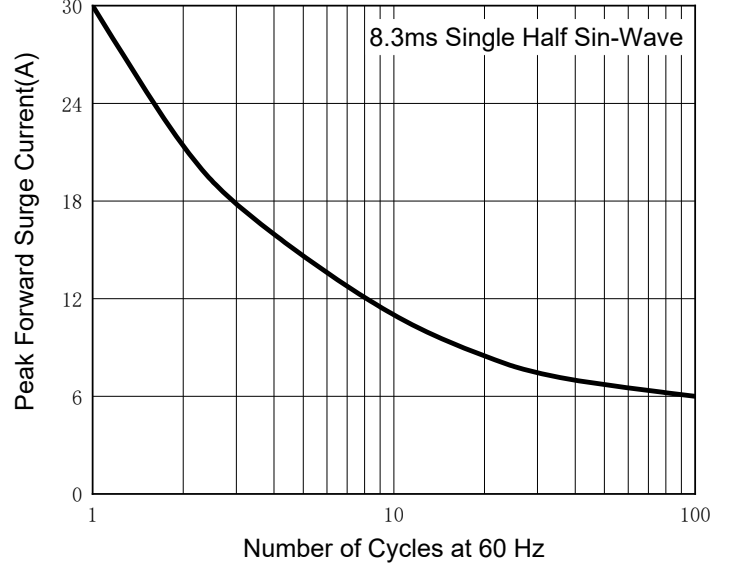


Fig.3: Typical Instantaneous Forward Characteristics

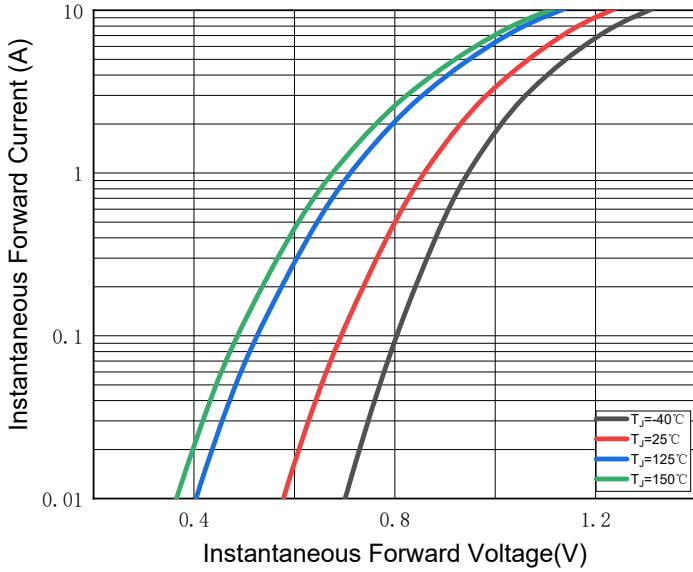


Fig.4: Typical Reverse Leakage Characteristics

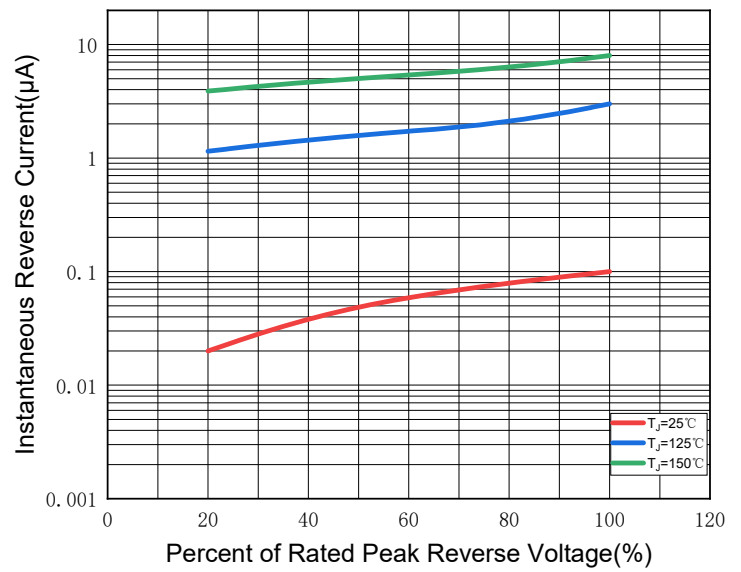
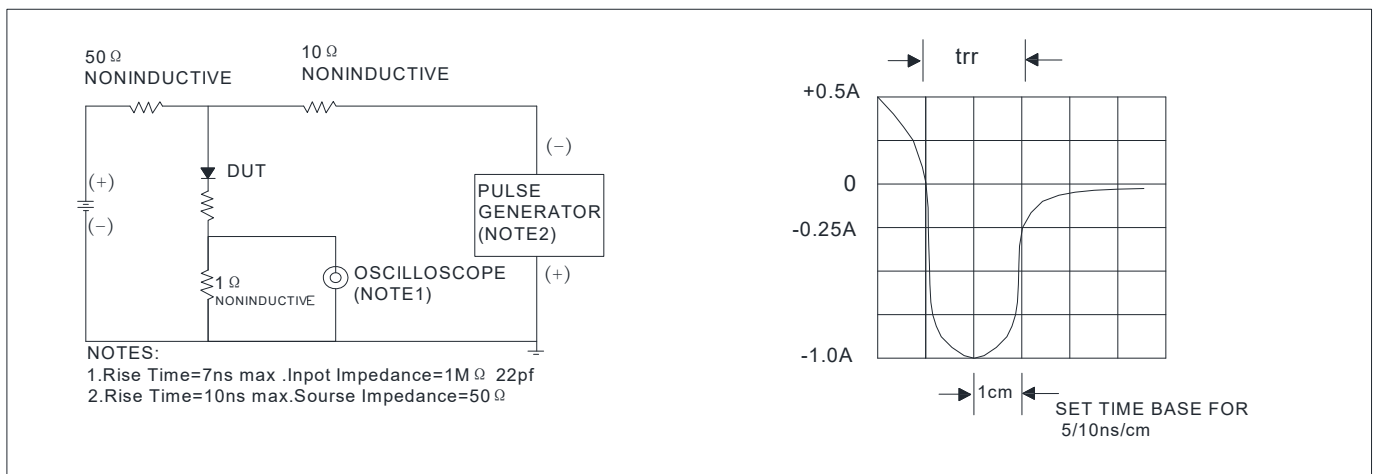


FIG.5: Diagram of circuit and Testing wave form of reverse recovery time



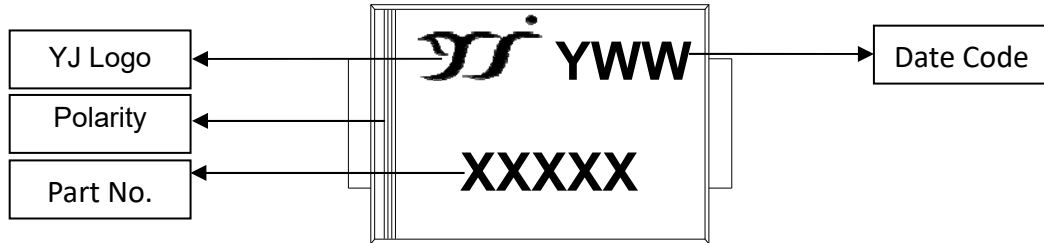


# UG1AQ THRU UG1DQ

## ■ Ordering Information (Example)

PREFERRED P/N	PACKAGE CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
UG1AQ-UG1DQ	F2	Approximate 0.067	7500	120000	13" reel

## ■ Marking Information

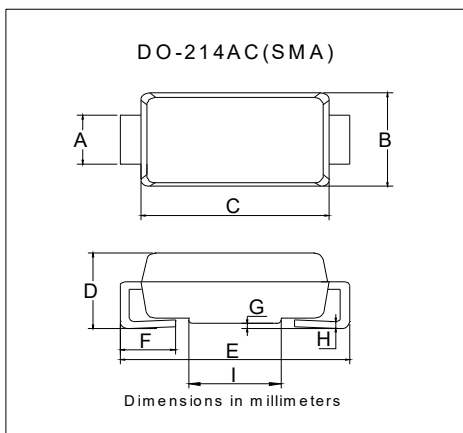


Note:

- All marking is at middle of the product body
- All marking is in laser printing
- XXXXX is marking code, like UG1DQ marking code is UG1D
- Body color: Black
- YWW is date code, "Y" is year. "WW" is week.

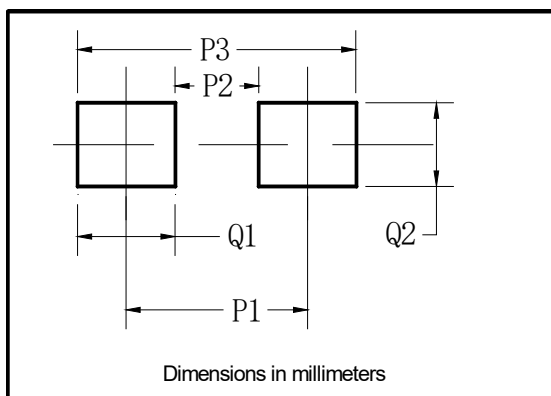
For instance:  
 The 17<sup>th</sup> week of 2021, date code is 117  
 The 17<sup>th</sup> week of 2022, date code is 217

## ■ 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	1.7	2.1

## ■ Suggested Pad Layout



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



## UG1AQ THRU UG1DQ

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